

Middle East Energy and Japan

By Hatanaka Yoshiki

Dependence on Middle Eastern Oil Rising Again

Japan's 2001 primary energy consumption in oil-equivalent units was 514.5 million tons, ranking it fourth in the world behind the United States (2,237.3 million tons), China (839.7 million tons) and Russia (643 million tons). However, a breakdown of the sources used to supply that energy reveals that oil accounts for nearly half of Japan's total primary energy supply at 48.1%, followed by natural gas at 20.0%, nuclear power at 14.1%, coal at 13.8% and other sources at 4%. Among the Group of Seven (G7) countries, only Italy has a higher proportion of its primary energy supply met by oil (52.4%) than Japan; in the remaining five countries, oil accounts for less than 40% of the primary energy supply (United States: 40.0%, Germany: 39.3%, France: 37.4%, United Kingdom: 33.9% and Canada: 32.0%).

Japan is also the most dependent of the G7 nations on crude oil from overseas. For example, Japan consumed 239.78 million kiloliters of crude oil in fiscal 2001, 99.3% of which was

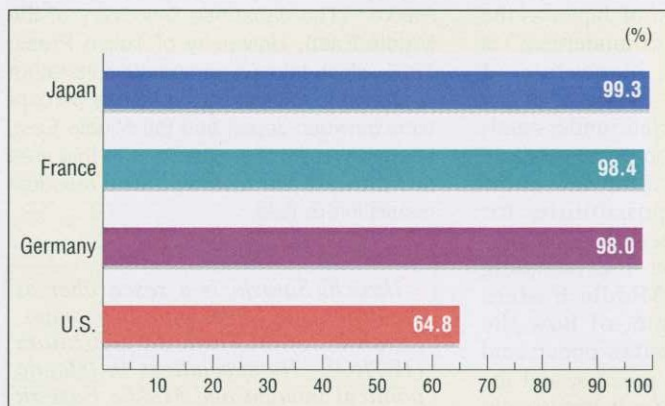
imported. (Fig. 1) The proportion of imported crude oil that came from the Middle East was also higher in Japan than in any other G7 country, reaching 87.9% in fiscal 2001. (Fig. 2) Japan is by far the most dependent of the G7 on the Middle East for its energy supply.

To ensure a stable supply of oil in Japan, and in light of the lessons learned from its two past oil crises, the Japanese government and industrial sectors have strived to diversify the sources of imported oil. As a result, Japan's dependence on the Middle East for its crude oil imports, which had reached 79.5% in fiscal 1976, three years after the first oil crisis, fell to 67.9% by fiscal 1987. Its policies therefore seemed to be working. However, as imports from countries like China, Indonesia and Mexico grew more sluggish due to the increased domestic demand triggered by local economic development, Japan's dependence on the Middle East began to climb once again. Starting in the low 70th percentile in fiscal 1989-91, then moving into the upper 70th percentile in fiscal 1992-95, Japan's oil imports from the Middle East increased to the low

80th percentile in fiscal 1996-97, and into the upper 80th percentile since then. Figures for Japan's fiscal 2001 crude oil imports by country show that the United Arab Emirates (UAE) have been Japan's leading supplier for 16 consecutive years, supplying 23.9% of all of its imports. Japan also imports crude oil from Saudi Arabia (22.3%), Iran (12.5%), Qatar (10.7%), Kuwait (7.2%), Oman (6.0%), Indonesia (4.3%) and China (1.7%), as shown in Figure 3. The total supplied by China and Southeast Asia accounts for only 8.7% of Japan's total crude oil imports.

