

The Recent High Oil Price: Its Background and future prospects* Executive Summary

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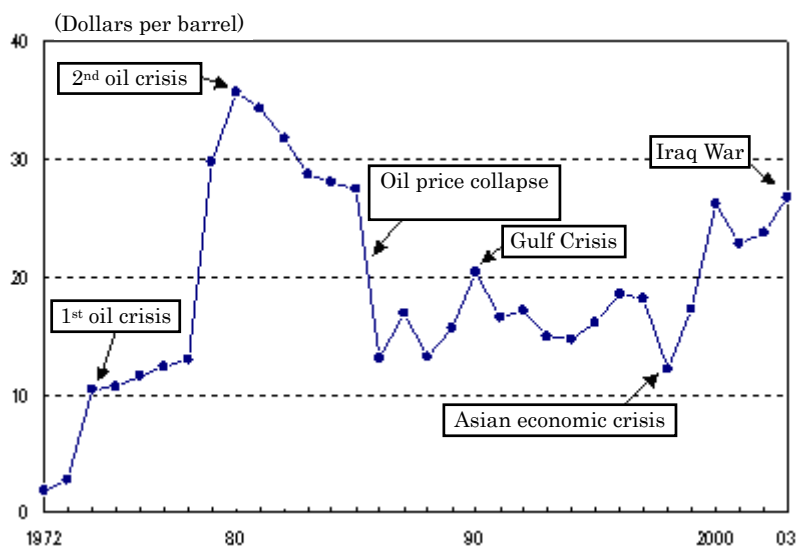
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1. Trend of Supply-Demand and Structural Changes in the World Oil Market since the 1970s

(1) Crude Oil Prices Repeated Wild Fluctuations

Since the 1970s, crude oil prices in the world market have experienced fluctuations, including sharp rises during the first and second oil crises, a plunge in 1986, a steep rise on the Persian Gulf crisis, a decline on the Asian economic crisis and an uptrend since 1999 (see Figure ES-1). Behind these price fluctuations were geopolitical factors regarding the destabilization of the Middle East situation, as well as changes in supply-demand fundamentals.

Figure ES-1 Crude Oil Price since the 1970s



Note: The price is for Arabian light crude before 1985 and for Dubai crude after 1986.

Source: BP Statistics

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(2) Supply-Demand Trends and Structural Changes in the World Oil Market

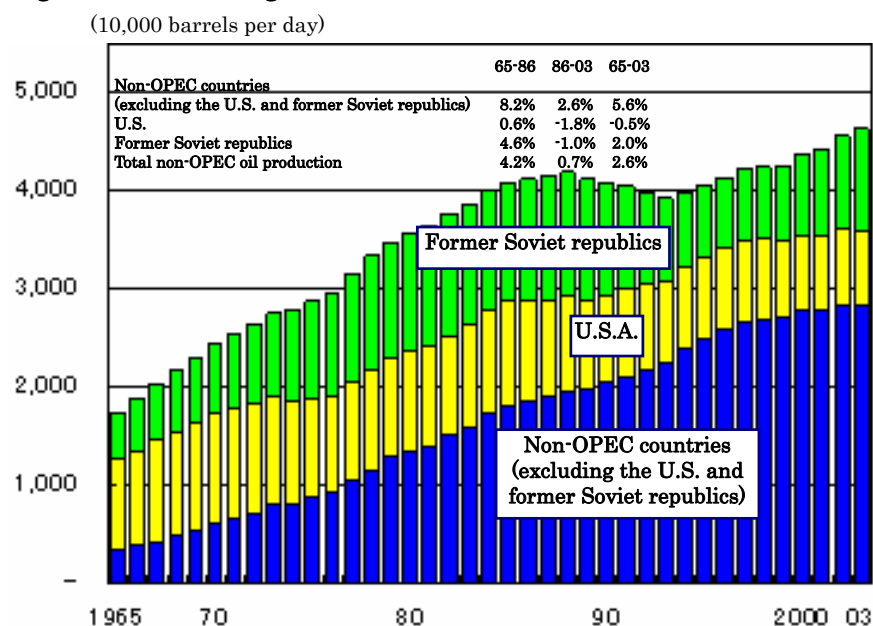
<Oil demand stagnates in OECD countries while increasing significantly in developing countries>

While the world economy grew at an annual rate of 3.0% from 1971 to 2002, the world's oil demand increased at an annual rate of 1.5%; however, oil demand growth varied between regions. In the OECD nations, which still account for more than 60% of world oil demand, average annual growth in oil demand was limited to 0.9% between 1971 and 2002. In developing countries, excluding the former Soviet republics, average growth was as high as 4.1%. Demand growth for developing regions was remarkable in Asia, supported by high economic growth. Conversely, in OECD countries oil demand was curbed due to successful policies for promoting alternative energy for oil (including nuclear energy, natural gas and coal) and energy conservation to constrain oil consumption, as well as the economic downturn after the oil crises.

