Creation and Cultivation of New Natural Gas Markets Deregulation has started to drive escalating competition across industry segments in the market for industrial and commercial use. Tokyo Gas also faces increasing competition in the residential energy market. We see the advent of free competition as an opportunity for the Tokyo Gas Group to evolve into a total energy company. We aim to use the economic and environmental advantages of natural gas as the basis for the creation and cultivation of new markets. Our strategic assets include our strategic LNG value chain, which covers all stages from resource development to supply and services, and our advanced technology and solutions.











For Residential

Expanding the One-stop Energy Service to **Residential Customers**

Deep Cultivation of the Residential Market

By expanding the number of customers in the residential sector, Tokyo Gas secures sales volume while also building further demand by promoting its business. Over the past few years, falling birthrates have resulted in a decline in the average number of people per household. In addition, more and more people are living in apartment-type housing with superior heat insulation and draught-proofing. These structural factors all make it more difficult to avoid a decline in the volume of gas sold per household.

Tokyo Gas is working to minimize the decline in gas sales volumes in the residential sector by increasing the percentage of households installing strategic products, such as floor-heating and mist saunas. We are also introducing and promoting attractive charge options to stimulate increased use of products already installed in customers' houses, such as TES floor-heating systems. We will try to increase the gas sales volume by capturing residential power demand through the promotion of home power generation.

Focusing on Strengthening Marketing Abilities

Japan's population began to shrink in 2006. A strong marketing scheme is needed to attract more customers and achieve sustainable growth in the residential sector. Tokyo Gas already has important marketing capabilities, and we intend to strengthen our systems still further.

We are strengthening our client marketing systems and systems targeting local building firms to reach as much of our target market as possible. We are also working to attract new customers by encouraging them to convert from other types of fuel, such as LPG. At the customer level, we plan to restructure and centralize appliance sales, maintenance services, safety services and other marketing and sales functions and develop regionally focused marketing approaches to provide a fine-tuned response to lifestyle diversification and changing needs. Through these strategies, we will improve our marketing coverage and enhance our ability to meet market needs by providing one-stop access to the products and services sought by customers.

There is growing competition from companies offering all-electric household systems. Tokyo Gas is countering this competition with effective marketing of a range of strategic products, including our "Pipitto Konro" gas cooktops and our highly efficient water heaters, the "Eco-JOES." We aim to increase the use of gas appliances by promoting the comfort and their economic, environmental and energy advantages of the products.

Capturing Residential Electric Power Demand with Upcoming "Power Generation in the Home"

Tokyo Gas has introduced important new assets for its efforts to expand demand and counter the trend toward all-electric households: the LIFUEL fuel cell cogeneration system, and the ECOWILL gas engine cogeneration system. We plan to advance marketing activities for these systems under a project group setup.

We are currently marketing LIFUEL and ECOWILL systems to customers in newly built detached houses. Starting in fiscal 2007, we will expand the scope of marketing for ECOWILL systems to include existing homes. Marketing of LIFUEL will begin in earnest in the second half of fiscal 2008, following the introduction of a next-generation system with improved durability and economic performance. We plan to sell 43,000 LIFUEL and ECOWILL systems by fiscal 2010.

We estimate that households with in-house power generation systems, such as LIFUEL and ECOWILL systems, will use an average of 1,200 m³ of gas per year. This represents an increase of 300 to 400 m³ compared with existing systems. Because the number of households with these systems is still small, the impact on overall gas sales is marginal. However, we are very confident that this factor will make a major contribution to growth in residential sector gas sales volumes in the future. Tokyo Gas has also commenced studies concerning energy services for condominiums. We would provide cost-effective energy solutions that would combine energy-efficiency with enhanced comfort. The packages would include TES and new products and services. There would also be cogeneration facilities installed and owned by Tokyo Gas, and we would supply residents with electric power from these systems in conjunction with grid-connected electric power systems.



TES 🗖 over **million** households

What kind of system is TES?

