The 446th Forum on Research Work December 22, 2023

Topics for Electric Power Policy in FY2024
—Providing stable electricity supplies—
<Summary>

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Japan continues to face challenges in securing a stable electrical power supply

1. Japan, like the countries of Europe, is seeing its thermal power plants decrease in operational hours and utilization due to the large-scale introduction of renewable power plants. This is decreasing the incentive for operators to maintain power plants and invest in new power plants.
2. Power shortages were observed on March 22, 2022, centered around the Tokyo area due to a spike in demand due to the cold weather and sharply reduced solar power generation. While the trend of insufficient power supply is increasing, our dependency on solar power is also growing, requiring measures to handle the risk of solar power output dropping.
3. All areas in Japan are predicted to maintain the minimum level of 3% reserve supply capacity required for stable power supplies for the FY2023 winter, but Tokyo only has approximately 4% reserve supply capacity, requiring continued vigilance. After the FY2023 winter, from 2024 onwards supply capacity reserved on the capacity market will be delivered, meaning stable power supplies can be expected. However, to secure electric power supply (kWh) in addition to supply capacity (kW) it is essential to ensure stable fuel supplies over the mid- to long-term.

Japan's initiatives to provide stable electric power supplies

4. Until FY2023, the Additional Reserve Capacity Public Offering has been implemented to provide supplementary power in response to short notice demand when there is a risk of power shortage, in addition to promoting electricity saving efforts. From FY2024 onwards, the capacity market will deliver power based on the actual supply secured four years prior.

5. The main auction of the capacity market, however, does not provide sufficient incentive to invest in new power plants. Therefore, the Long-term Decarbonized Power Source Auction is planned for January 2024 as a special auction of the capacity market. A Reserve Capacity Scheme is also under review to maintain a degree of reserve supply capacity for emergencies drawn from thermal power sources not offered or bid upon in the capacity market.

Background and challenges facing initiatives to provide stable electric power supplies

6. With the deregulation of electricity in the retail market, the capacity market was introduced to provide a method to secure required supply capacity over the mid- to long-term without relying entirely on the wholesale market.
7. However, supply capacity is reserved on the capacity market based on annual contracts, and suppliers are not guaranteed bids at every yearly auction. This system does not provide sufficient incentive to invest in new power plants that must pay back fixed costs over a long period of time.
8. In response to the above, the Long-term Decarbonized Power Source Auction was introduced to promote investment in power sources that will contribute to achieving carbon neutrality and stable electricity supplies, as well as provide predictability of recovering the associated long-term investments. Successful bids provide predictability of recovering fixed costs, etc., but 90% of profits earned on other markets (spot market, etc.) must be returned.
9. While there is a low risk of being unable to recover fixed costs with the Long-term Decarbonized Power Source Auction, there is concern the profits from other markets will be limited for power sources that have highly variable costs like the charging cost for storage batteries. For this reason, the 90% profit refund stipulated in the Long-term Decarbonized Power Source Auction may reduce the incentive to invest in power plants. Recovering costs during construction is also a major concern for power sources that have long construction lead times.
10. Adopting a cap and floor system, which requires refunds after exceeding a defined limit of profit, but also provides compensation below a floor, and introducing a framework to allow certain power sources to recover costs during the construction period can increase the incentive to invest in power plants.

Hints for Japan in initiatives overseas to support investment in new power plants

11. Europe is starting to introduce frameworks that make recovering long-term investments more predictable. For example, in the UK, the Regulated Asset Base (RAB) model is applied to new nuclear power plants to guarantee a degree of profit

and allow cost recovery during construction. Europe is also moving towards introducing a cap and floor system that sets an upper and lower limit on profits for new non-fossil power sources, in which operators refund profits gained above the cap, but receive compensation when profits fall below the floor to guarantee a degree of profit.

12. Measures to increase the incentive to invest in new power plants are likely to be one topic of the next strategic Energy Plan.

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