

Long-Term Decarbonization Power Source Auctions in Japan - Updated Guidelines Relevant to BESS

Natural Resources / Energy Newsletter

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I Introduction

In January 2024, Japan held its first Long-Term Decarbonization Power Source Auction ("**Auction**"), a support program that encourages investments in large-scale power generation projects for decarbonization, such as battery energy storage systems ("**BESS**"), by providing capacity providers with fixed capacity payments over a 20-year period, subject to the capacity providers' compliance with certain rules.¹ Among the various categories,² the BESS and pumped storage category received significant attention, with bids totaling ~5.4 GW, far in excess of the maximum target capacity of 1 GW.

Based on the results announced in April 2024 and feedback from the first Auction, the Organization for Cross-regional Coordination of Transmission Operators in Japan ("**OCCTO**") issued a Capacity Market Long-Term Decarbonization Power Source Auction Solicitation Outline for FY2024 on September 4, 2024 ("**FY2024**

¹ For an overview of the Auction, please refer to Nishimura & Asahi's Finance Law Newsletter dated April 24, 2024, [Current Legal Practice Landscape of the Grid Storage Battery Business](#).

² The available categories consist of:

- (i) BESS and pumped storage;
- (ii) Installation or replacement of thermal power sources (only hydrogen and LNG co-firing types and only hydrogen types), nuclear power sources, waterpower sources (only adjustment types and reservoir types), geothermal power sources and bio-mass power sources;
- (iii) Renovation existing thermal power sources into bio-mass plants;
- (iv) Renovation existing thermal power plants into ammonia co-firing power sources or hydrogen co-firing power sources;
- (v) Installation or replacement of solar power generation power sources, waterpower sources (only inflow type), on-shore wind power generation power sources and off-shore wind power sources; and
- (vi) Installation or replacement of LNG-only thermal power sources.

Auction Guidelines”) applicable to the second round, which is now under way, with registrations completed in October 2024, bidding scheduled for January 2025, and results expected to be announced in April 2025. This newsletter summarizes the changes to the FY2024 Auction Guidelines that are relevant to BESS.

II Background

1. Battery Energy Storage Systems

In recent years, BESS have become crucial for managing fluctuations in renewable energy output. BESS can store excess energy generated by intermittent power sources, such as solar and wind, to ensure a stable, reliable electricity supply while supporting the broader transition to renewable energy.

Recent updates to relevant regulatory frameworks have provided support for the adoption of BESS. Under the revised Electricity Business Act, effective April 1, 2023, electric storage facilities, such as grid storage batteries, are classified as “electric facilities for power generation.” Businesses that use these facilities to discharge electricity above a certain scale are classified as “Power Generation Businesses.” Additionally, certain storage battery facilities are subject to safety regulations, such as submission of internal safety rules and compliance with the standards for appointment of a chief electric engineer.

BESS are eligible for financial support through the Auction, which has led to a significant increase in applications for BESS projects, highlighting the growing recognition of BESS as essential to improving energy efficiency and grid reliability.

2. Long-Term Decarbonization Power Source Auction

The liberalization of Japan’s retail electricity market and the increasing integration of renewable energy have led to declining market prices for and less predictable returns on power source investments. This has raised concerns about securing a stable and sufficient energy supply capacity, especially as intermittent renewable energy sources do not provide a consistent supply of power.

To address this, in FY2020 the Japanese government introduced the “capacity market,” a system intended to recognize the value of supply capacity while ensuring a stable and reliable power supply by providing financial incentives to power generators to maintain sufficient capacity. The Japanese government forecasts future electricity demand and, through capacity auctions, power generators commit to maintaining the capacity required to meet those demands. The Auction, which is part of the capacity market, promotes investment in both stable and variable power sources by offering long-term capacity payments. The capacity payments are intended to cover fixed costs related to building and operating the projects, thereby increasing income predictability and reducing risks for investors, to promote investments in decarbonization projects. The capacity market and the Auction are important parts of the Japanese government’s plan to achieve carbon neutrality by 2050, by gradually replacing conventional, fossil fuel-based energy sources with low-carbon alternatives.

The power sources eligible to participate in the Auction include both stable and variable power sources that require future capital investment and have not started supplying power at the time of bidding. Project developers and bidders must comply with the FY2024 Auction Guidelines, including the bidding requirements, such as

maximum bid prices and the minimum eligible capacity. The winning projects are deemed to enter into a legally binding capacity contract with OCCTO at the time the Auction results are announced, which governs the project's requirements moving forward.

