



THE JAMES A. BAKER III
INSTITUTE FOR PUBLIC POLICY
OF RICE UNIVERSITY

THE ENERGY DIMENSION IN RUSSIAN GLOBAL STRATEGY

THE ASIAN PREMIUM AND OIL AND GAS SUPPLY FROM RUSSIA

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PREPARED IN CONJUNCTION WITH AN ENERGY STUDY SPONSORED BY
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RICE UNIVERSITY - OCTOBER 2004

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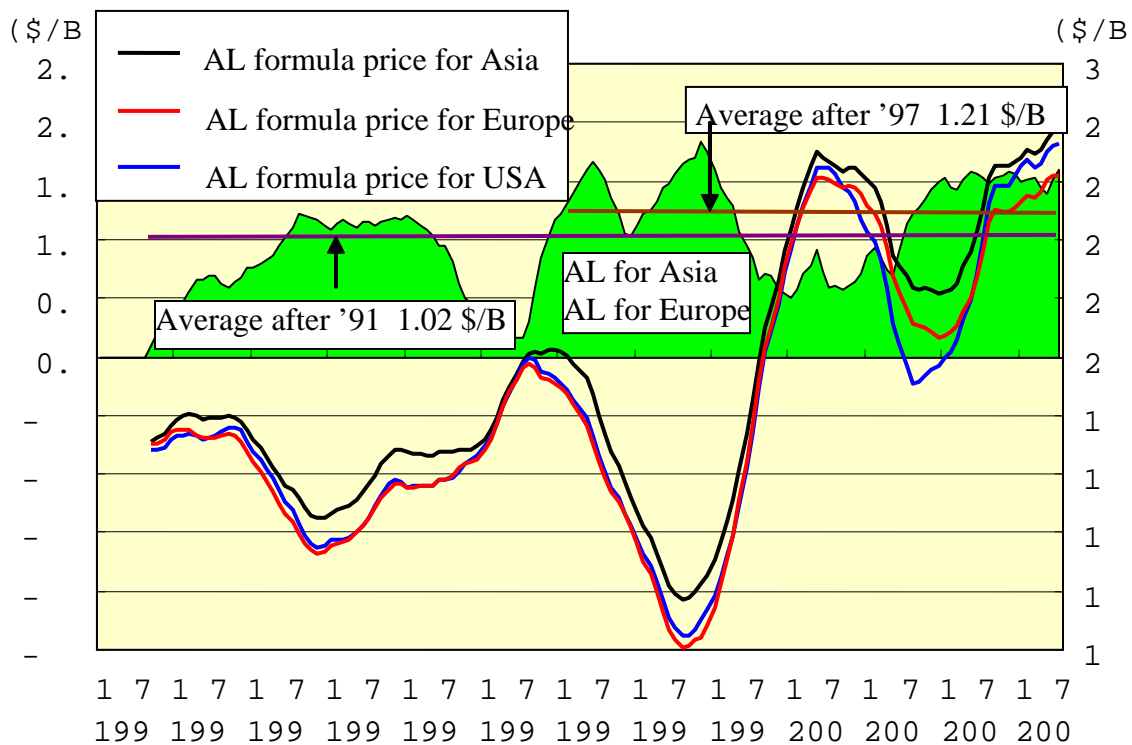
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Conditions, Primary Factors, Influence and Cutback Policy of the Asian Premium

Middle East crude oil prices for Asian delivery have averaged \$1.00 to \$1.50 per barrel more than those for Europe and the United States since 1991 (see Figure 3-1). This price condition is called the Asian Premium. The 13 year average size of the Asian Premium is \$1.02 per barrel. More recently, premiums have been increasing, with the average over the last seven years tallying \$1.21 a barrel.

Figure 3-1: The Asian Premium, since the start of the 1990s



Note: AL is Arabian Light crude oil. Short-term movements have been excluded by taking 12-month moving averages.

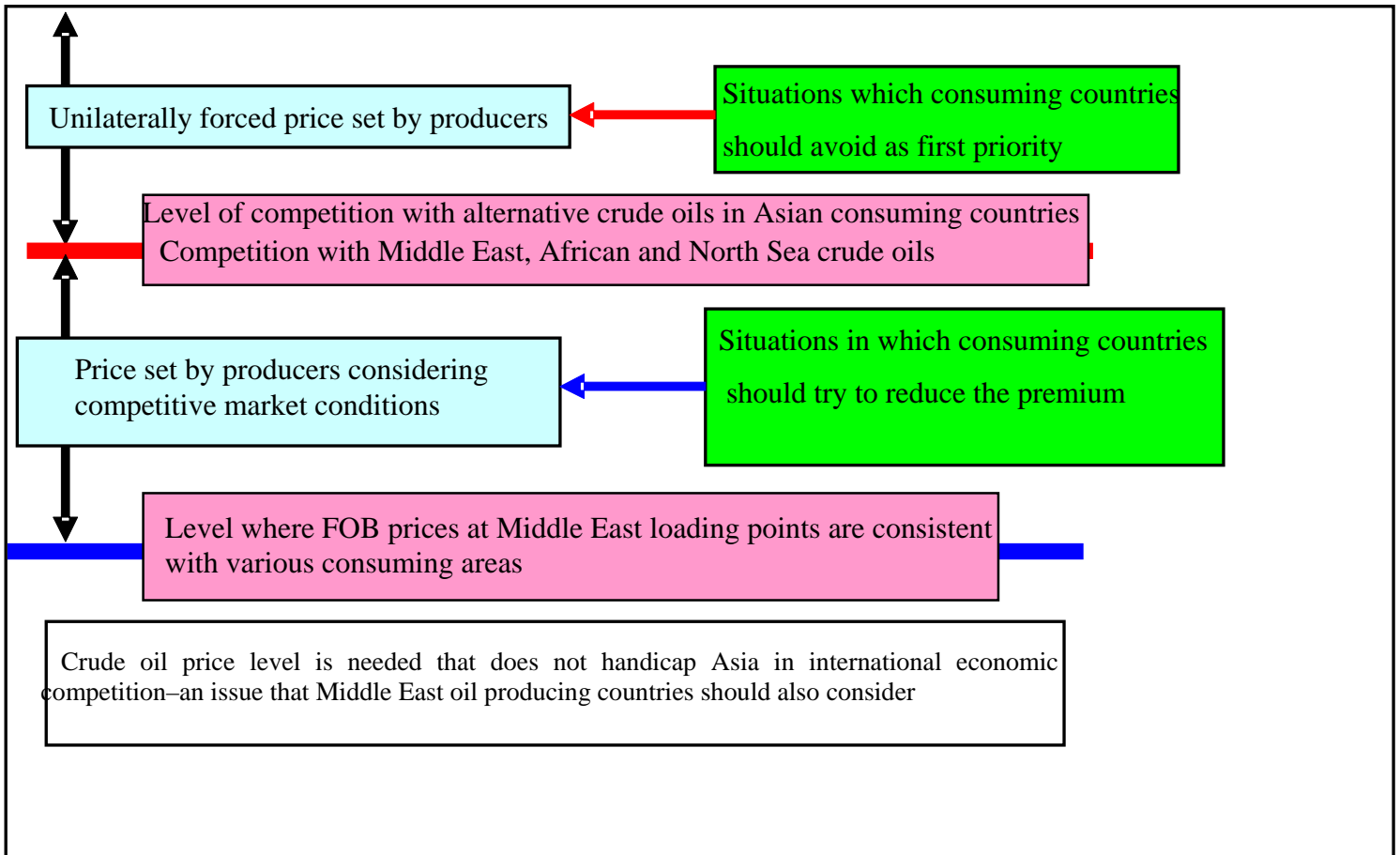
Given that the Asian Premium has been in effect since 1991, it is not a temporary phenomenon. It is a major issue that has a negative impact on the economic competitive power of Asian countries. In fact, it is not only oil prices that are affected by the Asian Premium phenomenon, it is a problem that influences many forms of energy due to linkages between oil prices and prices

of other energy commodities. For example, the average price for liquefied natural gas (LNG) for Asia from 1992 to the present is also higher than that for Europe and the United States. Moreover, under the Saudi Arabian notified price system in place since 1995, the price of liquefied petroleum gas (LPG) is also set unilaterally for Asia by Middle East oil producing countries and fluctuates up and down sharply.

The premium on the price of crude oil for Asia means that Asian countries are transferring additional income amounting to \$5 to \$10 billion per year to oil producing countries. Judging from the netback values for Arabian Light crude oil in the Singapore market, refinery profits in Asia have been negative since 1999.

There are several reasons why the Asian Premium was created. Asia's supply and demand environment which, unlike Europe and the United States where there are a variety of supply sources and intense competition between crude oils, reflects an increasingly bullish demand for oil. At the margin, Asian buyers have few alternatives but to rely on Middle East crude oil. Production of the Asian region's price marker, Dubai crude oil, has dropped sharply from 420,000 barrels per day (b/d) in 1987 to less than 150,000 b/d at present. As a result, the market has lost confidence in the price-forming capacity of Dubai crude oil.

