

Japan's Energy Problems and the Development of Nuclear Energy

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Vulnerability of Japan's Energy Supply Structure

At a governing board meeting of the International Energy Agency held in June 1981 and the summit meeting of major industrial nations convened in Ottawa the following month, major industrial nations agreed that greater efforts should be made to strengthen and expand their energy policies. Based upon the recognition that the energy situations in their countries are still vulnerable, they confirmed they must further promote energy conservation and develop non-oil energy sources such as nuclear power and coal.

The composition of Japan's energy supply is extremely vulnerable as the country's dependence on oil and on overseas energy sources for primary energy is the greatest among major industrial countries. Therefore, Japan is required to tackle energy problems more energetically than any other country.

To meet this need, Japan has under-

taken strong and comprehensive energy policies giving greater emphasis to promotion of energy conservation efforts, assurance of stable supply of oil and development of alternative energy sources.

As a result of these efforts, Japan has achieved substantial results in its energy policy as in other countries. Despite the 3.8% real economic growth achieved in the fiscal 1980 ending March 1981, energy consumption dropped 3.4% due to promotion of conservation efforts. Oil consumption, especially, registered a sharp 10.1% decline.

Non-oil energy sources have been promoted through increased imports of coal and natural gas as well as nuclear and hydroelectric power. Thus, reliance on oil for primary energy supply accounted for 66% in fiscal 1980, the first time it dropped below the 70% level since 1969.

This sign of a structural change in the energy supply and demand relationship has been highly evaluated by the Japanese Government in recent years. But the country's energy supply is extremely vulnerable, so it is necessary for Japan to carry out more comprehensive and stronger energy policies than before to ensure secure supplies.

Japan's Overall Energy Policy

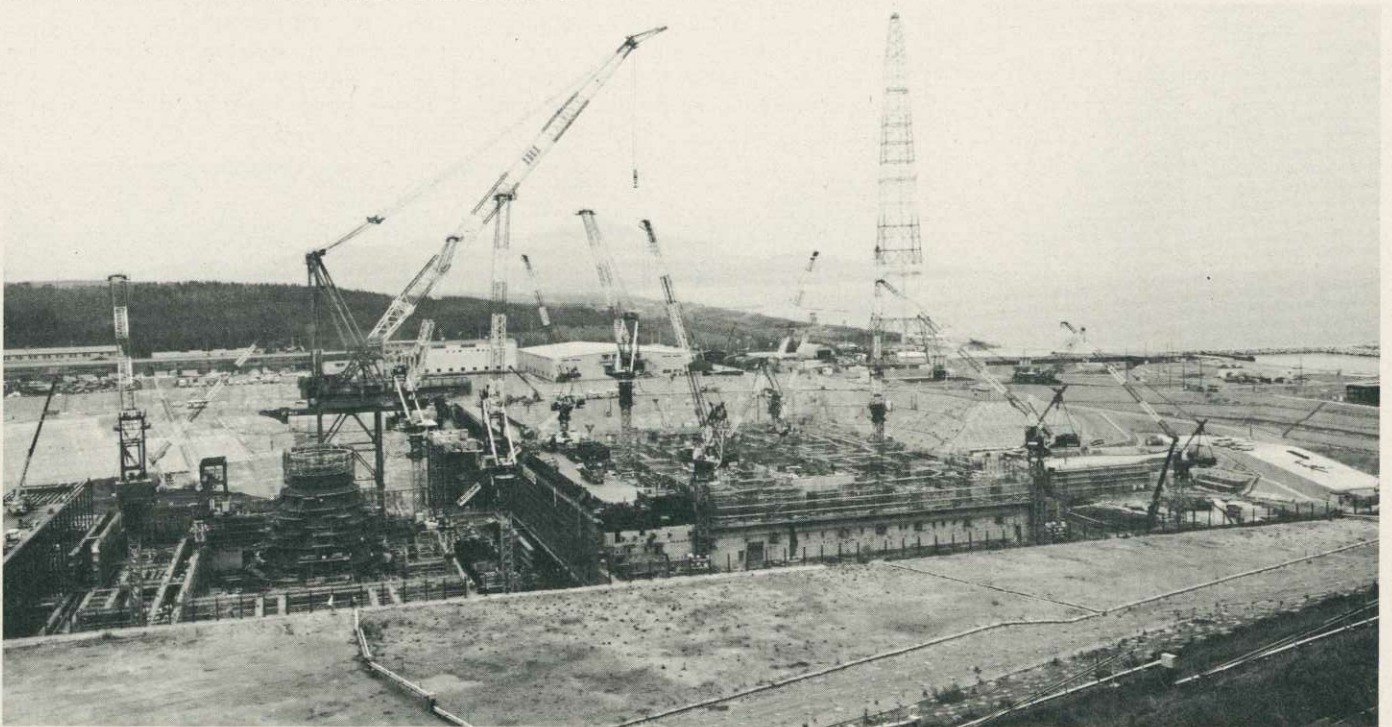
One of Japan's key energy policies is the promotion of energy conservation efforts through the cooperation of the government and private industrial, household, commercial and transportation sectors.

