

Survey on the Development of Liberalization of the Oil Market in Northeast Asia and its Influence ♦

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1. The trend of the oil market in Northeast Asia

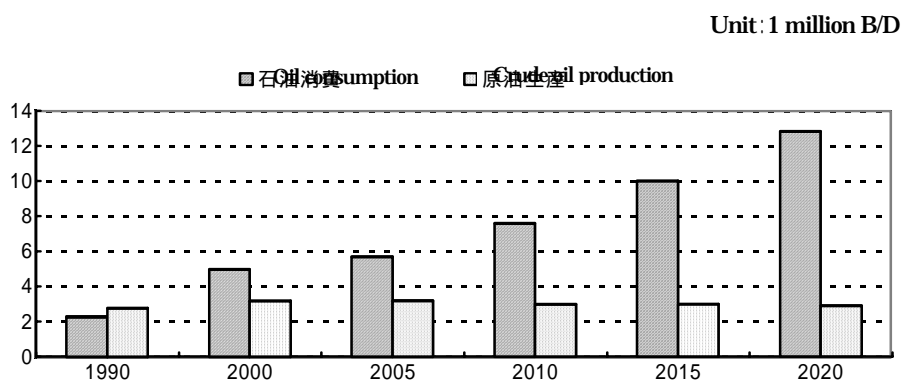
1-1 China

1-1-1 The trend of oil supply and demand

According to BP statistics, China's primary energy consumption in 2002 accounted for 10.6% of the world total, the second largest in scale after the U.S., with a high dependence on petroleum that accounted for 24.6% of primary energy. Furthermore, the annual average growth rate of petroleum demand between 1997 and 2002 was 5.8%, showing a growth rate surpassing the 0.9% growth rate of the world's total and 1.4% growth rate of the Asia-Pacific region (excluding the U.S.). Contrary to this steady increase in petroleum demand, China's domestic oil field production has been stagnant, and the gap between supply and demand has been on an increasing trend since 1993, when China became a petroleum net importing country. China's crude oil import in 2003 increased significantly to 91.13 million tons, up 31.3% compared to the previous year. According to the International Energy Agency (IEA), China became the second largest petroleum consuming country in 2003, overtaking Japan.

Furthermore, according to the IEA (World Energy Outlook 2002), China's primary energy demand is estimated to grow by 3.0% on average from 1997 to 2020 and to reach 1.71 billion tons in 2020, accounting for 14% of the world total. Its petroleum demand is also estimated to grow by 3.3% on average during the same period and to reach 0.46 billion tons in 2020. Its petroleum import is estimated to reach about 10 million B/D in 2030, equal to that at present in the United States. In China, which changed its position to that of a crude oil net importing country in 1996, dependence on imports (especially dependence on Middle Eastern countries) will be destined to rise due to the future increase in petroleum demand along with the stagnant domestic crude oil production (see Figure 1-1).

Figure 1-1 Outlook of China's Oil Supply and Demand



(Source) Based on "International Energy Outlook 2002" by the Energy Information Administration of the U.S. Department of Energy, BP Statistical Review of World Energy, etc.

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1-1-2 Measures to enhance oil security

In the 10th five-year plan in 2001 (2001–2005), five goals with overriding priority in energy policy were stated, and enhancing oil (energy) security, along with structural reform of domestic oil industries, is placed as an indispensable policy subject for sustainable economic growth. With the prospect of an expanding gap between oil supply and demand, as measures to enhance oil security, the Chinese government has been pursuing steps such as promotion and reinforcement of domestic oil development (goal for 2005: 0.17 billion tons) starting with reconfirmation of domestic resource holdings, active launch to the foreign oil upstream sector (goal for 2005: 15-25 million tons of crude oil interests), reinforcement of cooperative relationships with oil-producing countries for diversifying sources, and establishment of a national oil reserve system (see Table 1-1).

