The Uncertain Energy Situation in Asia

By Kojima Akira

Energy-related problems are currently the subject of heated debate around the world, with the following issues standing out:

1) U.S. President George W. Bush has announced in March this year his administration's decision to pull out of the Kyoto Protocol which sets a timetable for restrictions on emissions of carbon dioxide (CO_2) and other greenhouse gases. (The pact was adopted at the Third Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change held in Japan's ancient capital of Kyoto in 1997.)

2) Oil and natural gas prices have risen sharply since 1999 and remain at high levels.

3) An electricity supply crunch complete with rolling blackouts occurred in California following the state's botched deregulation of its electricity market implemented over the past several years.

4) Asian countries are boosting energy consumption as their economies continue to expand at a fast clip.

5) Japan's and other Asian countries' reliance on the Middle East for oil is sharply growing, posing an increasing risk to stable energy supplies in the region.

The fourth and fifth points involve more structural problems than the first three.

Japan is deficient in energy resources, with an energy self-sufficiency rate of only 22%. For oil, the country is totally dependent on imports. Japan relied on the Middle East for 68% of its crude supply in 1988, with the ratio jumping to 86% in 2000, easily surpassing the figure of 77.5% in fiscal 1973 at the time of the first oil crisis.

Against such a background, Japan finds it vitally important to save energy, develop new energy resources, divert energy uses, diversify the sources of energy supply and strengthen policy coordination with the entire Asian region in the energy sector.

Taking note of the peculiar energy situation in Asia, the government's Advisory Committee for Natural Resources and Energy established a working group for energy security and studied the nation's energy problems. A report issued by the working group in late June concluded that energy security in the world as a whole is improving, with energy supply sources diversified and reliance on the Organization of Petroleum Exporting Countries (OPEC) declining. The report warned, however, that despite global improvements, energy security is becoming structurally unstable in Asia, and emphasized the need to adequately respond to the alarming situation.

While participating in the preparation of the report as a member of the working group, this writer was reminded of the Japanese general public's indifference to energy issues despite the sense of crisis expressed in the report.

The two oil crises in the 1970s threw the Japanese economy into total disarray. For Japan, OPEC stood for the "Organization of Producing Economic Calamities." The year 1974 saw the Japanese economy shrink for the first time since the end of World War II, with the country's long run of posting high growth rates coming to an end. At that time, politicians, businessmen and labor leaders alike referred to energy shortages or limits to resources in the opening passages of their speeches.

A national "save energy" campaign was launched and companies pushed for the development of energy-saving technologies.

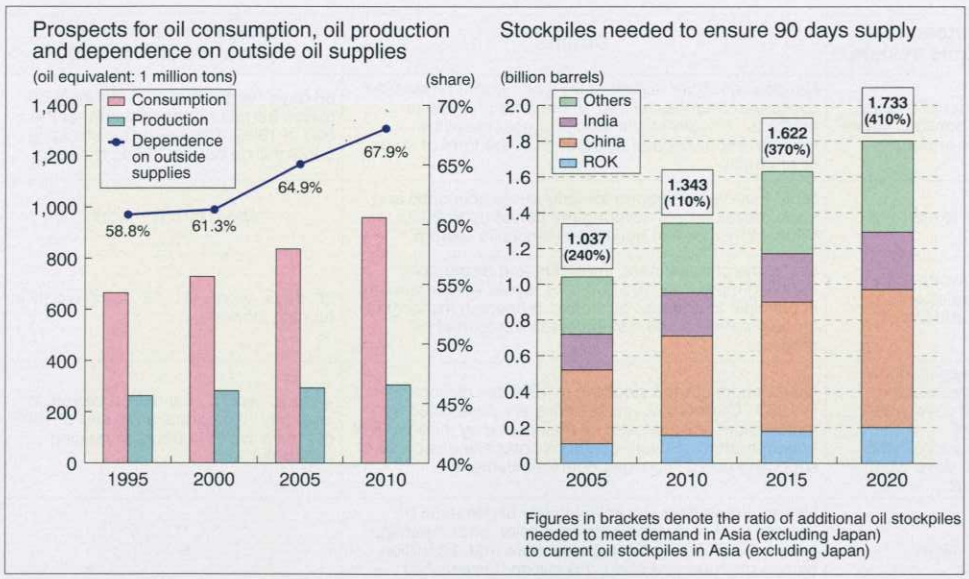
As a result, the Japanese economy became the most energy-efficient in the world within just a few years. The original unit of Japan's energy use, which is the amount of energy required for generating the same level of economic activities (such as gross domestic product), fell drastically, not only because of energy-saving efforts but thanks to the wide development and introduction of energy-saving technologies and production facilities.