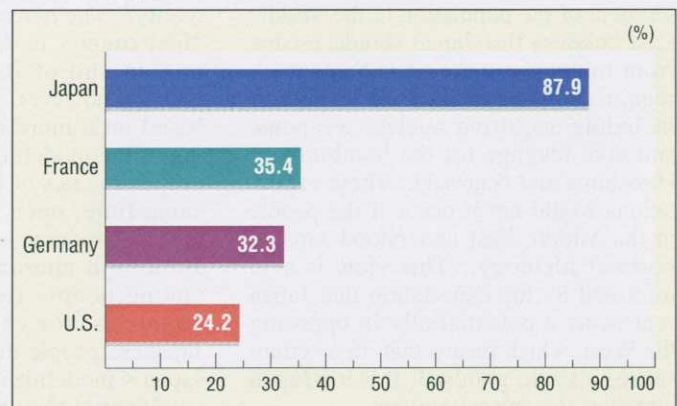
Figures showing crude oil imports by supplier indicate that the ratio of imports from the U.S. and European oil majors, which accounted for 70-80% in the mid-1970s, had fallen to a mere 22.3% in fiscal 2001 due to policies implemented by the oil-producing countries to place the oil industry under state control. The ratio of imports from state-owned enterprises in oil-producing countries like Saudi Arabia, the UAE and Iran, meanwhile, rose significantly from just under 15% in the mid-1970s to 68.5% in fiscal 2001. No significant change to the general 8-10%

Figure 1 Dependence on Overseas Crude Oil (2002)



Source: IEA statistics.

Figure 2 Dependence on the Middle East for Crude Oil Imports (2002)



Source: IEA statistics.

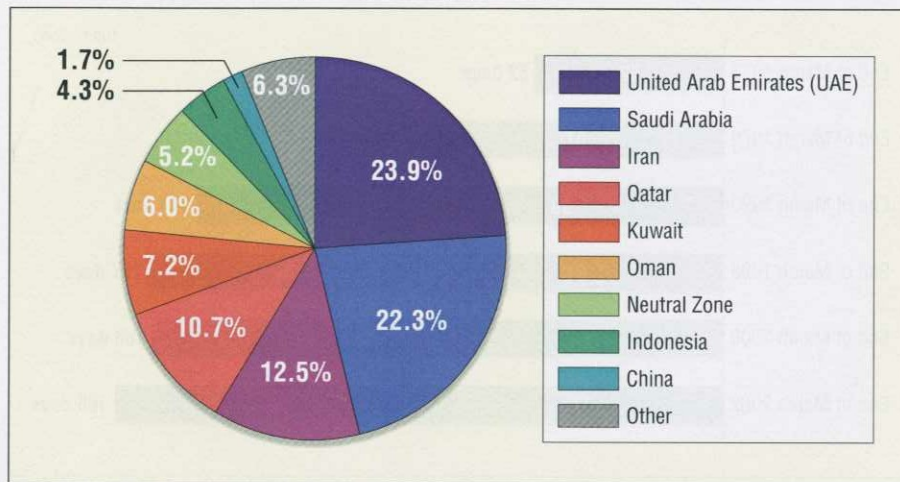
ratio of Japanese oil development firms is evident over this period of time.

Effectively Functioning Independent Oil Development and Oil Reserve Systems

The independent development of oil and natural gas resources by Japanese companies overseas is an effective means not only of ensuring a long-term stable supply of a certain amount of oil, but also of strengthening and deepening business relationships between Japanese companies and both the state-owned oil enterprises in the oil-producing countries, and the U.S. and European oil majors. It is also an effective means of building and strengthening interdependent relationships between Japan and the oil and gas-producing countries. Today, Japanese oil development firms are involved in about 100 projects in the Middle East, Southeast Asia, Africa, North and South America, the former Soviet Union countries and other locations around the world. About 60 of those have proven successful and resulted in the commercial production of oil or natural gas. The ratio of crude oil from these independently developed resources to total imported crude oil was about 11.5% in fiscal 2001. Japan's oil development projects have largely been implemented by the national government, centered around the Japan National Oil Corporation (JNOC), but a decision was made to abolish the JNOC pursuant to the Law Pertaining to the Abolition of the Japan National Oil Corporation (enacted in July 2002) as part of the government's structural reform efforts.