Table 1-1 China's Oil Stock (As of the end of 1999)

Unit: 10 thousand tons

	Crude Oil	Petroleum Products	Total
Petroleum/Petrochemical Group	750	500	1,250
National Oil Reserve Department	0	175	175
Other Departments	60-150	70-170	130-320
Total	810-900	745-845	1,555-1,745

(Source) Institute of Investment Research, Committee for National Projects, China

As measures to control oil import on the demand side, the goal of improving the energy intensity rate by 20% and measures for improving energy efficiency were set out in the 10th five-year plan (2001–2005). Policies for saving energy have been pursued through improvement of burning efficiency, introduction of thermoelectric supply, and overall technological development of gas resources such as industrial waste. Furthermore, China has been carrying out a liquefaction/gasification project using the third largest coal reserves in the world and coal bed methane (CBM), as well as a development project for alternative energy such as production of ethanol using biomass.

1-1-3 The trend of liberalization of the oil market

Another pillar of oil policy is the promotion of reorganization and rationalization of state-operated companies, a phased abolition of oil market regulations, and maintenance of the market. Two major vertical integration groups, CNPC and SINOPEC, which were born through reorganization of the domestic oil industry in 1998, are now facing intensifying competition by mutual entry into the market, as a result of deregulation of the domestic market. Between 2000 and 2001, the stocks that three major companies (BP, Shell, ExxonMobil) had acquired through IPO (Initial Public Offering) from the above two companies were sold, and the original strategic tie-up is being cancelled ostensibly.

Opening of the market, which was one of the international agreements on the occasion of China's entry into the WTO at the end of 2001, has been progressing in stages aiming at opening of the retail market in December 2004, and opening of the wholesale market in December 2006. Along with the progress of deregulation, the abolition and phased reduction of oil import tariffs, the expansion of the number of the import licensees through the creation of the non-state trade allotment from 10 companies in 2002 to more than 70 companies in 2004, the conditional liberalization of import from the establishment of the oil product import quota system in 2004, and the birth of the third wholesaler in the country show a gradual change in the monopoly system in the domestic market by the two major companies CNPC and SINOPEC (see Table 1-2).

Table 1-2 Changes in Import Quotas of Crude Oil/Petroleum Products

Unit: thousand tons

		2002	2003	2004
Crude Oil	State-operated	57,720	70,480	N.A.
	Non-state-operated	8,280	9,520	10,950
	Total	66,000	80,000	N.A.
Petroleum Products	State-operated	17,400	20,000	Note 1
	Non-state-operated	4,600	5,300	6,100
	Total	22,000	25,300	6,100

(Note 1) Designation by those authorized

(Source) Based on an overseas interview survey

1-1-4 The influence of liberalization of the oil market

As for the aspect of oil imports, there have been changes such as the diversification of players, the pursuit of the ideal operation system by the combination of crude oil refining and import of oil products, and the increase in supply needs attaching greater importance to economic rationality.

As for the aspect of oil industry structure, CNPC and SINOPEC are pursuing business efficiency through reorganization and cost-cutting aiming for reinforcement of their internal and external competitive strength, in advance of opening of the domestic oil market, which is the commitment on China's joining the WTO.

As for the aspect of oil prices, a revision for maintaining the market function has been implemented since the controlled oil price system for crude oil and oil products was abolished in October 1998, and the new system was introduced to establish domestic standard price based on index price considering oil price in the international oil market and the cost for supply. As a result, the difference between domestic market price and international market price is diminishing, as the domestic product price is decided on the basis of this standard price. Furthermore, combined with such changes in domestic sales price, measures for futures markets are placed as one of the policies to enhance oil security in "China's oil strategy for the 21st century," recognizing the necessity for responding to the risk of changes in international oil prices.

1-2 The Republic of Korea

1-2-1 The trend of oil supply and demand

From 1997, when Korea's oil refining capacity reached its current level (2.438 million B/D), until 2002 its consumption of primary energy had showed an increase of 2.9% on average annually, while its oil consumption decreased by 1.3% (id.). Its dependence on oil has decreased from 60.4% in 1997 to 49.1% in 2002, while its dependence on Middle Eastern countries has stayed at around 75% since 1997.

