



The Saitama New City Center district heating and cooling system covers an area of 27.3 hectares that is home to 10 government departments and 17 government offices. The system supplies heat in an energy-efficient and environmentally friendly manner using gas-fired cogeneration.

Toward an Increasingly **Diversified** Energy Services Company

Japan's energy sector stands on the threshold of an era of mega-competition. Regulations are being torn down, gas and electric utilities are entering one another's fields and major overseas energy companies have signaled their intention to enter the electricity industry in Japan. Tokyo Gas regards this industry realignment as an opportunity to expand its sphere of business. And natural gas will be the core energy source propelling our growth. Tokyo Gas has set its sights on growing into a diversified energy services company, supplying heat and electricity as well as gas.

The Superiority of Cogeneration

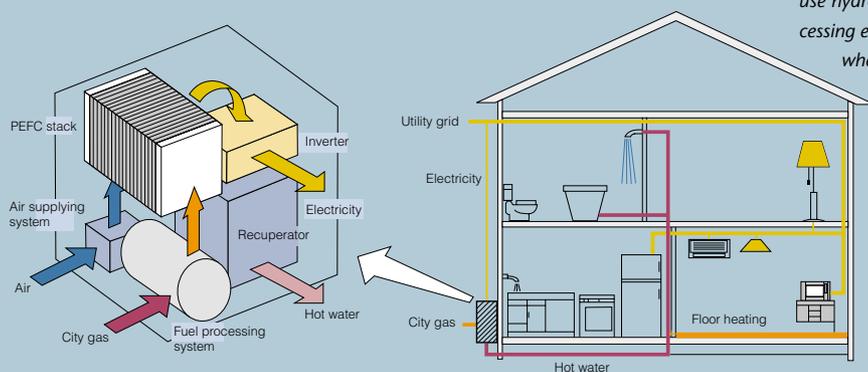
Society is demanding energy that is both environmentally friendly and for which there is a stable supply. Natural gas meets these demands. As such, its importance to society is increasing. Furthermore, in recent times, small and medium users, as well as large-volume customers, have grown more conscious of reducing energy costs. Gas cogeneration systems that supply both electricity and thermal energy are coming into their own both as an answer to environmental issues and to raise energy efficiency. Tokyo Gas plans to leverage its competitive edge in gas cogeneration systems to aggressively develop these operations and capitalize on an expected increase in demand for natural gas for power generation and cogeneration in the greater Tokyo/Kanto Plain area.

Expanding Existing Businesses

As a result of revisions to the Japanese Gas Utility Industry Law in 1999, Tokyo Gas can now supply customers outside its service area who consume 1 million or more cubic meters of gas per year. Previously, the threshold was twice that. This legislative change is

Configuration of Residential Fuel Cell Cogeneration System

This energy-efficient household cogeneration system generates electricity through fuel cells, which use hydrogen produced by innovative fuel processing equipment. The thermal energy emitted when electricity is generated is captured by a recuperator and used for water heating and floor heating.



Tokyo Gas intends to couple its proprietary recuperator technology with micro turbines developed by Capstone Turbine Corporation to offer cogeneration solutions.

expected to spark fierce competition. Heretofore, Tokyo Gas has devoted itself to introducing and popularizing gas cogeneration systems, mainly to large-volume users. In April 2000, the Saitama New City Center district heating and cooling system started operations in Saitama Prefecture, as Tokyo Gas' 15th district heating and cooling operation. We intend to take full advantage of the expertise, technological capabilities and engineering skills we have acquired from such operations to power growth in gas demand.

Entering New Businesses

In March 2000, revisions were enacted to the Electricity Utility Industry Law, opening the door to unrestricted electricity sales to large-volume customers. The enactment of these revisions is expected to have a profound effect on the energy sector and spark further deregulation of the generation and sale of electricity. In response, Tokyo Gas is considering entering the electricity retailing field with NTT Facilities and Osaka Gas. Furthermore, with demand expected to increase for natural gas as a fuel for electricity generation, Tokyo Gas sees a new business opportunity to transport gas to power producers, leveraging its gas pipeline network.