Though industrial consumption of energy, led mainly by manufacturing industries, has remained unchanged since the first oil crisis, the introduction of energy-saving devices has been continually expanding since the late 1980s against the background of a new lifestyle focusing on the pursuit of affluence.

Oil and natural gas prices have been soaring for the past several years. Oil prices have remained high, hovering at the low end of the $25-30 a barrel range since 2000, compared with $15 in 1998. The U.S. economy has been in the first adjustment phase under the New Economy since late 2000. Martin Feldstein, former chairman of the Council of Economic Advisers, notes that since the end of World War II, economic downturns in the United States have coincided with rising energy prices and belt-tightening measures by the Federal Reserve Board, and that the current adjustment phase is no exception. He points out that energy prices have grave economic consequences even in energy-producing countries like the United States.

European countries are also alarmed by the recent oil price hikes and have a sense of crisis about the situation. In Japan, however, people are generally indifferent to the rising oil prices even though the country's energy self-sufficiency ratio is extremely low. This may be because Japan is currently plagued by so many serious domestic economic problems other than energy. Since its bubble economy burst in

Figure Oil Demand and Oil Stockpile Systems in Asia



1991, the "great stagnation" of the Japanese economy has been continuing for 10 years. Private-sector financial institutions are saddled with a huge amount of bad loans, and their credit-creation capabilities have remained depressed despite the Bank of Japan's accommodative monetary policy. The employment situation is gradually deteriorating. Management of pension funds is becoming increasingly difficult, with the raising of contributions and reduction in benefits being seriously debated. Life insurance companies are in dire straits, and their negative spreads threaten the guaranteed returns to policyholders. It is thus safe to say that numerous serious domestic problems overshadow energy problems.

Even so, as the working group's report on energy security indicated, the energy situation in Japan and other Asian countries warrants no optimism. This is in stark contrast with the global energy situation.

The global energy situation in general is more stable than in the 1970s, as evidenced by the following phenomena:

1) Against the background of oil prices sustained at high levels, non-OPEC oil-producing countries stepped up the development of oil fields in the North Sea, the Gulf of Mexico and Alaska, among others. As oil production by non-OPEC countries increased, the world as a whole is now less dependent on OPEC for its oil. At the time of the first oil crunch, the world relied on OPEC for 54% of its oil supply, but the ratio has come down to 41% lately. Thus, we can observe the recent dispersion of oil-supply sources.

2) Development of natural gas, atomic energy and other alternate energy sources has progressed. At the time of the first oil crisis, oil accounted for 50% of the world's total energy supply, but the ratio has since sagged to 40%.

3) The International Energy Agency, established by industrialized countries as a counterweight to OPEC, obligated member oil-consuming countries to each possess a 70-day supply of strategic oil stockpiles, to be increased to 90 days' worth by 1980. Member countries complied with the measure and reinforced their oil reserves.

4) As economic liberalization and deregulation advanced in Western countries in the 1980s, energy markets, particularly international oil markets, developed, making it easier for companies to hedge against the risk of price fluctuations through futures markets and by other means.

Lately, a new problem of excessive oil price fluctuations, known as volatility, is stealing the spotlight. In this connection, some economists take note of the fact that oil-producing countries are now less capable of producing surplus crude, while oil-consuming countries are becoming less responsive to demand-supply fluctuations. This means that a new risk to energy security is expanding, they point out.

Even so, from an overall viewpoint, it is safe to judge that global energy security is improving as a whole.

In contrast to such a global trend, the energy security situation is deteriorating in Asia, including Japan, posing a serious problem to the region.

In his *Pacific Defense – Arms, Energy, and America's Future in Asia* authored in 1996, Kent E. Calder, professor at Princeton University and special adviser to former U.S. Ambassador to Japan Thomas Foley, pointed out that East Asia's explosive economic growth has given rise to fundamental energy problems peculiar to the region. Among them are a drastic expansion of energy demand, high dependence on oil, surging dependence on the Middle East for oil, lack of regional oil stockpile systems and deepening environmental disruptions resulting from massive energy consumption.

Meanwhile, the working group of the Advisory Committee for Natural Resources and Energy reached the following conclusion in regard to the energy situation in Asia.

1) While global energy demand grew at an annual rate of less than 2%, energy demand in Asia (East Asia, Southeast Asia and South Asia), excluding Japan, has continued to expand at a brisk pace in the middle range of 4% on the back of economic development even after the first oil crunch. As a result, the Asian share of global energy demand has jumped to about a quarter, compared to one-seventh at the time of the first oil crunch. The share is expected to further rise to one-third by 2020.