In the 2nd National Basic Plan for Energy Policy (2002–2011) announced by the Korean government in December 2002, the total demand for primary energy was revised downward by 8 to 10% compared to the first plan, and the annual average growth rate is estimated to be 3.1% between 2001 and 2011. Considering the increase in oil consumption during the same period as 2.2% on average annually, its dependence on oil is estimated to be 46.5% in 2011 and 44.8% in 2020 through reinforcement of policies for decreasing dependency (see Table 1-3). According to the IEA (World Energy Outlook 2002), the average annual growth rate for primary energy consumption is estimated to be 3.1%, and as for oil, its consumption growth rate is estimated to be 1.9%, while that of energy sources other than hydropower is estimated to surpass the total average.

Table 1-3 Outlook of Primary Energy Demand – Standard Case

Unit: million tons equivalent in oil

	2001	2006	2011	2015	2020	Annual average growth rate(%)		
						01-06	01-11	01-20
Coal	45.7 (23.1)	52.4 (22.1)	60.2 (22.4)	59.1 (20.5)	62.6 (20.1)	2.8	2.8	1.7
Hard coal	3.7	2.8	2.3	2.2	2.3	-5.6	-3.5	-2.5
Bituminous coal	42.0	49.7	57.7	56.8	60.3	3.4	3.2	1.9
Petroleum	100.4 (50.6)	116.3 (48.9)	125.4 (46.5)	131.8 (45.7)	139.6 (44.8)	3.0	2.2	1.8
LNG	20.8 (10.5)	31.2 (13.1)	33.2 (12.3)	41.7 (14.5)	48.0 (15.4)	8.5	4.8	4.5
Hydropower	1.0 (0.5)	1.1 (0.5)	1.2 (0.5)	1.2 (0.4)	1.2 (0.4)	0.8	1.6	0.5
Nuclear power	28.0 (14.1)	32.6 (13.7)	43.5 (16.2)	47.8 (16.6)	52.0 (16.7)	3.0	4.5	3.3
Wood and Coal , etc.	2.3 (1.2)	4.0 (1.7)	5.8 (2.2)	6.8 (2.3)	8.6 (2.7)	11.5	9.6	7.1
Total	198.3	237.6	269.3	288.2	311.8	3.7	3.1	2.4

(Source) Government – The 2nd National Basic Plan for Energy Policy

The numbers in the parentheses in the table represent the distribution ratio, %.

1-2-2 Measures to enhance oil security

In the 2nd National Basic Plan for Energy Policy, the basic policy is defined to enhance energy security and to establish an efficient and stable energy supply and demand system, on an analysis of factors in environmental changes surrounding energy markets including measures for environmental problems. As mentioned above, this plan clearly set a numerical goal for decreasing dependence on oil in primary energy demand, and for that purpose it pointed out the future course of energy policy and the problems with overriding priority aiming at building a complementary system covering energy as a whole (see Table 1-4).

Table 1-4 The Course of Energy Policy in the Second National Basic Plan for Energy Policy and Key Issues

Sustainable Type	<ul style="list-style-type: none"> • Establishment of an environment-friendly system for energy supply corresponding to the U.N. Framework Convention on Climate Change • Enhancement of energy efficiency • Establishment of an environment with easy access to alternative/renewable energy • Reinforcement of sustainable/stable infrastructure for energy supply
Market Leading Type	<ul style="list-style-type: none"> • Reorganization of energy industry and reinforcement of competitiveness • Establishment of an independent market monitoring organization and orderly competition • Revitalization of energy price structure • Establishment of a basis for developing integrated energy corporations and revitalization of electronic commerce

