Key Issues for the Supply and Use of Natural Gas in Northeast Asia

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I am very pleased to have this opportunity to exchange views with this distinguished gathering on key aspects of the energy sector in the Northeast Asian region, with a focus on natural gas and particularly on regional natural gas trade.

However, these days it is difficult to discuss any sector or subsector without first commenting on an issue that sets the scene for any forum concerning the region's economic growth and integration: namely, the financial and economic crisis that has loomed over regional affairs for the past two years. Although the region is now headed back toward a more stable situation, the effects of the crisis are still being felt, and it is not over yet.

Therefore, I would like to proceed with this presentation in four parts. First, I will comment on the crisis, and the lessons drawn by the World Bank from the crisis that are relevant to the energy sector. Second, I will move on to briefly review the increasing role for natural gas in the region. Third, I would like to present the Bank's views of the key issues involved in promoting the development of natural gas markets and gas trade. These are: environmental concerns, the need for energy sector reform to allow the efficient pricing and allocation of energy resources, and the need to encourage greater private sector participation in the energy sector. Fourth, I will say a few words about the Bank's recognition of and support for the expanding natural gas trade in the region, and highlight the Bank's past and future involvement in the region's energy sector as a whole. Finally, I will close with a few remarks.

FINANCIAL AND ECONOMIC CRISIS IN EAST ASIA

First the crisis. The events of the East Asian crisis are a critical backdrop for discussing all sectors of economic activities today, and are particularly important for energy, given its tight links to the investment climate and market prospects.

While a combination of several unfortunate events propelled the crisis, the consensus seems to be that its roots were clearly laid in the structural weaknesses in the countries' financial systems and corporate governance. The issues related to weakness in financial systems are outside the topic of this presentation. However, the issue of governance is very much in the center of the energy sector. Let me, if I may, say a few words on governance and the energy sector.

What the Bank terms governance includes both the openness and accountability of systems of government and the honesty and transparency of use of public resources.

Although the World Bank's response to the crisis was most visible in terms of emergency lending assistance, the overall aim has been to address broader issues to ensure sustainable reactivation of the region's economies. This means building the foundation for wide ranging reforms, including corporate governance, and addressing issues of transparency and accountability; it also means protecting the poor.

The governance agenda is critical even in those countries that experienced few direct impacts from the crisis, and the World Bank is seeking effective instruments to support ways to enhance the openness of decision-making and the honest and efficient use of public resources.

This agenda is relevant to all sectors in the economy, and the energy sector is no exception. Energy sector entities are central to the issue of governance, because their investment and operational needs are huge, and decisions in this regard are not always subject to public scrutiny. Sector entities are often burdened with non-transparent subsidies. Therefore, addressing the issue of governance in the energy sector is essential to the Bank's future operations.

THE INCREASING ROLE FOR NATURAL GAS

The increased availability of energy, and particularly electric power, has been one of the key engines behind the East Asian region's outstanding economic growth. But the part that natural gas has played in fueling this growth has so far been relatively minor, despite the fact that where gas has been used, it has produced major economic and environmental benefits.

Nevertheless, the Bank believes that natural gas will play an increasingly important role in meeting the fuel needs of the region's energy sectors, due to several factors. First is the continued high growth in the region's energy demands, irrespective of the crisis. Second is the growing concern about the environmental impact of energy consumption, particularly associated with the use of coal. And third is the desire to increase fuel diversification and substitution, partly in response to concerns about energy security, but also to save on foreign exchange due to oil imports.

But gas supply and demand are unlikely to be matched on a country-by-country basis, as is shown in the estimates for the region in Table 1. Although based on precrisis conditions, they still provide a reasonable indication of the relative requirements of supply versus demand within the region.

China has significant natural gas resources, but given the current and projected LNG demand from Japan and South Korea, as well as the increasing

demand for natural gas in China itself, the Northeast Asian region will continue to be a significant net importer of natural gas. And this substantial shortfall in supply has spurred the recent interest in expanding natural gas trade. Although LNG use can be expanded in the coastal areas of the region, large investments in gas transmission pipelines will be required to allow the internal transport of natural gas, particularly within mainland China. However, imported LNG and China's own gas reserves will most likely still need to be supplemented with cross-border imports. Accordingly, there have been recent proposals to pipe natural gas from Siberia and also from the Central Asian countries to China, potentially passing through Mongolia, as well as continuing on to South Korea (possibly through North Korea), and even eventually on to Japan.

KEY ISSUES FOR DEVELOPING NATURAL GAS MARKETS AND TRADE

Environmental Considerations

First, with regard to the environment, although energy is essential for economic growth, increased energy use can also result in significant environmental problems. In Northeast Asia, where many countries have been tremendously successful in expanding their energy sectors, often through the increased use of coal, it is often this environmental downside that has now become the predominant concern.

Therefore, recent Bank projects, such as those in China that support the expansion of wind power and photovoltaic generation, and the establishment of energy management companies to engage in self-sustaining energy-efficiency investments, are helping to achieve the Bank's goal of being at the forefront of worldwide efforts to avert the threat of climate change. But in addition to promoting such alternative energy sources, the Bank strongly supports increased use of natural gas for industrial, commercial, and residential use and for power generation. This makes sense not only for environmental reasons, but also from an economic standpoint, particularly when natural gas can often have a high netback value when used for the production of electricity.