2) Growth in Asia's oil demand is particularly noticeable, and the amount is expected to nearly double from 13.3 million barrels per day in 1999 to 24.7 million barrels per day in 2020. But oil supply in Asian countries and the entire region is expected to remain almost unchanged from 7.2 million barrels per day in 1999. This means that Asia will have to rely on imports, almost entirely from the Middle East, to cover the

Table Overview of Oil Stockpile Systems in Asia

	National stockpile system	Private-sector stockpile system	Outline	Stockpile and inventory (days' worth) in 1999
South Korea	Increasing stockpile, with target set at 60 days' worth of previous year's domestic consumption	Target set at 30 days' worth of previous year's sales and imports	National stockpile (aimed at 60 days' worth) possessed by Korean Petroleum Corp, in the form of crude or products. Private-sector stockpile possessed by refiners, importers and distributors in the form of crude or products	56 days' worth. National stockpile 53 million barrels (23 days' worth) at the end of 1999. Private-sector stockpile 59.79 million barrels (33 days' worth)
China	Studying national stockpile	None	Ninth Five-year Program for long-range economic and social development covering the period up to 2010 refers to the need to build an oil stockpile system	About 20 days' worth
Thailand	National stockpile being studied at third stage of stockpile buildup plan	22 days' worth – 3% each of sales and refining, and 6% of products	Under the plan, refiners, importers and distributors handling more than 100,000 tons a year will be required in principle to possess oil stocks: refiners in the form of crude, importers and distributors in the form of oil products	36 days' worth (10-15 days' worth in running stocks)
Singapore	None	Oil Companies: none Oil-powered electric plants: 60 days' worth with diesel Gas-powered electric plants: 90 days' worth with gas oil	Government started stockpile in 1980 but discontinued it in 1983. Currently, running stocks are possessed by four refiners affiliated with oil majors and by independent tank operators. Private-sector oil companies capable of supplying about five times domestic demand	44 days' worth: 25.8 million barrels in inventory of products as of end of 1998 (21 days' worth in terms of refining capability)
Malaysia	None	None	No requirement for stockpile in view of domestic oil resources. For distributional purposes, oil companies possess capabilities to stockpile more than 10 million barrels of crude and about 7.6 million barrels of oil products	N.A.
Indonesia	None	34 days' worth of domestic consumption	Possessed by state-owned oil company Pertamina in the form of products	20-25 days' worth
Philippines	None	None	Oil stocks owned by refiners and importers in the form of crude or oil products. The 1997 oil industry deregulation law requires oil companies to possess 40 days' worth of stocks but the 1998 new law abolished the requirement	40 days' worth
Taiwan	Studying national stockpile equivalent to 30 days' supply after the proposed oil business law comes into force	60 days' worth of domestic consumption Studying stockpiles by importers and distributors	Oil stock possessed by Chinese Petroleum Corp. in the form of crude or oil products	60 days' worth
India	None	None	Oil is possessed by state-owned oil companies in running stocks	15-35 days' worth
Japan	50 million kiloliters	70 days' worth of production, distribution and imports	National stockpile possessed by Japan National Oil Corp. (JNOC) in the form of crude. Private-sector stockpiles possessed by refiners, importers and distributors in the form of products or crude	156 days' worth as of the end of 1999

Source: Based on the materials from the Institute of Energy Economics, Japan

Notes: 1) Volume is based on domestic demand unless otherwise stated. Japan's volume is based on the Petroleum Stockpiling Law.
2) ASEAN Petroleum Security Agreement requires oil exporting member countries to supply oil to oil importing member countries on a priority basis in case oil supplies to the latter drops below 80% of domestic demand. But the efficacy of the agreement is questioned due to the absence of specific provisions for supply volume, prices and other conditions.

sharp rise in its oil demand. Dependence on offshore oil supplies by the entire Asian region, including Japan, is expected to rise to 75% from 63% in 1999.

3) The above estimate is based on the assumption that China, which consumes a third of Asia's total oil demand, will retain its energy demand structure focusing on coal, an abundant resource in that country (Coal accounts for 70% of China's total energy consumption). However, China is recently moving to curb coal consumption in favor of an expansion of oil use.

4) The Asian region is not capable of responding flexibly to an emergency. For example, it has no adequate oil reserves capable of meeting oil supply reductions. South Korea is the only country in the region which has national oil reserves under direct government control. The average of oil reserves in the region, including operating inventory, is only 33 days' worth.

Changes in energy trends in other Asian countries and in trends of oil imports from the Middle East used to have only a limited impact on Japan, because the country occupied a dominant position among importers of Middle East oil in Asia. But Japan is now more susceptible to changes in oil import trends in Asia, as Asian countries, particularly China, are boosting imports of crude oil from the Middle East.