As has already been shown, the Middle East plays a major role in Japan's energy supply. Heavy dependence on this region means that any crisis resulting from regional conflicts in the oil-producing countries of the Middle East could have a significant impact on Japan's economy and society. This vulnerability suggests that adopting oil reserve policies for emergency situations is extremely important in terms of ensuring Japan's energy

Figure 3 Japan's Crude Oil Imports by Country (FY 2001)



Source: "Yearbook of Production, Supply and Demand of Petroleum, Coal and Coke", Ministry of Economy, Trade and Industry

security. The International Energy Agency (IEA), which was launched following the first oil crisis of 1973, requires member countries to maintain oil reserves equivalent to 90 days of oil consumption. In 1975, Japan also enacted the Petroleum Reserve Law, and on the basis of this law began to maintain the obligatory 70 days' worth of private reserves. In 1978, Japan then began maintaining the obligatory national reserve of 50 million kiloliters. Today, Japan maintains a reserve that would cover about 166 days (89 days of national reserves, 77 days of private reserves). (Fig.4)

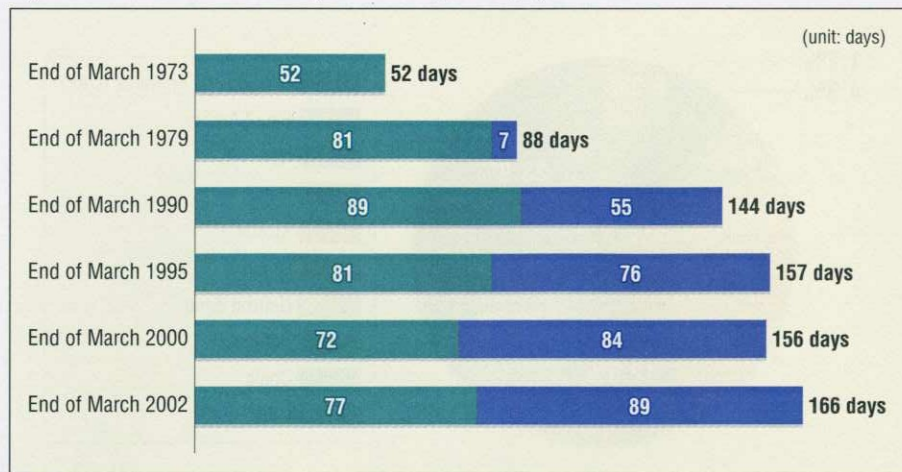
Significant Changes in the Energy Environment and Japan's Response

Needing to further shore up its energy security, Japan has been developing energy conservation policies and policies to reduce its dependence on oil and the Middle East, while at the same time striving to secure independently developed oil resources and establish an oil reserve system. However, the circumstances surrounding energy issues in Japan began to change drastically in the 1990s as the demand for energy in Asia increased, awareness of global environmental issues grew and Japan's dependence on the Middle East began once again to rise. The end of the Iraq war is also sure to have a major impact on the

future international oil environment. First, there will be a tendency for Iraq, the world's second-largest oil-supplier, to maximize oil revenues to pay for its massive recovery needs by increasing production. Also, the U.S. and European oil majors have a strong interest in developing new oil resources in Iraq. It is therefore highly likely that the world's energy map is going to be redrawn. In response to the new environment that began to unfold in the 1990s, Japan enacted the Basic Law on Energy Policy Making in June 2002. This law lays out the fundamental approach that market principles are to be put into action based on the policy goals of stable supply and environmental friendliness. Efforts are currently being made to craft Japan's first Basic Plan for Energy Supply and Demand based on this approach.

Japan is developing several specific policies for dealing with this new environment. First, several policies have been enacted in response to the fact that Japan's current dependence on the Middle East is close to 90%. The goal is to build friendly relations through various cooperative projects aimed at contributing to the economic development of Middle Eastern countries. Specifically this means holding symposia and seminars as well as bilateral conferences, accepting trainees from the Middle East, and dispatching and

Figure 4 Trend in Number of Days Reserves (unit: days)



Source: Agency of Natural Resources and Energy

receiving investment promotion missions. Japanese information desks are also being established in both Saudi Arabia and Kuwait for the purpose of promoting such projects.