Figure 3-2: Views on the crude oil price level in Asia



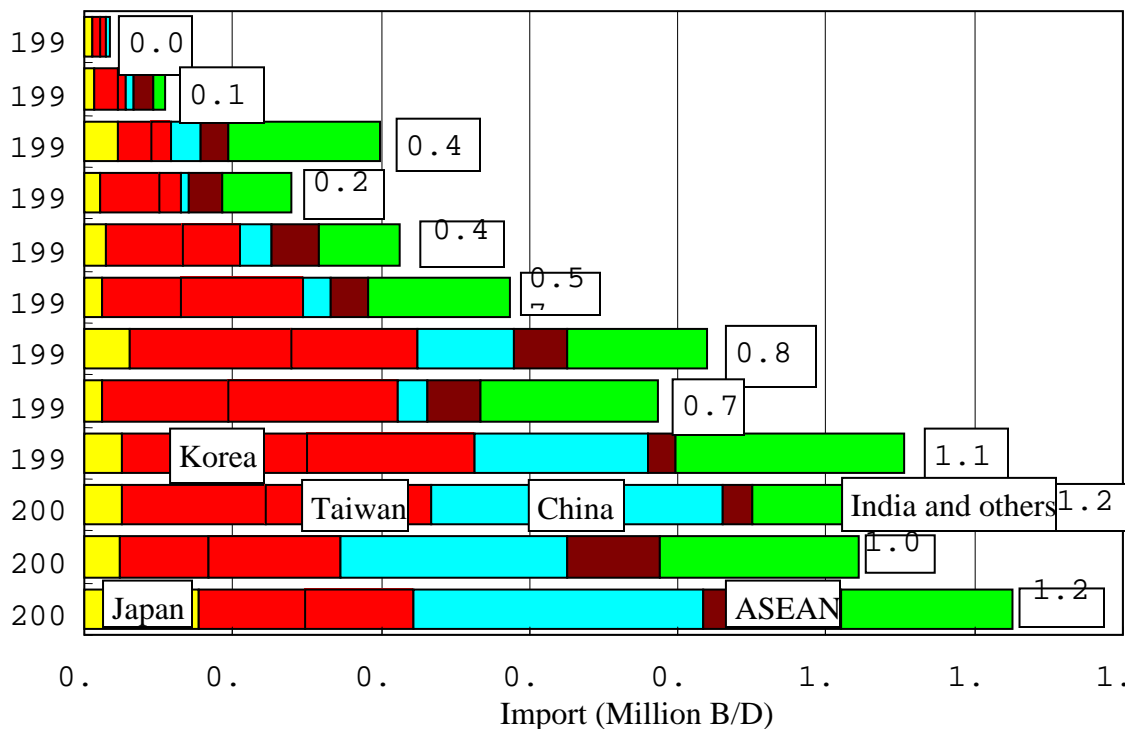
As shown in Figure 3-2, there are two basic views of crude oil price levels in Asia. One is a price level at which alternative crude oils from areas other than the Middle East are competitive with Middle East crude oil in the various Asian consuming areas. Under this situation, Middle East crude oil would be set at a price that exceeds the competitive level, through a forced price set unilaterally by oil producers. In the case of LPG, this kind of situation exists. To prevent producing countries to impose high prices unilaterally, Asian consuming countries should formulate a variety of preventative strategies.

A more competitive framework would be one where the price level at which the price at the Middle Eastern point of loading for Asia is the same as the FOB price for the United States and for Europe. In order to achieve this kind of price level for Middle East crude oil for Asia by

reducing the Asian Premium, Asian consuming countries must make efforts to help themselves. A crude oil price level that does not become a handicap for Asian economic and social international competition is essential. From the perspective of Middle East oil producing countries, which are largely dependent on Asian demand, this point is one that they should consider as well.

Two short-term measures should be considered for reducing the Asian Premium. The first is for various Asian countries to procure alternative crude oil from areas other than the Middle East. West African and North Sea crude oil would be the main alternative candidates West of Suez that could be procured relatively easily. As shown in Figure 3-3, the purchase of West African and North Sea crude oil by Asia began in the early 1990s, and the trade is expanding.

Figure 3-3: Procurement by Asia of West African and North Sea crude oil



Source: Data from annual editions of Blackwell's "World Oil Trade"

To date, the major reason for the increase in Asian purchases of West African and North Sea barrels is refinery bottlenecks stemming from insufficient secondary processing facilities for

cracking and desulfurization. Countries such as South Korea and Taiwan need to import low sulfur crude oil because local refineries lack desulfurization facilities needed to meet tightening controls on the sulfur content of heavy crude oil. Refineries located in various South Asian countries are deficient in cracking facilities needed to procure light crude oil from West of Suez. Significantly, full-scale treatment of sour Middle East crude oil is difficult for Chinese refineries that were designed initially for treating low sulfur domestic crude, forcing them to procure low sulfur crude oil from other parts of the world to replace declining domestic supplies.

At present, the imports of West African and North Sea crude oil competes with new and expanded Asian refining facilities, rather than directly with Middle East crude oil imports. This means that some Asian countries have no alternative but to buy West African and North Sea crude oil at higher prices, and they have no power to exert pressure over the pricing of Middle East crude oil.

The second short-term measure to reduce the Asian Premium is to find an alternative price marker to replace Dubai crude oil, which has lost the confidence of the market in its price-forming ability. Two short-term and realistic candidates that have been proposed as potential marker crude are Oman crude oil and North Sea Brent crude oil. Oman crude oil, which is traded in larger quantities than Dubai crude oil, could likely regain the confidence of the market from the angle of price formation but, as with Dubai crude oil, transactions involving Oman crude oil are limited to the Asian market and therefore may not necessarily be capable of reducing the Asian Premium.

By comparison, North Sea Brent crude oil—which is the price marker for Middle East crude oil destined for Europe—could serve as the price marker for Middle East crude oil for Asia, potentially leading to a reduction in the Asian Premium. However, it is possible that the price formation of North Sea Brent crude oil, which is determined mainly by European oil supply and demand, may not conform well to trends of Asian supply and demand. Moreover, Brent crude trading is plagued by the problem of market manipulation.

In short, although there are short-term measures to be considered in reducing the Asian Premium, they have their drawbacks, and there are no guarantees of success. Yet, because the problems of the Asian Premium cannot be ignored, medium-to-long-term steps that aim at reducing the Asian Premium must be considered, as shown in Table 3-1.

Table 3-1: Medium-to-Long-Term Steps for Asian Consuming Countries to Reduce the Asian Premium

- | |
|--|
| <ul style="list-style-type: none">• Expansion of trading in petroleum products in Northeast Asia and Asia• Preparation and expansion of oil markets in various Asian consuming areas• Promotion of oil market arbitrage between Asia and Europe/United States• Development of alternative crude oil supplies for Asia other than Middle East crude oil• Increasing procurement of crude oil from areas West of Suez, such as West African crude oil• Development of new neighboring oil resources such as Sakhalin and Far East Russia• Greater development of gas-to-liquid fuels (GTL) from coal and natural gas• Further strengthening of flexibility in consuming areas• Increased flexible combinations from crude oil processing and import/export of oil products• Strengthening of flexibility of energy selection on the consumer side |
|--|

One means to reduce the Asian premium is to enhance the market for petroleum products in Northeast Asia, which has an oil consumption scale equal to that of Europe and the United States. Wider trading in oil products would provide oil-producing countries with information on pricing that is required for better competition between oil and other forms of energy in Asia. Such competitive linkages are already established between Europe and the United States, but the formation of linkages with Asia, Europe and the United States through the development and expansion of the Asian market is also an important issue. This issue will be studied in the final section of this paper.

The second measure is the development of alternative crude oils other than Middle East crude oil. The procurement of West African and North Sea crude oils that are being produced now is a problem that has already been mentioned and it is not an effective short-term option. However, in the medium- to long-term, it has potential for becoming an effective option. Three possible directions are: to develop and procure crude oil West of Suez, such as West African crude oil; to develop and procure neighboring oil resources, mainly Russian, such as Sakhalin and Eastern

Siberia, and to develop gas-to-liquid (GTL) fuel from coal and natural gas. The second of these, the development and procurement of Russian crude oil, will be studied in the next section.

The third measure is to strengthen flexibility in energy supply. Specifically, although many Asian countries have traditionally protected local refining industries and prioritized processing of crude oil, increasingly it is possible to improve flexibility by mixing a dynamic combination of crude oil treatment and the import/export of petroleum products.

