

**Challenges in electricity supply stability toward achievement of the 7th
Strategic Energy Plan
—Establishing a more predictable commercial environment—**

<Report Summary>

Kenichi Onishi

Executive Researcher, Manager, Electric Power Group

Electric Power Industry Unit

The Institute of Energy Economics, Japan

Power generation investment issues under the 7th Strategic Energy Plan and the future of electricity system reform

1. The 7th Strategic Energy Plan, published in February 2025, forecasts electricity generation in FY2040, taking into account the demand increase stemming from the expansion of data centers, and proposes the maximization of renewables and nuclear power in order to decarbonize electricity.
2. Electricity system reform was implemented in the wake of the 2011 Great East Japan Earthquake disaster. A review of the reforms was released in March 2025, together with the outlook for the sector. With regard to the returns on power generation investment and establishing a better commercial environment for the sector, liberalization has brought significant uncertainty. Due to concerns that generators may hesitate to make new investments, the review notes an intention to look at policies to facilitate financing.

Electricity demand forecasts in Japan

3. National electricity demand projections (end use) published by the Organization for Cross-regional Coordination of Transmission Operators (OCCTO) in January 2025 for FY2024-FY2034 were for annual growth averaging 0.6%. Demand projections in January 2023 for the same period were for an annual average decline of 0.2%. It is noteworthy that the projected decrease has now reversed.

Capacity pricing in Japan and future outlook

4. The capacity market, which aims to secure electricity supply four years before the delivery year, has already been launched. A capacity auction for the supply of power

in FY2028 took place in January 2025, with overall capacity prices rising. The main reason for the increase was likely the rise in provisional bid price to secure the necessary future supply.

5. However, capacity assurance agreements last 12 months in the capacity market, and if generators are unable to win bids every year, they are unable to recover their long-term fixed costs. Therefore, such agreements may not necessarily contribute to the development of new power generation.

Long-Term Decarbonization Power Source Auction Trends in Japan

6. Long-Term Decarbonization Power Source Auctions were launched in January 2024 with the aim of promoting new investment in zero-carbon power generation and enhancing the predictability of returns on investment. The winning bidder acquires stable revenue from the facility for 20 years in principle and is required to retroactively refund about 90% of the revenue received from other markets.
7. As shown by the auction results for FY2024 released on April 28, 2025, around 3.15 million kW was bid on investment in safety measures for existing nuclear power plants. On the other hand, there was limited bidding for thermal plant refurbishment. Bidding conditions were stricter than last year for battery storage, yet offers increased. Bidding levels and the state of competition varied according to the type of generation.

Thoughts on the evolution of Long-Term Decarbonization Power Source Auctions

8. For generation such as nuclear power with its long lead-times and tremendous up-front costs, the challenges are (1) the risk of non-recovery of fixed costs, (2) allocation of funds during the construction period, and (3) consideration of risk premiums, etc.
9. As the third auction approaches, information pertaining to (1) setting of commercial rates of return by generation type, (2) raising of price ceilings, and (3) correction of bid prices has been published. However, this does not mean that the issues related to power generation investment are resolved.
10. Overseas, countries are looking into and adopting systems that promote the maintenance of nuclear plants and new investment in generation without losing sight of the impact on power users. Of those jurisdictions, RAB in the United Kingdom and CfD in Sweden may be the systems that enable some reduction of the risk burden on companies by cutting the risk of non-recovery of fixed costs and implementing cost recovery during the construction period.

Facilitating financing of electricity infrastructure investment

11. As with investment in the power grid, financial institutions are becoming less able to assume risks against the backdrop of uncertainty; therefore, methods like harnessing supplemental state funding and financing backed by the creditworthiness of the government should be considered.
12. Texas has a program applying 20-year, low-interest loans to new gas thermal generation.

Contact: report@tky.ieej.or.jp