

# How much does second-life battery storage cost per watt

How much does a commercial lithium battery energy storage system cost?

In 2025, the typical cost of a commercial lithium battery energy storage system, which includes the battery, battery management system (BMS), inverter (PCS), and installation, is in the following range: \$280 - \$580 per kWh (installed cost), though of course this will vary from region to region depending on economic levels.

How much does a battery energy storage system cost?

Ember provides the latest capex and Levelised Cost of Storage (LCOS) for large, long-duration utility-scale Battery Energy Storage Systems (BESS) across global markets outside China and the US, based on recent auction results and expert interviews. 1. All-in BESS projects now cost just \$125/kWh as of October 2025 2.

How much does energy storage cost?

**\*\*Battery Cost\*\***: The battery is the core component of the energy storage system, and its cost accounts for a significant portion of the total cost. As of 2024, the cost of lithium-ion batteries, which are widely used in energy storage, has been declining. On average, the cost of lithium-ion battery cells can range from \$0.3 to \$0.5 per watt-hour.

How much does a second life battery cost?

It can be estimated that electric vehicle batteries are priced between \$19 and \$131/kWh. However, the estimated cost of a second life battery, including all expenses, falls within the range of \$25 to \$49/kWh.

Comprehensive technical and economic evaluations of using second-life batteries as energy storage in off-grid applications: A customized cost analysis

Battery storage has moved past its infancy, driven by rapid factory scale-up, fierce competition and oversupply that has pushed costs sharply down. Across global markets outside ...

The total cost of a battery energy storage system depends on several factors, including battery type, system capacity, installation complexity, and long-term maintenance. This article ...

The suite of publications demonstrates wide variation in projected cost reductions for battery storage over time. Figure ES-1 shows the suite of projected cost reductions (on a normalized ...

The average for the long-duration battery storage systems was 21.2 MWh, between three and five times more than the average energy capacity of short- and medium-duration battery storage systems. ...

With global EV sales exceeding 10 million units in 2023, a critical question emerges: What becomes of lithium-ion batteries when they drop below 70% capacity? BloombergNEF's latest analysis reveals ...

For a 2MW (2,000 kilowatts) battery storage system, if we assume an average battery cell cost of \$0.4 per

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watt-hour, the cost of the battery alone would be  $2,000,000 * \$0.4 = \$800,000$ .

In 2025, the typical cost of commercial lithium battery energy storage systems, including the battery, battery management system (BMS), inverter (PCS), and installation, ranges from \$280 to ...

Current Year (2022): The 2022 cost breakdown for the 2024 ATB is based on (Ramasamy et al., 2023) and is in 2022\$. Within the ATB Data spreadsheet, costs are separated into energy and power cost ...

With the price of first-life energy storage batteries decreasing, the use case for second life batteries diminishes due to the additional design factors and risk variabilities such as administration ...

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