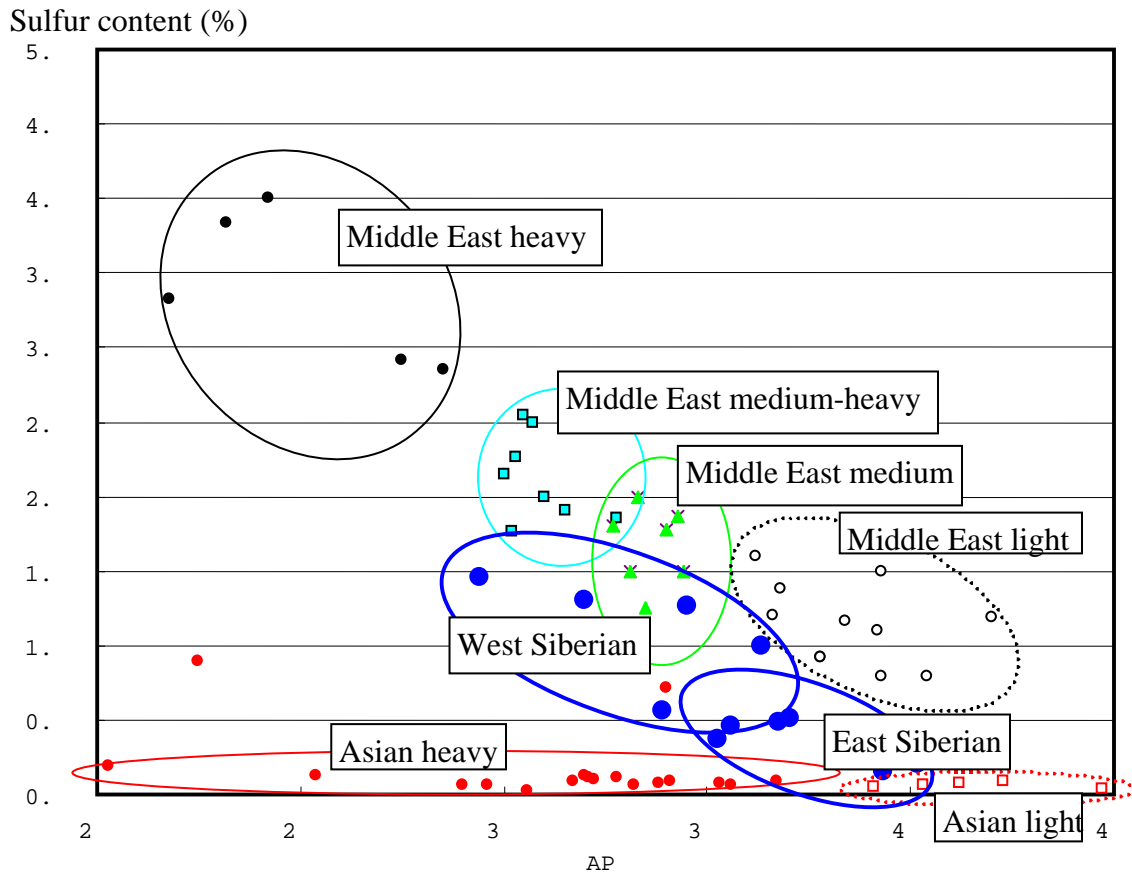
The Role of Siberian Crude Oil Exports to the Asia Pacific Region

Russia, with its abundant oil and gas resources provides an important alternative for the development and procurement of alternative crude oils other than Middle East barrels. Russia is planning to build a crude oil pipeline from Angarsk to Nakhodka in order to supply the Asia Pacific region with Western Siberian crude oil or possibly Eastern Siberian crude oil yet to be developed.

Crude oil imports to Japan encompass a wide range of crude oils of differing qualities as shown in Figure 3-4. Western Siberian crude oil ranges in quality from 29 to 37 API degrees and sulfur content from 0.5% to 1.5%. Eastern Siberian crude oil is thought to range from 35 to 40 API degrees with a sulfur content from 0.3% to 0.5% and is relatively lighter and sweeter than Western Siberian crude oil.

If light, low sulfur content Western Siberian crude is mixed with Eastern Siberian in the future, a Siberian blend crude from Nakhodka is likely to have an API range of 35 to 40 degrees and a sulfur content of 0.2% to 1.0%. From the point of view of API rating and sulfur content, a blended Siberian crude from Nakhodka would be comparable to Middle East light crude oil, favored for processing in Japanese refineries. Blended Siberian crude would be comparable to Murban (API 40.0 degrees, sulfur content 0.79%) or Arabian Extra Light (API 38.4 degrees, sulfur content 1.16%), which are typical Middle East light crude oils.

Figure 3-4: Comparison of Siberian Crude Oil and Other Crude Oils Imported by Japan in Terms of to API Rating and Sulfur Content



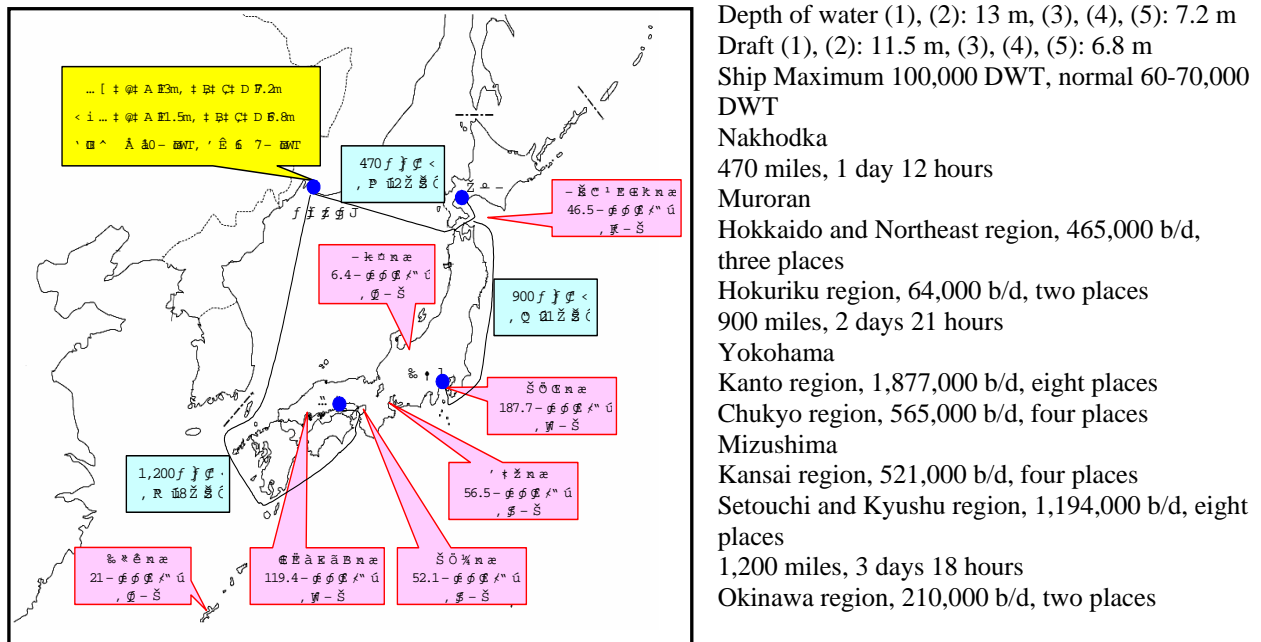
Moreover, according to refinery topping yield rates, both Eastern Siberian and Western Siberian crude oil are also of comparable value to Middle East light crude oil in Japanese refineries.

Figure 3-5 shows possible supply paths for Siberian crude oil to be shipped to Japan from Nakhodka, including routes to refineries on Hokkaido and in the Tohoku, Kanto and Chukyo regions, going south through the Tsugaru Strait to the Pacific Ocean side. Another route passes south through the Sea of Japan and around the south of Kyushu to refineries in the Kansai, Setouchi and Kyushu regions. From Nakhodka to Muroran through the Tsugaru Strait is a distance of 470 miles, taking 1 day and 12 hours, and to Yokohama is a distance of 900 miles taking, 2 days and 21 hours. From Nakhodka to Mizushima through the Tsushima Strait and the

south coast of Kyushu is a distance of 1,200 miles, taking 3 days and 12 hours. Overall, it would be possible to carry crude oil from Nakhodka to the key refineries in Japan involving very short sea voyages over a few days.

The port of Nakhodka has berths in water 13 meters deep for 11.5 meters draft and in water 7.2 meters deep for 6.8 meters draft. It might be possible for a 100,000 DWT vessel to physically enter one of the berths, but it could not be fully loaded with crude oil. The proper size of vessel capable of loading is limited to a 60,000 or 70,000 DWT ship. To facilitate exports to the U.S. West Coast, plans are in the works for a new berth to be built to accept a tanker of about 200,000 DWT near the Bay of Perevoznaya. New, larger berths at Nakhodka port would also make sense.

