

Japan: Nuclear energy at a crossroads

Now is the time to decide future policy course

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The choice Japan must soon make over the future of its energy policy will determine whether it will develop safer nuclear power plants, expand reliance on other energy sources or remain in power-save mode for decades to come.

The March 11 megaquake and tsunami crippled not only the Fukushima No. 1 nuclear power plant but also the course of the nation's commitment to nuclear power, which was expected to be a major source of energy into the future.

"We will need to revise our energy policy" from scratch, Prime Minister Naoto Kan said at a news conference Tuesday.

Japan is expected to be 10 million kilowatts short of electricity during the summer, and Kan said the government must give up plans to make nuclear power account for half of the nation's energy needs by 2030, compared with about 30 percent now.

So far, the embattled prime minister has requested that Chubu Electric Power Co. shut down its Hamaoka nuclear power plant in Shizuoka Prefecture, which, due to the fact that it was built on a fault line, is feared as the most vulnerable to earthquakes.

Although Kan has said the shutdown won't apply to other nuclear power plants at this point, the decision on Hamaoka represents a major shift in the nation's core energy policy.

The sudden change comes after safety measures at the Fukushima No. 1 power plant failed miserably in the face of a major temblor and killer wave.

Backup electricity failed to operate as expected once the tsunami knocked out power at the plant. Tokyo Electric Power Co. lost control of not one but three reactors. What was believed to be an airtight facility kept releasing radioactive materials beyond Fukushima Prefecture.

The government eventually raised the severity assessment of the crisis to level 7 on the international scale, putting it on par with the 1986 Chernobyl accident.

But what will come after the shutdown of Hamaoka remains unclear as the Kan administration appears stuck in limbo.

The government's reluctance to either abort or overhaul nuclear energy policy despite the catastrophe is rooted in the fact that it has long been the linchpin of Japan's energy strategy.

News photo

Aftermath: A photo taken by a small unmanned aerial vehicle and released by Air Photo Service shows the damaged No. 4 reactor building at the Fukushima No. 1 power plant in Okuma, Fukushima Prefecture. AP

The move to use nuclear reaction for power supply began approximately a decade after the atomic bombings of Hiroshima and Nagasaki. After putting into effect the Atomic Energy Basic Law in 1955, the first unit of Japan Atomic Power's Tsuruga nuclear power plant began commercial operations in March 1970.

Reliance on the technology expanded following the "oil shock" in 1973, while a strong economy raised demand for electricity in the 1980s.

Nuclear energy was also supposed to be a key component for Japan to slash its carbon emissions as global warming became a serious concern in recent years.

"Our country is short on energy resources," a pamphlet promoting Tokyo Electric Power Co.'s nuclear program says. The utility points out that since Japan is an archipelago, it is difficult to trade electricity or energy resources with other countries.

"There are hopes over the prospect of renewable energy sources," but their output is unstable and inefficient, Tepco adds.

Under such circumstances, nuclear power has come to provide approximately 30 percent of Japan's energy supply.

Had the Fukushima No. 1 nuclear plant survived the March 11 earthquake and tsunami, dependency on nuclear power would have grown more pronounced in the following years.

According to Tepco, the nation's 10 major electricity utilities were expected to have provided 875.6 billion kilowatts combined in fiscal 2010. Twenty-nine percent of that was to come from nuclear power. By fiscal 2019, the projected amount of overall electricity use was expected to reach 971.2 billion watts.

Nuclear power was scheduled to cover up to 48 percent of demand while use of fuel oil was scheduled to fall from 13 percent in 2010 to 5 percent in 2019. Although the math doesn't add up, the government has yet to remap the course it plans to take to avoid occasional blackouts.

Atsushi Kasai, a former researcher at the Japan Atomic Energy Research Institute and a member of the U.N. Scientific Committee on the Effects of Atomic Radiation, said Tepco and the government will be forced to review the entire program and scrap the current blueprint.

"In the end, building a nuclear power plant (in Japan) with absolute safety is impossible," Kasai told The Japan Times last month.

Statistically, the chance that one of the Japan's 54 reactors will malfunction is about a tenth of an airplane crash occurring, he said. But once the statistically unlikely happens, as is the case in Fukushima, the damage is "way more excessive," the expert explained.

Kasai, who has visited Chernobyl more than 10 times to conduct surveys of radiation in the region, said the government and the public should decide how to proceed with the nuclear program while the incident in Fukushima is still an ongoing issue.

"The Chernobyl incident was a huge indication (about the dangers of nuclear power), but eventually people failed to remember the lessons," he said. "I fear that people will forget what is happening in Fukushima soon and repeat the mistakes again."