Small Distributed Power Generators—A Technology for the Future

Amid the accelerating shift from large-scale power generation to small distributed power generators, the spotlight is falling on small-scale, on-site electricity generation. Micro turbines, in particular, are stealing the limelight. Leading the market at present are two U.S.-based manufacturers of micro turbines. Tokyo Gas is looking to package their leading-edge technology with its energy-efficient cogeneration systems for commercialization in Japan. We are targeting commercial demand such as small and medium-size hospitals, hotels, shops and other establishments, as well as small and medium-size industrial demand, where the diffusion rate of gas cogeneration systems is relatively low. In April 2000, Tokyo Gas formed the Micro Cogeneration Section to formulate a strategy and carry out feasibility studies.

A fuel cell cogeneration system for residential use is another in which we project success. This system generates electricity as well as hot water through Polymer Electrolyte Fuel Cells (PEFC), using hydrogen reformed from gas.

PEFCs are attracting attention for their potential contribution to environmental preservation and energy conservation. Compactness and simplicity of operation are among their outstanding features. Tokyo Gas estimates that the introduction of these cells will lead to the consumption of about 50% more gas for home electricity and hot water than a typical household currently requires for hot water alone. That spells growth for Tokyo Gas. To tap this potential, we are working toward commercializing these systems.

In the year ending March 31, 2001, a large-scale national project for the development of these fuel cells will be initiated. Manufacturers and gas suppliers are expected to team up to develop this technology. Joining this project as a member of the Japan Gas Association, Tokyo Gas will work to bring PEFCs to market as soon as possible.



The residential sector accounts for over 90% of Tokyo Gas' gas customers. As such, this sector will be an important source of stable demand in the future.

Spurring **Residential** Gas Demand

In terms of absolute numbers, residential customers account for over 90% of Tokyo Gas' customers. This makes the residential market an important pillar of the company's business. To expand demand here, Tokyo Gas has adopted a two-pronged strategy. One strategy focuses on marketing activities, in particular the expansion of heating demand. The other aims to raise customer satisfaction.

Marketing Initiatives to Spur Residential Gas Consumption

Already, we are the preferred energy supplier for water heating and cooking in our service area with market shares of 96% and 76%, respectively. We aim to maintain this preferred status by developing highly efficient, high-quality products. In the extremely competitive heating sector, where gas heating accounts for only 30% of the market, we are aiming to spur demand by popularizing gas floor heating and gas fan heaters. Floor heating has many strong selling points. For one, it is ideally suited to the Japanese custom of sitting on the floor at home. Floor heating is also a clean and comfortable heating alternative and helps control house dust and mold that can cause allergies. These advantages suggest that floor heating could become established as the *de facto* standard for heating in Japanese homes. Newly constructed houses are an obvious target, but we are also marketing products for existing homes. To cater to customers with homes where floor heating is not an option, we are promoting the virtues of fan heaters, which are highly efficient, environmentally friendly and inexpensive.



Demand for gas floor heating is expanding. Not only is floor heating clean and comfortable, but it boasts superior energy efficiency and cost advantages.



Through 370 Enesta and Enefit service outlets nationwide, Tokyo Gas is providing a broad range of services to make gas even more user friendly.

A Customer-Based Approach

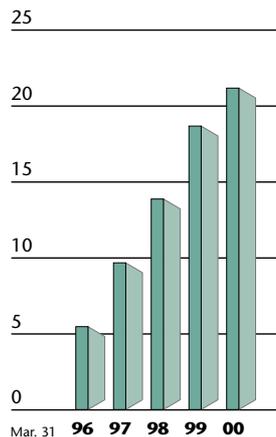
Customer satisfaction is an important key to becoming the preferred energy supplier. That's why we are stepping up our efforts to offer better services from various angles. Improved safety, more attractive rates, low-maintenance appliances and lifestyle ideas are just some of the ways we are working to spur residential gas consumption—and build stronger bonds of trust with our customers.