Figure 3-5: Current State of Oil Loading Capability at the Nakhodka Port and the Logistics of Supply to Japan

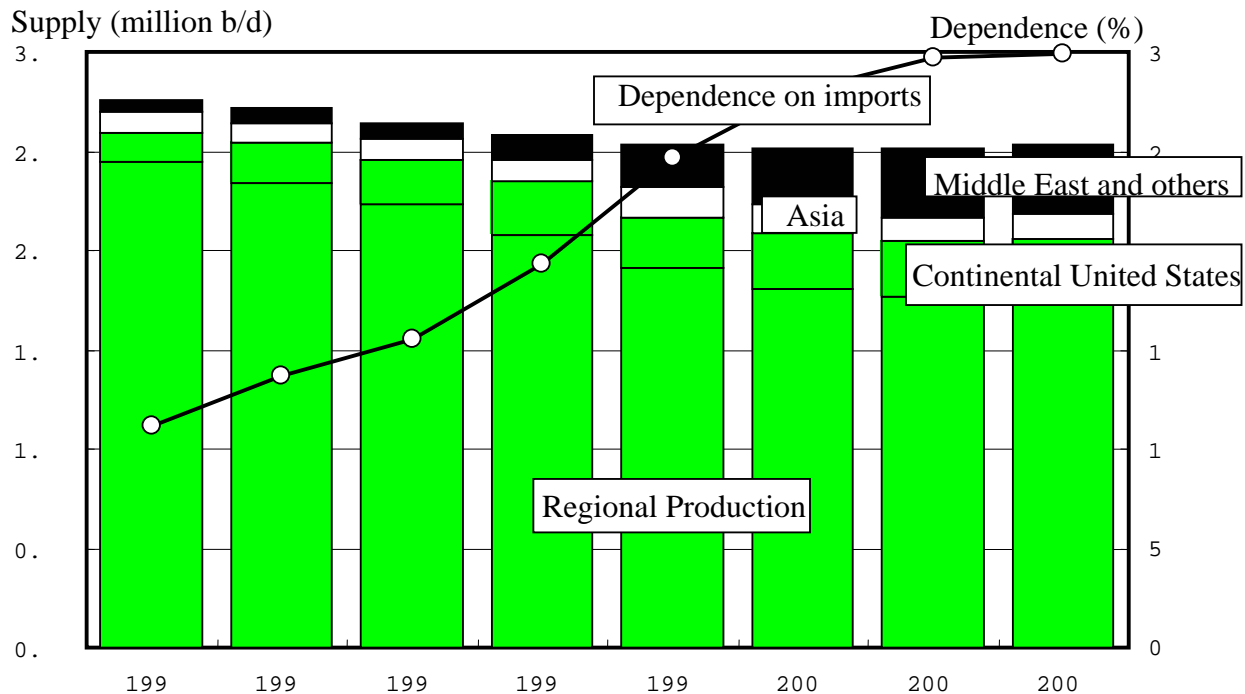


Japan would become a major consumer of Siberian crude oil as well as China, Taiwan and Korea in Northeast Asia and the ASEAN countries of the Philippines, Vietnam, Malaysia, and Thailand east of Malacca. In 1995, imports from these countries were on the same scale as Japan at

around 4.5 million b/d, but in 2001 they nearly doubled to 7 million b/d, and they are expected to rise sharply towards 2010.

The rapid decline in the production of Alaskan crude oil since 1995 has increased U.S. West Coast dependence on Asian crude oil imports from a little over 10% in 1995 to around 30% in 2001. The U.S. West Coast is also importing more oil. Given that U.S. West Coast imports are rising, Siberian crude oil from Nakhodka could well take on an important role in U.S. West Coast supply and demand.

Figure 3-6: Increased Crude Oil Imports to the U.S. West Coast and the Position of Middle East Crude Oil



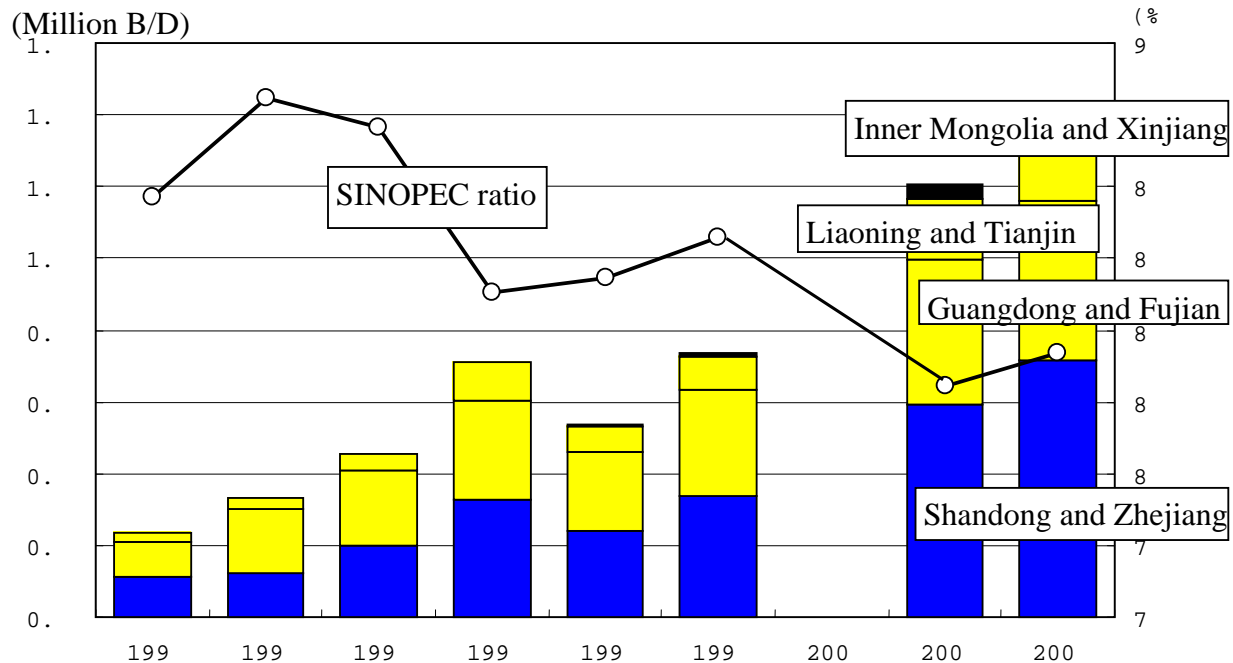
Source: Data from "Petroleum Supply Annual", U.S. DOE

China National Petroleum Corporation (CNPC) would like to bring Siberian oil by pipeline to Daqing in Northern China. China also has surging crude oil demand in the South, which falls under the domain of the China Petroleum and Chemical Corporation (SINOPEC). To ship Siberian crude oil to China's southern coastal regions, direct supply by crude oil tanker from Nakhodka might be more practical than pipeline supplies to Daqing.

As shown in Figure 3-7, areas under the jurisdiction of SINOPEC, such as the provinces of Guangdong, Fujian, Zhejiang, and Shandong, account for more than 80% of the rapidly increasing import of crude oil by China at present. By contrast, crude oil imports for coastal areas under the control of CNPC, such as Liaoning Province and Tianjin City, are only 10%.

Japan has the potential to be a large-scale importer of Siberian Crude. But, with the developing areas of Northeast Asia and Southeast Asia—where the demand for oil is expanding dramatically—and the U.S. West Coast expanding its crude oil imports due to reduced Alaskan crude oil production, there is a likely to be strong competition in the Asia Pacific market for Siberian crude oil other than Japan. There are more benefits to be gained from tapping the large potential strength that is growing in the Asia Pacific region rather than making specific fixed contracts. Once the crude oil export pipeline to Nakhodka is in place, it will be possible to ship freely from there to anywhere in the Asia Pacific market using the existing crude oil supply infrastructure.

Figure 3-7: Greater Crude Oil Imports in China’s SINOPEC Control Areas



Source: Data from annual Chinese trade statistics

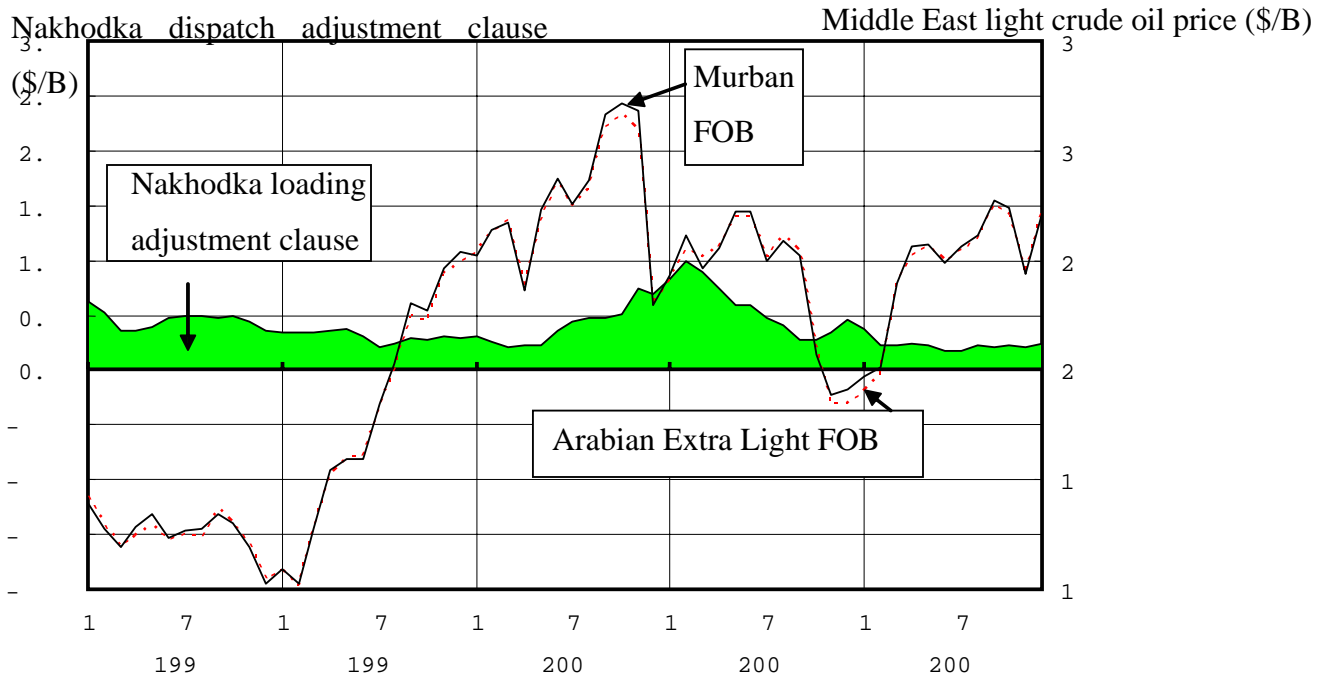
As we have already discussed Siberian crude oil is most similar to Middle East light crude oil represented by Murban or Arabian Extra Light. Therefore, we have studied a price level for Siberian crude oil arriving in Japan that would be competitive with respect to Murban and Arabian Extra Light.

