The Northeast Asia Petroleum Industry: Challenges and Countermeasures

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Your honourable Chairman, ladies and gentlemen,

I am privileged to take part in this Northeast Asia Petroleum Forum and discuss about the challenges for the NE Asia petroleum industry and the countermeasures.

1. Challenges for the NE Asia Petroleum Industry

The NE Asian economies are undergoing stable and fast growth. Over the past few years, China has maintained 9% GDP growth while Japan and Korea have also gained 3%-5% in GDP growth. While presenting valuable opportunities, the rapid economic growth in the region also poses a series of challenges to the petroleum industry.

A. Widening Supply to Demand Gap in Oil and Gas, Increasing Reliance on Import

NE Asia is one of the world' most dynamic region in terms of economic development, with fast and sustained energy consumption. Statistics show that China's oil consumption in 2004 reached 318.7 million tonnes, import being 143.7 million tonnes, 45% reliance on import. Japan consumed 241.5 million tonnes and imported 208.9 million tonnes. Korea's oil consumption was 104.8 million tonnes. Reliance on import for Japan and Korea respectively approximate 100%. The aggregate consumption for China, Japan and Korea reached 665 million tonnes, accounting 17.4% of the world's total consumption and their overall reliance on import was as high as 73.7%.

In 2004, natural gas consumption for China, Japan and Korea was 39 billion cubic meters, 72.2 billion cubic meters and 31.6 billion cubic meters, respectively representing 1.5%, 2.7% and 1.2% of the world's total. China's natural gas

consumption was mainly fed by domestic production, whereas Japan and Korea turn to LNG import for their gas needs.

Along with the economic development and improving living standard, consumption and import of oil and gas for the three countries are expected to grow, hence further increase in import reliance. Just take China for instance, its oil consumption is forecasted to hit 450 million tonnes by 2020, with reliance on imported oil reaching 60%.

B. High Oil Price, Negative Impact on Regional Economy and Refining Sector

Global economy entered a new upturn cycle since 2002, with major developed and developing countries being able to accelerate their growth. Year 2004 witnessed the strongest growth for the past 25 years. Greater oil consumption comes together with faster economic development. In addition, due to geopolitical tension, speculation, natural disasters and other factors, international oil price kept climbing, current price being 130% higher than that in 2002. WTI even hit $70/bbl at the end of August 2005.

Asia is the most suffering victim of the soaring oil price. Continuous rising oil price shall have a serious impact on Asian economies, among which China, Japan and Korea shall suffer most. According to the recent forecast by Asia Development Bank, Asia is slowing down in growing economy because of the rising oil prices and East Asia’s economic growth this year will drop to 6.8% from last year’s 7.6%. China’s bill for crude import in the first half of this year was increased by more than US$ 7 billion due to price increase.

In the meantime, the strongly fluctuated oil price translates increasing operational risks and difficulties for petrochemical enterprises. It is estimated that due to rising crude price and delay in price revision for refined oil products, Chinese refining enterprises incurred severe loss in the first half of this year. Net loss for the entire

sector reached RMB 4.19 billion, while same-period profit for last year was RMB 16.38 billion.

C. Stricter Environmental Rules, Higher Requirement for E&P and Production of Oil Products.

Energy-related environmental issues in NE Asia will become more prominent than other regions due to the significant increase in energy consumption, especially in coal consumption, thus more CO2 emission than North America and Europe. These issues not only restrain the region's social and economic development, but also invite environmental protection pressure from the international community and increasing green barriers in international trade. Meanwhile, there are still serious problems of wastes emission and environmental damages in oil and gas exploration and development, storage and transportation of oil and gas, refining and petrochemical production. The disposal of drilling mud, emission of waste water and oil for oil extraction, disposal of wastes out of downhole operation, restoration of depleted wells, flare waste and disposal of refinery wastes all need further improving.

In particular, like Japan, EU, and the U.S., China is to implement stricter rules on clean fuels for automobiles. Starting from 1st July 2005, China adopted Euro II emission standard, limiting sulfur content in gasoline to no greater than 500ppm. The city of Beijing has adopted Euro III standard ahead of schedule. According to State Environmental Protection Administration of China, the third phase emission standard (equivalent to Euro III standard) is to be implemented nationwide in 2007, with sulfur content in gasoline no greater than 150ppm and that in diesel no greater than 350ppm. The Euro IV-equivalent fourth phase standard is to be practiced in China in 2010. To achieve the above targets, huge investment is needed for refineries revamping projects to reduce sulfur content.

D. Multi-risks in Oil Supply Diversity, Starting Stage for Regional Dialogue

Mechanism

The undiversified source for oil import leads to a fragile market for NE Asia. The NE Asian nations heavily rely on the Middle East for oil. About three quarters of the total oil import for China, Japan and Korea comes from the Middle East. Oil transport security is one of the challenges that face the three nations. Imported oil for the three countries mainly comes in via the Malacca Straight. The frequent terrorist attacks and sea bandits' activities pose enormous risks to the transportation.