<Growing non-OPEC oil production>

Oil production in countries other than members of OPEC increased substantially from 17.42 million barrels per day (B/D) in 1965 to 46.39 million B/D in 2003 (see Figure ES-2). A key factor behind the sharp increase in non-OPEC oil production was the promotion of investment in the development of the upstream oil sector in the North Sea, Alaska and other parts of the world in response to crude oil price hikes during the oil crises in the 1970s; however, production trends differed sharply from region to region. A long-term downtrend has been seen in the United States, which had been the world's largest oil producer until the first half of the 1970s but was then replaced by the Soviet Union. Amid the confusion after the collapse of the Soviet Union, however, oil production in former Soviet republics declined significantly in the 1990s. Since 1999, however, their oil production has increased substantially. On the other hand, production in non-OPEC oil-producing countries, excluding United States and former Soviet republics, has basically continued to expand. In recent years, however, North Sea oil production, which had dominated non-OPEC production growth in the past, has been declining. Overall, non-OPEC oil production growth has slowed down in recent years.

Figure ES-2 Changes in Non-OPEC Oil Production



Source: BP statistics

<Changes in international oil supply-demand balances and OPEC’s role>

OPEC oil production has fluctuated drastically as OPEC adjusted its production to changes in world oil demand and non-OPEC production. In 1973, OPEC production totaled 30.90 million B/D to capture a record 53 percent share of world output; however, its share plunged below 30 percent on slack demand and increased non-OPEC output in the early 1980s. Since the second half of the 1980s, OPEC production and its global market share have been recovering in line with rising world oil demand. Along with OPEC’s global market share, OPEC’s influence on the world market has changed dramatically. Amid the recent tight international supply-demand situation, OPEC’s supply/demand adjustment has grown more important, with developments in its oil policy attracting global attention.

<Changes in crude oil pricing formulas and “commoditization” of oil>

The crude oil pricing formula has shifted in various ways as supply/demand conditions in the world oil market and “power structure” between market players have changed. In the 1970s, OPEC and other oil-producing countries set government selling prices (GSP) and then notified buyers. Later, the easing supply-demand balances, the diversification of transactions and the development of spot and futures markets led to a shift from the GSP formula to pricing formulas that better reflected supply-demand

conditions in the market. At present, the dominant formula is the market-based pricing formula, which sets the price by adding (or deducting) a prefixed “adjustment factors” to the price of a benchmark crude oil fixed for each of the three major oil markets – Asia, the United States and Europe. The benchmark crude oil is Dubai (produced in the Middle East) for the Asian market, West Texas Intermediate (produced in the United States) for the U.S. market and North Sea Brent for the European market. Among them, the WTI (futures) price has become the most important benchmark. Supported by very liquid and active futures trading on the New York Mercantile Exchange, the WTI (futures) price exerts a great influence on the world’s crude oil pricing.

2. Recent International Oil Situation and Rising Crude Oil Prices

(1) Crude oil prices reaching record highs

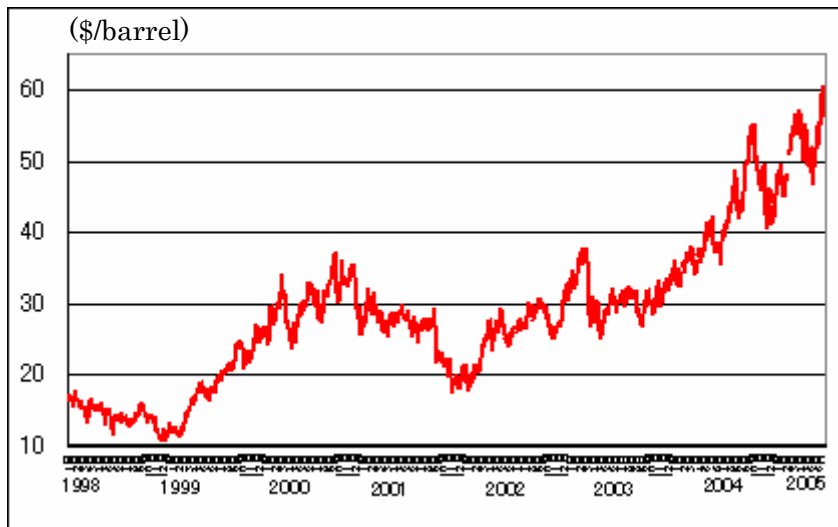
In response to the oil demand slowdown on the 1997 Asian economic crisis, crude oil prices remained slack until early 1999. Later, however, crude prices staged a rapid rebound, and the WTI price topped \$30 per barrel in 2000. Since 2000, crude prices have basically continued an upward trend while repeating fluctuations. In particular, crude oil prices have risen further since 2004, as the average WTI price reached \$41.50 per barrel during the year. In 2005, the WTI price hit its record high, and in June, it exceeded \$60 per barrel (see Figure ES-3)¹.

(2) Substantial growth in world oil demand

Behind the rising crude prices has been an increase in world oil demand, and demand growth has been conspicuous since 2004. According to the International Energy Agency, world oil demand in 2004 expanded by 2.7 million B/D or 3.4% from the previous year to 82.50 million B/D (see Figure ES-4). The substantial demand growth was concentrated in Asian developing countries and the United States. Particularly, demand increase in China alone came to 850,000 B/D, accounting for 31% of the world oil demand growth. The China-led oil demand growth prompted both OPEC and non-OPEC oil-producing countries to increase production. As a result, OPEC’s surplus oil production capacity, as discussed later, has declined, deepening concerns about tighter supply-demand balance on the world oil market and leading the market to be more “vulnerable to supply-demand fluctuations”.

