ScienceX

Grid-Scale Battery Storage Monthly Report, October 2026

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The price of electricity changes with the time of day. "Grid-scale battery storage" (large batteries connected to the transmission network that store electricity and release it) earns money from that difference. This monthly report uses published figures and our own records to show this month's trends in charts.

1. Three things that moved this month

Wholesale electricity is electricity that power companies and retailers buy and sell. Its price is set on the "spot market" of the Japan Electric Power Exchange (JEPX), a market where electricity for the next day is bought and sold the day before.

- In October, the average wholesale electricity price was 27.02 yen/kWh in Tokyo (13.06 yen/kWh in the same month last year, a difference of 13.96 yen) and 15.07 yen/kWh in Kyushu (10.74 yen/kWh in the same month last year, a difference of 4.34 yen).
- In both Tokyo and Kyushu, the lowest average time of day was around 12:00 (Tokyo 19.03 yen, Kyushu 4.94 yen). The highest was 37.11 yen around 16:30 in Tokyo and 24.74 yen around 17:30 in Kyushu.
- Our estimate for one battery site in Tokyo gives these monthly figures: ¥2.78 million from the electricity price spread (October), ¥1.31 million from Tertiary reserve 2 in the balancing market (September), and ¥2.52 million from the capacity market (price for delivery fiscal year FY2029).

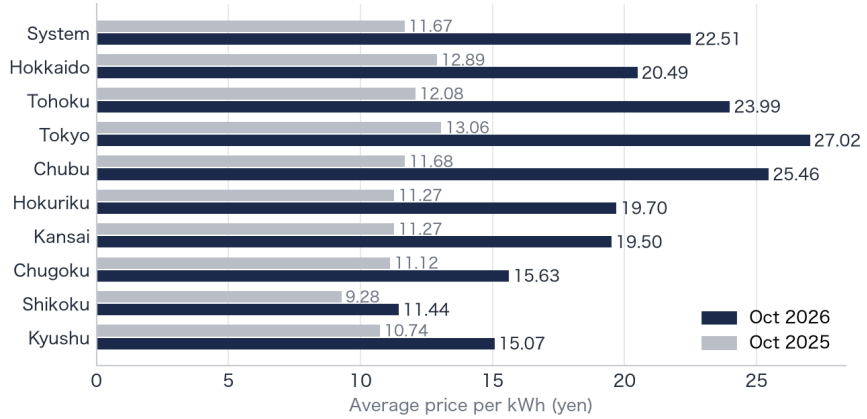


Figure 1 Average wholesale electricity price (yen/kWh). Navy is October 2026, grey is the same month last year

Source: Spot market trading results published by the Japan Electric Power Exchange (JEPX). Simple average of 30-minute prices. Compiled by us.

2. How the electricity price moves during the day

The electricity price changes every 30 minutes. The chart shows the shape of a day, averaging the price at the same time across the month. If a battery stores electricity when it is cheap and releases it when it is expensive, the difference becomes its revenue.

By time of day, the average ranged from 19.03 yen around 12:00 to 37.11 yen around 16:30 in Tokyo, and from 4.94 yen around 12:00 to 24.74 yen around 17:30 in Kyushu.

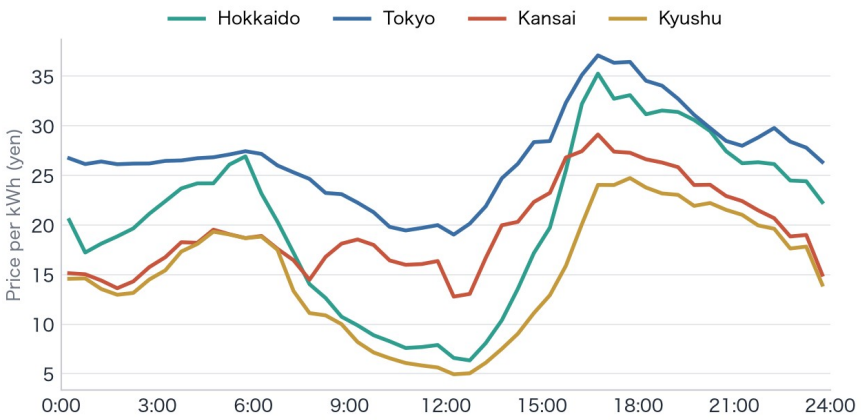


Figure 2 Peaks and troughs of the price during the day (average for October 2026, yen/kWh)
Source: JEPX spot market. Compiled by us.

