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Electricity business, 2017: Outlook and Issues

<Executive Summary>

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Outlook for the electricity market in 2016-2017

1. With the extension of retail liberalization to include the household sector in April 2016, the rapid increase in the number of electricity retailers entering the market boosted competition. As of March 2016, the overall switching rate of electricity customers, including major high-consumption customers was 5.2%, while only five months later in August this had increased by 2.7% to 7.9%. In the area administered by Hokkaido Electric Power Company, the overall switching rate, which was 5.4% as of April 2016, had almost doubled to 10.5% by August.
2. Many of these new market entrants entered the market based on the market structure that existed up until last fiscal year, and, the linking the avoidable costs of FIT electricity to the market price in particular has led to substantial changes to the competition environment from the start of FY2016. Changes to competition conditions and reduced profit margins resulting from the increased competition may be seen in 2017, and there may be changes to the regions in which market entry is most vigorous.
3. The policy subcommittee tasked with ensuring the thorough implementation of reform of the electricity system (the so-called *Kantetsu Shoiinkai*, or thorough implementation subcommittee) is currently working on a wide-ranging review of the electric power industry system. Few measures are expected to be initiated in 2017 however, and the impact of the measures on the competition environment is only likely to be felt from FY2018 onwards.

Wholesale market/retail market trends

4. Wholesale electricity spot prices trended low in 2016 due to decreasing fuel prices. The level usually stayed below ¥10/kWh and it wasn't rare for the price to decrease to the ¥8/kWh range. Partially as a result of the fact that the restarting of nuclear power reactors only occurred in western Japan, previous day spot price market segmentation increased primarily occurred in the frequency conversion station linking the grids of eastern and western Japan, with prices in eastern Japan being slightly higher. Due to this, differences in the retail competition environment in eastern and western Japan are arising. A similar trend is expected in 2017.
5. With the intensification of competition in the retail market centered on high voltage electricity, profit margins are trending lower. A similar trend is also beginning to be seen in the low voltage market. In Hokkaido, Tokyo, and the Kansai region, where switching rates are high, there are a large number of new electric power companies that entered the market based on the rules used in the preceding fiscal year to calculate avoidable costs of FIT electricity, and they are presumably now faced with the need to review their business plans. For this reason, the rate of switching from the former general electric utilities may drop off until the wholesale market revitalization measures that are currently being considered are implemented.

System reform

6. The abovementioned thorough implementation subcommittee is currently reviewing the establishment of new markets and operational methods including wholesale electricity market vitalization (baseload power source markets, gross bidding (bilateral bidding by large companies), the switch to indirect auctioning of grid connection line utilization (using exchange spot transactions)) and the establishment of capacity markets (kW price markets), and non-fossil fuel power source price markets (non-fossil fuel price securitization). These measures are expected to have effects such as the following: Vitalization of wholesale/retail competition, attainment of non-fossil fuel power source targets, and the securement of investment in new electricity generation facilities that is responsive to the worsening of thermal power generation profitability.

7. Although a rough outline of the direction to be taken is expected within the year, the plan includes aspects that will have a substantial impact on the establishment of consistency between systems and the conditions of competition between businesses, and the finer details of the design of the system will be a focus of attention. Of these measures it is in fact only gross bidding that will be initiated by the end of FY2017, and the impact on the competition conditions of wholesale/retail markets in FY2017 is expected to be small. The finer details of the overall design of the system presumably won't be consolidated until the capacity markets are initiated just before 2020, and there is concern regarding the impact this may have on new investments in electricity generation which are already being subjected to a rapid succession of reviews.

Managing supply and demand following large scale introduction of renewable energy

8. With the large scale introduction of renewable energy power sources with the start of the FIT system, issues relating to the supply/demand management of these sources are becoming clear. In the island group that includes Tanegashima Island, which has a small-scale grid, an renewable energy electricity generation output control direction has already been issued in eight days in total. This is a measure that is necessary to secure a margin for lowering output of electricity generated by thermal generation and other means in response to fluctuations in the output from renewable energy power sources and the Organization for Cross-regional Coordination of Transmission Operators has announced verification results.
9. In the area administered by the Kyushu Electric Power Company, which has seen a large amount of solar power generation being introduced, the reduction margin of thermal power-generated electricity decreased substantially in May 2016 at midday when demand was low, and pumped storage power plants etc. were used to secure a stable balance between electricity supply and demand. In addition, as evening approaches and solar power generation output decreases rapidly for example, there is a need to greatly increase output from thermal power sources in a short space of time, making it very difficult for the power company to deal with supply and demand management.
10. With regard to solar power generation, in the area administered by Kyushu Electric Power Company as well as those administered by Hokkaido Electric Power Company and Shikoku Electric Power Company, the total capacity of already-connected solar power facilities and those for which applications have

already been submitted, exceeds the amount that can be connected to the grid (according to the 30-day output control limit, etc.) and power companies, particularly those mentioned above, will presumably find it increasingly difficult to manage supply and demand in the areas they administer.

11. The following measures are being considered in order to solve these issues: Establishment of the cross-regional merit order system, interregional grid connection line/intraregional transmission line extension, power source siting that takes into account transmission/distribution network conditions, how transmission/distribution network cost burdens ought to be shared, and the drafting of rules to ensure the fairness of output control, etc. There is expectation that these initiatives will facilitate expanded margins for accepting electricity generated from renewable energy as well as grid management efficient enough to enable stable electricity supply/demand, a flexible approach to the siting of power sources, and the creation of robust power grids.

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