Second, Japan is striving to redevelop a system aimed at promoting the independent development of oil resources in the Middle East and elsewhere. A report issued by a subcommittee of the Advisory Committee for Natural Resources and Energy addresses the goal of forming a core company by integrating the best of the oil and natural gas development companies currently under the umbrella of the JNOC, and providing administrative guidance to help promising companies go public following their integration. Oil and natural gas development projects naturally involve high risk and require enormous capital outlay. These factors make it difficult for all but the largest and best companies to enter the market. Potential players must have the technological and project management capabilities to develop their corporate activities on a global scale, and they must be well versed in the political, economic, social and cultural dynamics of the developing country in which they are investing. Extensive knowledge about the legal and financial affairs is also needed. In other words, only international companies with adequate human resources (managers, engineers), intangible resources (technology, informa-

tion, know-how, experience, knowledge) and financial resources (risk money) are suitably positioned to undertake oil and natural gas development projects. For Japan to achieve international competitiveness in the energy industry, it needs to quickly develop a core energy company with strategic perspectives that encompass the entire process from upstream to downstream operations.

Asian Diplomacy as a Necessary Policy for Energy Security

If the creation of core energy companies is deemed an essential offensive measure for ensuring a stable supply of energy for Japan, then the development of protective policies is no less crucial. Asia is a major stage for protective policies because of the central role the region will play in the global oil market over the long term.

Even if Japan is able to ensure its own energy security, it will still feel the repercussions of any energy shortages experienced by its Asian neighbors. And the effects on Japan would not be limited to higher oil prices. An energy shortage in Asia could slow or halt the operations of Japanese factories invested in the region, and by worsening the performance of Japanese companies, could lead to problems in the Japanese economy.

For example, Asia accounted for

about half of the increase in global oil demand in 2001 and about two-thirds of the increase in 2002. This trend is expected to continue. The IEA estimates that global energy demand will increase by about 2% annually (about 1.5 million B/D) until 2020, and that Asia will account for about half of that increase. However, since the supply of oil from the Asian region cannot meet this level of demand, Asia will have to rely on the Middle East for about 90% of the increase.

In spite of the anticipated increase in Asia's dependence on Middle Eastern oil, most Asian nations do not possess established emergency reserve systems, as exposed by the recent war in Iraq. The war therefore helped speed up efforts, which have been led by Japan, to create plans for compiling and sharing energy statistics and information among the Asian nations, and to encourage each of the nations to establish its own oil reserve system.

To reiterate, the lack of major nearby energy resources leaves Asia destined to rely on the Middle East. The situation is not without loopholes, however. Just north and west of Japan lie Sakhalin and the Russian Far East, regions with abundant oil and natural gas resources. It is estimated that the entire Russian Far East could supply about 1.5 million B/D of oil. This is about 20% of the amount of oil currently imported by Japan, South Korea and China. The development of oil resources in the Russian Far East could be used to secure a stable supply of oil for the countries of Asia, and also used as a bargaining chip in negotiations for oil imports from Middle Eastern oil-producing countries and for oil development projects in the Middle East. On the one hand, such projects would secure new interests in the Middle East, which possesses about 70% of the world's oil resources, and on the other, they would enable Asia to diversify its oil supply sources as much as possible. Of course, economics is always an issue when it comes to the development of oil resources in the Russian Far East, but this is a topic that must be addressed within the context of ensur-

Current Japanese Private/National Reserves (as of December 2002)