Secondly, the NE Asian countries have to pay the unfair 'premium' in purchasing Middle East crude. Since 1992, Middle East crude sole to Asia has been US$ 1-1.5/bbl higher than that to Europe or North America. Now this 'premium' has even extended to LNG, LPG and other products, meaning an extra bill of US$ 5-10 billion for the Asian oil consuming countries.

Furthermore, energy collaboration in NE Asia is far less developed than Europe or North America. Up to now, even though the conditions for collaboration are favourable, there has been limited cooperation among China, Japan and Korea in oil and gas exploration and development, refining, petrochemical and marketing. A regional collaboration mechanism is yet to set up. Currently, the major oil consumption regions (North America, Western Europe and East Asia) all face the challenges in expanding sources, competing for oil purchase and safeguarding transport. Therefore, regional collaboration is an urgent must to avert risks and seek benefit. The NE Asian countries have a shared fate. In time of energy crisis, no single country could stand alone. Only by combining strengths would the NE Asian countries be able to build weighty bargaining power as well as purchasing power, thus greater influence on oil price. In this way, the nations will be able to make up for the fragile market, reduce transportation risks and jointly secure the oil supply.

2. China, Japan and Korea: Countermeasures and Development Strategy for the

Petroleum Industry

A. Establishing Mechanism for Dialogue and Emergency Response for Security

Along with the quickening of economic integration in the region, the Asia Pacific petroleum and petrochemical market further emerges into a unified market. As major players in the market, the NE Asian oil enterprises should join hands to promote stability and prosperity in the greater Asia Pacific market. As a result, a regional dialogue mechanism and security emergency response system should be established. An organization for NE Asia energy collaboration consultation should be established and mechanism for regular dialogue be formed to enhance the openness and transparency for energy policies. A NE Asia petroleum information network should be set up to strengthen exchange of energy information and cooperation. A unified emergency response mechanism should be set up and the further target should be the petroleum reserve system for the region. The exchange of emergency response experiences should be further enhanced to better the response system.

B. Enhancing Collaboration in Exploration & Development, Refining & Petrochemical, Import, Storage and Transportation

Collaboration in hydrocarbon resources, refining & petrochemical, storage and transportation facilities construction should be upgraded for mutual benefit and win-win situation, in order to increase regional competence and reduce geological and geopolitical risks.

Technology cooperation in exploration & development, refining and petrochemical production should be enhanced. China, Japan and Korea enjoy wide scope and huge potential for energy cooperation and are complementing among each other. Japan has unique advantages in capital and technology, a well developed strategic petroleum reserves system and huge refining capacity. Japan enjoys a comprehensive legal

framework, state-of-the-art technologies and rich experiences in energy conservation, environmental protection and new energy deployment. China is rich in workforce and natural resources. It is also a big energy producer, being still a major coal supplier to Japan and Korea. China's oil and gas exploration and development technologies in terrestrial genesis of hydrocarbon, progressive exploration and development and large-scale non-homogeneous oil shale field development have reached leading level and China needs advanced technologies for new energy and conservation. Korea also has a lot to offer in energy conservation, market operation and strategic reserves.

Oil import cooperation should be strengthened and an Asian petroleum and energy market should be set up. 'Group purchase' should be carried out as a new measure to eliminate the 'Asia premium' to reduce crude cost. The feasibility of establishing high-efficiency regional oil and gas pipelines should be explored. The oil consumption volume for NE Asia is similar to Europe and North America. However, there is only a transit market of Singapore for this region. We should start to set up an international oil market centered around China, Japan and Korea to influence oil price and erase the 'Asia premium'.

Cooperation in facilities construction and utilization for oil and gas storage and transportation should be elevated. The three countries should jointly safeguard the transport channels, promote stability in related areas, fight sea bandits and terrorism, improve the fragile facilities and network, and ensure the security of major ports and critical points. A joint shipping fleet could also be discussed about to constantly improve the capacity in handling sudden and unexpected occurrences in the changing market.

C. Emphasizing Development and Application Energy Alternatives

With the rising oil prices, the world is fastening steps to develop oil substitutes. China, Japan and Korea could collaborate in the following aspects.

Joint development of non-conventional resources such as oil sand, oil shale and natural gas hydrate should be conducted to complement the conventional oil and gas resources. China has rich oil shale resources, the majority of which is yet to prove.

Cooperation in coal to liquids should be developed. China has rich coal reserves, hence a unique advantage in coal to liquids practice. When oil price is at a high level, coal to liquids becomes economically viable. Under a coal to gasoline and diesel programme, China Shenhua Group's coal to liquids facility of 5 million tonnes capacity has started up in Ordos in August 2004.