3. There is a price gap every day

We lined up, day by day, the difference between the highest and lowest price within each day. The bigger the gap on a given day, the more room a battery has to earn from the price spread.

The monthly average of the daily gap between the highest and lowest price was 36.50 yen in Hokkaido, 24.05 yen in Kansai, 23.15 yen in Kyushu and 21.87 yen in Tokyo. The price was 0.01 yen in 91 30-minute slots in Kyushu and in 16 in Tokyo.

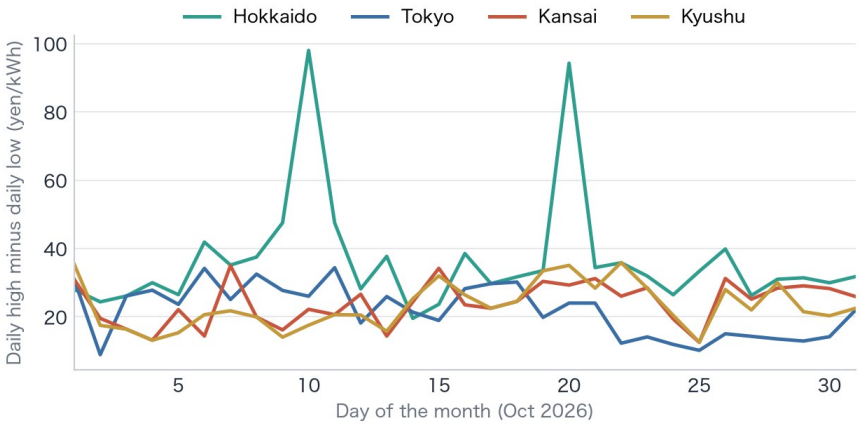


Figure 3 Daily price gap (the day's highest price − lowest price, yen/kWh)
Source: JEPX spot market. Compiled by us.

4. Three revenue streams for a battery site

A battery site earns money in three main ways: the electricity price spread (wholesale electricity market), the balancing market (a market that buys and sells the "capacity" to fix surpluses and shortages of electricity), and the capacity market (a market that buys future electricity supply capacity in advance). In the capacity market, power plants and battery sites receive a fixed income per kW.

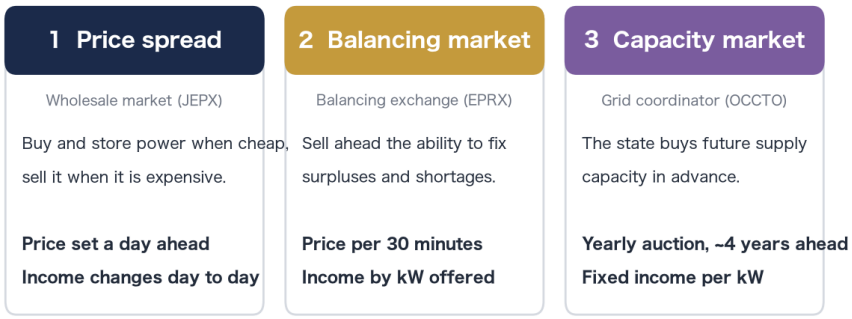


Figure 4 Three revenue streams for a battery site

Source: Rules of the Japan Electric Power Exchange (JEPX), the Electric Power Reserve Exchange (EPRX) and the Organization for Cross-regional Coordination of Transmission Operators (OCCTO).