Externally Open Type	<ul style="list-style-type: none"> • Establishment of a network through energy cooperation in Northeast Asia • Promotion of energy cooperation between South Korea and North Korea • Expansion of development of internal and external oil resources • Reinforcement of international cooperation • Strategic export-oriented industrialization of energy-related industries (such as the nuclear energy industry)
Technology Leading Type	<ul style="list-style-type: none"> • Stronger support for technological innovation in the energy sector • Reinforcement of technologies for developing alternative energy • Establishment of a database of energy technologies and evaluation system

(Source) 2nd National Basic Plan for Energy Policy, Ministry of Commerce, Industry and Energy (MOCIE)

As for oil, which continues to play a major role especially in and around the transportation sector, the government has been carrying out measures to enhance oil security such as diversification of sources of oil supply including institutional support, improvement of the rate of self-sufficiency through entering into overseas upstream sectors, enhancement of energy cooperative relationships with oil-producing countries, and improvement in reserve capacity for increasing national stocks of crude oil, petroleum products, and LPG (see Tables 1-5 and 1-6). As measures to control oil imports, the 2nd National Basic Plan for Energy Policy contains enhancement of energy efficiency, reinforcement of development of alternative energy, establishment of an environment for introducing and diffusing alternative/renewable energy, and stronger support for technological innovation in the energy sector. Lowering the energy intensity rate through enhancement of energy efficiency is an important policy task for the Korean government, which is aiming at changing its industrial structure to a low energy consumption type. The plans also sets a goal of promoting energy cooperation between South and North Korea, establishing a network of energy cooperation in Northeast Asia through external opening of the market, and, as a result, making Korea the hub of the energy market in Northeast Asia.

Table 1-5 National Reserve Unit: million barrels

	Base	Reserve Capacity	Tank Type	Date of Completion
Crude Oil	Ulsan	12.8	Above ground	1982
	Geoje	40.0	Underground	1985
	Yeosu	30.7	Underground	1999
Petroleum Products	Guri	1.4	Underground	1994
	Yongin	2.5	Above ground	1998
	Goksung	2.1	Above ground	1999
	Seosan	1.6	Above ground	2003
LPG	Pyeontaek	4.4	Underground	1989

(Source) KNOC

Table 1-6 Plan for Expanding National Reserve Unit: million barrels

	Base	Reserve Capacity	Tank Type	Planned Date of Completion
Crude Oil	Seosan	11.0	Above ground	December 2006
	Geoje	7.5	Above ground /Underground	December 2004
	Yeosu	17.5	Above ground /Underground	December 2006
	Ulsan	8.0	Underground	December 2007
Petroleum Products	Donghae	1.1	Above ground	Completed in July 2000
	Seosan	3.6	Above ground	December 2005
	Pyeontaek	1.8	Underground	December 2007

(Source) KNOC

1-2-3 The trend of liberalization of the oil market

Korea began striving to open up its oil market in 1983, when it opened up part of its petroleum product market, and it completed a phased price liberalization in 1997. In the same year, it liberalized imports by abolishing its crude oil import license system, and also for imports and exports and domestic sales of petroleum products, it started a registration system shifting from the former license system. Furthermore, in 1998, Korea opened up its oil sales sector, and changed its system for new entry and foreign capital entry to its oil-refining sector from the license system to the registration system. It also changed its system for new and expanded construction of refining facilities from the license system to the report system. In 2001, the multiple sign pole system for service stations was introduced and Korea's oil market deregulation process was completed (see Table 1-7).