Playing a significant role here is our customer service network. Our 18 branches offer total consulting solutions, including inspections of appliances in homes once every 3 years and meter reading. To further deepen relationships with residential customers, we have established 12 call centers to handle inquiries from customers.

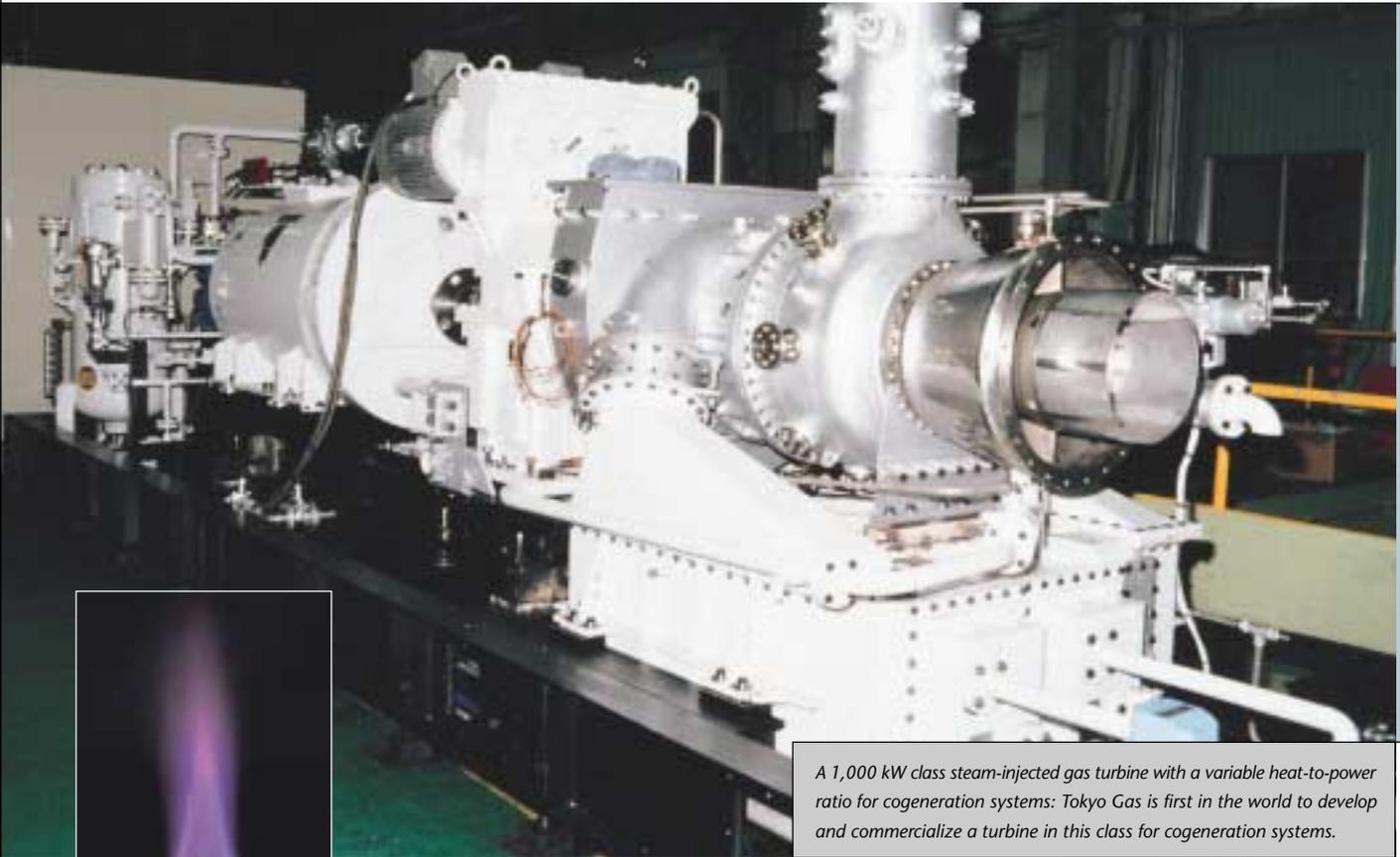
Augmenting our customer service network are roughly 370 Tokyo Gas franchise-based service outlets. Operating under the names Enesta and Enefit, these outlets provide a broad range of services ranging from gas pipeline works to installation and repair of gas appliances and household renovations.