5. How much does a battery earn? (estimate)

These are monthly figures for one battery site with 2MW output and 8MWh capacity. For electricity trading, we assume it charges during the 4 cheapest hours of each day and discharges during the 4 most expensive hours. For the balancing market, we assume it offers 2MW to Tertiary reserve 2 all the time. For the capacity market, the amount is the clearing price multiplied by 2,000kW and divided by 12. All are rough estimates. They do not show or guarantee actual revenue (assumptions in section 11). The gold bar for the balancing market is for September (September 1–29), a different month from the navy bar for October.

In our estimate for one battery site, Tokyo earns ¥2.78 million from the price spread (October), ¥1.31 million from Tertiary reserve 2 (September) and ¥2.52 million from the capacity market (per month). Kyushu earns ¥3.68 million, ¥4.93 million and ¥2.52 million on the same basis.

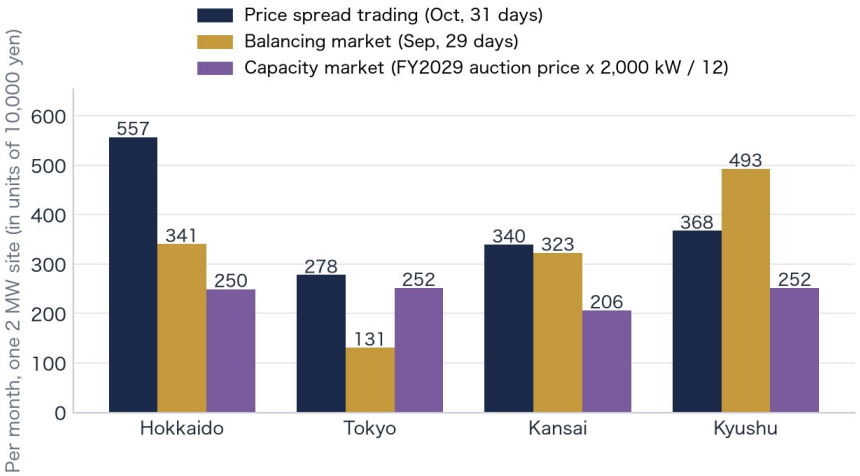


Figure 5 Estimated revenue for one 2MW / 8MWh battery site (estimate, in units of ¥10,000 per month)

Source: Our estimate based on the JEPX spot market, EPRX preliminary figures and clearing prices published by OCCTO. Assumptions in section 11.

6. Batteries are also used in the balancing market

In the balancing market, the smaller the product number, the faster the response required. The chart shows the share of batteries in the volume awarded. The published figures for October 2026 are not yet in our tally, so we show September 2026 (preliminary), the most recent month with all products available.

In September 2026 (preliminary), batteries made up 27.9% of the volume awarded in Primary reserve, 10.4% in Composite product, 1.8% in Secondary reserve 1 and 0.8% in Tertiary reserve 2.

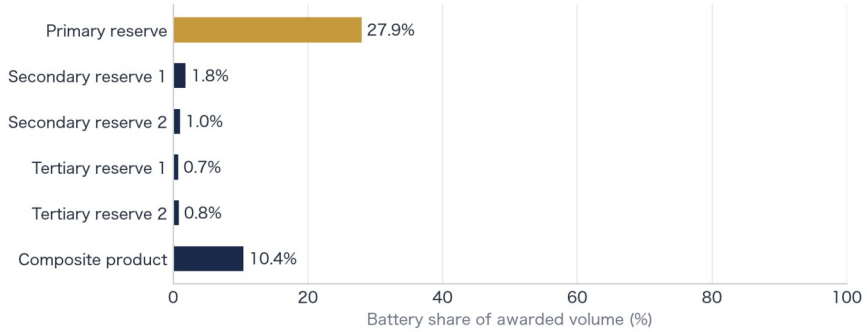


Figure 6 Share of batteries in the balancing market (%)

Source: Trading results (preliminary) published by the Electric Power Reserve Exchange (EPRX), by power source type. Compiled by us.