Table 1-7 Efforts for Deregulation of the Oil Sector

Implementation Date	Contents
February 1983	Liberalization of domestic sales price of jet fuel oil and solvent
November 1988	Liberalization of domestic sales price of asphalt
March 1989	Liberalization of domestic sales price of naphtha
September 1990	Liberalization of domestic sales price of heavy oil for electricity
September 1994	Introduction of the internationally linked oil price system for four products: gasoline, kerosene, light oil and heavy oil
November 1995	Abolition of the regulations concerning the distance between service stations
January 1, 1997	<ul style="list-style-type: none"> • Liberalization of domestic sales price of gasoline, kerosene, diesel oil and heavy oil • Liberalization of crude oil imports (abolition of the license system) • Shift from the license system to the registration system for imports and exports of petroleum products • Shift from the license system to the registration system for domestic sales of petroleum products
May 8, 1998	Opening up of the retail sector (service stations) to foreign capital
October 1, 1998	<ul style="list-style-type: none"> • Shift from the license system to the report system for new and expanded construction of refining facilities • Shift from the license system to the registration system for starting oil refining businesses • Opening up of oil refining businesses to foreign capital
September 1, 2001	• Introduction of the multiple sign pole system for service stations

1-2-4 The influence of liberalization of the oil market

As for oil imports, independent oil importing firms succeeded in entering the market as a result of liberalization of petroleum product imports in 1997, and the competition for acquiring demand has become intense. The share of newcomers' imports of major petroleum products in domestic demand increased from 0.05% in 1998 to 8.8% in 2002, and their share in overall imports increased from 0.1% in 1998 to 12.0% in 2002 (see Table 1-8). In 2003, however, some of those independent firms went bankrupt because of the worsening of finances due to excessive business expansion, which caused the decrease of their import share in domestic demand to 8%. As for exports of petroleum products, exports by five major oil-refining firms have been increasing since 2000 when the competition with the independent sector became intensified, along with the problem of surplus refining capacity.

Table 1-8 Imports of Petroleum Products by Independent Oil Importing Firms Unit: thousand barrels

		Gasoline	Kerosene ¹	Light Oil	CHeavyOil	4 Items	Total ²
1998	Imports	4	11	90	-	105	175,895
	Demand	61,089	39,368	120,372	22,484	202,670	670,278
	(%)	(0.01)	(0.0)	(0.11)	(-)	(0.05)	(0.02)
1999	Imports	355	915	693	461	2,424	184,490
	Demand	63,879	43,430	126,072	34,233	254,803	719,657
	(%)	(0.6)	(2.1)	(0.6)	(1.3)	(1.0)	(0.3)
2000	Imports	725	2,139	2,279	945	6,088	204,301
	Demand	62,382	49,930	129,429	40,283	270,351	742,557
	%	(1.2)	(4.3)	(1.9)	(2.3)	(2.3)	(0.8)
2001	Imports	2,056	2,877	6,615	832	12,380	204,781
	Demand	62,707	49,542	132,168	63,234	296,394	743,667
	(%)	(3.3)	(5.8)	(5.5)	(1.3)	(4.2)	(1.7)
2002	Imports	4,170	3,877	12,720	6,683	27,450	228,557
	Demand	64,078	47,452	138,045	59,161	310,891	762,868
	(%)	(6.5)	(6.6)	(9.9)	(11.3)	(8.8)	(3.6)

(Source) Korea Monthly Oil Statistics, KNOC, and KPA

As for the oil industry structure, intensifying competition in the domestic market is working as strong pressure for streamlining and enhancement of efficiency, the rate of crude oil purchase on the spot market increased from 29.9% in 1997 to 39.5% in 2002, and efforts have been made to purchase crude oil and petroleum products at a more competitive and rational price. According to the prospect of oil demand in the 2nd National Basic Plan for Energy Policy, surplus refining capacity will not be cleared for the time being, and therefore more active efforts will be expected to seek for a chance to export products to China's market, etc. Recent export trend shows that Korea has almost acquired the position of being the largest heavy oil supplier to China. Under such market environment, except for the bankrupt Incheon Refining Co., which is now under legal control, the other refining companies in Korea are trying hard to establish and reinforce their position as a general energy industry.

As for petroleum product prices, the government-set official price system was abolished in 1997, and setting of prices was liberalized. However, since the government-set official price system had been applied until 1997, there still remains a distortion in the price system among individual products. Therefore the government has been carrying out revision of the price system by way of taxation system reform in the five-year plan aiming for achieving the goal by 2006.