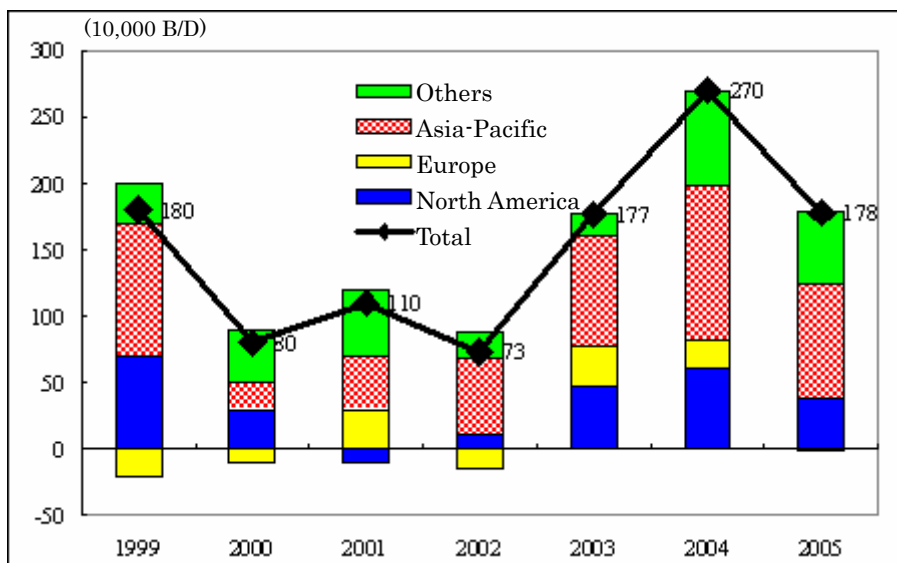
¹ On August 30, WTI futures price reached 70.85\$/bbl.

Figure ES-3 Changes in WTI Crude Futures Price



Source: NYMEX

Figure ES-4 Annual World Oil Demand Growth



Source: IEA

(3) Petroleum product supply bottleneck emerges in the U.S.

In the United States, which is the world's largest oil market, gasoline demand accounts for half (some 9 million B/D) of total oil demand. U.S. gasoline consumption has been very strong on such factors as economic recovery and the diffusion of sport utility vehicles. While gasoline demand has grown briskly, oil-refining capacity in US has been growing very slowly and can not meet the growing oil product demand. At present, U.S. domestic oil refineries are operating at almost full capacity, and surplus

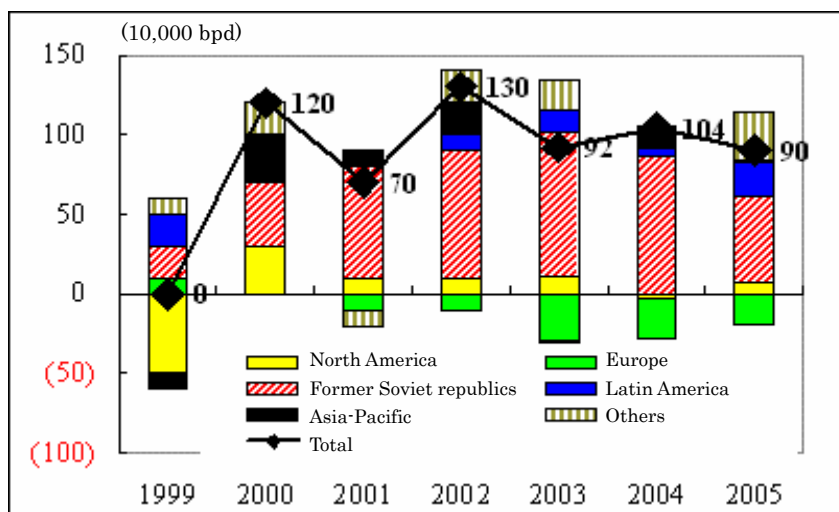
gasoline production capacity is very limited. On the other hand, gasoline quality regulations have been toughened under the amended Clean Air Act and differences in gasoline quality regulations by States and regions have affected flexibility of supply (the so-called “boutique fuel problem”). Under the circumstances, a gasoline supply bottleneck has emerged. This has led U.S. gasoline prices to skyrocket. The nationwide average retail price has exceeded \$2 per gallon in 2004 and remained high². Crude prices are linked to gasoline prices in the U.S. market, and gasoline price hikes on the supply bottleneck in the U.S. market has led crude oil prices to surge upwards.

(4) Production expansion in non-OPEC countries including Russia

Non-OPEC countries have increased oil production at a steady annual pace of around 1 million B/D since 2000 (see Figure ES-5). The recent crude oil price hikes have become a factor supporting such an oil output expansion. Particularly, Russia has continued to increase oil production substantially since 1999, making up for production decline in the North Sea and the United States and leading non-OPEC production growth. Since 2003, however, the expansion in production by non-OPEC countries alone has failed to cover world demand growth. As a result, OPEC has been required to expand production substantially by using their surplus capacity. Recently, Russia, as the key non-OPEC oil-producing country, has sharply slowed down its production expansion. Behind the slowdown have been problems with the Russia’s largest oil company, Yukos, which have made the future of the company and Russia’s oil industry more uncertain.