TES (Tokyo Gas Eco System) is a single system that can supply hot water for all household systems, including floor-heating, hot-water faucets, bathroom heater-dryers, and mist saunas. These systems are economically designed to heat just the required amount of water instantly. They are also extremely compact to save valuable space. More than one million households already use TES and Tokyo Gas is focusing on spreading TES in the residential sector.









For Industrial and Commercial Customers

Tokyo Gas is a Trusted Business Partner across the Entire Energy Sector

An Advantage Based on Sophisticated Engineering Expertise and Solutions

To meet the changing and increasingly diverse needs of industrial and commercial customers, Tokyo Gas offers long-accumulated engineering expertise including combustion technology as well as the ability to provide wide-ranging solutions and value backed by reliable support systems. Though many new entrants are moving into the gas business, Tokyo Gas enjoys an overwhelming competitive advantage. For the industrial sector, Tokyo Gas is promoting its cogeneration systems based on advanced combustion technology to attract customers to switch from other fuels to natural gas.

For the commercial sector, we introduced in 2005 a segment-based marketing structure that supports powerful marketing activities based on specialized knowledge. Despite escalating competition in the commercial kitchen market, we have been able to expand our orders over the past few years by accurately and effectively promoting our superior technology to customers.

Highly Competitive Multi-energy Supply Using In-house Power Generation Capacity Tokyo Gas offers one-stop, multi-energy solutions,

including city gas, heat, steam and electric power, to meet the needs of its customers. In addition to cogeneration systems, which efficiently generate both heat and electric power, Tokyo Gas is also able to provide gridconnected power from its own generation systems as a back-up source of electric power. We have built a power plant on previously unused land to create

built a power plant on previously unused land to create our own generation capacity in anticipation of future demand for electric power. The power plant is equipped with advanced combined cycle technology to support highly efficient, competitive power production. Tokyo Gas Bay Power Co., Ltd. currently operates a 100 MW power station at the Sodegaura Terminal. A 240 MW facility operated by Tokyo Gas Yokosuka Power Co., Ltd. became operational in June 2006, to be followed by an 800 MW facility operated by Kawasaki Natural Gas Power Generation. In 2008, there are also plans for a 1,200 MW facility to be operated by Ohgishima Power. Environmental assessment work for this project is currently in progress. Tokyo Gas is now able to supply its customers with one-stop access to a wide range of energy requirements, including LNG and LPG.

Expansion of Energy Service with Cogeneration Systems at the Core

As competition in the energy sector intensifies, Tokyo Gas endeavors to fully develop its multi-energy supply capabilities. Tokyo Gas has expanded its collaboration with ENERGY ADVANCE Co., Ltd., a wholly owned subsidiary, and is aggressively marketing its products and services at the same time as it strives to develop the best mix of energy and distribution systems. Moreover, by combining power supplied from its own substantial generation capacity with on-site generation, Tokyo Gas is able to make optimal proposals to various customer needs in the areas of comfort, economic merit, energy conservation and environmental performance.



Multi-energy supply

Growth of Cogeneration Stock

Cogeneration systems use city gas to produce heat and electric power simultaneously. In addition to the economic benefits of reduced energy consumption, these systems are also seen increasingly as having the potential to contribute to the reduction of environmental problems. Tokyo Gas has achieved volume growth in gas sales by demonstrating the benefits of these systems for customers in industrial and commercial sectors. Cogeneration technology is an important asset in our continuing efforts to inform customers about the advantages of natural gas while helping them to achieve the best energy mixes that include in-house power generation.



Cogeneration Stock **1,850** mw in FY 2010







LNG expertise



Power generation



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Expanding the Market for the Total Energy Business

Aggressive Pipeline Investment for **Developing Demand**

Energy demand is still growing in the Kanto region, which accounts for around 40% of Japan's GDP. Tokyo Gas is responding to this demand through aggressive investment in its pipeline network, on the basis of detailed demand research and assessments of investment returns.