1-3 Taiwan

1-3-1 The trend of oil supply and demand

Demand for primary energy in 2002 (BP statistics) increased by 3.0% compared to the previous year. The growth rate by energy in the same year showed increases in natural gas (up by 14.9%), coal (up by 5.5%), and nuclear energy (up by 12.5%), and a decrease in petroleum (down by 1.0%). The share of petroleum in primary energy demand remains highest at 43.3% in 2002, but has been on a declining trend since the 1990s. According to the Taiwan Energy Committee, the average annual growth rate in primary energy demand is estimated to be 3.2% between 1998 and 2020, but with estimated increase in oil demand of 2.7% on average annually until 2020, dependence on petroleum is estimated to decrease to 42% in 2020 (see Table 1-9). While

¹ Excluding heating oil

² Total amount of imports and demand of petroleum products (four items) in all of Korea

Taiwan depends on overseas supply for 99.9% of its oil supply, its dependence on the Middle East for petroleum imports was 64.5% in 2002, and is estimated to remain at a high level.

Table 1-9 Outlook of Energy Demand in Taiwan

Unit: million KLOE,%

Items	1998		2010		2020		1998-2020 Annual Growth Rate
Total Supply	92.3	100	139.4	100	167.4	100	2.8
Domestic Production	3.6	4	4.1	3	5.4	3	1.9
Imports	88.7	96	135.3	97	162.0	97	2.8
Coal	26.6	29	40.2	29	50.0	30	2.9
Petroleum	47.5	51	63.9	46	69.8	42	1.9
Natural Gas	0.9	1	0.7	0	0.7	0	-0.9
LNG	5.6	6	19.0	13	23	14	6.7
Water Power	2.6	3	2.4	2	2.8	2	0.2
Nuclear Power	9.1	10	12.5	9	19.0	11	3.4
Alternative Energy	-	-	0.9	1	1.8	1	-
Domestic consumption	81.1	100	131.5	100	161.0	100	3.2
Coal	9.8	12	13.7	10	15.4	10	1.0
Petroleum	31.6	39	50.8	39	58.0	36	2.7
Natural Gas	2.8	4	7.4	6	9.1	6	5.3
Electricity	36.9	45	58.1	44	75.9	47	3.7
Others	-	-	1.6	1	2.5	2	-

(Source) Based on "Nogen Kankai" by the Taiwan Economy and Energy Committee

1-3-2 Measures to enhance oil security

The basic principle of Taiwan's energy policy is to secure a stable supply mainly through diversification of energy supply sources. The share of petroleum in primary energy has been decreasing, but it is considered as an important task to secure a stable supply through establishment of an oil fund management committee, reinforcement of the reserve system, and efforts for overseas independent development following the five-year plan (2003–2007). As for reserve, a national reserve plan for reserve of 30 days is being carried out, adding to the 60-day reserve by private oil companies.

As a measure to control oil imports on the demand side, research and development of energy-saving technologies and alternative energy technologies is being carried out, using energy research and development funds. The government set a goal of reducing energy use by 28% and raising power plant capacity by alternative/renewable energy to 10% of the total capacity by 2020.

1-3-3 The trend of liberalization of the oil market

In Taiwan, state-operated CPC used to have a monopoly on the oil sector. Since 1987, however, when the oil retail sector was opened up, phased deregulation had been carried out including opening of the retail section to foreign capital in 1995, and in 1996 new entry to the refining sector was approved. In June 2000, the new oil factory of Formosa Petrochemical Co. began operation, which put an end to CPC's monopoly on the refining sector. Following the partial liberalization of imports of petroleum products in 1999, the Petroleum Business Law came into effect in November 2001, and oil imports and exports were completely liberalized (see Table 1-10). While such processes of deregulation proceeded, it was planned for CPC to be privatized by June 2004 through selling of its shares in stages. The plan is now behind schedule, but more

than half of the shares will be sold, which is attracting the attention of the major oil companies.