Sector Restructuring and Policy Reforms

However, realizing the true economic value of natural gas requires an energy sector that, as a whole, can efficiently allocate resources, and this requires the prices of energy products to be those that are set within an economic cost-value framework or arise from a fully competitive market. And this brings me to the second set of issues: restructuring the energy sector and reforming policies. We believe these areas are the ones where the Bank will be most directly involved in the future.

About a decade ago, the Bank learned that without fundamental structural changes and an improvement in the corporate structure of energy sector entities, including changes to laws and regulations, reporting requirements and decision-making processes, even large amounts of Bank funding could not ensure an efficient and reliable delivery of gas and electricity to end-users. While there has been significant technological advances over this decade, the Bank also saw it necessary to focus on improving efficiencies, unbundling the sectors, removing regulations that stifle competition, strengthening those that promote it, and encouraging further private sector involvement, in order to place sector entities on a sound financial footing and to mobilize the massive capital needed to reduce infrastructural bottlenecks. The recent crisis simply reinforced this lesson regarding the need for improved sector governance.

Therefore, over the past decade, the Bank has required that sector reform and restructuring be a central part of virtually all its lending operations. In fact, if we look at the Bank's operations during this period, almost three-quarters of our energy projects have addressed the restructuring of the sector and the economic pricing of energy products in a substantial way. For example, apart from simply providing finance for the development of gas reserves under the Sichuan Gas Development Project, the Bank has been providing support to the Chinese government, the China National Petroleum Corporation and the Sichuan Petroleum Administration regarding the implementation of upstream oil and gas sector restructuring, the rationalization of the level and structure of gas pricing, and the promotion of rational gas allocation. It is in this type of role, drawing on the experience gained from our involvement in energy projects all around the globe, that the Bank believes it can provide significant added value, over and above simply a transfer of financial resources.

Consequently, the Bank's vision as to how the region's oil and gas sectors should look at the end of the *next* decade, is one where: a market-based legislative framework has been enacted; full market-based pricing of fuels is in place; common-carrier pipeline networks for the transportation of oil and gas have been established; refineries are liberalized; leaded gasoline has been phased out, and the sulfur content of diesel substantially reduced; and the national oil and gas companies have been first restructured, then corporatized, and ultimately privatized, and would hence have been placed on the same commercial footing as private companies.

Private Sector Participation

This last-named issue is a crucial one. The utilization of natural gas is capital-intensive, and even gas projects involving only a single country often require long implementation periods. If the use of gas were to be optimized, it is certain that even under a low-demand scenario, the public sector alone cannot deal with

the massive investments required to meet energy demand in the region. Therefore, it is essential that the sector structure, and the legal and regulatory framework, be set in a way that will provide a suitable enabling environment for private sector participation.

The role the Bank intends to play with respect to private investment in the energy sector is to help ensure that the sector's policies protect both parties—public and private. Good governance is just as important with respect to the private sector as it is for the public sector. The Bank wants deals to be solid and fair. One of the main lessons we have learned is that unbalanced agreements only deepen the impacts on sector entities during economic downturns and in the end are untenable. Our current impression is that, although private sector investment made significant contributions already to meeting regional energy demand, this involvement has sometimes been less than optimal, in that it has created heavy burdens for some governments in terms of real and contingent liabilities. Instead, we believe that governments should not have to shoulder all risks, and that market risks should be borne by the private sector. The energy sector needs to move toward more commercial arrangements where the market belonging to private sector entities is not guaranteed, but correspondingly, public sector entities are not given any special treatment.

Regional Natural Gas Trade

Finally, I turn to the issue of regional natural gas trade. A gas pipeline network linking the countries in the region would promote economic development, improve consumer fuel choices, have positive implications for the regional security of gas supply, result in significant environmental benefits, and could encourage production from gas fields close to the pipelines that, on their own, would be uneconomic to develop. But the complexities involved in such a substantial cooperative international undertaking are enormous.

Cross-border projects would create new policy issues for governments in the region. The interaction between governments and the market will have a significant bearing on trade development, and therefore needs to be managed carefully. Governments need to decide on the role of the existing national energy companies and whether these will become commercialized or remain political instruments. Some governments see a close link between economic and social development and energy policy, and hence engage in substantial intervention in gas markets. In particular, gas prices may be subsidized in one or more sectors of the economy, or gas resources may be allocated to specific markets or industries on the basis of the expected broad macroeconomic benefits of developing them. Such measures undermine efforts to conserve energy and make it more difficult to obtain the necessary investment in infrastructure.

As new investment causes pipeline networks to expand, the possibilities for consumer choice begin to open up, the scope to introduce competition can be increased, and a more efficient allocation of resources can be achieved. But correspondingly, to attract the capital required to finance such expansion, there is a need for the establishment of a framework governing natural gas transit and trade. Such a framework would help remove the uncertainties about the rights and obligations of the selling, buying, and transit countries of the region and help to encourage greater investment (by both the private and the public sectors) in pipelines in the region.