7. The capacity market buys future supply capacity

The capacity market buys electricity supply capacity 4 years ahead through an auction held once a year. The price is set in yen per kW per year. The left chart shows the clearing prices of past main auctions. The right chart shows the capacity of batteries and pumped hydro awarded in the Long-Term Decarbonization Power Source Auction (a separate auction that supports new builds such as batteries and pumped hydro). The results are published once a year, so they do not change every month. The latest is for delivery fiscal year FY2029 (published January 2026).

These are the latest yearly figures. In the capacity market, Tokyo cleared at 3,495 yen/kW for delivery fiscal year FY2025 and 15,111 yen/kW for FY2029. In the Long-Term Decarbonization Power Source Auction, batteries and pumped hydro awarded in the FY2025 round were 819 MW of lithium-ion and 886 MW of non-lithium.

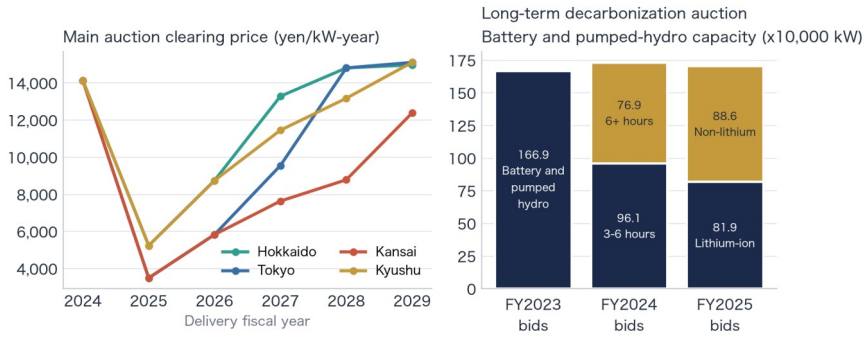


Figure 7 Capacity market clearing prices (left, yen/kW) and capacity of batteries and pumped hydro awarded in the Long-Term Decarbonization Power Source Auction (right, in units of 10,000 kW)

Source: Clearing results and capacity contract documents published by the Organization for Cross-regional Coordination of Transmission Operators (OCCTO) (sources listed in section 11). Shown as published.

8. Where are battery projects increasing?

We counted the projects we newly listed this month on DealRoom (our data room for buyers, a site where we list battery site projects for buyers), by the grid area of each grid operator. These are the projects we handled, not the number for the whole market. Transfer of rights means selling the land and grid rights. Completed-build handover means handing over the site once the equipment is built.

In October, 77 new projects totaling 309.1 MW were listed. By grid area, Tokyo had 33 projects (99.8 MW), Tohoku 8 (73.4 MW) and Chubu 11 (69.9 MW).

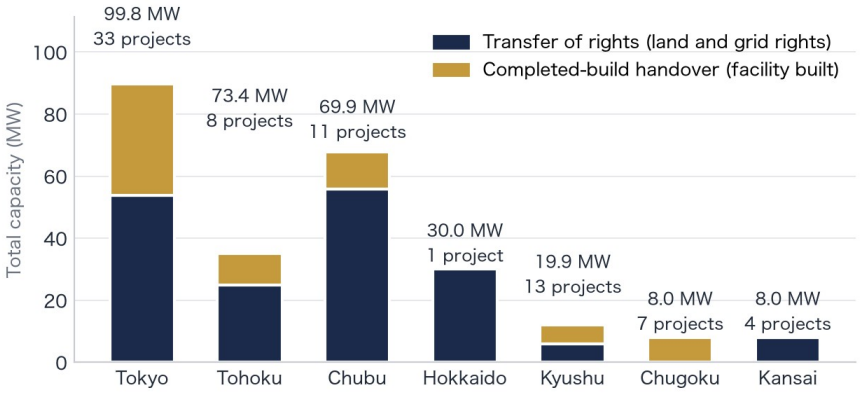


Figure 8 Output (MW) of projects listed on our DealRoom in October 2026

Source: Our DealRoom records (project location shown only down to the grid area; prices and parties not listed).