² Because of the impacts of Hurricane Katrina, the average gasoline prices exceed 3\$/gallon August 2005

Figure ES-5 Annual Oil Production Changes in Non-OPEC Countries

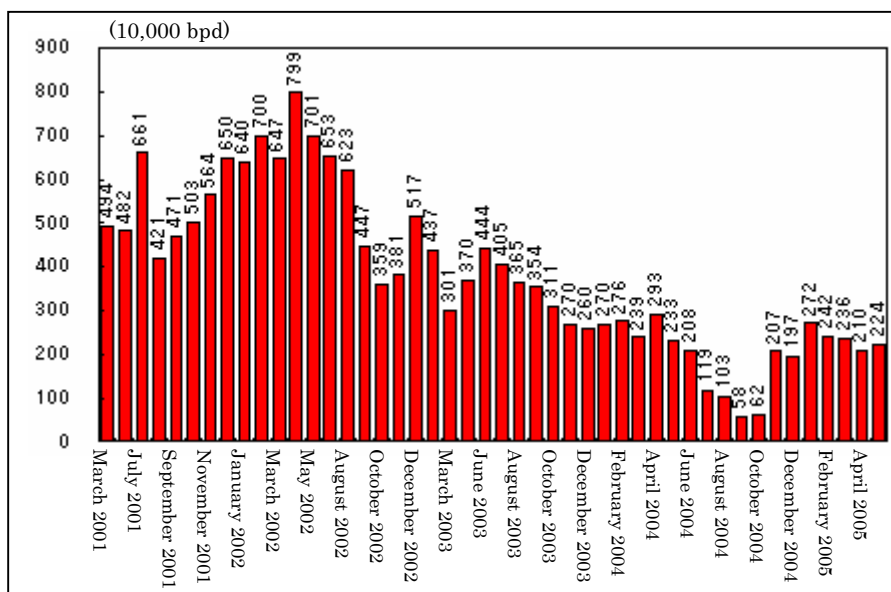


Source: IEA

(5) World oil market’s declining excess supply capacity and growing vulnerability

Excess supply capacity in the world oil market is an important buffer against oil supply-demand fluctuations, and it consists of OPEC’s surplus production capacity, oil inventories, oil refining (surplus) capacity and the like. These excess supply capacity components have declined on rising demand and oil companies’ rationalization and cost-cutting efforts. IEA data indicate that OPEC’s surplus production capacity (excess crude oil supply capacity for the world) decreased to 0.58 million B/D in September 2004 from around 7 million B/D in 2000 (see Figure ES-6). The surplus capacity rose back to 2.24 million B/D in May 2005; however, it is still low and concentrated in a limited range of countries (Iraq and Saudi Arabia). This means OPEC countries, other than Iraq and Saudi Arabia, have little surplus production capacity. Therefore, any problem with crude oil production and exports from these two OPEC countries can have a great impact on the world oil market. In addition, private sector enterprises have tended to keep oil inventories at low levels due to their rationalization and cost-cutting efforts. Particularly, U.S. crude oil and gasoline inventories have declined remarkably in recent years. As discussed above, U.S. oil refineries have been operating at almost full capacity as their surplus capacity has decreased. The decline in excess oil supply capacity to adjust supply to demand has made it easier for crude prices to fluctuate (rise) on supply-demand changes (and speculations about such changes) and external shocks. In this sense, the world oil market has grown more “vulnerable”.

Figure ES-6 Changes in OPEC's Surplus Production Capacity



Source: IEA

(6) Instable Middle East situation and frequent oil supply insecurity

Behind the recent crude price hikes has been oil supply insecurity, including the destabilization of the Middle East situation. In May 2004, two terrorist attacks were carried out on oil facilities in Saudi Arabia, the largest oil producer in the world. Even in the absence of any “real adverse effect” on Saudi oil production from the terrorist attacks, the problem of Saudi Arabia’s security has emerged as a possible future destabilizing factor on the world oil market. In particular, there was a psychological impact from these events exerted on the crude oil futures market, resulting in the price hikes. Unstable Iraqi oil exports have also had a great impact. Iraqi oil production fluctuated wildly around the Iraq War, before rising back to the pre-war level of 2.38 million B/D in March 2004. Since then, however, production and exports have been destabilized on the deterioration of public security and terrorist attacks on the oil sector in Iraq. Recently, Iraq’s oil production has remained as low as 1.8 million B/D. An apparent factor behind the sluggish production may be problems with export infrastructure security. A recent allegation is that problems have emerged with the maintenance of production capacity at mainstay oilfields. In 2004, the political conflicts involving the Russia’s largest oil company (Yukos), Nigeria’s oil supply troubles, devastating hurricanes hitting the Mexican Gulf coast, and other factors caused frequent insecurity over oil supply on the world oil market. Coupled with the world oil market’s growing vulnerability on the decline in excess supply capacity or supply

cushion as discussed earlier, frequent insecurity over oil supply became a major factor behind crude price hikes.

(7) Inflow of speculative money and risk premium's emergence and expansion

Behind the tightening supply-demand balances, the decline in OPEC's surplus production capacity and the insecurity over oil supply emerging from the destabilization of oil-producing countries, there has apparently been a massive influx of speculative money into the crude oil futures market. In the world oil market, which has apparently grown more vulnerable to supply/demand fluctuations and external shocks, the price volatility has increased on a series of "media reports" on supply insecurity in major oil-producing countries. Speculators might have taken advantage of such a situation to expand trading, aggravating the volatility further, and there might have been some kind of "vicious circle." Under such circumstances, the present high oil prices might include a large risk premium attributable to speculation, or the speculative money influx, amid the destabilization of the oil market situation. Supply/demand fundamentals are the basic oil-pricing factor. The price formation in the futures market does not necessarily lead to any medium- or long-term price trend. Over the short term, however, the futures market price formation might have caused excessive price hikes that cannot be explained by current supply-demand fundamentals. The problem is that: this kind of short-term price movement could have triggered supply/demand developments through the price signals, inviting the next wild price fluctuations to emerge.

