June 6, 2006

World Gas Conference 2006 Keynote Speech

A Changing World of Energy -- New Opportunities for Natural Gas Industry
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June 6, 2006 14:00

1. Introduction

In this speech, after outlining developments of natural gas and LNG that have been rapidly growing for the past few years focused on the Asia Pacific region, I would like to talk about short-term and long-term challenges to overcome and prospects for sustainable expansion of natural gas business in the power generation, in particular, and other sectors.

[1] Changing Natural Gas/ LNG Markets in the World/ Asia Pacific Region

Firstly, I would like to outline developments of LNG markets in the past three years since the Tokyo conference in 2003, particularly focusing on the Asia Pacific region.

While the world as a whole has still seen steadily growing natural gas consumption in the past three years, Asia is experiencing a remarkable expansion in demand as the driving force of "The Century of Natural Gas". In addition to the existing LNG importers -- Japan, South Korea, and Taiwan -- gas consumption has increased significantly in China, where the huge East-West Pipeline was brought on-line, and in India, which started importing LNG in 2004.

The world LNG trade has steadily increased to register an average annual 9% growth from 111 million tons in 2002 to 142 million tons in 2005. Major contributions to this strong growth came from increasingly significant appetite for LNG in Europe, particularly in Spain and France, and major expansion in imports into the U.S., as well as the steady growth in the Asian region including the new addition of India, as I mentioned earlier.

As for the future prospects in the demand side, LNG receiving terminal plans are advancing in China and the West Coast in North America in addition to India, making the probability of more new LNG markets in the Asia Pacific region closer to reality. When you look at individual terminal projects, however, many of them still have some uncertainties with regard to their starting schedules. Growth of Indian and Chinese demand for imported LNG is likely to shrink if the high-price environment for LNG continues to jeopardize its competitive edge against domestic gas and coal.

With regard to the supply-side developments, more than 50 million tons per year of liquefaction capacities started operations during the past three years, significantly expanding the global LNG supplying capacity to around 180 million tons per year. For the future prospect, 70 - 80 million-ton-per-year supply capacities are expected to be added by the end of this decade in the world as a whole.

In parallel with the demand-supply developments, there have been several notable incidents that have some impacts on them: in the supply side, there have been several production glitches at liquefaction plants in Indonesia, Australia, Nigeria, Trinidad and Tobago, and Egypt, which have affected LNG deliveries; in the demand side, a few countries including Japan have experienced troubles in nuclear power plant operations, which resulted in increased demand of LNG.

In the meantime, crude oil prices have skyrocketed since 2004, resulting in significant rises in long-term contracted LNG prices. In addition, the year 2005 saw devastating hurricanes caused damages to gas production facilities in Gulf of Mexico, which raised U.S. Henry Hub prices to an unprecedented level and impacted short-term traded LNG prices.

These major changing factors have significant implications in negotiations between LNG sellers and buyers. Some of recent LNG contract renewing negotiations in the Asian region are not merely concerned in reviewing pricing levels and formulae, but tend to be complicated and difficult talks where ideas from sellers and buyers sometimes crash against each other.

Gas demand is expected to continue growing steadily in several years to come not only in newly emerging markets but also in existing consuming countries, based on expanded infrastructure, technological innovations in utilization, and concerted efforts to expand markets. Partly because such unwelcome incidents might happen as I described earlier, tight conditions might persist in the global market. Grassroots liquefaction projects are scheduled to come on-line to mitigate the tight balance in the 2010s.

Due to the high energy price circumstance and greater recognition of the importance of natural-gas-supply security, providers' responsibility of stable supply is increasingly significant. As LNG does not have much flexibility to adjust production and consumption balances, cooperation between sellers and buyers will be essential to survive the several years of tight demand and supply balance. Losing parts of gas markets because of inappropriate actions during the tight period would cause disadvantages to both sellers and buyers.

It is essential for natural gas sellers and buyers to have long-term perspective of 20 - 30 years and deepen discussions, as they have done in the past.

[2] Deregulation and Global Environment Issues that Affect Natural Gas Demand

Next I would like to comment on impacts on the gas industry of enhanced competition especially in gas and electric power sectors in Japan, caused by developments of energy industry deregulation

In Japan, liberalization of large-volume gas sales have been implemented in several phases since 1995, whereas third-party gas pipeline transmission services have been introduced as a legal requirement of pipeline owners. Current eligible customers of liberalized gas services are those who consume 500,000 m^3 a year or more, including medium-sized manufacturing facilities and commercial buildings, representing 44% of the total gas sales in the country. The threshold is to be stepped down to 100,000 m^3 a year in 2007 to expand the liberalized portion of the country's gas market to 60% of the total. The minimum amount is equivalent to annual consumption by around 250 residential customers, including hotels and small manufacturing facilities.

