

The 434th Forum on Research Works

December 23, 2019

Electric Utility Industry Outlook and Challenges for 2020

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Competition in the Japanese Electricity Market

1. Day-ahead spot trading now accounts for 30% of total electricity sales. This means that day-ahead spot prices are having a significant impact on the profitability of power-generating facilities and the competitiveness of electricity retailers. In-line with the reduction in the share of oil-fired power generation, day-ahead spot prices shifted from being linked to fuel costs for oil-fired power to being linked to fuel costs for LNG-fired power generation. In mid-west Japan, there was a period when prices grew close to those for coal-fired power.
2. Between April and October 2019, day-ahead spot prices of <1 yen/kWh were at 1.1% in Kansai and 2.0% in Kyushu. However, the increase in renewable energy means that it is likely that this proportion will grow. It's believed that these meager day-ahead spot prices are pushing the whole market down, making it challenging to recover fixed costs from LNG-fired power, etc. in the mid-west Japan market. There is a risk of further reduced profits amongst power generating sectors by the time delivery begins in the capacity market in fiscal 2024.
3. In addition to reduced gaps in fuel costs between LNG-fired and coal-fired power generation from around the second half of 2015, the change from coal-fired to LNG-fired for peak load power sources in 2017 has affected the profitability of pumped-storage power, which had become economical due to price differences between peak and base power sources.

Situation in New Markets

4. Amongst the new markets, trading began for the baseload, indirect transmission rights, and non-fossil value certificates markets, but volumes remain small. There is concern that delays in recommencing nuclear power generation are reducing the merits of establishing new varieties of markets.
5. The baseload market trades base electricity generation amounts from nuclear and coal-fired power, etc., in one-year units. Three auctions have been performed since the first bidding was conducted in August. Delays in restarting nuclear power plants have meant that prices have not been as low as expected, with sales volume stopping at just 534,000 kW for fiscal 2020's delivery.
6. The framework for indirect transmission rights trading allows for accepting or paying day-ahead spot price gaps in regions with interconnection lines. Since trading began in the first week of June, there has been a high volume of trades in the Tohoku → Hokkaido, Tokyo → Chubu, Shikoku → Chugoku, and Shikoku → Kansai products. Trading is being performed in the range of 0.01 to 1.6 yen for contract prices. Significant day-ahead spot price gaps in Tohoku → Hokkaido and Chubu → Tokyo are believed to be creating profit for trading participants.
7. Non-fossil value certificates are a system where the environmental value from power generated by non-CO₂ emitting facilities is separated and sold. Although the transaction volume increased for fiscal 2019, this is only about 1% of the FIT electricity purchased between April to June 2019, revealing how sluggish transactions are. Average contract prices hit a lower limit of 1.3 yen/kWh, which is not related to suppression of levies.

Ensuring Availability

8. In-line with increased competition in Japan, the US, and Europe, supply and demand balances are becoming tighter. Even in Japan, there have been more orders from the Organization for Cross-Regional Coordination of Transmission Operators to improve supply and demand balance. There

has also been an increase in the use of Power Source I, which was originally designed as an adjustment countermeasure during extreme weather.

9. In the US, the Electric Reliability Council of Texas (ERCOT) saw tightened supply and demand balance during the summer of 2019. There is an increased risk that the same could occur in the event of a severe winter. A similar issue has been uncovered in Europe. If France and Belgium have overlapping issues caused by severe winter weather and a reduction in renewable output, the risk of power outages will increase in January of 2020. Germany is planning to completely move away from nuclear power by 2022 and is likely to shift towards importing its power.
10. In the future, securing stable supply will require considering additional compensation and premium payment measures for supply resilience to ensure that existing facilities continue to operate.

Electric Utility Industry Challenges for 2020

11. The new varieties of markets decided by the Policy Subcommittee for Acceleration of Electricity System Reform, including the baseload, indirect transmission rights, and non-fossil value certificates markets, have already begun trading. From fiscal 2020 delivery will commence in the baseload market, and bidding will be performed in the capacity market. In terms of Replacement Reserve, three companies will start broader operations and begin dealing in non-FIT non-fossil value certificates. There are also plans for interim goals to be created for electricity retailers based on the Energy Supplier Enhancement Act. Clarity surrounding price levels for these new frameworks will allow revisions to related companies' business strategies to proceed.
12. At present, more than 8% of supply reserve margins for Summer 2020 have been ensured. However, on the whole, surplus capacity is decreasing, and orders by the Organization for Cross-Regional Coordination of Transmission Operators to improve supply and demand balance are increasing in frequency. When trading prices in the capacity market become clear, a verification will need to be performed to determine

whether there is enough adjustment capability to ensure stable supplies.

13. The legal separation of transmission and distribution divisions will be completed from April 2020. Evaluations show that the various initiatives have led to appropriate measures being put in place. A future challenge will be maintaining efficiency as progress is made with internalizing processes.

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