(8) OPEC's response to rising oil prices

In response to rising crude oil futures prices, OPEC made decisions to increase production in 2004. As crude oil futures prices exceeded \$50 per barrel in 2005, OPEC decided on a two-phase increase in production quotas at its 135th general meeting. At the 136th general meeting in June, OPEC decided to raise production quotas by 500,000 B/D from July 1 and by an additional 500,000 B/D later if necessary. This is because OPEC countries are concerned that excessively high prices could result in slack oil demand through adverse effects on the world economy and could affect demand for OPEC oil by promoting production in non-OPEC oil-producing nations and the development of alternative energy sources. In fact, OPEC countries have expanded production substantially. Production in 10 OPEC countries, excluding Iraq, has recently reached historically high levels. When crude prices posted even small declines, OPEC immediately moved to reduce supply on concern that the supply-demand balances could

ease to exert downward pressures on crude prices. In this way, OPEC has tried to adjust the supply-demand balances in a bid to avoid excessively high or low prices and stabilize prices at its favorite levels. However, doubts exist about the effectiveness of OPEC production quota increases, because of constraints on production capacity, whether the production quota increases could lead to real output expansion is uncertain. On the other hand, crude price hikes can be attributed primarily to complex factors such as the petroleum product supply bottleneck and the impact of speculative money, rather than to any crude oil shortage. Under such circumstances, OPEC decisions to raise production quotas have failed to have the immediate affect of stabilizing crude oil prices. OPEC has acknowledged a shortfall in its surplus production capacity and launched efforts to expand production capacity to meet a future rise in demand.

3. Effects of and Responses to Oil Price Runup

(1) Effects on the world economy

The oil price runup may have negative effects on the world economy through various mechanisms. Particularly, gross domestic product losses due to revenue transfers to oil exporting countries are a matter of concern to oil-importing countries. As the current oil price runup has invited interests to grow in this problem, various institutes have estimated effects of the price runup on the world economy. A dominant estimate indicates that an oil price hike of \$10 per barrel could cut world GDP by 0.25% to 0.5%. The impact may be greater on oil-importing developing countries, which depend more on oil imports than industrial countries. So far, however, there has not been any sign that the present oil price runup, since 1999, has had any serious affect on the world economy. Rather, a mechanism has emerged for the brisk world economy to cause an oil demand increase as one of the factors triggering the oil price runup. However, concerns have gradually grown on adverse effects of the oil price runup after 2004 on the world economy.

(2) Oil-consuming countries' responses

The oil price upsurge, which affects oil-consuming or –importing economies and their people's lifestyle, has been politicized to trigger political responses in some countries. In view of the oil price runup and various geopolitical factors behind the price upsurge, major oil-consuming countries are enhancing their energy security policies. This is a common phenomenon as seen in the United States, Europe and China, and may have some feedback impact on the future oil demand-supply balances.

(3) Impact on oil demand

The crude price upsurge may affect oil demand through both income and price effects, but it is difficult to conclude that the recent oil price runup has exerted any conspicuous downward pressure on oil demand up to now. This may be because the price effect is small over the short term, while the world economy is now ready to absorb some of the oil price upsurge, which reduces the income effect. Over the long term, however, it can be expected that oil-consuming countries may enhance their oil conservation efforts and as a result of this, oil demand will be affected substantially.

(4) Impact on investment in the upstream oil sector

In response to the oil price runup and rising oil demand behind the upsurge, oil-producing countries are stepping up their efforts to expand production capacity. In oil-producing countries, excluding Saudi Arabia and some others, foreign investment is expected to play a key role in the expansion of production capacity. However, production capacity expansion efforts and approaches differ from country to country. In reality, negative views on foreign investment, political instability, doubts about economic attractiveness of terms and conditions for upstream contracts and other problems are mounting in oil-producing countries. International oil companies (IOCs) including the Majors, key players in upstream oil sector investment, though reaping huge profits on the oil price upsurge, have many problems with investment in the upstream oil sector. Access to resources has become a great challenge for IOCs, which have been faced with difficult problems including the above-discussed conditions in oil-producing countries and brisk activities of Chinese and Indian state-run oil companies as their rivals. In this sense, doubts exist on whether production capacity expansion programs announced in many oil-producing countries could be actually implemented as scheduled. The timing for the implementation is a key problem, and there can be no optimism warranted about the implementation of oil production capacity expansion programs.

(5) Oil price upsurge and price differentials

Amid the oil price runup, price differentials have tended to widen between light /low-sulfur crude and heavy/high-sulfur crude. For example, the price differential between the WTI crude as the representative of the former and the Dubai crude as the benchmark of the latter expanded to nearly \$15 in October 2004 from around \$2 before December 2002. Major factors behind the widening differential include: (a) rising demand for light oil products, (b) strengthened regulations on petroleum product quality, (c) the refining capacity bottleneck to process heavy/high sulfur crude oil, (d) changes in

crude supply mix (including increasing production of heavy crude oil), and (e) the functions of special factors for WTI crude pricing. These structural problems are difficult to solve in the short term. If oil prices stay as high as at present, the differential may remain wide.