3. Results of the First Auction

The results of the first Auction were announced on April 26, 2024, and revealed that a total of ~4.01 GW of awarded capacity was secured, thereby achieving a 100% success rate based on the target capacity. The winning projects were awarded contracts totaling ~233 billion JPY in annual capacity payments.

The results indicated a clear preference for BESS, compared with the other project categories. The initial maximum capacity to be granted in the category for pumped hydro storage and BESS projects was 1 GW. However, the BESS projects alone were awarded ~1.1 GW capacity across 32 BESS projects, while the pumped hydro storage projects were awarded 0.57 GW capacity. Nuclear projects received 1.32 GW, thermal power plant improvements received 0.83 GW, and other projects received 0.27 GW.

III Guideline Changes Relevant to BESS

The FY2024 Auction Guidelines introduced a number of changes relevant to BESS:

(1) Increased Minimum Capacity Requirement

At the first Auction, the minimum eligible capacity for BESS was set at 10 MW. However, as there were a large number of bids for BESS, and relatively few bids for other power sources, it was determined that the bidding requirements for BESS were comparatively easier to meet. In addition, the average capacity of the storage battery projects that bid successfully in the first Auction was ~35 MW. Consequently, the FY2024 Auction Guidelines increased the minimum eligible capacity for BESS from 10 MW to 30 MW to standardize competitive conditions.


(2) Increased Procurement Volume

At the first Auction, the combined maximum procurement volume for BESS and pumped hydro storage projects was 1 GW. However, the first Auction attracted a total of ~4.6 GW in bids for BESS alone, far exceeding the maximum procurement volume. To address the significant interest in BESS seen at the first Auction, the FY2024 Auction Guidelines have increased the procurement volume to 1.5 GW for BESS and pumped hydro storage projects, and also introduce two categories: (i) 0.75 GW for projects with a running duration of 3-6 hours, and (ii) 0.75 GW for projects with a running duration of 6+ hours.³

(3) New Price Bidding Ceilings

At the first Auction, the maximum bidding price was set between 55,308 JPY kW/year and 74,690 JPY/year (depending on the area of the General Transmission and Distribution Utilities) for all BESS (above a minimum

³ A battery's duration refers to the amount of time a battery can contribute until it runs out of stored electricity.



running duration of 3 hours). The FY2024 Auction Guidelines have increased the maximum bidding price and created two categories for BESS and pumped hydro storage projects: (i) ~56,545 to ~77,509 JPY kW/year for projects with a running duration of 3-6 hours, and (ii) ~87,683 to ~93,883 JPY kW/year for projects with a running duration of 6+ hours. The maximum bidding price varies depending on the area of the General Transmission and Distribution Utilities.

(4) Business Plan Requirement

The FY2024 Auction Guidelines introduce a new requirement: submission of a business plan that covers general management requirements for BESS; the requirement is designed to maintain business discipline and ensure the successful implementation of the winning projects. The business plan must include documentation about the manufacturer and model of the battery storage system, safety design features, measures to prevent and respond to accidents (e.g., fire or smoke), public safety measures, security measures, local stakeholder engagement status, certification for waste disposal under the Act on Waste Management and Public Cleaning, and resilience strategies.

If the business plan must be modified after a successful bid, the amended business plan must be reviewed and approved by OCCTO. For instance, if a successful bidder changes the manufacturer or model of the battery storage provider, the modification must be reviewed and approved by OCCTO.


IV Outlook

The changes to the FY2024 Auction Guidelines impose new challenges on BESS developers.

The increased minimum capacity may reduce participation by developers of smaller projects and lead to more competition between developers of larger, more financially viable projects. The increased minimum capacity requirement also has made it impossible for BESS projects with capacity of less than 30MW that did not succeed in the first Auction to participate in the second. When preparing for future Auctions, it is important to anticipate that bidding requirements, such as minimum bidding capacity, may be subject to annual review and may become more stringent as time goes on.

In addition, the introduction of the requirement to submit a business plan for BESS may raise compliance challenges for some BESS developers, particularly with regard to the requirement that BESS manufacturers and suppliers must hold a specific wide-area certification under the Act on Waste Management and Public Cleaning. The certification enables manufacturers to transport and dispose of industrial waste, such as large batteries, throughout Japan without requiring individual municipal approvals. This raises concerns for BESS manufacturers that do not hold this certification prior to the Auction, as the process of obtaining the certificate can be lengthy. However, this concern has been alleviated to some degree, because project developers may submit evidence of the certificate by January 9, 2025 if the relevant BESS manufacturer had not received the certification by the deadline for submission for the business plan in October 2024.

The FY2024 Auction Guidelines have increased competition and compliance obligations for BESS developers seeking to participate in the second Auction, and this trend can be expected to continue in future Auction rounds.



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