There is another factor of uncertainty regarding Middle East oil. It is a change in U.S. oil policy. As Latin American countries are moving to open the door to foreign investment in the development of their oil resources, Washington is sharpening its focus on Latin American oil. Consequently, the United States is now less dependent on

the Middle East for its oil. It is worth watching to see how the U.S. move will affect the political, security and oil situations in the Middle East – this is a factor of new uncertainty.

President Bush, who positions energy as his administration's top policy priority, established an energy policy task force, led by Vice President Dick Cheney, in February this year and unveiled in May the group's recommendations in the form of a national energy plan. The three basic concepts of the 105 recommendations are: 1) a long-range, comprehensive energy strategy is essential given that it will take several years to tide over the energy crisis, 2) develop new environmentally-friendly technologies in order to expand the energy supply and promote the consumption of clean and efficient energy, and 3) raise the living standard of Americans through the coordination of energy, environment and economic policies.

Bush is also engaging in active diplomatic efforts in the energy sector. Earlier in February, Bush agreed with Mexican President Vicente Fox to promote U.S. investment for the development of oil and natural gas in Mexico and start negotiations on the formulation of a common energy policy for all North America, including Canada.

But Bush announced in March his administration's decision to pull out of the Kyoto Protocol. On June 11, he unveiled the basic U.S. stance on global warming on the basis of a policy review conducted at the Cabinet level since the Kyoto Protocol decision.

The U.S. stance boils down to the following two points: 1) The Kyoto Protocol is "totally flawed," 2) The accord errs by excluding black smoke and tropospheric ozone from the list of pollutants whose emissions are to be restricted. The target of the Kyoto Protocol is too artificial and lacks scientific basis.

Behind such a judgment lies Washington's fear that implementation of the Kyoto Protocol's target would adversely affect the U.S. economy, as well as its criticism of failure of developing countries (particularly China and India) to participate in the agreement despite their potential vast CO_2 emissions that could surpass those of industrialized countries in the future. The United States is also discontent with the shortness of time before the target year, which 1) makes it difficult to achieve a breakthrough in CO_2 emission reductions through technological innovations and their dissemination, and 2) makes reductions of emissions of greenhouse gasses too costly and makes the target unrealistic. Reflecting its Republican background, the Bush administration seems to find itself at odds with the Kyoto Protocol's tenet itself, charging that the accord neglects the private sector's voluntary response and has too many restrictions.

Each country now faces a challenge of striking a balance between energy and economic development or growth, between energy and the environment, and between the environment and the economy.

As mentioned earlier, the government's Advisory Committee for Natural Resources and Energy issued at the end of June a report on the nation's future energy policy on the basis of studies done by the Energy Security Working Group. It put forward a new energy policy with the Kyoto Protocol in mind. In other words, the new policy line is bound by the Kyoto Protocol.

At the outset, the report defined the basic goal of Japan's energy policy as realizing a stable energy supply, while responding to requests for environmental protection and higher economic efficiency and growth. It admitted, however, that achievement of the goal is no easy task, because the three points often conflict with each other. Curbing energy demand is a quick way of reducing CO_2 emissions, but this approach, if implemented inadequately, could sacrifice economic development and throw the economy into disarray. Energy conservation is also a difficult question for Japan – perhaps more difficult than any other country – because the country, with its extremely low energy self-sufficiency rate, has already achieved more results in energy saving than any other nation. For a country with the lowest original unit of energy use in the world, further saving of energy is a tall order.

In contrast, the European Union has a trick up its sleeve to easily achieve its target of drastically reducing CO_2 emissions. This is because the EU includes former East European countries emitting vast amounts of CO_2 due to their inefficient energy-using economic systems. The EU can easily raise the energy efficiency of such former East European countries in its membership, allowing the block as a whole to easily achieve the emission reduction target even if such key members as the former West Germany and France spare efforts.

Energy problems are not only economic in nature but also highly political. Energy is also becoming a new ideological problem as the environment is becoming one of the greatest causes of global concern especially after the end of the Cold War. A group of people, known as "environmental fundamentalists," assert that the environment should come before anything else. There is also a group of people, known as anti-nuclear fundamentalists, who are steadfastly opposed to nuclear energy. If CO_2 emissions must be reduced, nuclear power will be the most efficient and clean energy source to replace it, but anti-nuclear fundamentalists stand in the way of nuclear energy.

Asia is experiencing a deterioration in its energy security and sees the burdens on its environment increasing fast. How will Asia be positioned in the adjustment of complexities of global energy policies? This is not merely an Asian regional problem. Global debate on the energy problems beyond fundamentalism will be important. JJTI

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