4. Prospects for the World Oil Market Situation and Oil Prices

(1) 2005-2006 outlook

<2005 outlook>

The world oil market situation in 2005 is viewed as follows:

- (a) Oil demand may increase steadily, though slower than in 2004.
- (b) Oil production expansion in Russia and other non-OPEC oil-producing nations may slow down.
- (c) Pressure is rising on OPEC to expand oil production. As production capacity expansion remains slow at present, OPEC's surplus production capacity is declining.
- (d) Under such a demand/supply situation, the influx of speculative money into the market, which had decreased toward the end of 2004, may play a great role again.
- (e) Although oil inventories stand at average levels, concerns are growing that the oil supply-demand balances will tighten as world oil supply fails to meet demand in the oil demand season in the second half of 2005.

Therefore, factors are being established for oil prices to remain high in the world oil market. Given these factors, oil prices are likely to remain as high as present levels. For the whole of 2005, the average WTI futures price is estimated at as high as \$50 per barrel (or higher depending on future developments)³. If any supply insecurity or interruption emerges in any major oil-producing country, an even faster price upsurge could occur. There may be a growing risk of some upward deviation from this outlook regarding oil prices.

<Prospects for 2006>

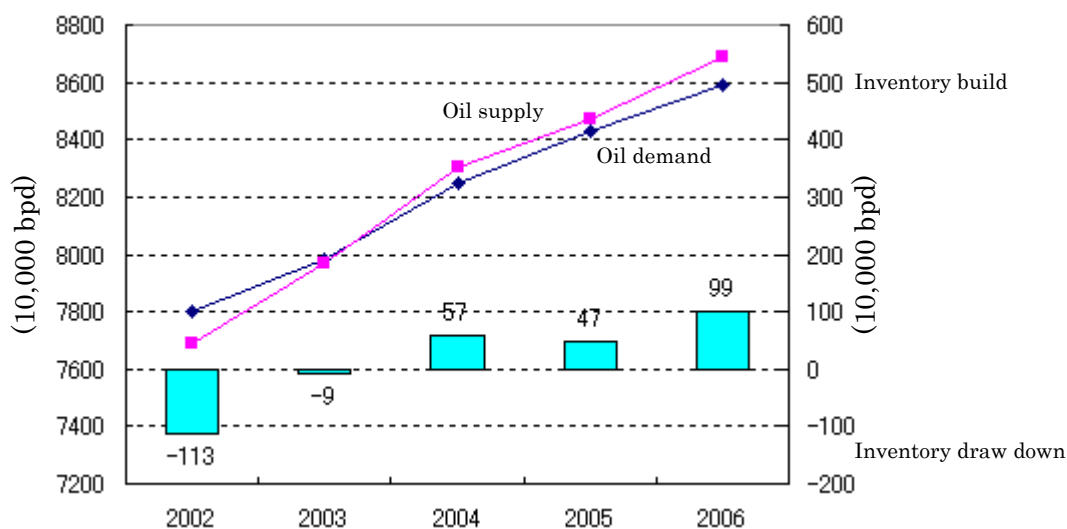
Oil demand and production in 2006 are more uncertain and unclear. Taking the uncertainties into account, we have developed most likely cases for relevant factors and combined them into a "reference case." Preconditions for the "reference case" are as follows:

³ As the present situation is close to the "high-price case" in the Prospects for the "World Oil Market and Crude Oil Prices for 2005" as presented by the Institute of Energy Economics, Japan at the 390th regular research briefing session in December 2004, the current prospects adopt the "high-price case" for predicting crude prices. See the "World Oil Market and Crude Oil Prices for 2005" by Ken Koyama in December 2005 on the IEEJ website.

- (a) World oil demand will sustain growth centering on China and the United States. However, an economic slowdown will limit the growth from the previous year to 1.6 million B/D.
- (b) Non-OPEC oil production will increase firmly. Russia will recover an upward trend in oil production. Supply from Azerbaijan and other Caspian countries will increase gradually. Western Africa will also expand oil production. Overall, non-OPEC oil production in 2006 will increase by 1.1 million B/D on upstream investment expansion stimulated by crude price hikes.
- (c) Iraqi oil production will increase slightly from 1.8 million B/D in 2005 to 1.9 million B/D in 2006.
- (d) Oil production in OPEC 10 countries (excluding Iraq) will increase from 27.2 million B/D in 2005 (based on a monthly average for the January-May period) to 27.8 million B/D in 2006 due to a major expansion in Saudi Arabia and a minor expansion in other Persian Gulf countries and Africa.

Under these preconditions, oil supply may exceed demand by some 1 million B/D in 2006. However, it is important to note that oil price increased substantially in 2005 when an oil supply excess of some 500,000 B/D is expected. Based on the supply/demand balances and price changes in 2004 and 2005, we expect the balance to slowly ease in 2006. As OPEC production capacity may increase only moderately, OPEC's surplus production capacity may not expand much. No major improvement is expected in the tight surplus production capacity, and basically, no improvement is expected in the U.S. downstream bottleneck. Furthermore, occasional spikes in oil prices may emerge on geopolitical risks. Under these preconditions, the average WTI crude price for 2006 is estimated at \$45-50 per barrel. The estimated price marks a small fall from 2005 (expected at over \$50 per barrel). The WTI crude price is likely to move in a higher range (close to \$50 per barrel rather than \$45).