Percentage of New Housing With Gas Floor Heating Systems in the Tokyo Gas Service Area

(%)



Tokyo Gas visits customers' homes once every three years to carry out inspections of gas appliances.



A 1,000 kW class steam-injected gas turbine with a variable heat-to-power ratio for cogeneration systems: Tokyo Gas is first in the world to develop and commercialize a turbine in this class for cogeneration systems.



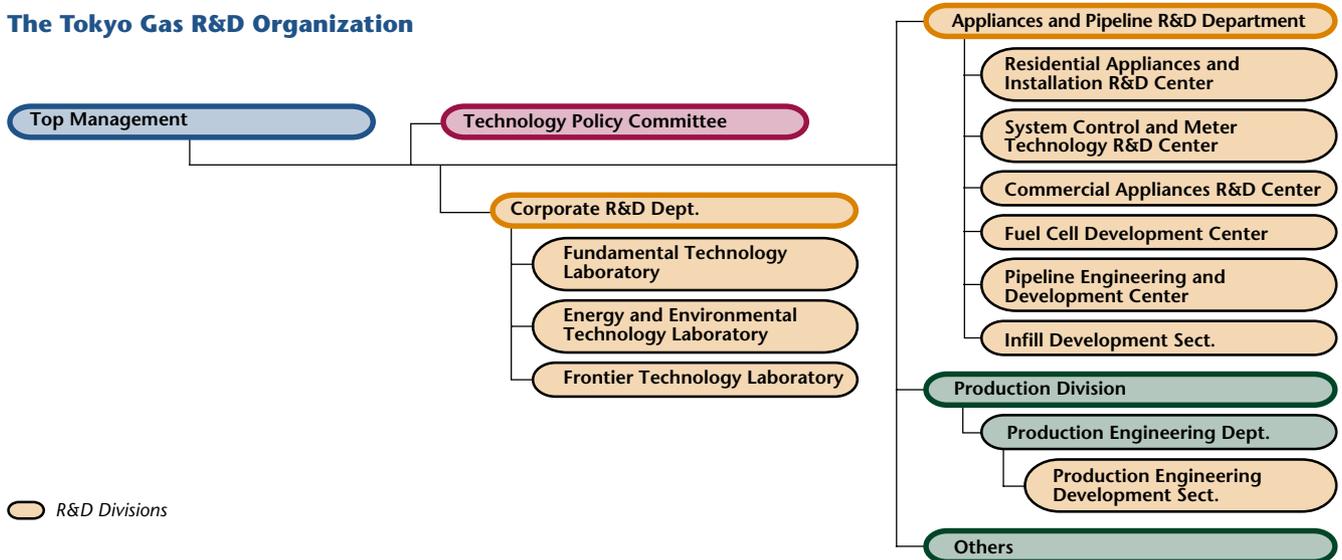
Methane hydrate combustion: Tokyo Gas is pushing ahead with research into technologies for using methane hydrate, which is expected to become a major source of energy in the 21st century.

