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Japan's Energy Policy And Energy Security

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In many ways, energy security and conservation are the two key issues surrounding Japan's energy situation. Japan's basic energy policy emphasizes the country's goal to reduce its reliance on the Middle East. However, this dependency on the Middle East's oil is unlikely to change in the foreseeable future.

Japan had developed the existing petroleum stockpiling system to protect against unexpected disruptions of oil supplies from the Middle East, after the two oil crises in the 1970s. It is now eager to help Southeast Asian countries develop their strategic stockpiling, given that the regional instability in times of emergency will inevitably have repercussions for Japan and the rest of the world.

In terms of supply diversification of crude oil, Japan continues its cooperation and discussions with Russia on the Nakhodka pipeline projects and with Iran on the Azadegan project. The possibility of a major pipeline link from Russia is strategically meaningful for Japan, as it would diversify its oil supplies for greater security. The problem is the projected cost of the pipeline project, which has been skyrocketing from some $6bn to up to $16bn.

Basic Energy Policy

Japan's energy security has always focused on the country's heavy reliance on Middle East oil. In the period after the oil shock, energy security was largely interpreted to mean ensuring physical supply for both oil itself and other fuels that were capable of decreasing oil demand. Japan also pursued upstream investment overseas, aiming to ease its heavy dependency on oil imports, while mandating oil stockpiling both at the private and national levels.

Japan's Basic Energy Policy, which was introduced in June 2004, emphasizes that the country will further diversify energy sources for greater supply security, while the core will continue to rely on nuclear energy. It encourages an increasing use of natural gas to mitigate climate change and diversify the energy mix away from oil, which would effectively reduce Japan's energy reliance on the Middle East.

Seventy-five per cent of Japan's natural gas imports, all in the form of LNG (which amounted to 59.1mn tons in 2003) come from the Asia-Pacific region, as compared to Japan's 87% reliance on the Middle East for oil. Of Japan's 4.282mn b/d of crude oil imports in 2003, 3.487mn b/d was from the Middle East. UAE accounted for 28%, followed by Saudi Arabia (26%), Iran (15%), Qatar (11%), Kuwait (8%), Oman (6%), Neutral Zone (5%), Iraq (0.4%), and Yemen (0.1%).

Closely following the Basic Energy Policy, the Ministry of Economy, Trade and Industry's (METI's) primary energy outlook for fiscal year (FY) 2010 is as follows, showing an anticipated increase of use of natural gas and nuclear at the expense of oil:

Japan's Primary Energy Sources 2010
(%)

	2000	**2010**
Oil (including LPG)	50	46

Coal	18	18
Natural Gas	13	15
Nuclear	13	14
Hydro	3	3
New energy and others	2	3

In terms of supply diversification for crude oil, Japan continues its cooperation and discussions with Russia on the Nakhodka pipeline projects and with Iran on the Azadegan project. The ramifications of the Nakhodka pipeline far outweigh those of the Azadegan project, in the context of reducing Japan's dependency on the Middle East. Azadegan – which could produce 50,000 b/d of crude oil by July 2007, 150,000 b/d by July 2008 and with a final production target of 260,000 b/d by March 2012 – is much smaller than the expected Nakhodka pipeline. If built, the Nakhodka pipeline would potentially ease the country's large reliance on Middle Eastern oil and diversify its oil suppliers in the hopes of attaining greater energy security.

Nakhodka Oil Pipeline

The pipeline will originate in Tayshet, north of Lake Baikal in Siberia, rather than Angarsk as initially proposed. The Russian government has largely decided that the pipeline will be connected to Nakhodka (Russia's Pacific coast port), while the Chinese government has always wanted the pipeline to go directly to Daqing first. There is still a possibility to build a smaller branch line from the main pipeline to Daqing.

Construction cost of the 4,130km Tayshet-Nakhodka pipeline project is estimated at anywhere between $11.0bn and $16.2bn, nearly three times the cost of an Angarsk-Nakhodka pipeline, which the Japanese government had originally proposed. The capacity of the pipeline is likely to be 1.6mn b/d, which may include a possible smaller branch to Daqing.

We believe the key questions on whether or not the pipeline project will actually proceed and how soon the pipeline will be built are: how much will the Japanese government be willing to invest in the Tayshet-Nakhodka pipeline project despite the rising costs; who will invest in the upstream exploration and production; and is building a branch line to Daqing a realistic option?

