

Nuclear Phase-out Policy Shaking Taiwan's Energy Situation

Ken Koyama, PhD
Chief Economist, Managing Director
The Institute of Energy Economics, Japan

From July 23 through 26, I visited Taipei and had an opportunity to discuss Japanese and Taiwanese nuclear and energy policies with experts from Japan and Taiwan. As for nuclear power generation, particularly, the Japanese and Taiwanese experts proactively discussed policy reviews, enhanced nuclear safety measures, and the present situation and challenges regarding new energy policies under consideration after the March 2011 Fukushima Daiichi nuclear plant accident. Here, I would like to summarize three similarities between Japan and Taiwan, which impressed me at the discussions, and relevant energy policy challenges.

The first similarity is between the Japanese and Taiwanese energy conditions. Both Japan and Taiwan are island economies with poor fossil fuel resources. For both countries, oil is the biggest energy source, followed by coal and natural gas. Fossil fuels account for most of the energy supply in Japan and Taiwan. Therefore, their energy self-sufficiency ratios are far lower than the international average. Both depend heavily on imports for energy supply. Particularly, their dependence on the Middle East for oil as the leading energy source is very heavy. Because of these basically vulnerable energy situations, past oil crises greatly affected Japan and Taiwan, prompting them to take up proactive policies to secure stable energy supply. The expansion of nuclear power generation has taken a pivotal position in their policies. In 2009, nuclear energy accounted for 11% of Taiwan's primary energy supply.

The second similarity is between the changes in the situations for nuclear energy that has taken a key position in Japanese and Taiwanese energy policies. I would like to skip the Japanese conditions after the Fukushima Daiichi Nuclear Power Plant accident on and after March 11, 2011, due to length considerations for this report. Taiwan's environment for nuclear energy has also grown tougher just as the case in Japan. Taiwan now has three nuclear power plants in Jinshan, Kuosheng and Maanshan, operating a total of six reactors with a combined capacity at 5.14 GW. A fourth nuclear plant is under construction in Longmen. While these existing nuclear plants have so far maintained good operational performance, concerns have grown in Taiwan over nuclear safety in response to the Fukushima accident. Taiwanese citizens have grown critical of nuclear energy. As such concerns were coupled with political campaigns toward the January 2012 presidential election in Taiwan, President Ma Ying-jeou in November 2011 announced a plan to disapprove any extension of the operational licenses for the existing nuclear reactors and to decommission these reactors upon the expiration of their respective licenses. While approving the planned commercial operation of the Longmen nuclear plant under construction, the Taiwanese president thus indicated his nuclear

phase-out policy. The Taiwanese government also announced a New Energy Policy to reduce Taiwan's dependence on nuclear energy, which accounted for 11% of primary energy supply and 18% of electricity generation in 2009, calling for substantial expansion of renewable energy supplies, thorough promotion of energy conservation and increase in natural gas and coal thermal power plants with enhanced carbon capture and storage systems. These developments call to mind the conditions in Japan.

The third similarity is that Japan and Taiwan are very uncertain about how their respective energy supply and demand conditions would change under a new policy which aims to reduce dependence on nuclear energy and how such change would affect their respective energy security, environmental measures and economic efficiency. While a national debate on energy and environmental choices is ongoing in Japan, there are great uncertainties about its future energy situation. Although Taiwan's New Energy Policy seeks to simultaneously achieve environmental conservation, economic growth and energy security, there are also many questions and concerns over the impacts and realities of its new policy. Taiwanese energy experts question if Taiwan could achieve its target of increasing renewable energy-based electricity generation capacity including hydroelectric power generation to 9,902 MW by 2025 from 3,230 MW in 2011 by promoting solar and wind power generation. They also question if Taiwan could attain its goal of cutting carbon dioxide emissions in 2025 to the level of 2000 without using carbon capture and storage systems for expanded non-nuclear thermal power generation and how electricity price hikes could be controlled. Taiwan is now shaken by various problems and challenges emerging over the nuclear phase-out policy.

Through the discussions with Taiwanese experts, I have felt that Taiwan is very interested in the energy and nuclear policies that Japan will adopt for the future. Particularly, the Taiwanese side seriously questioned how Japan will decommission the Fukushima Daiichi Nuclear Power Plant, enhance safety measures at nuclear plants, develop emergency response arrangements, and make its energy policy based on national discussions. This may be because they expect that Japan's policy or direction would greatly affect Taiwan again.

As Japan and Taiwan have built a long historical relationship which has been basically good, friendly and close, Japan's policy developments have frequently had some impact on Taiwan. Given the Fukushima nuclear accident with its great impact in Japan, Taiwan's great interest in Japan is reasonable.

The Japanese side for its part may have to recognize and deeply reflect on how seriously the accident affected Taiwan and other foreign economies as well as Japan. In this sense, what Japan should do may be to straighten itself and enhance nuclear safety measures based on thorough efforts to trace the causes of the accident. Japan may also have to disclose and share lessons from the accident and nuclear safety problems at home and abroad and further internationalize nuclear safety measures. In decommissioning the Fukushima Daiichi nuclear plant, Japan may have to expand international cooperation. It is important for Japan to reflect on the accident and contribute to nuclear safety in Asia. Given that such emerging Asian countries as China and India have large-scale nuclear

plant construction plans, how best to secure nuclear safety is a key issue in Asia. In this respect, I was impressed with the fact that Taiwan was attempting to enhance cooperation with China in promoting nuclear safety.

In this sense, we must recognize that national discussions and the government's decisions on future nuclear policies in Japan are attracting attention from the rest of the world including Taiwan. Japan's decisions are not only most important for Japan but are also internationally significant. Japan has a heavy responsibility for its energy policy decisions.

Contact: report@tky.iej.or.jp

The back issues are available at the following URL

<http://eneken.iej.or.jp/en/whatsnew/JPOIEL.html>