But even those like Kasai agree that terminating the nuclear power program won't happen

overnight. Reactors will take years to completely cool off and shut down, and additional years to properly bring the operations to a close. In addition to the money and time to abort the program, pundits say there are two major obstacles that may keep nuclear power generation a practical option for the government.

One, as Tepco said in its pamphlet, is the fact that many believe Japan won't be able to break its addiction because of the high dependence it already has on nuclear power. Pushing to abort the program without first finding viable substitutes will be difficult, pundits say.

For example, Tepco is expected to restart some of its thermal power plants within months to generate up to 55 million kilowatts, but the utility saw demand of 60 million kilowatts last summer when temperatures peaked. To avoid a regional blackout, Tokyo residents will be asked to cut power use as much as they can while the government has requested that companies reduce their demand by 15 percent.

Keiji Miyazaki, professor emeritus of Osaka University and a specialist in the study of nuclear accidents, points out life without nuclear power generation would not be practical.

Miyazaki, who has studied the capacity of other energy sources including geothermal, solar and wind power generators, concluded that each option lacks the capability of nuclear power in efficiency, cost performance and environmental protection.

It is regrettable that Fukushima No. 1 suffered a serious accident, he said, but "it is the nature of any machine to malfunction eventually."

"It is impossible to make nuclear power stations absolutely safe, but maximizing the safety is possible if precautionary measures are properly taken," Miyazaki said.

He pointed out that while Fukushima No. 1 was crippled by the tsunami, other nuclear plants survived the disaster without much damage.

"This is not about whether nuclear power is necessary or not despite its dangers. It is about properly managing a reactor and making it safe," he stressed.

Another reason nuclear power is unlikely to go away is the surprisingly high support it gets from the public regardless of the current crisis.

A survey of 1,131 people by NHK last month found that 42 percent feel nuclear power reactors should remain as they are, while 7 percent called for more to be built.

Only 32 percent said the government should reduce the dependency on nuclear power, and 12 percent said all nuclear power stations should be abolished.

A separate survey by the Nikkei financial newspaper in April saw 56 percent of the respondents say they either wanted the dependency on nuclear power to grow or remain at the same level, despite the Fukushima accident.

Local governments and chambers of commerce also depend on nuclear facilities in their backyards.

Last month, representatives of commercial industries in Aomori Prefecture asked Tepco to "swiftly" restart construction of nuclear facilities in the prefecture and that they are "anxious" to see the work resume.

Meanwhile, halting the nuclear program would also put a brake on sales of nuclear technology infrastructure to other countries.

Kan had been scheduled to go late last month to Turkey to promote Japan's nuclear technology, but the trip was called off following the crisis in Fukushima. In a related development, U.S. energy provider NRG Energy Inc. pulled out of investing in a nuclear reactor in Texas in partnership with Toshiba Corp. following the Fukushima incident.

Pundits say that even if buyers weren't having second thoughts about nuclear-power, the chances of Japanese companies winning contracts over international competitors are low at this point.

During a news conference April 26, Liberal Democratic Party Lower House member Taro Kono, who is known for his expertise in energy policies, said selling nuclear infrastructure is a risky business to begin with, considering the safety issues.

Japan should instead develop technologies on reusable energy and market them, he said, adding that it would "help reduce carbon emissions, and it is a feasible business model."

Regarding the future of nuclear power plants in Japan, Kono said that the government should abort creating new reactors from this point forward. That would make Japan nuke-free by 2050, when all currently running reactors would have reached their maximum operation span.

The four decades until then should be spent developing reusable energy to a level it can be relied on to meet 100 percent of demand.

But there are those, including in the government, who say Japan should continue to pursue nuclear power development.

"Nuclear power will be important for the Japanese economy and providing us with enough electricity," Kaoru Yosano, the state minister in charge of economic and fiscal policy, told reporters last month.

The former Japan Atomic Power Co. employee said the government's promotion of nuclear energy was justifiable and not a mistake.

Katsuhiko Ishibashi, a seismology expert at Kobe University who has continuously warned of the dangers of nuclear power plants in earthquake-prone Japan, questioned whether the technology should be a part of everyday life to begin with.

"They say nuclear technology shouldn't be used at war and only in peaceful manner," Ishibashi told Japan Times during a joint interview last month in Tokyo.

"I believe the contrary. There are no grounds for mankind to make such a dangerous technology a part of our daily lives. Atoms for peace is a contradictory term," he said.

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P.S.

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<http://search.japantimes.co.jp/cgi-bin/nn20110512f1.html>