Particularly in the industrial sector, whose energy consumption accounts for nearly 60% of the nation's overall demand, such measures as favorable monetary and tax treatments have been promoted to encourage faster introduction of equipment for energy saving purposes.

The government has also encouraged the public to make energy saving efforts and has given them information necessary for that purpose.

A nationwide campaign to reduce oil consumption by using more non-oil fuels has been carried out since 1979. As a result, Japan succeeded in reducing oil consumption by more than 20 million kiloliters in fiscal 1980, almost achieving the initially targeted amount. Furthermore, Japan has come up with a policy to cut a further 25 million kiloliters from its oil consumption within the current fiscal

Nuclear power plant at Kashiwazaki, Niigata, under construction



year ending March this year.

Based upon medium- and long-term perspectives, the government has launched the "Moonlight Project," aimed at researching and developing energy conservation-related technologies.

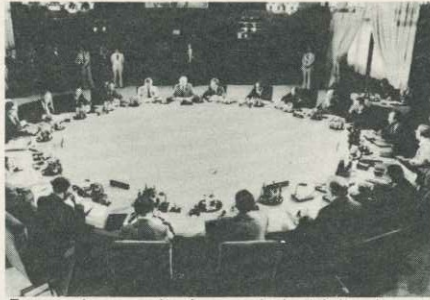
It is also essential that Japanese energy policy stress the securing of stable oil supplies in its energy policy.

The government has tried to strengthen relations with oil-producing countries through economic cooperation and wide-ranging personnel exchanges.

The country has attempted to diversify oil sources by expanding oil imports from non-Middle East countries in a bid to lessen excessive dependence on the Middle East. Diversification has also been pursued by promoting development of crude oil fields in and outside Japan.

It is also important to increase oil stockpiling against future emergencies. At present, the private sector is obliged to meet a goal of 90 days of reserves. And the government aims at increasing its stockpile from the current 8.4 million kiloliters, equivalent to 13 days of reserves, to 30 million kiloliters.

Along with the efforts in promoting energy conservation and ensuring stable oil supplies, promotion of development and introduction of alternative energy



Economic summit of seven industrialized democracies in Ottawa.

sources is a prerequisite for ensuring overall energy supplies in long-term and structural energy policies.

The government has undertaken drastic measures to carry out a policy to promote alternative energy sources since 1980. Among such measures are legislation concerning promotion of development and introduction of non-oil energies, arrangement of a special account system to ensure necessary funds, and establishment of the New Energy Development Organization as a central body to promote overall development of alternative sources.

Based upon the laws, a paper called "Targeted Supplies of Non-Oil Energies" was approved by the Cabinet and made public. It called for the maximum efforts by the private sector, priority-based and

systematic planning of policies by the government and further strengthening of cooperation between the government and private sectors.