The term FOB price of Murban is determined monthly using a retroactive formula. The term FOB price of Arabian Extra Light is similarly determined monthly by Saudi Arabia which adds a monthly adjustment clause using the Dubai and Oman monthly average price as a marker. Comparing the monthly prices in term contracts for both over the five-year period from 1998 to 2002, as shown in Figure 3-8, it can be seen that no great price differential exists between the two.

Delivered price levels on arrival in Japan at Yokohama can be calculated when the transportation cost relating to VLCC size tankers from the Middle East to Yokohama is added to FOB prices. By deducting the transportation cost relating to 70,000 DWT size tankers from Nakhodka to Yokohama from the delivered price levels, we can calculate the level of FOB price for Siberian crude oil loaded at Nakhodka. The value calculated by deducting the costs of transportation from the Middle East to Yokohama and from Nakhodka to Yokohama could then be utilized as a Nakhodka loading price adjustment.

Over the last five years, the term price of Middle East crude oil has been flexibly set monthly in line with market price changes. To be competitive, the term price of Siberian crude oil must compete with this monthly price for Middle East oil. Spot prices for Siberian crude oil will fluctuate in line with Northeast Asian supply and demand fundamentals.

Figure 3-8: Latest Price Change of Middle East Light Crude Oil and Competitive Level of Crude Oil from Nakhodka



Russian crude oil will be most competitive in the Asia Pacific market by allowing a combination of term and spot supplies. Russia already has a record of gaining great success by adopting this kind of export strategy for crude oil exports to Europe.

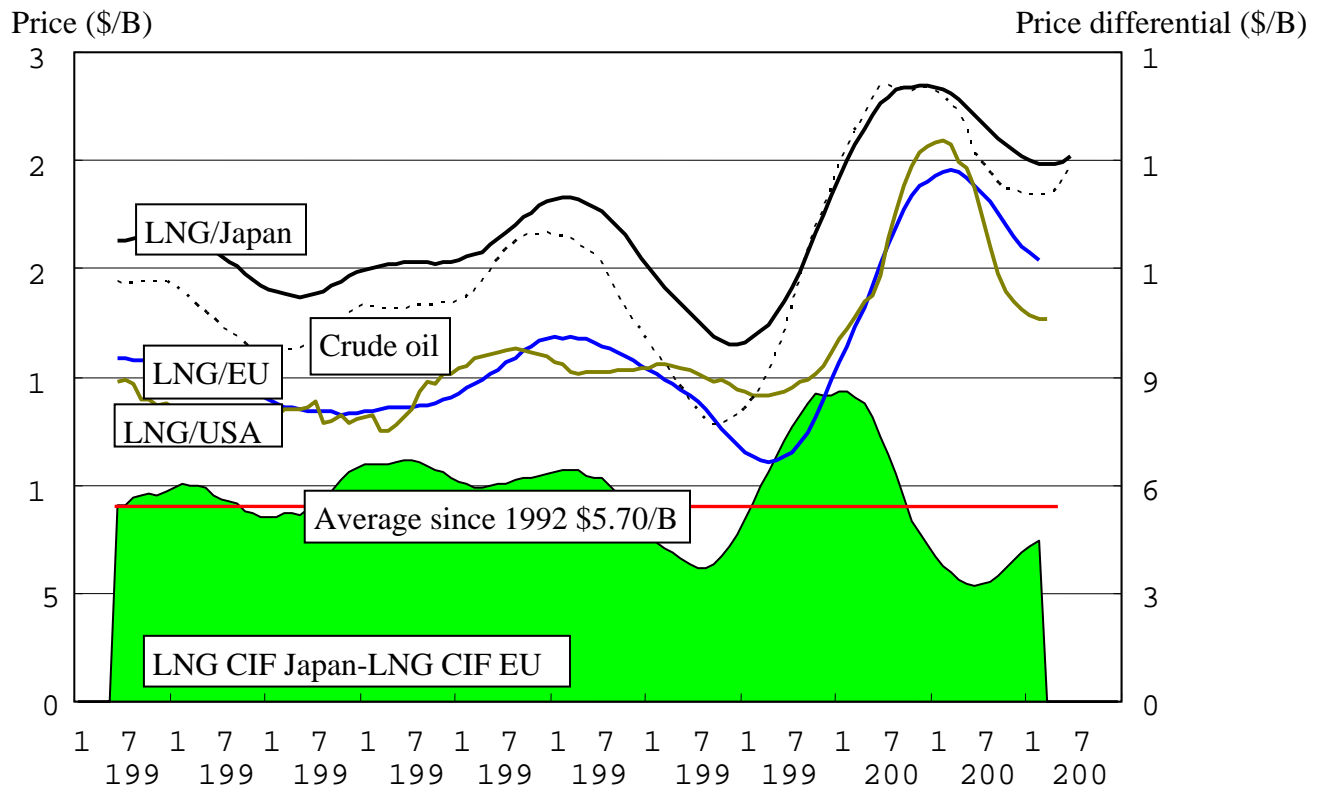
Such flexible pricing for Siberian crude oil will allow Russian exporters to make large inroads into the Asia Pacific market, with exports to Japan, as well as to the developing East Asian regions east of Malacca and the U.S. West Coast. The supply of Siberian crude oil by sea transportation from Nakhodka to the Chinese south coastal region, where crude oil imports are now increasing rapidly, may also take place.

It is important that attractive conditions for sales of Siberian crude oil be arranged to allow it to compete with Middle East crude oil. The pursuit of contracts with inflexible conditions would reduce sales outlets for Siberian crude oil.

Asian (Japanese) Premium and Recent LNG Trends

The discussion up to now has been centered on the Asian Premium for oil. In this section, the question of the LNG price premium to Japan is covered. According to data shown in Figure 3-9, LNG prices to Japan exceed delivered price levels for crude oil imports. By contrast, for most of the periods, delivered LNG prices for the United States and Europe are lower than the delivered price levels for imported crude oil to those markets.

Figure 3-9: Changes in the Asian (Japanese) Premium for LNG



From 1992 to the present, Japanese LNG prices were \$5.70 per crude oil equivalent barrel higher than LNG prices to the European Union. In the same period, the premium for LNG is exceedingly high when compared to oil prices. Thus, the LNG premium to Japan is of a greater magnitude than even the oil premium.

In Asia, where LNG represents the main vehicle of gas trade, in order to cope with the huge initial investment of an LNG project, the price of crude oil of equivalent heat value has traditionally been used for setting price. On the other hand, in Europe and the United States, where natural gas is delivered mainly by pipeline and competes with other fuels for power generation burning, the price of pipeline gas has been at or below the level of fuel oil of equivalent heat value. Natural gas must also compete with coal in the power generation sector. This broader fuel competition keeps the LNG prices for the Europe and the United States on a different basis than for Asia where the link to crude oil prices is paramount.

In the future, this Asian LNG price differential may be reduced over time. Plans to build LNG complexes on the North American West Coast may foster a greater link between the United States and Asian markets (see table 3-2). During the 1990s, while the deregulation of U.S. energy market was being promoted, the demand for natural gas in California suddenly expanded due in part to growing requirements for the power generation sector. U.S. domestic natural gas supplies are not expected to keep pace with local demand, forcing the United States to become a major importer of LNG.