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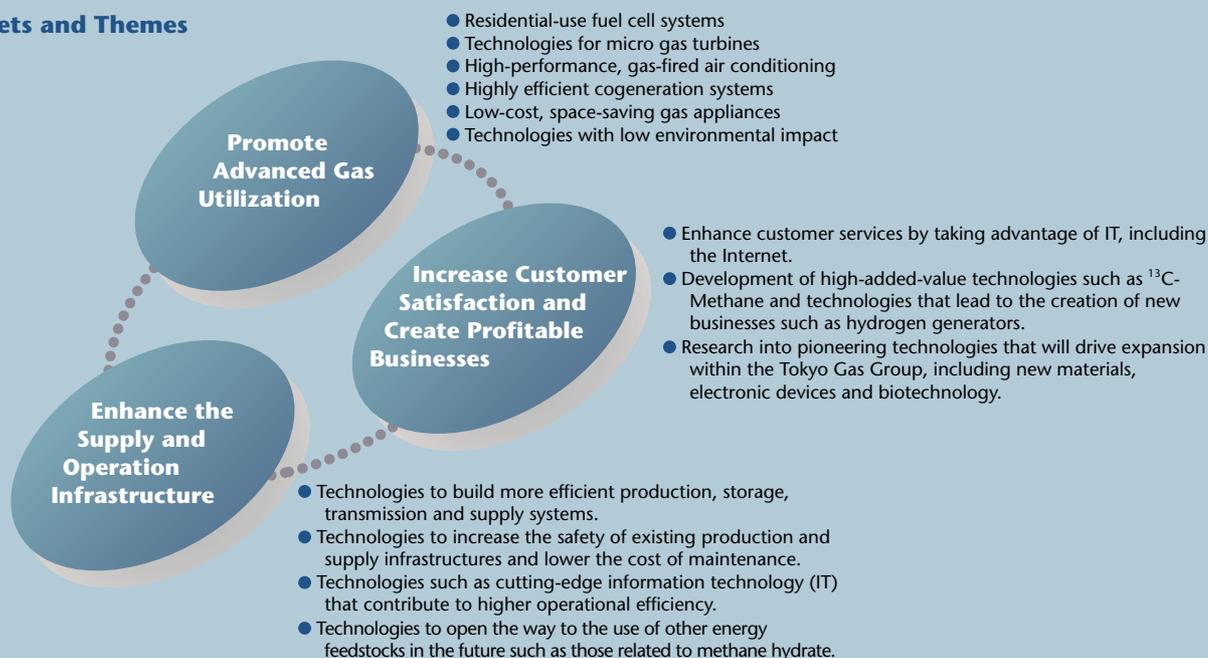
A Focus on Technological Innovation

Research and development is positioned as a major corporate theme at Tokyo Gas as a means of driving growth in existing businesses and creating business opportunities. Our main goal is to make gas the preferred form of energy by ensuring a stable supply of low-cost, safe natural gas. To this effect, we are emphasizing speed and profitability and allocating resources selectively. Three areas have been singled out for research and development in line with this policy.

The Tokyo Gas R&D Organization



R&D Targets and Themes



Promote Advanced Gas Utilization

We are developing products that enable customers to use environmentally friendly gas more efficiently, cheaply and easily. These products include residential gas appliances, commercial kitchen equipment, gas-fired air conditioners, cogeneration systems and equipment for industrial use.

Enhance the Supply and Operation Infrastructure

We are conducting research to supply gas to even more customers at attractive rates and with long-term reliability. This will allow us to meet society's demand for the increased use of natural gas, an environmentally benign fuel, as a primary source of energy. At the same time, this research will drive growth in our customer base.

Increase Customer Satisfaction and Create Profitable Businesses

To meet our customers' diverse needs, Tokyo Gas is carrying out R&D that will broaden customer services by using the latest information and communications technologies, including the Internet. Furthermore, we are working on research that will lead to new businesses rooted in unique Tokyo Gas technical expertise.



Tokyo Gas Makes Breakthrough With Diamond Ultraviolet Light-Emitting Device

Tokyo Gas has developed the world's first diamond ultraviolet light-emitting device capable of operating at room temperature. The device uses a high-quality semiconductor diamond made from carbon powder. Significantly, the carbon powder is extracted from LNG. This technology has the potential to increase the recording density and capacity of optical disks. What's more, it doesn't use harmful substances like mercury making it an environmentally friendly lighting alternative.



