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Outlook and Issues Concerning the Electric Power Business in 2023

~ Growing Attention on Issues of Securing Stable Supply and Changing Roles of Operators ~

＜Executive Summary＞

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Japan's electricity market and power crunch

1. Wholesale electricity spot prices have been rising since the fall of 2021 due to higher fuel prices. However, it is difficult to immediately reflect the increase of wholesale electricity procurement costs in electricity prices, and there have been a number of petitions to raise regulated rates amid the deteriorating profitability of the retail suppliers. Power Producer and Supplier (PPS) and others are beginning to withdraw from the business.
2. In 2022 there were power crunches in the Tokyo area on January 6-8, in the Tokyo and Tohoku areas on March 22-23, and again in the Tokyo area on June 27-30. The first power crunch advisory was issued in June, but it did not result in a power blackout.
3. Although the Tokyo area was initially projected to have a negative reserve margin during extreme weather events in the winter of 2022, it is now expected to secure the minimum 3% needed for a stable supply of power. However, in order to prepare for the risk of insufficient supply capacity due to unexpected increases in demand and other factors, compensatory demand response service and other measures are being implemented under the auspices of the government. In 2023, the Tokyo area will continue to require close monitoring as the reserve margin in July will be tight in the 3% range during extreme weather events.

Revising the wholesale electricity market and securing investment in power supply

4. A review of the wholesale electricity market and supply-demand adjustment

market is under consideration from the perspective of power supply activation and merit order for stable supply. The contents of this review are closer to "cost-based bidding," with consideration of activation costs and minimum output operating costs. It remains to be seen what systems will be adopted for the price formation method and congestion treatment method.

5. In terms of securing power supply investment, the introduction of a long-term decarbonized power supply auction is being considered for 2023. The auction will target low-carbon power supplies and, for the time being, LNG-fired power. It will also encourage investment in power supplies by guaranteeing, in principle, 20 years of capacity revenue security based on bidding prices. For now, bidding is expected to focus on LNG-fired power replacement and power storage batteries.

Conditions in Europe and the U.S.

6. In the U.S., the California ISO experienced power crunches in the summer months of 2020, 2021, and 2022, all of which were caused by heat waves. While gas-fired and nuclear power plants are scheduled to be phased out in the future, new construction will be limited to renewable energy and power storage batteries. Effective utilization of power storage batteries will therefore be important. Another potential concern in the U.S. is the power crunch in the ISO New England region caused by problems on the LNG procurement side, since it will be dependent on LNG imports when gas demand increases this winter.
7. In Europe, day-ahead spot prices have been high due to soaring natural gas prices. There is potential power crunch in France due to low rates of operation for nuclear power plants, and also in Ireland due to low wind output. The risk of supply shortages and gas insufficiencies could be addressed if a voluntary 10% reduction in overall electricity consumption and a mandatory 5% reduction in maximum demand were implemented through the EU's intervention regulations on high energy prices. In fact, measures to reduce energy consumption have been implemented in France, and so far they have created 10% to 20% energy savings. However, there are days when the weather turns cold causing an increase in demand. In the UK, a system was also introduced to pay £3/kWh to households that shift their power usage away from periods of power crunch. The results of various power-saving initiatives are drawing attention.

Issues Concerning the electric power business in 2023

8. With high energy prices, market intervention is also increasing in Europe in the form of subsidies and taxation of windfall profits. In Japan, a revision of the

wholesale electricity market and a new framework for securing investment in power supplies are also under consideration. It is expected that the role of transmission system operators will increase in supply-demand management and that power providers will be required to bid for the cost per unit, which will eliminate room for discretion. Also, for retail suppliers, if the transmission system operator's forecast is higher than the retail supplier's in the bidding, the bidding will be conducted based on the transmission system operator's forecast. Due to these factors, it is expected that the degree of freedom for power providers and retail suppliers will be reduced. In addition, there are plans to introduce a new bidding system to ensure both low-carbonization and stable supply by guaranteeing a certain level of cost recovery with the aim of achieving a low-carbon supply capacity.

9. The specific circumstances of the energy crisis and the corresponding accelerated low-carbon transition have produced policies with a high degree of public intervention. It is time to consider the future of competition and market mechanisms in the electric power business.

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