Cooperation in renewable energy should also be enhanced. China passed a renewable energy act in February 2005, aiming to promote development and utilization of renewable energy, increase energy supply, improve energy structure, ensure energy security, protect the environment and achieve sustained development. Under this act, preferential policies would be given to the development and utilization of wind energy, solar energy, water energy, bio-energy, thermal energy, ocean energy and other non fossil fuels. The ethanol gasoline project has been rolled out in 5 provinces in China with annual consumption reached 1 million tonnes. This project is expected to operate in 9 provinces at the end of 2005.

The three countries should also collaborate in the research and development on new energy, aiming for breakthrough in new energy utilization.

D. Elevating Collaboration in Energy Efficiency and Circular Economy

Utilizing the Japan' and Korea's strengths in energy efficiency to promote regional collaboration in conservation and integrate energy utilization with environmental protection. To compare with Japan and other developed countries, China's energy utilization efficiency is much lower. China's motor fuel consumption is high at an

annual average of 2.28 tonnes per vehicle while that in Japan is 1.07 tonnes, meaning China's motor fuel consumption per vehicle is 115% higher than that of Japan. Internal oil consumption for Chinese oil fields accounts for 2% of the total production. Fuel oil consumption at China's petrochemical enterprises approximates 5.6 million tonnes. The refineries also have a high loss rate of 1.08% whereas the leading level is just 0.5%. Average comprehensive energy consumption at refineries is 1.3-1.5 times of foreign refineries and that for ethylene facilities is 1.6 times.

In the meantime, clean development mechanism (CDM) should be advocated for the region's sustainable development. Along with the intensified environment regulation and development of circular economy in China, more manufacturing enterprises have established clean production mechanism and a circular resources utilization model. A resources co-generation chain is formed among enterprises. During such practice, the green house gases such as CO2 and methane have become important resources for circular use, reducing emission and achieving sustainability. Through the CDM projects, China would benefit in acquiring technologies and experiences in emission reduction.

3. Overview of Sinopec and Prospect for Collaboration.

A. Overview of Sinopec

Sinopec is an integrated energy and chemical company with oil and gas exploration and development, refining, chemical production and products marketing businesses. The company's principal market is in the most dynamic regions in eastern and southern China.

Sinopec is China's second largest oil and gas producer, China's largest refiner, producer and marketer of petrochemicals and refined oil products. Sinopec has the most extensive marketing network for oil products in China, with a total of 30,063

stations in 2004, among which 26,581 stations are self-owned. Annual throughput per station averaged 2,000 tonnes, up by 18.8% over 2003. Also in 2004, Sinopec produced 274.15 million barrels of crude and 207 billion cubic feet of natural gas, 1.18% and 10.29% increase over the previous year. Total refining throughput for 2004 was 132.95 million tonnes, up by 14.36% from 116.26 million tonnes in 2003. Ethylene production for the company in 2004 was increased from 3.982 million tonnes in 2003 to 4.074 million tonnes, up by 2.31%. Sinopec ranked 31st in Fortune 500 according to its sales revenue in 2004.

Over the years, Sinopec has been intensifying international cooperation and established sound partnerships with international peers in exploration & development, petrochemical production and oil products marketing. In exploration & development for oil and gas, Sinopec has made preliminary progress by entering into a number of joint development agreements with oil companies in Saudi Arabia, Algeria, Azerbaijan, Kazakhstan, Yemen, Iran, Indonesia, Angola, Nigeria, Cuba, etc. In petrochemical business, Sinopec has an integrated refining and ethylene joint venture in Fujian with ExxonMobil and Saudi Aramco, a 900 kta ethylene joint venture in Shanghai with BP, and a 600 kta ethylene joint venture in Nanjing with BASF. In refined oil products, Sinopec has marketing joint ventures respectively with ExxonMobil, Shell and BP.

B. Prospect for Collaboration

Looking ahead, based on its achievement in the past two decades and relying on domestic and overseas resources, Sinopec will further its reform, develop core business and improve overall competitive power.

Sinopec is more than pleased to enhance communications and exchanges with our industry peers in the region, promote mutual understanding and cooperation. The NE Asian countries should increase dialogues and cooperation with major oil producing

countries, further exchange of information and improve response capacity in sudden market changes. On the other hand, the region should actively seek means for multi-collaboration among enterprises, combining respective strengths at different chain of the petroleum industry and complementing each other.

We firmly believe that along with the increasing integration of the Asia Pacific economy and NE Asia trade relations, the petroleum enterprises in NE Asia will experience broader and deeper cooperation. Sinopec is committed to the healthy and rapid growth of regional economy as well as the development of the society.

In the end, I wish this forum a round success. Thank you for your attention.

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