In November 2005, we completed the 69 km Tochigi Line linking Sano and Utsunomiya across the northern part of the Kanto region. Sales of natural gas to largevolume customers in this area have already commenced. The new pipeline was constructed to meet the growing needs of customers in the region's expanding industrial parks and strengthen supply. Our estimates indicate that we will be able to tap potential new demand of around 400 million m³ annually. We have also decided to build a new Chiba-Kashima Line to meet demand growth in the Chiba and Ibaraki areas, where industrial demand has been expanding. We will invest ¥26 billion in construction of approximately 73 km of pipeline. Completion is expected in fiscal 2010.

Enhanced Environmental and Price Advantages of Natural Gas

Natural gas is the most environmentally friendly product among conventional fossil fuels. Large-volume customers are starting to convert to natural gas for both economic and environmental reasons. Furthermore, the relative advantage in price has increased, due to sharp rises in crude oil prices in recent years. This has also started to attract interest from customers who use other fuels, resulting in increasing demand for the installation of city gas facilities.

Tokyo Gas is responding to this trend by aggressively marketing cogeneration systems, especially its mainstay range of systems with medium- and large-capacity gas engines. Our strategy in this area is to attract new customers by promoting our advanced energy conservation and combustion technologies, and our ability to develop

Enhancing the wide-area	Enhancing the base for
infrastructure	stable supply
 Chiba-Kashima Line (FY2010) Gunma Line (FY2010) Minami-Fuji Line (FY2006) 	 Central Line (FY2009) New-Negishi Line and Yokohama Line Phase II (FY2013)

entral Line (FY2009) New-Negishi Line and okohama Line Phase II Y2013) Kisarazu Line (FY2008)

front-line solutions to meet the needs of our customers. In 2007, the Japanese government will expand the scope of energy sector deregulation. We are already preparing for this change by actively building and strengthening the relationship of trust with customers with a total annual demand below 500,000 m³.

Diversified Formats for Natural Gas Sales in the Kanto Region within a 200 km Radius around Tokyo

When Tokyo Gas constructs a new pipeline, it uses the concept of internal rate of return (IRR) as its standard for determining the number of years required to achieve a return on its investment. Only investments that satisfy this criterion are implemented. However, customers whose locations are remote from our pipelines may also wish to use natural gas. In these cases, we transport gas using trucks. This flexibility allows to meet the needs of customers and access the huge potential demand that still remains untapped in the area within a 200 km radius around Tokyo in the Kanto region.



Loading an LNG tanker truck

LNG's Growing Price Advantage

LNG prices are determined primarily according to crude oil prices, such as the Japan Crude Cocktail (JCC) price or the Indonesian Crude Price (ICP). While persistently high crude oil prices have resulted in higher LNG prices, the percentage increase has been small compared with the crude oil price increase. This is because the pricing formula includes mechanisms designed to ease the effect of crude oil price movements.





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Procurement of Gas Resources

Gas Resource Procurement Strategy is Solidifying our Business Structure

Focusing on Competitive LNG Procurement

Tokyo Gas currently imports LNG from ten projects in six countries. Unlike oil, which is found only in certain parts of the world, natural gas is available globally. This makes it possible to diversify the risk and ensure stable procurement by trading with geographically diverse producers in the Middle East, Southeast Asia, Australia, Alaska and other locations with competitive contract terms and conditions.

We are endeavoring to procure more competitive LNG from diversified sources, such as greenfield projects including Darwin Project, which started delivery in January 2006, and Sakhalin II Project, expected to launch between fiscal 2006 and fiscal 2010, as well as Gorgon and Pluto Projects in Western Australia. scheduled to commence after 2010. We will fully exercise our bargaining power based on the prospect of steady demand growth and realize flexible and stable LNG procurement. LNG prices are linked to crude oil prices. However, the current price regime includes a mechanism to alleviate the impact of fluctuating crude oil prices. Tokyo Gas has taken additional steps to limit dramatic price fluctuations, through adopting a pricing formula that is less sensitive to oil price movements.

Reducing Transportation Costs by Using Our Own Fleet

Regarding LNG transportation, Tokyo Gas currently operates a fleet of four vessels, including ships dedicated for projects. We will increase the number of vessels to seven by fiscal 2010, and to nine thereafter. Our goal is to reduce transportation costs by increasing the percentage of company-owned vessels by around 50% by fiscal 2010.