In the meantime, the country's electric power industry has experienced restructuring, too, as in the gas industry. Currently most manufacturing facilities and office buildings are eligible for liberalized services, except only general residential customers, representing 63% of the total electric power sales in the country after April 2005. Therefore, a customer whose usage exceeds a certain threshold can choose service provider of gas or electric power, other than the incumbent gas or electric power utility company.

New entrants into the gas market include electric power companies, domestic natural-gas-producing companies, oil companies and trading companies. As of December 2005, 19 new entrants have supplied gas in 92 deals in the country. The share of the new entrants is about 8% of the liberalized large-volume sales market.

There have been instances where an electric power company supplies its imported natural gas to former customers of the gas utility company in the same area, utilizing the gas company's pipeline grid and the gas company generates electricity to supply customers in the same area. Some electric power companies are more proactive in entering into gas supply business using their own pipelines.

A potential adverse outcome of these liberalization developments in pursuing efficiency might be offering unsustainable discounts which could cause failures in securing adequate supply to match demands. There also might be undesirable situations in which gas companies intentionally avoid those customers that would not bring them much margin, or they are reluctant to invest in or be involved in those activities which would be useful to the society but would not be of economic interest, such as environmental measures.

Therefore, it has yet to be discussed whether further steps shall be taken toward full market liberalization including residential sectors. With the recent surge in energy prices has brought more emphasis in energy security as a core element in energy policy, which could have significant impacts on contents and speeds of regulatory reforms in the future.

Then I would like to talk about initiatives by Japanese gas companies on the global environmental issues. In the Kyoto Protocol that entered into effect in February 2005, Japan has committed to reduce its greenhouse gas emissions by 6% from its level of 1990 by 2012.

In order to achieve this goal, the following measures are considered to be important: promotion of saving energy; expanded use of nuclear power, solar energy, wind power, and other natural energy sources; and shift to natural gas which has less carbon dioxide emissions, contributing significantly to prevention of global warming.

The Japan Gas Association set its own "Environmental Activity Guideline" in 1994 and joined the Japan Business Federation's, or Nippon Keidanren's "Voluntary Action Plan on the Environment" in 1997. Through these programs, the Japan's city gas industry is actively promoting the use of environmentally friendly natural gas and taking initiatives to reduce CO_2 and other emissions.

The Japanese city gas companies are required to make investment in infrastructures for supply stability and research and development to deal with the global environment issues and to take advantages of natural gas' superiority, as well as to ensure competitive edges under the deregulated markets.

[3] Expected Positive Roles of Natural Gas

Natural gas has already acquired a great share in power generation capacities in industrialized nations. As almost 80% of new capacities installed during this decade are natural-gas fueled thermal power ones, the power generation sector is expected to continue being a driving force of natural-gas demand growth. The contributing factors include relative advantages of gas-fired power generation against other hydro-carbon thermal power generation: less costly and more easily to install, more flexible in operation, higher in energy efficiency, and more environmentally-friendly.

However, because of recent surge and fluctuation in gas prices for power generation and uncertainty of the future prospects brought by deregulation, gas demand for conventional large-scale centralized power generation of the Japanese incumbent power utility companies shows some signs of saturation.

As 70% of imported LNG is used for power generation in the country, there would be no change in the importance of power generation sector in natural gas consumption. However, more active role is expected to be played by city gas providers in the future natural gas demand growth in Japan than electric power utility companies, who intend to shift LNG to peaking use. Natural gas consumption in the city gas sector showed an average 5% annual growth in the period from 1995 to 2003, compared to 3% in the power generation sector in the same period.

Natural-gas cogeneration system, which is expected to contribute significantly in the environmental aspect, is appreciated for its high thermal efficiency, which is nearly twice as efficient as a conventional power generation system when power generation and heat recovery values are included. With the Kyoto Protocol's entry-into-force and progress in electric power liberalization, a goal of 5 GW in 2010 is set for natural gas cogeneration in the Long-Term Energy Demand and Supply Outlook by the Japanese government. Not only larger applications for commercial sectors, Japanese city gas utility companies are making efforts to promote residential cogeneration systems, too, using fuel cells and gas engines.