December 1999 saw the completion of the Keihin and Yokohama transmission pipelines. Tokyo Gas now boasts a 300km-long supply loop encircling the greater Tokyo area. Pictured is the Tsurumi River Bridge, which was built for the Keihin Transmission Pipeline.

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Powerful Supply **Infrastructure**— the Foundation of Our Competitiveness

Demand for natural gas has risen as alternative energy sources other than petroleum are sought and the government looks for solutions to environmental problems. Tokyo Gas was quick to recognize this trend. We reacted by constructing the Ohgishima LNG Terminal, the Keihin Transmission Pipeline and other facilities to bolster our supply capacity. With these major projects having largely been completed by the end of March 2000, we will start recovering our investment in the year ending March 2001. Leveraging this powerful supply infrastructure, Tokyo Gas hopes to expand demand and increase profits. We also expect to generate higher free cash flows.

Unrivaled Natural Gas Supply Capacity

Just how powerful is Tokyo Gas' supply infrastructure? Tokyo Gas has Japan's largest natural gas supply capability and is progressively increasing capacity. Three LNG terminals—each of which plays a prominent role in Japan's gas industry—are at the heart of this strength. Our Negishi LNG Terminal received Japan's first shipment of LNG in 1969. Our Sodegaura facility is the world's largest LNG receiving terminal. And then there is the new Ohgishima LNG Terminal, the first phase of which came on stream in October 1998. Boasting the most sophisticated technologies, Ohgishima is of particular strategic importance. The terminal's location in the high-demand Keihin district near Yokohama means lower costs because a new long-distance pipeline was not required. Ohgishima will eventually have a production capacity of approximately 4 billion m³ per annum to respond to increasing demand.



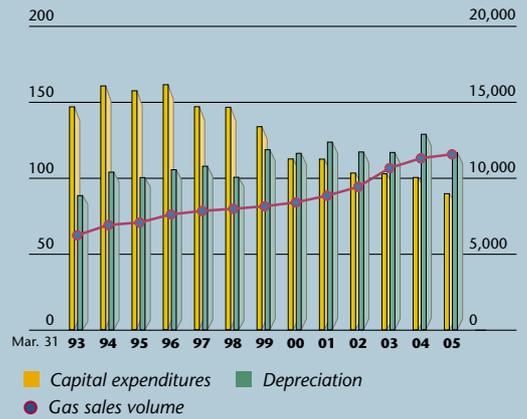
The Negishi, Sodegaura and Ohgishima LNG terminals are now connected by a loop of high-pressure pipes following the December 1999 completion of the Keihin and Yokohama transmission pipelines. This means Tokyo Gas can start responding to rising industrial demand in the Keihin district near Yokohama, provide a more reliable supply of gas in the greater Tokyo area and meet rising demand in the future.

Capital Expenditures and Depreciation in Relation to Gas Sales Volume

(1993~2005)

(Left scale: billion ¥)

(Right scale: million m³, 46.047 MJ/m³)



Note: 2001~2005 are projected figures. The above graph represents non-consolidated data.



The Sodegaura LNG Terminal is the world's largest LNG receiving terminal.

Extensive Transmission and Distribution Network

Investments to bolster our transmission capacity are allowing us to take maximum advantage of our competitive edge in production. With the completion of the Keihin Transmission Pipeline and the Yokohama Transmission Pipeline in December 1999, Tokyo Gas now has in place a 300km-long supply loop encircling the greater Tokyo area that is connected by high-pressure pipes to the Negishi, Sodegaura and Ohgishima LNG terminals. Why is this significant? Because it means we can now cater to rising industrial demand in the Keihin district near Yokohama where industrial demand is expected to increase markedly. It also means we have built a mutual backup system for our three LNG receiving terminals. In short, we have bolstered our ability to provide customers with a reliable supply of gas. And we will continue to extend our pipeline network to meet potential demand outside of our existing service area.

With these enhanced infrastructures we will be able to meet growing demand during the next few decades with minimum additional investment.