9. How many months and how much does it take to connect to the grid?

A grid connection study is the process of asking the grid operator to check "can we connect at this location, and how much will the work cost?" The grid connection cost contribution is the part of the connection work cost paid by the applicant. We compiled the study responses we have received, by grid area. Grid areas with fewer than 5 responses are not shown.

As of October 19, 2026, the medians were 8.0 months of construction and a grid connection cost contribution of ¥3.16 million in Tokyo, 14.0 months and ¥22.20 million in Kyushu, and 42.0 months and ¥127.60 million in Tohoku.

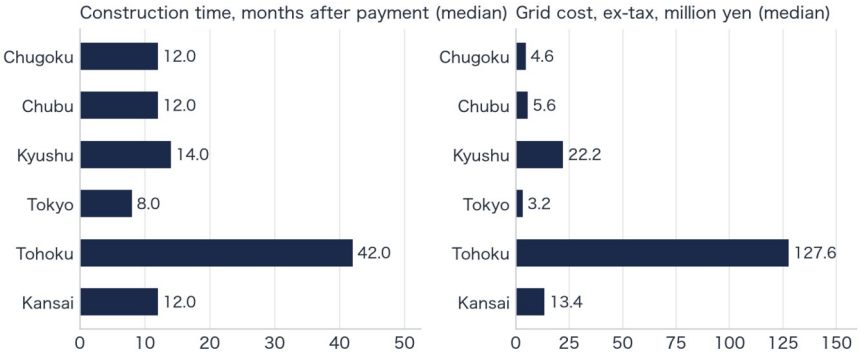


Figure 9 Median of grid connection study responses by grid area (left: months needed for the work, right: grid connection cost contribution, excluding tax)

Source: Our compilation of grid connection study responses from grid operators that we have received (as of October 19, 2026).

10. Which prefectures do land inquiries come from?

We counted the battery site land we know of (land listed on DealRoom and inquiries not listed there) by prefecture. We show counts only, not locations, prices or names.

Of the 339 sites we know of, by prefecture there are 33 in Ibaraki, 25 in Saitama, 24 in Shizuoka, 21 in Gifu and 20 in Tochigi.

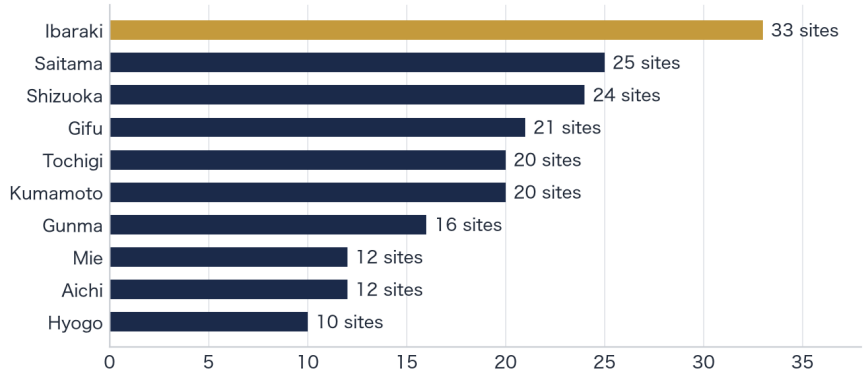


Figure 10 Number of sites by prefecture (top 10 prefectures)

Source: Our records.