It stipulates that the supply of non-oil energy sources including coal, nuclear power and natural gas is expected to reach 350 million kiloliters in oil equivalent by fiscal 1990. The basic policy thus purports to supply at least 50% of energy needed by alternative energy sources.

Why Must the Development of Nuclear Energy Be Promoted?

Nuclear power is considered one of the most prominent non-oil fuels. In the paper mentioned earlier, nuclear power generation is expected to total 75.9 million kiloliters in oil equivalent by 1990. The combined generation capacity of nuclear power plants is expected to increase from the current 15.7 million kilowatts to between 51 million and 53 million kilowatts by the same year.

As a result, by 1990, nuclear power will supply more than 10% of total energy demand and account for nearly 30% of all electricity to be generated.

There are two major reasons for

Nuclear power plant in Fukushima Pref. east of Tokyo





A mammoth oil tanker with a full load of crude

nuclear power being considered as a prominent alternative source in Japan. First, Japan can produce nuclear power on its own as result of the establishment of its nuclear fuel cycle without relying upon other countries. Second, nuclear power is far better in terms of economical efficiency compared with other non-oil energy sources.

It was concluded at a plenary session of the International Nuclear Fuel Cycle Evaluation held in February 1981 that to promote peaceful use of nuclear power while maintaining the principle of nuclear nonproliferation is possible and a must.

As the sole nation to experience atomic bombing, Japan is holding fast to the principle of peaceful use of nuclear power.

Approaches to Nuclear Energy Development

However, its introduction of nuclear power has been lagging behind schedule in recent years. Since the 1978 accident at the Three Mile Island nuclear plant in the United States, the Electric Power Development Coordination Council did not approve a new nuclear power plant for two years and three months. It decided only in 1980 to build three plants.

One of the reasons for the delay, which may vary from place to place, is that the potential fear of the public toward radioactivity has not yet been removed.

Another reason is that nuclear power plants are not attractive to depopulated areas where industrial growth is badly needed, because the plants do not necessarily contribute to such a growth.

It is first necessary to assure safety of nuclear power plants to solve the problem of their location.

Radioactive water leaked into an ordinary water drainage system from a waste processing facility at the Tsuruga atomic power plant in March last year. Residents near the plant site and people throughout the country became wary over the safety of nuclear power plants after the incident.

No environmental effect was found because the amount of leaked radioactivity was very small. However, this mishap provided great lessons to the administration of nuclear power plants. The government learned that safety measures should be taken not only concerning nuclear reactors but also the total power generation system including peripheral facilities.

It was also made clear that the government must take every necessary measure to alleviate public fear even when a minor trouble occurs at a nuclear power plant. The government should make every effort to explain to the public what happened in an easy-to-understand manner. It is therefore necessary for the government to obtain the confidence of the public in the safety of nuclear power



Some of the materials used for save-energy campaign

plants through continuous efforts.

The government has tried to improve the welfare of the regions within which nuclear power plants were built. It has imposed a tax on power companies depending upon how much electricity they sell and allocated the tax revenue to the local governments of areas with nuclear power plants for construction of public facilities.

This kind of effort as well as inducements to industry should be strengthened to promote industrialization in depopulated areas for nuclear power plants.

It takes time to get a nuclear power plant operated after selecting a site. Such a trend has become worse in recent years. It has now come to the point where it is commonly said that 33 regulations and 66 separate government approvals are involved in bringing a nuclear power plant into operation. Therefore, the government is determined to streamline such complicated regulatory processes for the licensing of nuclear plants.

Considering the vulnerable composition of Japan's energy supply, it can be concluded that development of nuclear energy is an urgent policy task.

The Japanese government has thus set out to make the utmost efforts to promote a comprehensive energy policy, while putting an extreme emphasis on development of nuclear power. ●