Table 3-2: Construction Plans for LNG Sites in the North American West Coast

Company	Building Site		Capacity (MMcf/D)	Year	Status of Approval
Marathon	Tijuana	Baja California Mexico	750	2006	CRE approved
Sempra	Ensenada		750	2007	SERAMAT, CRE approved
Shell & Gas Power	Ensenada		1,000	2007	SERAMAT, CRE approved
Chevron Texaco	Rosarito		750	NA	CRE approval pending
Conoco Phillips	Rosarito		680	NA	
Crystal Energy	Ventura offshore	California USA	500	NA	
Mitsubishi	Long Beach		700	2007	
Calpine	Humboldt Bay		NA	NA	
BHP Billion	Ventura offshore		800	2008	

Source: Kazuo Nishikiori, “Trends for receiving base projects on the North American west coast—background and current status, effect on the Pacific Ocean LNG market,” Institute of Energy Economics, Japan

As shown in Table 3-2, several plans are being put forward in response to anticipated demand for imported gas on the U.S. West Coast, including a proposed terminal on the Mexican Baja peninsula that would supply natural gas by pipeline from there to California. Another plan under consideration is to build LNG facilities in Los Angeles to supply the rest of the state.

Were California to import LNG from overseas, the product would primarily be procured from the Asia Pacific region. Since California’s current natural gas supply comes by pipeline from U.S. domestic sources, the LNG import price would become more responsive to U.S. domestic price trends. Asian buyers will want to resist the possibility that Asian LNG prices will exhibit different price differentials for different destination areas.

China is also becoming a major buyer of LNG especially in the southern coastal areas such as Guangdong and Fujian, where there are numerous construction plans for LNG import facilities. In particular, the Guangdong project and the Fujian project, which are due to start importing in 2005 and 2007, respectively, have signed LNG import contracts with gas producing countries (see Figure 3-3). According to reports, Chinese purchases of LNG will take place at more competitive pricing terms than existing LNG contract terms agreed by Japan, South Korea and Taiwan.

Table 3-3: Plans for Construction of LNG Import Facilities in China

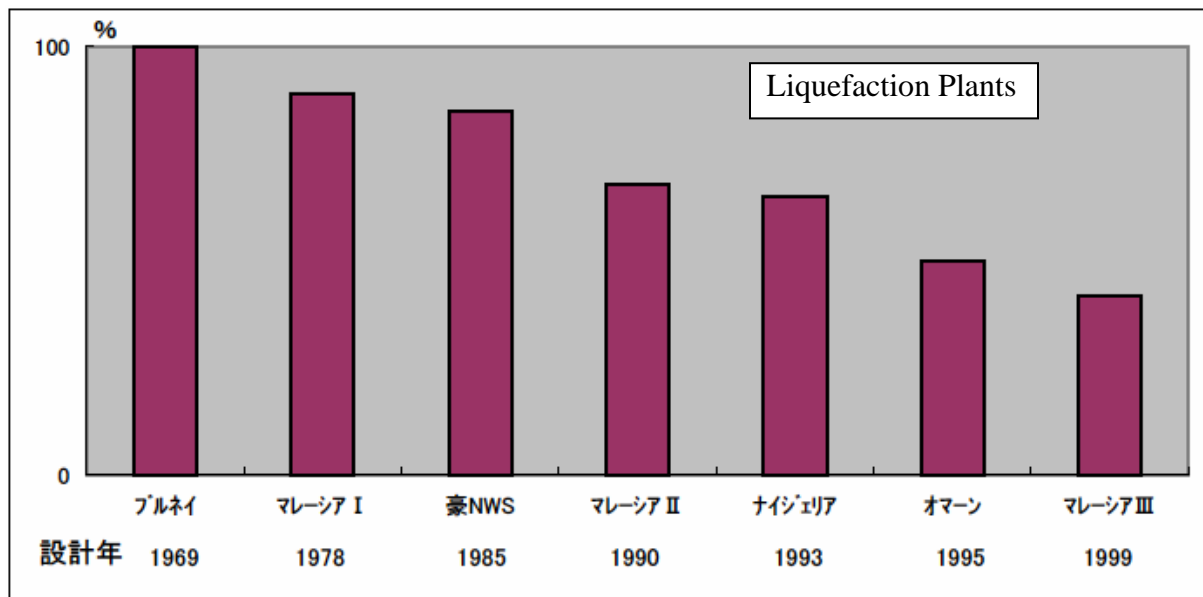
Location	Scale	Supplying country	Start year
Guangdong (CNOOC)	Phase 1: 3.7 million ton Phase 2: 3.0 million ton	Australia	2005
Fujian (CNOOC)	Phase 1: 2.6 million ton	Indonesia	2007
Shanghai (CNPC)	Phase 1: 3.0 million ton Phase 2: 6.0 million ton	FS completed	2008 2012
Shandong (CNOOC)	Phase 1: 2.5 million ton	FS in progress	NA
Jiangsu (CNPC)	NA	FS in progress	NA
Zhejiang Sinopec	NA	Undecided	NA

This means that a two-tiered price market is emerging in Asia. In China, where energy demand continues to grow, the construction plans reflected in Table 3-3 are merely a part of a larger picture, and new projects expected to be added in the future. Japan needs to avoid becoming saddled with the legacy of historical price setting systems and to understand the preferential pricing terms being developed on new projects.

Thanks to the technological achievements, the cost of liquefaction plants is less than half what it was around 1970, and the cost of the construction plans of LNG ships has dropped to around 60% of the peak level.

The reduction of the cost of LNG supply due to technical innovations is the basis for expediting new Atlantic Basin LNG projects that will become the mainstream for Europe and the U.S. LNG supply to European, and U.S. markets will have to compete with international fuel oil prices and pipeline gas. Pricing for new LNG projects starting up in the Asia Pacific region must also respond to trends in the global marketplace. Actually, the comparatively low-price Chinese system helped draw out the true competitive strength of LNG through negotiation.

Figure 3-10: Cost Reduction Due to LNG Technical Innovation



Brunei

Malaysia I

Australian NWS

Malaysia II

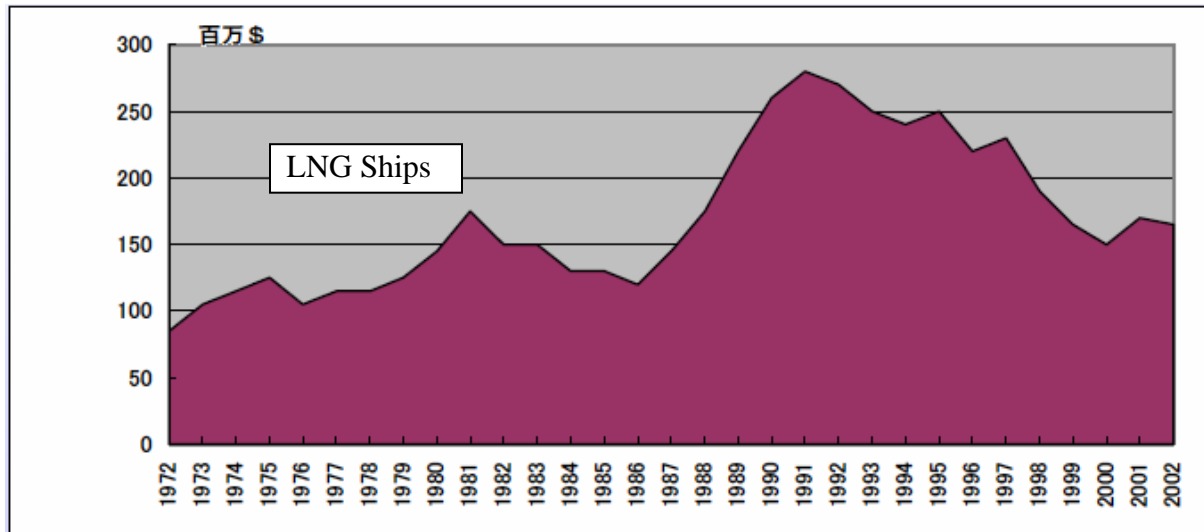
Source: Data from Royal Dutch/Shell website

Indonesia

Oman

Malaysia III

Design Year



Million \$

Source: *LNG One World*

The fourth factor in LNG price determination is energy deregulation. Japan began deregulating its energy industries in the mid-1990s and the pressure for reducing prices in relation to the procurement of energy has largely been working. In the past, the electric power industry and the city gas industry were setting their charges by cost accumulation with a device known as the generalized cost system and the incentive to reduce procurement was not working effectively. But with deregulation, competition in a partially-liberated market increased in intensity, and procurement costs ultimately began to fall.

An LNG contract was signed recently with Sakhalin II, but the negotiations over pricing conditions were reportedly extremely difficult. In the future, a number of negotiations to extend existing LNG contracts will be put forward, but because major depreciation has occurred in these projects, tough negotiations over pricing conditions can be expected.

In order to improve the system for setting the price of LNG for Asia, as shown in Table 3-4, specific plans for the latest new price setting systems are being set forth. Based on the four major factors that have been discussed, setting the Asian LNG price will probably have to take into account how to promote gas use in Asia, requiring truly competitive prices related to a cost basis. Moreover, if this competition is pursued thoroughly, it will lead to natural gas having sufficient

competitive strength to fight coal, and it will naturally become a factor that affects the Asian Premium for oil.