	Private reserves	National reserves
Number of days reserves	78 days	92 days
Reserves volume (equivalent in petroleum product)	40.79 million kl	47.93 million kl
Reserves target	70 days worth of domestic consumption	50.00 million kl (as of February 1998)
Maintenance formula	Maintained through production/distribution processes	Sealed Formula
Maintenance locations	Refineries, bases and private oil tanks	(1) National oil reserves bases (2) Private tanks (leased)
Maintenance structure	Crude oil 42% Petroleum products 58%	Crude oil 100%
Administration	Refiners, importers, etc. May be executed by firms with joint reserves.	(1) National oil reserves companies (approximately 2/3 of national reserves) (70% financed by JNOC, 30% by private oil firms and local public entities; eight firms and 10 bases nationwide) (2) Private oil firms (approximately 1/3 of national reserves) (JNOC leases surplus tanks to firms that are commissioned to manage national reserves crude oil.)
Effect of oil reserves release	(1) Offers the advantage of a rapid supply to distribution channels since the majority of crude oil and petroleum in product form is maintained through oil refinery and tank production/distribution processes (2) Enables flexible release in response to trends in crude oil procurement and demand for petroleum products (3) Announcement effect of release not as strong as with national reserves	(1) The national government determines when and if reserves crude oil is to be released, allowing for a considerable announcement effect in terms of steadily increasing the supply to the market at the government's discretion. (2) Though providing less mobility than private reserves, this method allows for the quick release of reserve crude oil from other private tanks such as bases and from certain national reserves bases.
Examples of release	(1) Second oil crisis (March 1979 – August 1980) (2) Gulf Crisis [Co-ordinated Emergency Response Measures (CERM), (January – March 1991)]	None
Financial support measures	Oil procurement capital, support for tank construction and other activities	Borne by the national government (petroleum tax)
Cost burden	Makes up a portion of product cost (With the expectation that the cost will be borne by the end customer)	As a revenue source, the petroleum tax makes up a portion of product cost. (With the expectation that the cost will be borne by the end customer)

Source: *Konnichi no Sekiyu Sangyo* (Today's Petroleum Industry), Petroleum Association of Japan, April 2003

ing Japan's energy security.

Nuclear Power Policies Require Restoration of Safety and Reliability

Dependence on nuclear energy had been falling ever since the Three Mile Island accident in the United States in the early 1970s. The Bush administration has nonetheless initiated a reversal in previous U.S. energy policies, choosing instead to expand the use of nuclear power generation. In Japan, however, successive scandals have worn away the public's trust in nuclear power generation, making it a difficult energy source to promote. In a country with limited fossil fuel resources, nuclear energy is an effective, substitutable energy resource that could reduce Japan's dependence on oil. Before thinking about the diversification of oil supply sources, efforts must first be made to achieve diversity in primary energy resources, that is, to move away from the use of oil as much as possible. However, serious accidents have created an environment in which it is diffi-

cult to espouse such policies.

Restarting efforts to promote nuclear power development will require that technology be used to improve safety, that transparency in all aspects of nuclear power policies be ensured, and that public support be won by taking responsibility for explaining those policies to local communities. Taking a lesson from the United Kingdom, where the government has had to jump in and rescue nuclear power companies from their management crises, Japan needs to clearly establish how nuclear power generation is to be positioned amidst efforts to promote electrical power liberalization. In this regard, the government needs to draw a new overall image for Japan.

Constructing Japan's Own Comprehensive Energy Policies

Energy is unquestionably an extremely serious matter that affects the very foundations of national security. It seems, therefore, that the time has come for rethinking the way energy policies

are handled within Japan's diplomatic policies. Even if the Japan-U.S. alliance remains the basis of Japanese diplomacy, Japan cannot continue to walk under the umbrella of the United States in the development of its energy policies. Instead, a path must be chosen that best suits the situation. This may mean securing new energy rights in the Middle East through pro-Middle East policies, developing energy resources in Russia by finding ways to move away from the Middle East and oil dependence altogether, and giving serious consideration to the development of nuclear power policies. Efforts to turn what appear to be contradictory "opposing policies" into compatible "multilateral policies" are precisely the kinds of efforts Japan will need to take in developing its energy strategy when the Iraq war is over. **UJI**

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