Because it operates its own LNG vessels, Tokyo Gas is not limited to transportation based on long-term contracts. It will be able to reduce gas resource costs and further improve its flexibility by taking advantage of opportunities to procure LNG through short-term and spot transactions. Tokyo Gas also plans to diversify into LNG trading and transportation services for third parties, when it is appropriate in the context of LNG market trends.

Measures for Aggressive Acquisition of Upstream Interests

In 2003, Tokyo Gas and Tokyo Electric Power Co., Ltd. jointly acquired a 10% interest in the Bayu-Undan Project in Australia (1:2 basis). Furthermore, we are currently involved in negotiations concerning participation in the Gorgon and Pluto Projects. In addition to income opportunities, participation in upstream projects allows natural hedging of price fluctuation risks. Another advantage is relatively early access to upstream information, which is essential to procurement activities. There is also increased potential for business opportunities in such areas as trading.

By expanding its business activities along the entire LNG chain, Tokyo Gas aims to establish a position for itself as a total energy company, to improve the competitiveness of its procurement activities, and to secure new business opportunities.



Ex-Ship/FOB

Goods are traded under various terms and conditions. With the delivered ex-ship (DES) system, ownership and risk are transferred at the point of landing (LNG terminal). Under this method, the seller arranges and pays for freight and insurance. With the free on board (FOB) system, ownership is transferred at the point of loading (liquefaction terminal), the buyer arranges and pays for freight and insurance. There is also the cost, insurance and freight (CIF or C&F) system, whereby ownership and risk are transferred at the point of loading for a price that includes the cost of insurance and freight, which are arranged by the seller. Tokyo Gas intends to expand its use of FOB transactions with the aim of further reducing gas resource costs by minimizing freight costs.





Technology Development to Enhance Competitiveness and Contribute to Total Energy Businesses

Strategic and Platform Technology Development

Tokyo Gas broadly divides its technology development activities into strategic technology development and platform technology development. Strategic technology development focuses on areas that contribute to the evolution of a total energy business with natural gas as its core area, while platform technology development has as its goal the creation of basic technologies that will help to improve competitiveness while also ensuring social needs, including safety, security and the environment.

Priorities for strategic technology development include the development of highly efficient fuel cell systems, including PEFC and SOFC systems, and cogeneration systems based on high efficient gas engines as well as technology for biomass energy, which is renewable. This work aims to contribute to the evolution of Tokyo Gas as a total energy company, one of the goals defined in our mediumterm management plan. We are also developing technology for advanced microgrid "holonic energy systems," which have the potential to contribute not only to energy conservation and the reduction of CO₂ emissions, but also to the improvement of supply stability. Demonstration testing will start in the current fiscal year.

We are also developing new gas appliances and services to meet potential social needs. For example, we are continually improving the performance of gas cooktops and other appliances and developing convenient energy-related services. Another important goal for our technology development activities is the proposal and dissemination of ideas about new ways to use gas to enhance the quality of life while helping to protect the environment.

Platform technology development is targeted toward the improvement of technology used in the construction, maintenance and management of infrastructure, especially pipeline networks, as part of our continuing efforts to ensure that natural gas can be supplied safely to our customers while continuing to improve competitiveness through cost reductions. Through this work, we are helping to improve platform technologies in areas of fundamental importance to Tokyo Gas, especially gas quality management and combustion engineering, and ensure that they are passed on to future generations.

Technology Development system Linked with Business Strategy

Under a new structure introduced in fiscal 2006, all technology development activities, from strategy formulation to project implementation, have been integrated under the Technology Development Division. We also use a "sponsorship" system, under which corporate divisions and strategic business units commission and pay for R&D projects. This approach ensures close collaboration and a strong linkage between technology development and business strategy.

Despite a downward trend in R&D expenditure over the past few years, there has been no reduction in R&D activities. Instead, the effectiveness of R&D is being enhanced by modifying approaches to technology development and focusing resources on key areas.