Table 1-10 Main Efforts for Deregulation in the Oil Industry

June 1987	Opening up of the oil retail business (filling stations for gasoline and light oil) to the private sector (supplier limited to CPC)
1995	Approval of investment in the retail sector by foreign private firms
June 1996	Approval of private refining businesses, and approval of imports, exports and sales by such traders
January 1999	first phase of liberalization of imports of petroleum products (liberalization of imports of heavy oil, jet fuel, and LPG)
June 2001	Approval of wholesale businesses of gasoline and light oil
November 2001	Announcement and enforcement of the Oil Business Law; liberalization of prices
December 2001	Joining the WTO

(Source) Based on interviews in "Nogen Kankai," March 2003, by the Taiwan Economy and Energy Committee

1-3-4 The influence of liberalization of the oil market

Regarding the import and export of petroleum products, under the influence of liberalization, the market once had greater number of players such as Formosa Petrochemical Co. and ExxonMobil. In July 2003, however, due to the withdrawal of ExxonMobil, Taiwan's domestic market is now substantially controlled by the oligopolistic enterprises CPC and Formosa Petrochemical Co. The entry of Formosa Petrochemical Co. caused a surplus in refining capacity, which increased Taiwan's exports of petroleum products.

As for the aspect of oil industry structure, due to structural reform of the oil sector and deregulation, CPC has lost its function to directly play a role in establishing oil policy, and has lost its monopoly on the oil market. In order to correspond to the competitive market environment, it is now forced to strengthen its business characteristics through streamlining including retrenchment, enhancing its working efficiency, and adding higher values. Furthermore, in order to solve the problem of a surplus in refining capacity, CPC has been strengthening its efforts to export products and to outsource refinement to Mainland China, planning to open offices in Beijing and Shanghai by the end of 2004. Formosa Petrochemical Co. is also planning to unfold business such as production of petrochemical products in Mainland China.

Regarding the aspect of oil prices, due to enforcement of the Oil Business Law, the price system was shifted from a controlled price system to a free price system, which allows each market player to adjust prices flexibly according to the trend in the international market and domestic demand.

2 . Implications for Japan

2-1 Oil supply and demand in the Asia Pacific Region and Northeast Asia

According to BP statistics, if we divide the Asia Pacific Region into the members forming Northeast Asia³ and others,⁴ the average annual growth rate in the former between 1992 and 2002 was 2.6%, while that in the latter was 3.9%, surpassing not only the average of the former but also the rate of the members forming Northeast Asia excluding China (6.7%), Korea (3.8%), Taiwan (3.2%), and Japan (-0.6%). Oil production during the same period in Northeast Asia (China) grew by 1.7% on average annually, while that in the latter grew by 1.0%. Furthermore the average annual growth rate of oil imports in the former countries was 3.0% for crude oil and 1.2% for petroleum products, and that in the latter was 2.0% for crude oil and 2.3% for

³ Japan, China, Korea, and Taiwan

⁴ Australia, India, Indonesia, Singapore, Thailand, the Philippines, Malaysia, etc. excluding U.S.A.

petroleum products. Dependence on the Middle East for crude oil in the former was 74.6% in 1992 and 76.2% in 2002, while that in the latter was 74.9% in 1992 and 56.0% in 2002.

According to the outlook of future oil supply and demand by the Asia Pacific Energy Research Center, primary supply of oil (= consumption) in Northeast Asia between 1999 and 2020 will increase steadily by 4.3% on average annually due to domestic economic growth in China, while that in the group consisting of Japan, Korea, Taiwan, and Hong Kong will increase only by 1.1%. On the contrary, oil production in China, which is the only oil producing country in Northeast Asia, will decrease by 0.2% on average annually, and as a result, dependence of all Northeast Asia on petroleum imports will increase from 74.0% in 1999 to reach 85.1% in 2020. As for the Asia Pacific APEC region excluding Northeast Asia (China), primary supply of oil during the same period will increase by 3.5%, while oil production will decrease by 0.4% on average annually, and dependence on petroleum will increase significantly to 60.5% in 2020 from 12.8% in 1999.