Table 3-4: Direction of Studies of New LNG Price Setting Systems in Asian Region

- Fixed price (Statement by PETRONAS Vice-president for gas demanding stability not affected by oil price)
- $P=aX+b$ where “a” is small and close to a fixed price (China and India demanding price reduction and stabilization)
- Increase the ratio of fixed factors and reduce the ratio of components linked to crude oil price (Proposal by Japanese importers at world gas convention demanding price reduction and stabilization)
- Use coal/coal-fuel oil-crude oil/ retail price of power, etc. as price indicators (Maintain and fix competitiveness with European continental formula, LNG for power generation and other power sources)
- Use petroleum products such as fuel oil and kerosene as price indicators (Maintain and fix competitiveness with European continental formula and other fuels that compete with LNG for city gas)
- Link to Nymex futures
- Separate contracts for amply flexible delivery (able to cope with season demand) and fixed delivery (separation of price and flexibility)

Source: Hiroki Morita, “LNG: Flexibility of prices that have started to fall and supplies that increase—the diversity of contracts arising from risk reallocation”, Institute of Energy Economics, Japan

In addition to LNG and natural gas enhancing price competition in Asia, the infrastructure improvement for the development and supply of Sakhalin and Eastern Siberian natural gas is an option that can play an extremely important role. Using the natural gas resources that have been discovered within its country as a lever, China is pushing forward with the construction of a pipeline from the Tarim basin to Shanghai. The establishment of this pipeline will play an important role since it will open a potential route to link up access to the gas resources of the former Soviet Union, including natural gas deposits in Russia and Turkmenistan.

Although pipeline gas and LNG are in the same kind of competition as they are in Europe and the United States, Asia also needs a market structure for competition between other energy forms such as coal and oil. The construction of a trunk line gas pipeline in China will undoubtedly become the basis for such fuels competition when it is completed.

It is not that a policy needs to be adopted that would alter the high price of LNG in Asia by eliminating Asia fuels that are competitive with coal but rather a matter of expanding the use of natural gas in Asia so as to demonstrate its true competitiveness in the region. The role that the supply of Russian natural gas must fulfill from now on is a major one for Asia

Preparation of an International Oil Market in Northeast Asia

In the final section, we investigate the nature of the oil market in Asia. Table 3-5 compares the characteristics of the Asian oil market of Asia with those of Europe and the United States and reveals major differences in various aspects. Crude oil markets in Europe and the United States have a wide variety of competing crude oils, among which there are price markers, mature markets such as the futures market, and highly transparent price discovery. In the case of Asia, Middle East crude oil is dominant. Despite the recent increase of West African crude oil trade to Asia, there is no local regional price marker. Futures markets are undeveloped, and price formation has a low degree of transparency.

Table 3-5: Characteristics of Asian Oil Market and the Differences with Europe/United States

	Asia	Europe/United States
Crude Oil	<ul style="list-style-type: none"> - Futures market is undeveloped - Price transparency is low - Middle East crude oil is central - West African crude oil is increasing - No local regional price marker 	<ul style="list-style-type: none"> - Futures market is mature - Price transparency is high - Middle East crude oil is marginal - Variety of competing crude oils - Local regional price marker
Products	<ul style="list-style-type: none"> - Regulations remain, little need for risk management - Singapore is the only market - Large cargo transactions - Price formed by crude oil price plus cost 	<ul style="list-style-type: none"> - Strong free market - Developed spot market for domestic and regional products - Variety including cargo and barges - Spot and futures largely related to crude oil and products prices

Petroleum products markets in Europe and the United States are also highly competitive, with a wide variety of transactions including term contracts and spot sales of cargoes and barges. There are lively spot markets for domestic and regional products as well as liquid futures trading, and price formation is highly fluid and transparent. Crude oil and petroleum products can be mutually influential in determining price relationships. In the case of Asia, on the other hand, transactions are mainly large-scale cargoes. Singapore is the only international trading center in the region. The oil markets of many Asian countries remain under government regulations. Prices of petroleum products are determined by adding costs on top of the crude oil price, limiting the need for risk management.

Up until 1996, the high Asian price structure of petroleum products was supported by a chain in which first a global crude oil price was determined by the European/U.S. supply and demand relationship, next the price of crude oil for Asia was determined from the global crude oil price,

and finally, the price of Asian petroleum products was determined by adding costs to the price of crude oil for Asia. As a result of the surplus in refining capacity created by the decline in the demand for oil due to the Asian economic crisis, since 1997 a situation has been emerging in Asia in which the products market is finally pressuring crude oil prices. However, the formation of prices of individual products, such as the steep rise in the price of fuel oil, is still considerably different from operating conditions in Europe and the United States, and it cannot yet be said that price links have been made between Asia, Europe and the United States to relate petroleum products price.

One basic and important response measure, as shown in Table 3-6, is to develop Northeast Asian international oil markets in Japan, Korea, China, and Taiwan. Seen from the major consuming areas of Northeast Asia, Singapore is little more than a simple relay market. The strength of Asian petroleum products markets for balancing and adjusting through global price links may be considered essential to suppress unilateral moves by oil-producing countries to have the price of crude oil accepted by consuming countries.

Table 3-6: Conditions Essential for the Development of Asian Oil Markets

- Undeveloped oil markets in the major oil consuming areas of Northeast Asia
 - Large-consumption area with 12 million b/d oil demand equal to Europe/U.S.
 - Oil markets are undeveloped in the center of a major consumption area
 - Singapore market is a relay base for Northeast Asia
 - Information on competitive energy relations of large-consumption area must be transmitted
- Conditions essential for development of Asian petroleum products markets
 - Activation of oil products trade in Asian region
 - Deregulation and privatization of oil industry in Asian consuming countries
 - Unification of petroleum product quality standards in Asia

In order to reach this objective, it is important to enliven international trade activities in petroleum products and to develop the Asian oil market through the deregulation and

privatization of the domestic markets of various Asian countries. In addition, it is also essential to increase market fluidity and transparency by expanding favorably in Europe and the United States and establishing functions such as a mature futures market.

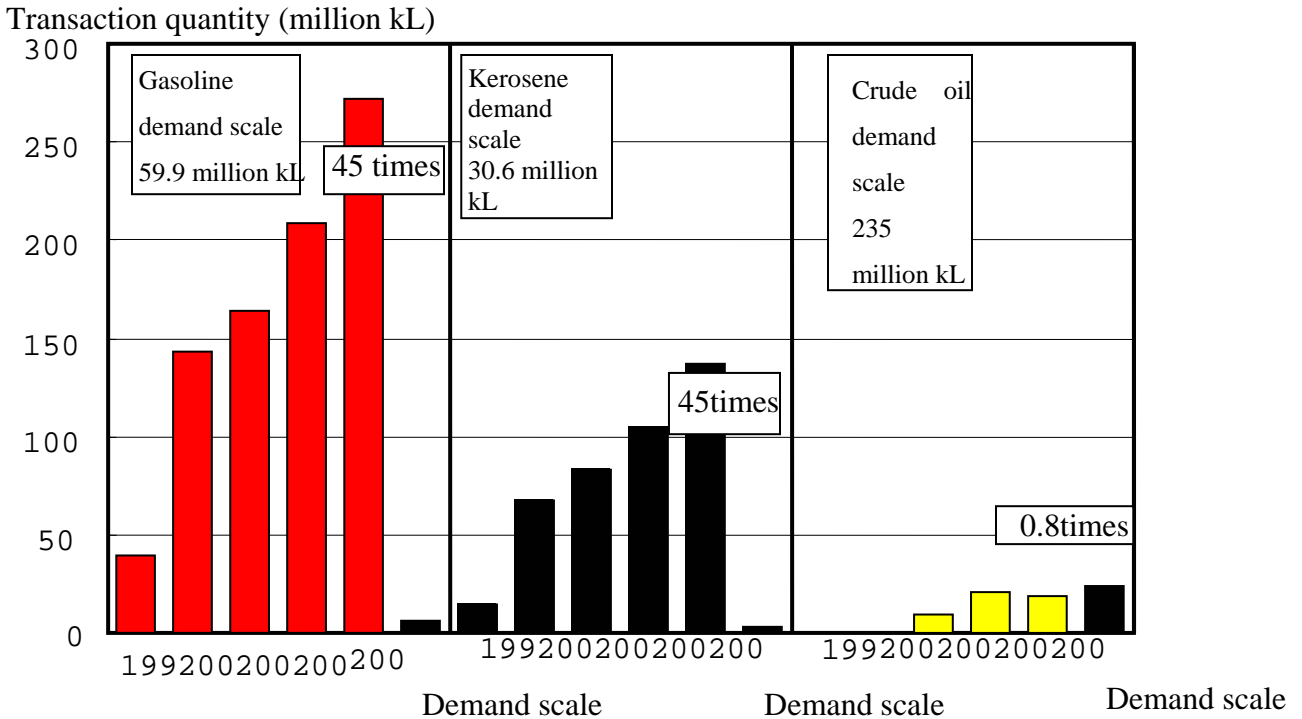
In order to realize smooth trading in petroleum products within the Asian region, arrangements must be made to unify the quality standards of petroleum products so that they do not become an obstacle to the reciprocal exchange of products. China has gained entry into the World Trade Organization (WTO) and, in order to satisfy WTO requirements, the substantive restrictions that had prohibited the import of gasoline and kerosene were removed in January 2004. In the future, with China's quick entry into petroleum products trading within the Asian region, market development can be expected to gain momentum.

