

Japan: Crisis a chance to forge new energy policy

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OSAKA — On March 15, 1970, the long-anticipated Osaka Expo opened, allowing more than 64 million people to indulge their curiosity and learn about future technologies over a six-month period. It would remain the most attended world's fair until the 2010 Shanghai Expo and continues to be regarded, along with the 1964 Tokyo Olympics, as a milestone in Japan's postwar recovery.

The Osaka Expo can also lay claim to being the birthplace of the idea in Japan that nuclear power is safe. As the first visitors arrived, they were greeted by signs announcing that the site and attractions were being partially powered by the Tsuruga No. 1 reactor in Fukui Prefecture, which had gone into operation that very month.

"Safe, clean, and cheap: the energy of the future," read neon signs greeting Osaka Expo visitors.

The expo's success and the nuclear power-generated electricity that helped run it convinced many Japanese that nuclear power was the answer to their ever-growing demand for electricity, even as those in the cities didn't want the reactors in their backyards.

Over the following two decades, dozens of nuclear plants would be built not in Kanto and Kansai, but in remote areas along the Sea of Japan coast in Fukui Prefecture, or next to the Pacific Ocean in Fukushima Prefecture.

In return for hosting nuclear power plants, the prefectures, towns and villages were given central government subsidies that paid for everything from roads, bridges, tunnels, dams and modern sewage facilities to all manner of other public works projects.

The money flowed in after three electricity laws were established in 1974. And while not all of the funding was for nuclear power — some local governments received subsidies for fossil fuel plants — the vast majority went to projects directly or indirectly connected to the presence of nuclear power plants.

Local construction firms, in turn, got a piece of these public works projects.

Fukui Prefecture, whose 14 nuclear units power the Kansai region, has Japan's, and possibly the world's, largest concentration of reactors. Since 1974, the prefectural government and 21 towns and villages have received more than ¥324 billion in subsidies.

Fukushima Prefecture, for its part, has received more than ¥188 billion since 1974. In addition to guaranteed annual subsidies, local governments also received money and financial assistance from the utilities that operated the plants.

At the same time, the utilities served as a major source of employment. During annual plant inspections, local farmers and fishermen were hired for all sorts of tasks, while the service industries, including the hotel, restaurant and transportation businesses, relied heavily on visiting utility officials and nuclear energy bureaucrats from Tokyo for their incomes.

But there was a price to pay.

“Nuclear power was made possible in Japan by the government and the utilities joining forces, and establishing a system that avoided crucial issues like earthquakes, nuclear liability, disposal of nuclear waste and the real costs of nuclear power,” charges longtime nuclear foe Aileen Mioko Smith.

It is this real cost of nuclear power that is at the heart of a growing debate over how sustainable it really is and will continue to be in the coming years. Nuclear power supporters in the government, academia and the utilities insist that nuclear energy is still far cheaper than the alternatives.

According to the government’s 2010 energy white paper, nuclear power costs between ¥5 and ¥6 per kilowatt hour, while wind power runs between ¥10 and ¥14 and solar costs ¥49.

But Tetsunari Iida, executive director of the Institute for Sustainable Energy, disputes this figure.

“Each utility submits papers to the Ministry of Economy, Trade, and Industry on nuclear costs, and they calculate 16 years as the amount of time needed for the plants to turn a profit, and their costs range between ¥6 and ¥15 per kilowatt hour. But METI’s data calculates the cost at between ¥5 and ¥6, and doesn’t include either waste disposal costs or unlimited liability of the kind Tokyo Electric Power Co. faces the possibility of paying,” Iida told journalists in late April.

The other issue that will affect the cost per kilowatt hour in the coming years and the question of how, or even if, nuclear should be replaced, is the fact that the majority of Japan’s reactors are nearing the end of their originally recommended life cycle.

In the 1970s, the International Atomic Energy Agency and the U.S. government calculated 30 years was the safe lifespan for a nuclear power plant. That limit was later raised to 40 years after the introduction of newer technologies, especially computer technology, and, until the March 11 earthquake, there had been talk in Japan that the plants might run for 50 or 60 years.

Of Japan’s 54 commercial reactors, three — the No. 1 unit at the Tsuruga power plant, the No. 1 unit at the Mihama plant in Fukui Prefecture and the No. 1 unit at the Fukushima No. 1 plant — are more than 40 years old. Another 16 will be at least 40 years old by the end of this decade and another 17 at least 30 years old by 2020.

New, expensive safety measures will be required to keep the aging reactors in operation.

Building new reactors will require years of negotiations with local governments, and it can take five to seven years to finish one and put it into operation.

Thus, not only traditional antinuclear activists but a growing number of prominent business leaders are questioning whether it makes sense to stay with nuclear power over the coming years, given the age of the current plants and the fact that the price per kilowatt hour of other energy sources is likely to continue to fall.

In late April, Softbank CEO Masayoshi Son drew international attention with his announcement that he will set up a new foundation to seek alternative energy solutions, especially solar power.

“Studies in the U.S. show that the price of solar power is expected to continue to decline over the coming years while the cost of nuclear is expected rise,” Son said.

Another energy source drawing interest from Son and others is geothermal.

A 2008 report by Japan's Institute of Advanced Industrial Science and Technology showed the nation had the capacity to produce 20.5 gigawatts of geothermal energy, the equivalent of 20 nuclear reactors and the world's third-largest supply after Indonesia and the United States.

Although there are 18 geothermal stations in Japan, mostly in Kyushu and the Tohoku region, cost and legal issues remain daunting.

Geothermal sources are often found at privately owned hot springs whose owners oppose construction of the necessary facilities. Another problem is that 82 percent of Japan's geothermal sources are in public parks, limiting development.

Despite growing calls for more investment in solar, wind, hydro, geothermal and other energy forms, the central government and the utilities continue to insist that nuclear power will remain a fundamental part of the nation's energy mix in the years to come.

In 1970, nuclear power was the wave of the future, and Japan embraced it as national policy. Four decades later, the Fukushima disaster has exposed the fundamental dangers of an earthquake-prone nation relying on nuclear power. But it has also created a once-in-a-generation opportunity to engage in a national debate on what the nation's energy future should look like.

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P.S.

* The Japan Times, Thursday, May 12, 2011:
<http://search.japantimes.co.jp/cgi-bin/nn20110512f2.html>