2-2 Problems of the oil market in Northeast Asia

In addition to the outlook of oil supply and demand in Northeast Asia centering on China, there is a possibility of change in the structure of oil supply and demand due to decreasing reserve power to export petroleum in the Asia Pacific region. With the prospect of growth of Northeast Asia as one of the world's major oil markets, it is feared that its present structural problems in supplying petroleum will worsen in the future.

The future absolute increase in oil demand surpassing oil production in the Northeast Asia leads to an increase in dependence on oil imports. Under such circumstances, (1) oil production is estimated to be unable to meet the growth in demand in the Asia Pacific region, (2) the sources of supply that can compete with the Middle East are substantially limited, and (3) expected full-scale supply of Russian crude oil to the Northeast Asia region remains uncertain on a short and medium term basis even though it will be put into practice in the long run. Considering these points, Northeast Asian dependence on the Middle East is highly expected to grow further. As a result, it is feared that the Northeast Asian oil market will be affected more seriously in various ways due to factors such as a stoppage of supply in the international oil market, stability of the Middle East, oil policies of the oil producing countries, use of market power on suppliers' side, etc.

Looking at the trend of liberalization in the Northeast Asian oil market, Japan, Korea and Taiwan have already gone ahead, while fast growing China is now going to start full-scale efforts for liberalization. Along with the progress of liberalization, integration and connection among the Northeast Asian market is expected to proceed. We should keep an eye on the future trend of liberalization of China's market and its influence in particular.

2-3 Implications for Japan

The position of petroleum in primary energy demand in Northeast Asia is completely different between Japan, Korea, Taiwan and China. In the former three countries, share is on decreasing trend in the oil market, while in China share is continuing to increase steadily due to China's high growth rate in GDP. China has become the second largest oil consuming country in the world with an increase of 31.3% in crude oil imports in 2003. It has secured its position as a major player in the international oil market and is going to have a leading role in affecting the trend of the market. Although dependence on petroleum is decreasing in Japan, petroleum still maintains the major position in primary energy demand and is a strategic item having an influence on the trend of Japan's entire energy market. Therefore, it is very important for Japan to follow and analyze the future supply and demand and the policies of energy in China, which is considered to be the biggest factor affecting the Northeast Asian structural problems of oil supply and is steadily carrying out "China's Oil Strategy for the 21 Century."

The possibility of interaction through linkage among the oil markets is growing stronger, and geopolitics has become a more important factor in deciding energy policies. Taking these situations into consideration, it is almost impossible to take measures for energy security unilaterally. In this sense, Japan should establish a clear medium and long-term vision for its role in the process of building a framework of regional cooperation, such as bilateral cooperation in advance with Korea, whose energy

environment is similar to that of Japan. Furthermore, Japan needs to reconsider the importance of efforts for establishing and reinforcing Northeast Asian cooperative relationships on petroleum by way of international cooperation.

The international oil market, integrated as “a single market,” contains various negative factors both on supply and demand sides, which raises the uncertainty in the future of the Northeast Asian oil market that is linked to the international oil market. In spite of the differences in the progress of liberalization of oil markets, integration has been steadily proceeding among the members forming the Northeast Asia region and the possibility of interaction among members has been clearly strengthening. In the Asia Pacific region, changes in the structure of oil supply and demand are estimated due to a decreasing reserve power to export oil. Under such circumstances, efforts for enhancing energy (oil) security will become more important in the future. At the same time, while enhancing energy security and pursuing the best balance between economic growth and environmental problems is required, the present international energy conditions indicate that this is not an easy task. Japan must carry out efforts for achieving this goal and establish an overall strategy by way of closer cooperation among industry, government, academia and special organizations.

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