

## Energy storage economics berlin

At present BTM residential is the key application scenario for energy storage in Germany, backed by a series of government policies. In March 2022, the German Federal Ministry for Economic Affairs and Climate Action issued its 'Easter Package', which made a series of amendments to Energy Laws and set medium and long-term targets for renewable energy development, including 80% of Germany's power supply to be based on renewable energy by 2030.

We roughly divide national energy storage policies into two key categories: First of all, financial support to reduce the cost of energy storage installation, with specific measures outlined below:

1) Tax Reduction. On April 1, 2000, Germany first enacted the Renewable Energy Act (Erneuerbare-Energien-Gesetz, or EEG), which stipulated that the federal government levies an additional tax on electricity bills for the development of renewable energy (the so-called EEG surcharge). This was cancelled in July 2022 in the face of a sharp increase in energy prices in order to ease the pressure on businesses and households. In addition, the 2022 Annual Tax Law exempted value-added tax (VAT) and income tax on power generation income related to residential energy storage systems.

2) Subsidies. In 2013, the German government announced it would provide subsidies for battery storage systems (30% of the total system cost) that were integrated with new distributed solar systems of less than 30KW, and this policy was extended to 2018. At present, financial subsidies remain in place from local governments in accordance with federal government guidance.

3) Low-interest Loans. KfW offers low-interest loans for residents, businesses and public institutions to build, expand and purchase renewable energy systems and energy storage systems, with a maximum of EUR500,000 available per project, and the latest annual percentage rate (APR) of 4.75% in 2023 (compared to general APR of 5.24% in April 2023).

In 2020, the German Federal Network Agency launched its Innovation Auction for the first time to incentivize deployments of renewable energy projects (including energy storage), and therefore drive the growth of renewable energy installation in the country. In addition, the seventh amendment to the Renewable Energy Law (EEG2023) added the Innovation Concept Auction of green hydrogen-based power generation and P2G hydrogen energy storage, with project auctions aiming to reach 1,000 MW in 2028, up from 400 MW in 2023.

German state governments encourage energy storage installation primarily through the provision of financial support to residents and business users. According to our preliminary analysis, 10 out of the 16 federal states across the country have introduced financial subsidies for battery storage for rooftop solar photovoltaic systems (solar-plus-storage).

The Berlin state government's funding program 'EnergiespeicherPLUS' for solar and energy storage systems ended on August 31, 2022 and it was succeeded by the 'SolarPLUS' program from September 1, 2022, with additional subsidies for plug-in solar devices (balcony module).

State policies were welcomed by the market during implementation and many subsidy programs ended ahead of the target period due to their popularity. For example, the government of Lower Saxony received nearly 19,000 applications for its 'PV-Batteriespeicherförderung' program, which ended in September 2021 and comprised 75 million euros in funds for solar and battery storage projects.

Compared with the medium and long-term energy storage installation roadmap drafted in China, the German government has not yet issued an energy storage industry plan or future installation target.

Facing energy price hikes, the German government introduced a series of policies and regulations to drive BTM energy storage installations (particularly residential projects), which is the mainstream application market in the country. In the long term, with the increase in residential solar-plus-storage penetration, we anticipate the relevant supporting policies will be gradually withdrawn, and the policy focus may shift to the large-scale FTM energy storage market.

In a nutshell, German BTM energy storage has taken the lead in a booming market due to favourable policies. Whether or not government policies will fuel the large-scale energy storage market in the future, we will wait and see.

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