As for a residential fuel-cell cogeneration system, in particular, a 1-kW polymer electrolyte fuel cell (PEFC) generates electric power for the house and waste heat from the power generation is recovered and stored in the tank to be used as hot water supply. This system is expected to reduce primary energy consumption by 26% and CO_2 emissions by 40% from a conventional combination of the existing centralized power generation and grid and hot-water supply in a house, which opens up potential to expand scope of natural gas use even more. The world's first commercialized residential fuel cell systems were installed at the Prime Minister's Official Residence in Tokyo in April 2005. More than 200 units of natural-gas fuel cells have been put into the market as of the end of March 2006.

With such initiatives promoted, even if electric power demand as a whole could slow down, distributed power generation sources are expected to exceed 20% of the total power generation output in 2030.

In the process of achieving these goals, an idea of "Holonic Energy System" is attracting attention. The basic of this concept is introduction of an urban micro grid where clean energy is locally generated and consumed on-site, contributing to reducing energy consumption and CO_2 emissions, by way of introduction of significant amount of renewable energy sources into an area where natural-gas-pipeline and electric-power-utility grids have been already established and coexist. Natural-gas cogeneration systems would be utilized as main supporting power generation sources to deal with fluctuation in renewable energy outputs, as well as accumulator batteries as additional backup power sources, while hydrogen-supply infrastructure could be introduced in the future CO_2-emission-free-oriented society.

By networking distributed energy sources, the system could not only achieve efficiency gains by combining different electric-power load profiles of various customers and mutually-supplemental energy use utilizing heating- and cooling-energy-transferring infrastructure of district heating and cooling system, but also contribute to enhanced energy security in urban areas as the system functions as an independent regional grid in case of a natural disaster. The Japanese gas industry is making efforts in research and development in pursuing such an ideal energy system, taking advantage of its own abundant technical and engineering expertise.

In this exhibition, the Japan Gas Association introduces initiatives to promote distributed power generation applications, including residential fuel cell systems. You would be welcome to stop at the booth.

[4] New Business Opportunities in the Natural Gas Industry

In various LNG chains recently, global majors and other upstream stake holders are entering into business activities in consuming countries such as LNG receiving terminal building projects, to say nothing of liquefaction and LNG transportation ventures, while some gas-buying players in consuming countries are also being involved in upstream gas field development and liquefaction projects, as well as LNG transportation. In parallel with expansion of cargo movement and mutual interaction between the Pacific and Atlantic LNG markets, more players are carrying out business in both markets.

Japanese gas players these days are more positive in being involved in a wider range of global business activities related to LNG value chains if good opportunities arise. Examples include the Darwin LNG project, which has just started shipping out cargoes, and the Gorgon and Pluto LNG projects, for which participation plans have been considered.

The purpose of upstream stakes for gas players in consuming countries is to procure more stable and reliable LNG by being involved in an LNG value chain as a whole, instead of mere profits from upstream business itself.

Sharing perspective with gas producers through upstream involvement is also significant. Closer partnership between producers and consumers could enable them to explore new business opportunities jointly.

Potential opportunities include joint marketing of surplus LNG production into different countries, rationalizing transportation by sharing tonnages of both parties, and joint participation in receiving terminal, gas distribution, and gas-fired power generation businesses. Stepping up relationship beyond just as sellers and buyers, sharing at least partly the same perspective, and exploring opportunities to cooperate each other to expand natural gas markets are meaningful initiatives.

Such diversification of business models in natural gas transaction chains could encourage greater efficiency in transactions and enhance competitiveness of natural gas, and in turn, contribute to stronger stability of supply.

[5] Importance of Long-Term Perspective in Natural Gas Business

I would like to conclude my speech with a few points to note in the future natural gas business.

Firstly, it is essential for natural gas sellers and buyers to review matters with long-term perspective of 20 - 30 years and provide deep thought into discussions as they have done before.

Secondly, while the industry faces a difficult challenge to balance the competitive edges of natural gas under the circumstance of the deregulation process and investment in research and development activities to take advantages of natural gas' superior features, there are certainly greater business opportunities to expand natural gas markets by pursuing ways of sophisticated and environmentally-friendly utilization, such as the Holonic Energy System.

Thirdly, it is necessary for producers and consumers to implement transactions in the value chain after understanding each other's positions and directions. LNG and natural gas trades as international transactions are affected by international circumstances, as well as individual countries' domestic situations. Surviving the next several years of expected tight market environment with appropriate and cooperative measures would lead to long-term expansion of natural gas business.

Changes in LNG and natural gas business have accelerated and diversified since the turn of the century, which poses not only challenges, but also opportunities, to evolve themselves into even stronger players that can deal with new eras.

I believe this conference will provide stages for people from various areas of natural gas business to enlighten each other and explore new opportunities, which is certainly appropriate in this new era of natural gas business. This concludes my keynote speech.