Figure ES-7 Supply/Demand Balance Prospects for Reference Case



Source: “IEA-Oil Market Report” for the years to 2004. Estimated figures for the latter years.

In the 2006 “higher-price case,” based on substantial growth in oil demand, slack non-OPEC oil production, Iraq’s slow production and increasing geopolitical risks, the WTI crude price may fluctuate wildly on a tighter demand-supply balances, an inflow of speculative money and an expansion of risk premiums in 2006. The price may remain high in 2006, averaging \$55-60 per barrel. Amid wild fluctuations, the price may far exceed \$60 per barrel occasionally. In the “lower-price case” (based on an oil demand slowdown, brisk non-OPEC oil production and Iraq’s oil output expansion), however, the WTI crude price may weaken on the softened supply/demand balance in 2006 and average \$40-45 per barrel.

(2) Long-term prospects for the world oil market

<Key points and problems of the consensus views on long-term prospects>

The IEA and other representative forecasters commonly predict that world oil consumption will increase by 1.6-1.8 million B/D annually over the long term to reach 110-120 million B/D, as world economic growth, centering on developing countries, remains robust above 3%. Another common forecast is that expansion of non-OPEC oil production will remain smooth until 2010 before slowing down on supply constraints. As a result, the forecasters predict, demand for OPEC oil output will increase substantially, leading OPEC production to double the present level to 56-65 million B/D over the long term. However, many oil market participants and experts see great uncertainties on the following two points – (a) whether world oil demand will increase at such a substantial

pace in the coming 30 years to more than 120 million B/D, and whether such an increase will be sustainable; and (b) whether the current situation in oil-producing countries can be interpreted as indicating that world oil supply, including OPEC output, could increase so much to meet the above-mentioned strong demand growth.

<Scenario-based long-term prospects>

Taking the above great uncertainties into account, we have made an analysis based on the scenario planning method⁴ and developed brief scenario("stories") on world oil market developments over the long term to 2020-2030, which are different from the conventional consensus views. The stories are (a) the scenario for the reemergence of the boom-and-bust cycle, (b) the scenario for supply constraints, and (c) the scenario for speedy opening of the upstream sector.

(a) Scenario for reemergence of boom-and-bust cycle

In around 2010, a large-scale oil supply disruption will occur in a major, strategically important oil-producing country. Consequently, crude prices will rise substantially and concerns will emerge about physical oil supply insecurity. This will trigger strong oil conservation efforts in OECD and developing countries. The OECD countries, whose oil consumption growth is concentrated in the transportation sector, will introduce and toughen fuel efficiency standards to curb oil consumption, promoting the spread of more-fuel-efficient vehicles. Developing countries, which account for most of oil demand growth in the future, will promote the introduction of demand-curbing measures in the transportation sector as OECD nations do, raise tax on petroleum products and step up strong efforts to introduce alternative energy sources for power generation and other industrial sectors. World oil demand growth will thus slow down steadily. Oil demand will be limited to far less than 100 million B/D in the long term. On the other hand, non-OPEC oil-producing countries will try to expand supply in response to crude price hikes on the crisis. Technologies will advance in various area of oil upstream sectors, and oil development will be conducted in regions where access to oil resources has traditionally been difficult due to environmental conservation. OPEC will have expanded oil supply capacity in response to robust demand growth before the crisis. Overall, world oil supply capacity will expand substantially and far exceed 100 million B/D. As a result, a temporary crude oil price spike will be followed by a long-term easing of the demand/supply balance to stabilize crude prices at low levels. This scenario

⁴ In the scenario planning method for forecasting an uncertain future, a factor that could affect future developments most is extracted as a turning point of a scenario, and drivers for the factor's changes are considered to develop a story that is structurally different from a likely future.

represents the reemergence of oil crises in the 1970s and developments in the 1980s and 1990s. It is thus named “the scenario for the reemergence of the boom-and-bust cycle.”