Japan's Overseas Upstream Investments

Japan's overseas upstream investment policy is often compared with that of China's, with the latter being considered more effective. The main difference in their approach is that Japan – through Japan National Oil Corporation (JNOC) – has actually tried to explore and develop oil and gas fields overseas, whereas China tends to prefer to acquire what has already been developed.

JNOC was established in 1967 to provide the country with a stable energy supply, with their primary responsibilities including promoting exploration and production of oil and gas. Initially Japan had hoped to bring some 30% of crude imports from Japanese owned/operated fields abroad. For that, JNOC played the role of a financial institution to provide companies involved in the projects with risk capital and grant liability guarantees. However, after 37 years since its establishment, the state-owned JNOC is in the process of being dissolved under Prime Minister Junichiro Koizumi's major restructuring/consolidation plan for the country's 77 state-run organizations (JNOC will be completely dissolved by March 2005).

As such, JNOC has been selling the assets of their group companies. In December 2003, JNOC sold a 16% stake in Japan Petroleum Exploration Company (Japex) in a $295mn IPO. While JNOC still retains 49.9% of the company as of today, the remainder will be sold before the 2005 deadline. Inpex was the second of JNOC's subsidiaries to have gone public. In November 2004, JNOC sold 18% of its total 54% stake in Inpex. Through the $1.5bn IPO, Inpex proved its popularity, as it has a good business outlook and its market capitalization is large. Indeed, Inpex has been one of a few successful JNOC-funded upstream firms, with the core of its activities in Indonesia. The company is also the project operator of Iran's Azadegan project. Under the buyback contract, Inpex holds a 75% share of Azadegan, while Iran's Naftiran Intertrade Company (NICO) holds the remaining 25%.

The key question now is whether the privatized Inpex will be better off pursuing its Azadegan development project, or will Inpex need to re-evaluate the feasibility of the project, since Azadegan is generally seen in Japan as somewhat of a risk for a private company to bear. From the beginning, the Azadegan development has been a Japanese national project, thus it was not purely a matter of economics. Japanese politicians and bureaucrats still hope to see Japan commercially engage Iran, to diversify energy sources for greater supply security. Meanwhile, Inpex is hoping to find an international partner. The company is pursuing discussions with several potential suitors, but no final partner has been identified as yet.

Nuclear Power Policy

Despite a series of problems and accidents, nuclear energy remains at the core of Japan's energy policy, in an effort to achieve the country's obligation under the Kyoto Protocol. Japan has 52 nuclear reactors with a combined generating capacity of 45.74gw.

Until recently, the electricity utilities pursued nuclear power development as an essential means of ensuring a stable energy supply, and accommodating such environmental issues as global warming. But the situation has changed significantly during the past few years. Japanese electricity utilities have been forced to rethink their plans amidst concerns about a slowdown in electricity demand and intensifying cost competition under industry deregulation. The financial burden of building nuclear power plants has become too heavy to bear, with growing costs pertaining to the running, maintenance and decommissioning of plants, when the potential market share is declining. New entries to the power market, under deregulation, tend to build cost-efficient gas-fuelled combined-cycle units. Additionally, public opposition to nuclear energy is accelerating.

As such METI, in June 2004, officially brought down the scope and content of Japan's nuclear power policy to a realistic level that more people in the country can accept. Under the revision, Japan plans to have four new nuclear reactors – which include three units under construction – by FY2010 and another six by FY2030. This is a significant downward revision from the previous nuclear policy, in which Japan had targeted to build 9-12 new nuclear reactors by FY2010.

Kyoto Protocol And Environment Tax

As the revision to Japan's nuclear power policy will have a direct impact on an increase in carbon dioxide emissions, Japan faces the critical challenge of achieving its commitments under the Kyoto protocol, under which it is to cut greenhouse gas emissions by 6% from the 1990 level by 2008-12. The Ministry of Environment project CO_2 emissions will increase by 10% by 2010 from the 1990 level, unless the country comes up with new solu-tions. An environment tax is being proposed as an effective way to cut down on overall energy consumption and enable Japan to reduce CO_2 emissions by some 9.5% by 2010 from the 1990 level.

Accordingly, the Ministry of Environment in November 2004 prepared draft plans for the nation's first environment tax, to be levied on nearly all fossil fuels (including oil, coal and gas) and electricity from FY2005. The plans would tax the consumption of most fossil fuels at a rate of ¥2,400/ton of carbon contained in the fuel. The expected tax revenues would be spent to facilitate wider use of environmentally friendly energy, like wind power and solar energy. It would also promote energy-saving equipment among the public.

