

## **18th Taiwan-Japan Joint Seminar on Energy Cooperation**

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On November 24, the 18th Taiwan-Japan Joint Seminar on Energy Cooperation took place in Taipei. The basically annual seminar has been held in Taipei and Tokyo alternately since the first one in Taipei in 2001. After the 15th one in 2019, the seminar was held on an online basis due to the COVID-19 outbreak in 2020 and 2021. The latest one was the first face-to-face seminar in three years. Some 30 Taiwanese participants in the 18th seminar included senior officials from the Bureau of Energy at the Ministry of Economic Affairs and representatives from national electricity and oil companies, as well as the Institutes of Nuclear Energy Research and the Industrial Energy Research Institute. Japanese participants including me numbered nine from the government and the Institute of Energy Economics, Japan, led by IEEJ Chairman Tatsuya Terazawa. The seminar consisted of the opening session, the first session on overall energy policies, the second one on the resilience of electricity supply, the third one on research and development on renewable energy and other decarbonization technologies, and the fourth one on challenges for the liquefied natural gas market. In the first to fourth sessions, Japanese and Taiwanese presentations were followed by vigorous discussions. In the following, I would like to give my personal comments on key points at the seminar.

First, the seminar indicated that Japan and Taiwan face an important challenge of how to promote energy transition from the current heavy dependence on fossil fuels to achieve their common goal of carbon neutrality or net-zero emissions in 2050. On the path to carbon neutrality, they also commonly face a grave challenge of how to ensure energy security, which has become a top priority due to the Ukraine crisis. Regarding overall energy policies, seminar participants cited various measures, technologies and policy options, which are all plagued with great problems that are not easy to resolve.

As a significant challenge for the promotion of Japan-Taiwan cooperation or dialogue, I would like to cite how to spread renewable energy. Japan and Taiwan commonly place hopes on greater roles for offshore wind and other renewable energy sources in their future energy transition and are endeavoring to overcome relevant problems. When disseminating wind and other naturally variable renewables, how to address their supply intermittency becomes a challenge. While it is technologically possible to address the supply intermittency, a cost is required for integrating intermittent electricity supply from renewables into the power grid. As variable renewables increase their share of power generation, the integration cost expands. In this sense, how to develop an optimum energy mix based on the maximum spread of renewables is a common energy policy challenge for Japan and Taiwan that have been put into different conditions. The spread of renewables is coupled with the need for electrification and electricity storage to expand demand for rare earths and other critical minerals, leading to problems such as a tighter supply-demand balance, price hikes and dependence on some supply sources. The problems will be common to Japan and Taiwan in regard to energy and economic security. They will have to seek solutions to these problems and consider their cooperation.

Second, I would like to point out that a difference between Japanese and Taiwanese nuclear policies may become a new challenge regarding their energy transition and lead to relevant problems. Taiwan has advocated a nuclear phaseout policy to achieve a nuclear-free homeland goal by 2025, based on last year's referendum results, while Japan has been proceeding with initiatives to promote the restart of idled nuclear power plants, lengthen the service life of nuclear reactors and construct next-generation reactors to achieve nuclear energy's target share of the power mix at 20-22% in 2030. They are now going in contrasting directions regarding nuclear energy. Factors behind these Japanese nuclear initiatives include globally increasing interest in nuclear energy and changes in domestic public opinion on nuclear energy as an option that can efficiently contribute to Japan's 3E's – energy security, environmental protection and economic efficiency. As a matter of course, the extent to which nuclear power plants would be restarted is still uncertain. However, it was interesting that the seminar indicated Taiwan's attention paid to Japan's nuclear initiatives that are expected to be enhanced. On the other hand, Taiwan's failure to adopt nuclear energy as a stable zero-emission electricity source has apparently become a major constraint or challenge regarding the energy mix. For instance, Taiwan is seeking to increase LNG's share of the power mix from 37% in 2021 to 50% by 2025. Given the current supply-demand balance in the international LNG market, this may be a tough challenge that comes as the option to use nuclear energy has been ruled out, indicating how difficult the development of a best energy mix would be in Taiwan.

Third, I would like to note that two major issues regarding stable energy supply were taken up for discussion at the seminar. One is about stable electricity supply. The importance of stable electricity supply will grow in Japan and Taiwan as electrification makes progress. Both have been susceptible to natural disasters such as earthquakes and typhoons. In fact, they have experienced the tightening of the electricity supply-demand balance and large-scale blackouts due to various events in recent years. At the seminar, it was confirmed that Japan and Taiwan should enhance their respective power grids while trying to spread naturally variable renewables. Multiplexing is important for securing stable power supply. Investment is required for multiplexing power supply, leading to higher costs. How to secure stable electricity supply while minimizing an economic and social cost hike is an important challenge for Japan and Taiwan. It was interesting that seminar participants pointed to the importance of preventing electricity supply problems and developing capabilities to quickly restore power supply in emergency situations.

The other important issue was about stable LNG supply. LNG is an extremely important energy source for Japan and Taiwan. As noted above, Taiwan has set a goal of raising LNG's share of the power mix to 50% by 2025. Due to the Ukraine crisis, however, the global gas/LNG market has been destabilized rapidly, leading Europe to become concerned about a serious gas crisis this winter. As gas inventories have increased due to warmer-than-usual winter weather so far and gas consumption cuts, any gas supply crisis is expected to be avoided for the immediate future. However, future gas supply remains uncertain, with the supply-demand balance expected to tighten in and after 2023. How to secure stable LNG supply this winter will remain a challenge common to Japan and Taiwan. As for the expansion of LNG supply capacity to secure stable supply, how to secure LNG investment even amid the decarbonization trend and long-term LNG contracts for such investment became a controversial topic at the seminar. How to secure the long-term stability and sound development of the LNG market, including investment, is a challenge common to Japan and Taiwan.

Japan and Taiwan are surrounded by seas, heavily dependent on fossil fuels for energy supply, poor with domestic energy resources and highly dependent on energy imports. Both have been

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industrialized, occupying key positions in global industrial supply chains. Japan and Taiwan face common challenges regarding efforts to achieve carbon neutrality by 2050 while enhancing energy security. At a time when the international situation is destabilized, deepening divides in the world, Japan and Taiwan that face common challenges should promote and deepen energy cooperation.

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