(b) Scenario for supply constraints

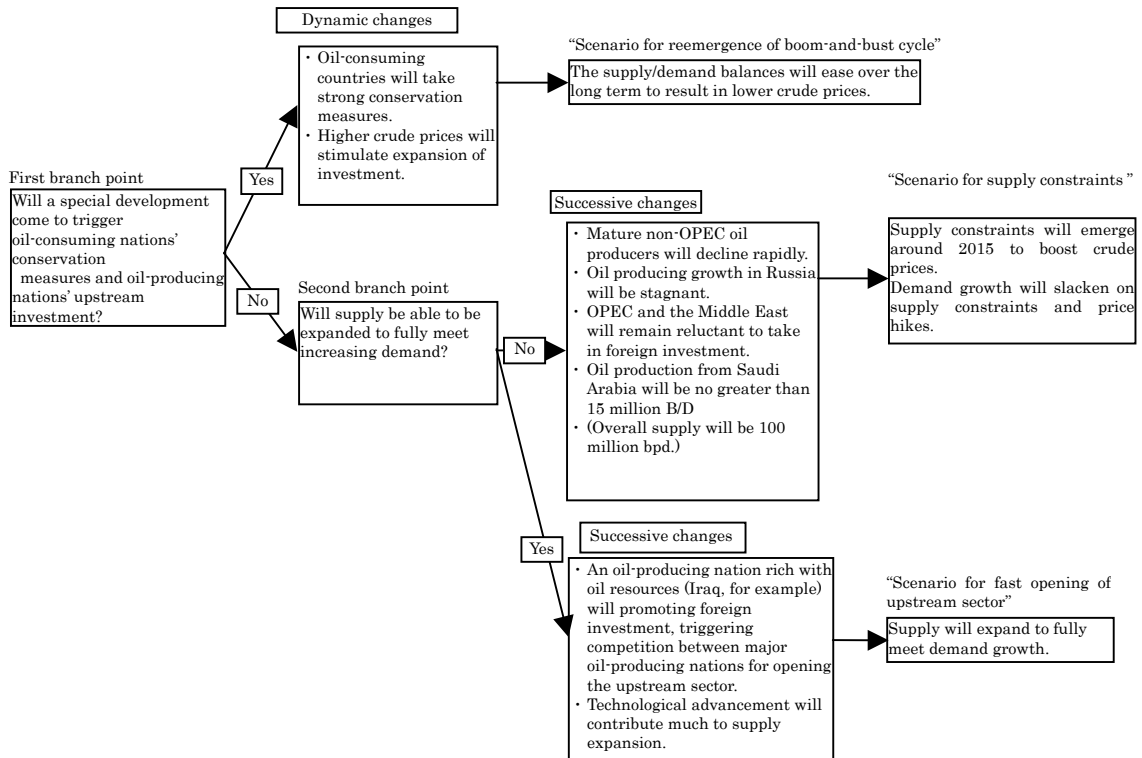
As indicated by the present political/economic situation in oil-producing nations, there may emerge supply constraints in the world oil market. Mature non-OPEC oil-producing countries will reduce oil output, Russia will fall short of expanding oil output, many oil-producing countries will fail to attract foreign investment, and Saudi Arabia’s output will be limited to around 15 million B/D. In this case, world oil supply will be capped at around 100 million B/D for the long term. Oil demand will increase gradually and have to meet supply constraints. Supply shortages or constraints will emerge between 2015 and 2020, causing a tighter supply/demand balances to gradually boost crude prices to \$70 per barrel (an even higher level depending on some developments) in real terms. Finally, oil demand will reach the supply cap of 100 million B/D at considerably high prices. The supply growth constraints will boost crude prices and supply-demand equilibrium will be reached at the high price environment. This is the scenario for supply constraints leading to cap on demand.

(c) Scenario for speedy opening of the upstream sector

The last scenario is for the absence of supply constraints. In this scenario, oil-producing nations will compete for opening the upstream sector. They will aggressively introduce foreign investment. Large oil-producing countries will promote the development of the upstream sector. On the other hand, technologies will advance globally, contributing to an oil supply expansion. In this scenario, the upstream sector will thus be opened fast. However, some major development will be required as a “trigger” to change oil-producing countries’ present reluctance to introduce foreign investment. In such a development, a major, geopolitically important oil-producing nation will be a key player in shifting to opening the upstream sector. In this respect, the focus may be on Iraq. In this scenario, Iraq will expand foreign investment around 2010 and substantially increase oil output to lead other countries to open the upstream sector. In the face of Iraq’s substantial oil output expansion, neighboring oil-producing countries and non-OPEC nations will shift to the promotion of foreign investment. Given the abundant potential resources, major oil-producing countries will boost output substantially. Oil exploration and development technologies will advance, delaying output declines in mature oilfields in North America and others, while promoting

production at deep-sea oilfields further. The technological advancement will help lower costs, allowing non-conventional oil resources to be developed. As a result, no oil supply constraints will emerge. Supply will increase to meet demand growth. In this scenario, crude prices will be considerably lower than in the “scenario for supply constraints.”

Figure ES-8 Concept of Scenarios for Long-Term World Oil Market Prospects



Conclusion

For Japan, which depends on imports from international market for most of its oil supply, the stabilization of the supply/demand balances and prices on the world oil market is very important. In this sense, recent crude price hikes and the factors behind the high prices including substantial oil demand growth in China and other countries and the destabilization of the situation in oil-producing nations are serious problems for Japan. We are now required to strengthen our efforts to make accurate and timely fact-finding and analysis regarding the above-mentioned problems, in order to develop and implement strategy for Japan's energy security.

While crude prices are expected to remain high for the immediate future, great uncertainties exist about various factors that affect crude prices. Taking the uncertainties into account, this report has presented three cases for short-term prospects and three scenarios for long-term prospects. This report has thus tried to indicate that various possibilities for oil markets in the future exist in addition to consensus and business-as-usual prospects. In making forecasts for the uncertain future, it is important to understand what is the most significant driver for the future behind the present various uncertainties. It is also important to recognize that differences in the function and development of "driver" may lead to the futures which are structurally different from each other. Therefore, it is necessary for us to be flexible and prepare appropriate policy options responding to structurally different futures.

Under the current world energy market situation, Japan is required to implement and enhance its international energy strategy, including cooperation with oil-consuming industrial nations including IEA members, to promote talks between oil-producing and -consuming nations, and to cooperate with oil-producing nations and other Asian oil-consuming countries. It is also important for Japan to implement and to enhance domestic energy policies regarding the development of alternative energy sources, energy-saving efforts, oil reserves and others. In this fast-changing world, Japan should endeavor to realize the following: finds facts on international situations as accurately and quickly as possible; consider and analyze effects, costs, advantages, disadvantages and priorities regarding various policies and strategy options; and develop and implement comprehensive and international energy strategy.

Over

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