For effective private sector participation, internationally accepted legal frameworks are required that clarify governing laws, regulations for licenses or permits, accounting standards, and resolution of commercial disputes. Such changes should first be introduced at a national level, as gas transmission and distribution networks become more extensive within a country, so that aspects of the framework can be tested before any more complex and risk-prone bilateral or multilateral international arrangements are required. For any gas trade project, a clear ownership structure detailing the organizational relations between public and private sector owners, shippers, and lenders will be of critical importance, as it apportions the risks for each. Such risks include political *force majeure* events, currency availability and convertibility, and permit-giving.

Therefore, the key issues associated with natural gas trade are those raised earlier: the need for substantial sector restructuring and policy reform, in a manner that allows balanced private sector participation. And given the Bank's experience in developing gas markets and promoting natural gas trade internationally, the Bank is in a key position to help resolve many of these issues, and to act as a catalyst for gas trade in the region.

THE BANK'S INVOLVEMENT

As indicated before, the public sector alone could not provide enough capital for future investment needs of countries in the region for their gas sector; nor, for that matter, can the private sector. The public and private sectors need to cooperate and meet the challenge together. Therefore, as I will explain shortly, one role the Bank intends to play is to strengthen this crucial cooperation. The Bank plans to do this by helping to reconcile the private sector's goals of maximizing value with the governmental goal of achieving sustainable and environmentally sound development.

The World Bank is often seen primarily as a lending agency, and indeed the Bank has been an important lender in the energy sectors of borrowing countries in the region—namely, China, Mongolia, and until very recently, South Korea.

Over almost four decades of cooperation, the Bank has been involved in numerous power projects in Northeast Asia, as well as some highly significant hydrocarbon sector projects. For instance, in recent years, the Bank provided about one-quarter of the financing for US$1 billion of natural gas developments undertaken by the Sichuan Petroleum Administration in China. And in South Korea, the Bank provided partial financing for the nationwide petroleum product pipeline network, as well as for the expansion of the Pyong Taek LNG receiving terminal and associated pipeline system.

However, the Bank aims to be as much a provider of intellectual capital as of financial resources. Even before the crisis, the Bank was redefining its role in the energy sectors of the region. First, it was clear that environmental issues needed to be addressed in order to minimize the negative environmental effects that result from providing energy. Second, the Bank had become aware that if its efforts were to have a lasting impact on the sector as a whole, policy reforms were needed and the sector had to be restructured to create the kind of environment where competition, private sector investment, and sound regulations could flourish. Also, there needed to be a credible commitment from all sector participants to sustaining the reforms, and a balanced partnership between the public and private sectors. Finally, the Bank believes it is well placed to provide support to regional initiatives and to help resolve some of the complex issues that would arise from increased natural gas trade.

I should also mention that the Bank is currently undertaking to carry out a regional gas trade study, specifically aiming at assessing the issues and options related to gas trade among the countries of the region. It is our hope that the result of this study would be available by June 2000, and we plan to launch a conference to discuss our findings and recommendations.

CLOSING COMMENTS

In closing, I would like to recap briefly on the three major themes of this presentation.

The first theme relates to governance. The Bank strongly promotes improved governance of the energy sector, through sector restructuring and policy reform. This not only will lead to greater efficiencies but also will provide greater resilience for sector entities, should crises, such as the recent one, arise again in the future.

The second theme is the substantial economic and environmental benefits that can be reaped through the increased utilization of natural gas in the region. But given the imbalance between supply and demand, natural gas trade will need to be expanded.

And the final theme is the vital need for stronger partnerships between the public and the private sector, built on a better understanding of mutual interests and potential for action, clearly defined partnership objectives, and good information channels. For the region's energy sector entities to contribute to renewed economic growth and sustainable development, the public and private sectors have to work together, and the Bank is keen to help facilitate this. In particular, the Bank is ready to utilize its experience in developing public and private sector partnerships to support increased natural gas trade within the Northeast Asian region.

Table 1. Natural gas supply/demand balance for Northeast Asia, 1996–2010 (billion cubic feet per day)

	1996	2000		2005		2010	
		Base	Low	Base	Low	Base	Low
China							
Production	1.84	1.99	1.99	2.16	2.16	2.49	2.49
Demand	1.84	2.88	2.88	3.73	3.73	4.79	4.79
Surplus/(shortfall)	0.00	(0.89)	(0.89)	(1.57)	(1.57)	(2.30)	(2.30)
Japan							
Production	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Demand	6.19	7.20	4.92	8.00	5.84	9.34	6.97
South Korea							
Demand	1.25	1.33	0.83	1.73	1.09	2.13	1.30
Total NE Asia							
Production	2.04	2.19	2.19	2.36	2.36	2.69	2.69
Demand	9.28	11.41	8.63	13.46	10.66	16.26	13.06
Surplus/(shortfall)	(7.24)	(9.22)	(6.44)	(11.10)	(8.30)	(13.57)	(10.37)

Sources: CERA (October 1997); Cedigaz (July 1997); World Bank (September 1996).