The Ministry of Environment is already facing strong opposition to its draft plans from METI, the Japan Federation of Economic Organization, the Petroleum Association of Japan, the Federation of Electric Power Companies of Japan, and other major industry associations. Some of the main issues/objections raised are as follows:

- The plan is ambiguous about what it aims to accomplish. Is the ministry trying to cut back on consumption or simply to raise tax revenue?

- Energy taxes are already high, with low price elasticity for energy demand. Therefore the environment tax would not have much effect in curbing CO_2 emissions.

- The additional tax could slow economic recovery and stifle industrial activity.

Our view is that it is unlikely that the environment tax will be implemented as of FY2005. The tax could be eventually imposed (in FY2006 at the earliest) if the issues listed above can be resolved. However, we do not rule out the possibility that the tax option will be completely abandoned if other effective means for reducing CO_2 emissions can be figured out. Even if implemented, it will not make much of an impact on oil demand.

Petroleum Stockpiling

Petroleum stockpiling in Japan is carried out both in the private and public sectors. Under the Petroleum Stockpiling Law, all private oil companies are required to hold stocks equivalent to 70 days of refined products consumption. The private oil companies appear to hold petroleum products and crude oil roughly evenly. The law also requires importers of petroleum products (such as trading firms) to hold stocks equivalent to 70 days of refined products consumption. The actual quantity is based on the import volume by individual companies during the previous 12 months. In principle, importers should stock the same products that they import.

The government, through Japan Oil, Gas and Metals National Corporation (JOGMEC), also maintains national petroleum stockpiling. The total volume, all in the form of crude oil, is 50mn kiloliters (315mn barrels). Originally the government established eight national stockpile companies and constructed 10 national oil stockpiling bases. The eight companies have already been privatized and are now providing services for JOGMEC under contracts.

The Petroleum Stockpiling Law also requires the private oil companies to stockpile LPG, as Japan's LPG imports from the Middle East (mainly from Saudi Arabia) account for 80% of the total import volume. The plan is to complete Japan's LPG stocks equivalent to the quantity imported in 80 days (30 days or 1.5mn tons by the government, and 50 days by the private sector) by 2010. Clearly Japan's reserves (both crude oil and LPG) are to protect against unexpected disruptions of supplies from the Middle East.

Other Measures For Enhancing Energy Security

Japan supports the idea that stockpiles contribute to greater stability for Association of Southeast Asian Nations (ASEAN) and their neighboring countries. One idea which has been mulled for some time is the development of a joint strategic stockpile among ASEAN countries. Although there are several advantages to this idea, the practical difficulties in operating such a joint storage, and perhaps the unwillingness to make an up-front investment, has prevented this from becoming a reality. Given the fact that adequate stockpiles in the region will be difficult and costly to create and maintain, ASEAN seemingly needs support – both financial and technical – from other economies by expanding the framework of energy cooperation to ASEAN +3 (ASEAN plus Japan, China and Korea). The Japanese government is committing itself to contribute to establishing its energy security systems among the ASEAN +3 countries, and has indicated a possibility of providing financial assistance. Korea expressed its willingness to provide ASEAN with technical and commercial experience of managing stockpiles.

Another key issue for Japan's energy security focuses on initiatives to secure investment by Middle East oil exporters in the country's downstream industry. This would help ensure energy security by making oil exporters commercially engaged in Japan's oil industry. This has happened in the past in Korea, the Philippines and China, and is now happening in Japan. Saudi Aramco is a shareholder in S-Oil in South Korea, a 40% equity of the Philippines' Petron, and a 25% owner in China's Fujian refinery.

For the first time Saudi Aramco is investing in Japan's refining sector. In August 2004, Saudi Aramco bought 9.95% of Showa Shell's stocks from Royal Dutch/Shell, and will buy another 4.99% in 2005. When completed, Saudi Aramco will hold a total of 14.94% of Showa Shell's stock. Eventually the shareholding may go up to 25%. This deal will provide Saudi Aramco with

demand stability/security and Showa Shell with supply stability/security. This means the supplier will expect the buyer to maximize the intake of Saudi crude; meanwhile the consumer will expect to receive more of its favored grades. In order to better suit Japan's demand pattern, most Japanese refiners will want to receive an increased volume of lighter grades and reduce the volume of heavier grades. They would also like to have a seasonal flexibility in crude supplies.

The exporters' interest in investing in the region is seen as laudable, given that Japan's reliance on Middle East oil will remain under any scenario for the foreseeable future. Diversifying crude oil sources has long been a key element in Japanese energy policy, although geography and geology conspire to make this a difficult proposition.