Because of the difficulty of rationalizing surplus oil refining capacity, crude oil processing is taking priority in Japan, but already oil companies are moving in the direction of activities that flexibly combine crude oil processing with the import/export of petroleum products. In that sense, the conditions for the development of a petroleum market in Northeast Asia are being assembled.

As the development and expansion of an actual market proceeds, the development of a futures market becomes essential. With regard to futures transactions, the Tokyo Commodity Exchange in Japan listed gasoline and kerosene futures in 1999, and as shown in Figure 3-11, the transactions have increased each year. In 2003, the demand for each contract expanded to 45 times the actual demand. Crude oil was listed in 2001, and gas oil transactions began in 2003.

Figure 3-11: Initiation and Expansion of Oil Futures Transactions on the Tokyo Commodity Exchange

Demand scale



Futures prices on the exchange have gradually begun to show daily changes. There is a greater necessity and safety in hedging prices by using futures transactions. Examples of domestic prices for petroleum products include spot (trader reselling) prices that appear in the specialist oil magazine “RIM”, transaction prices of the J-Oil Exchange (JOX) developed mainly by major petroleum companies in Japan (Motouri), and futures prices on The Tokyo Commodity Exchange or Chubu Commodity Exchange. In the liberalization of the market under deregulation, three prices are gradually beginning to move.

China’s Shanghai Future Exchange has applied for the listing of petroleum products. The exchange plans to start fuel oil transactions within a year and was also considering listing gasoline and gas oil. By establishing a framework for importing petroleum products from

January of this year, China has removed quantity restrictions, and it is expected to import not only high volumes of fuel oil but also gasoline and gas oil.

In Northeast Asia, centered mainly on China, Japan, Korea, and Taiwan, moves to establish a market by increasing trade in petroleum products are growing stronger. Businesses that once had no need for oil futures are now finding futures trading useful not only in Japan but also elsewhere in Asia. Due to the enrichment of market functions, the formation of marker prices that are the base for the activity should be watched closely.

Moreover, seen from the medium- to long-term viewpoint, greater spot trade of Middle East crude oil will be important to Japan. The greater the spot transactions of Middle East crude oil, the more likely the Middle East crude oil market will function as a truly global central crude oil market like Brent or West Texas Intermediate crude oil. Working on the Middle East oil-producing countries to introduce an arrangement such as this is also an important issue for the future.

Getting Middle East oil-producing countries to use crude oil spot transactions, as shown in Table 3-7, is also essential for minimizing crude oil price fluctuations. Minimizing crude oil price fluctuations will naturally bring about stability in oil revenue for the oil-producing countries. Oil-producing countries worry about the possibility of a price discount for spot trading but in the market with currently diminished capacity for surplus production, this risk is not great. If achieving spot transactions in the Middle East can bring about the formation of a standard price, then the Asian Premium will disappear of its own accord.

Table 3-7: Spot Transactions of Middle East Crude Oil and the Stabilization of Crude Oil Prices and the Oil Market

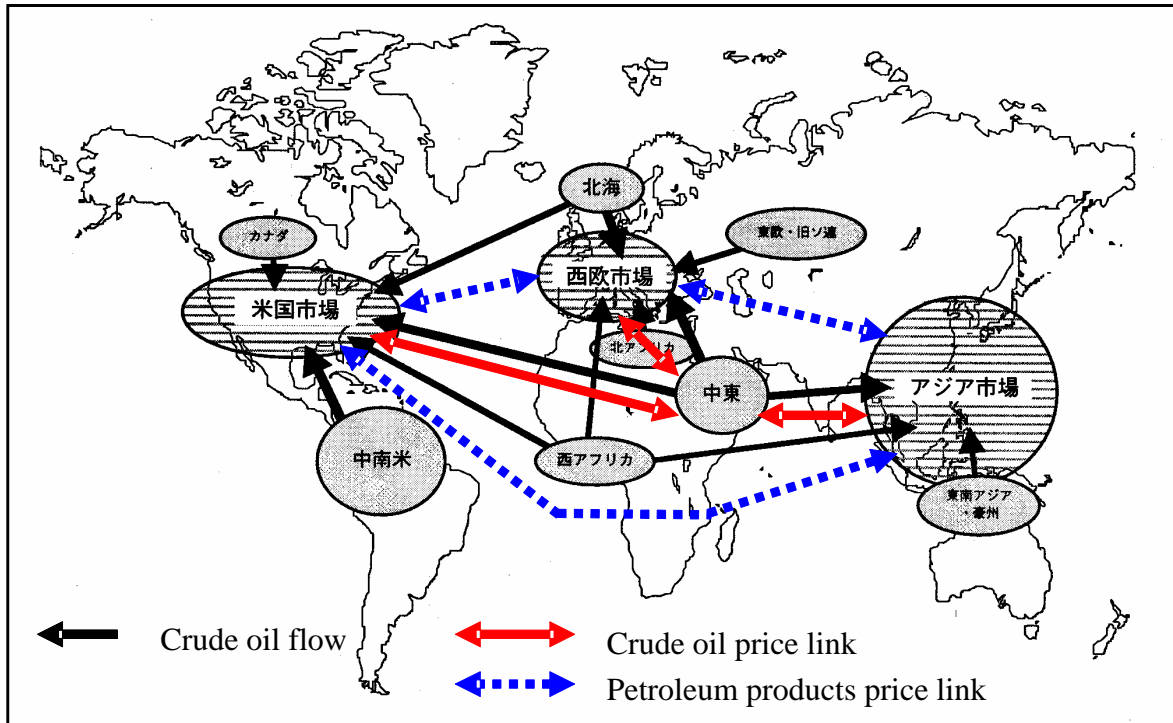
- Factors causing crude oil prices to fluctuate violently
 - Excessively high OPEC price band and production adjustment
 - Weakened supply cushions such as shortage of refining capacity and low storage level
 - Excessive reaction of futures market and actual commodities market bottleneck
 - Reflection of marginal supply by marginal markers
- Formation of marker price by Middle East crude oil spot transactions
 - Middle East crude oil reflects mainstream and global supply
 - Consistent with production adjustment without direct intervention in spot transactions
 - Stabilization of crude oil price is an important issue for oil-producing countries also

From the viewpoint of crude oil price stabilization, is there room to work on oil-producing countries to adopt spot transactions?

From the aspect of prices of petroleum products, it is important to form global links, as shown in Figure 3-12, by connecting the Rotterdam market in Europe and the United States with the Persian Gulf market. If the global link market function were to be reinforced by adding Asia as well, the oil-producing countries would be in a situation where they had no alternative but to play in that framework.

In connection with the global market for petroleum products, if the functions of the oil market could establish a relationship whereby crude oil and petroleum products are mutually interdependent in an international environment, then it might be possible to ease the violent fluctuations in the international crude oil price, which has been a serious problem derived from the weakening of supply cushions since 1996.

Figure 3-12: Global links in the oil market



Canada

U.S. Market

Central and South America

North Sea

Western Europe Market

North Africa

West Africa

Middle East

Eastern Europe and former Soviet Union

Asian Market

Southeast Asia and Australia

Reducing the Asian Premium is a medium- to long-term issue that should be tackled by the consuming countries of Asia, especially those in Northeast Asia. By exerting their efforts to reduce the Asian Premium, the Asian nations can increase their bargaining power with respect to the oil-producing nations of the Middle East, prevent the problem of comparatively high cost that besets all energy forms from becoming more serious and perhaps even be able to eliminate it.

For Asia to tackle problems such as these, the significance of Russian oil and gas resources cannot be overlooked. If Siberian crude oil can be shipped at a price level competitive with

Middle East crude oil, it could find an extremely large potential market in the Asia Pacific region, including the U.S. West Coast.

Should Siberian crude oil to be shipped in spot transactions from Nakhodka, it is highly possible that it would become an indispensable price marker for setting the price of crude oil in Asia. Moreover, spot transactions of Siberian crude oil would also be an important factor in the development of a Northeast Asian oil market. Interested parties such as Russia, the United States, Japan, and China must endeavor to help foster such a market by collaborating on supporting the competitive power of Siberian crude oil exports.

Demonstrating the real competitive power of natural gas and LNG could greatly advance the increased use of natural gas in Asian consuming nations. LNG demand customers from the past, namely Japan, Korea and Taiwan, should devote their energies to reducing the relatively high price of LNG. Supply from Russia could fulfill an important role to advance the expanded use of natural gas and LNG in Asia by demonstrating its true competitive strength. With its competitive strength, the export of oil and natural gas from Russia is integral for Asia to help overcome its pricing nightmares and develop stronger crude, gas and petroleum products markets that are more diversified in supply sourcing and better protected from the machinations of oil-producing nations.