11. Estimate assumptions and terms

- The estimates are rough figures we calculated from published prices and the assumptions below. They do not show or guarantee actual revenue.
- Battery site: 2MW output, 8MWh capacity, 85% round-trip efficiency, 95% depth of discharge. Maximum 2MW for both charging and discharging.
- Electricity trading: among each day's 30-minute slots, charge in the 8 cheapest slots and discharge in the 8 most expensive slots. The charged amount is capacity × depth of discharge; the discharged amount is 85% of that. We do not account for the order of slots, state-of-charge limits, the effect of our own trading on the market, or fees, taxes and grid costs.
- Balancing market: the total if 2MW is offered to Tertiary reserve 2 in every 30-minute slot and awarded at the average winning price (yen/kW per 30 minutes) of the area where the power source is located in that slot. Slots with no award count as 0. In reality, some slots are not won due to competition, and offering balancing capacity leaves time that cannot be used for trading, so this assumption gives a higher figure than reality.
- Capacity market: the latest main auction (delivery fiscal year FY2029) clearing price (area price, yen/kW per year) × rated output 2000kW ÷ 12. The revenue is received in that delivery fiscal year. We do not account for the coefficient for assessing supply capacity, deductions under transitional measures, or reductions from effectiveness tests or assessments. Revenue from the Long-Term Decarbonization Power Source Auction is not included.
- Months covered: electricity trading is October (31 days), the balancing market is September (September 1–29). The months will differ until the published October 2026 figures for the balancing market are in our tally.
- Figures are shown as given in the sources. We have not added up several months or converted them to a year (the monthly capacity market figure is the yearly clearing price divided by 12).
- Average prices are simple averages of 30-minute slots (not weighted by trading volume). Daytime is the slots from 8:00 to 16:00; evening is the slots from 16:00 to 20:00.

Sources (OCCTO, capacity market clearing results): delivery fiscal year FY2024 https://www.occto.or.jp/iinkai/youryou/kentoukai/2020/files/youryou_kentoukai_27_05.pdf / FY2025 https://www.occto.or.jp/iinkai/youryou/kentoukai/2021/files/youryou_kentoukai_35_03_1.pdf / FY2026 https://www.occto.or.jp/iinkai/youryou/kentoukai/2022/files/youryou_kentoukai_43_03.pdf / FY2027 https://www.occto.or.jp/market-board/market/oshirase/2023/files/240124_mainauction_youryouyakujokekka_kouhyou_jitsujukyu2027.pdf / FY2028 https://www.occto.or.jp/market-board/market/oshirase/2024/files/250129_mainauction_youryouyakujokekka_kouhyou_jitsujukyu2028.pdf / FY2029 https://www.occto.or.jp/assets/news/capacity-market/260120_mainauction_youryouyakujokekka_kouhyou_jitsujukyu2029.pdf

Sources (OCCTO, Long-Term Decarbonization Power Source Auction): FY2023 round https://www.occto.or.jp/assets/260605_auction_keiyakujyoukyou_kouhyou.pdf / FY2024 round https://www.occto.or.jp/market-board/market/jitsujukyukanren/files/longauction_keiyakukekka_2024.pdf / FY2025 round https://www.occto.or.jp/assets/various/capacity-market/jitsujukyukanren/yoryokakuhokeiyaku/longauction_keiyakukekka_2025.pdf

- Capacity market clearing results for each delivery fiscal year are published in a different year (the FY2024 results in 2020, the FY2029 results in January 2026). The number of battery projects in the Long-Term Decarbonization Power Source Auction is not shown because it is not in the published summary tables.

Sources: Japan Electric Power Exchange (JEPX) spot market trading results / Electric Power Reserve Exchange (EPRX) trading results (preliminary) / Organization for Cross-regional Coordination of Transmission Operators (OCCTO) capacity market main auction clearing results and capacity contract documents for the Long-Term Decarbonization Power Source Auction / our compilation of grid connection study responses received / our DealRoom records.

Terms: the grid = the power companies' transmission network. Grid connection = connecting to the transmission network. MW = a measure of power (1MW = 1,000kW). MWh = the amount of electricity that can be stored. yen/kWh = the price of 1kWh of electricity.

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