

# Analysis of annual battery price trend

What happened to battery metal prices in 2022?

Turmoil in battery metal markets led the cost of Li-ion battery packs to increase for the first time in 2022, with prices rising to 7% higher than in 2021. However, the price of all key battery metals dropped during 2023, with cobalt, graphite and manganese prices falling to lower than their 2015-2020 average by the end of 2023.

How much does a battery cost in 2022?

In 2022, the estimated average battery price stood at about USD 150 per kWh, with the cost of pack manufacturing accounting for about 20% of total battery cost, compared to more than 30% a decade earlier. Pack production costs have continued to decrease over time, down 5% in 2022 compared to the previous year.

How has battery quality changed over the past 30 years?

As volumes increased, battery costs plummeted and energy density -- a key metric of a battery's quality -- rose steadily. Over the past 30 years, battery costs have fallen by a dramatic 99 percent; meanwhile, the density of top-tier cells has risen fivefold.

How will technology affect battery prices in 2025?

Technological innovation and manufacturing improvement should drive further declines in battery pack prices in the coming years, to \$113/kWh in 2025 and \$80/kWh in 2030. Yayoi Sekine, head of energy storage at BNEF, said: "Battery prices have been on a rollercoaster over the past two years."

Why did battery demand increase in 2023 compared to 2022?

In the rest of the world, battery demand growth jumped to more than 70% in 2023 compared to 2022, as a result of increasing EV sales. In China, PHEVs accounted for about one-third of total electric car sales in 2023 and 18% of battery demand, up from one-quarter of total sales in 2022 and 17% of sales in 2021.

How much will a battery cost in 2030?

These studies anticipate a wide cost range from 20 US\$/kWh to 750 US\$/kWh by 2030, highlighting the variability in expert forecasts due to factors such as group size of interviewees, expertise, evolving battery technology, production advancements, and material price fluctuations.

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Our researchers forecast that average battery prices could fall towards \$80/kWh by 2026, amounting to a drop of almost 50% from 2023, a level at which battery electric vehicles would achieve ownership cost parity with ...

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The price of lithium-ion battery packs has dropped 14% to a record low of \$139/kWh, according to analysis by research provider BloombergNEF (BNEF). This was driven by raw material and component prices falling as production capacity increased across all parts of the battery value chain, while demand growth fell short of some industry expectations.

Battery prices are increasingly driven by material prices and availability, though supply and demand dynamics remain critical to pricing. While low battery prices are beneficial ...

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But a 2022 analysis by the McKinsey Battery Insights team projects that the entire lithium-ion (Li-ion) ... as well as a general trend toward localization of supply chains. In total, at least 120 to 150 new battery factories ...

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Battery prices are increasingly driven by material prices and availability, though supply and demand dynamics remain critical to pricing. While low battery prices are beneficial to consumers, it can also curb new investment and creates a challenging environment for new entrants, an issue more keenly felt by European and North American battery ...

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Battery costs keep falling while quality rises. As volumes increased, battery costs plummeted and energy density -- a key metric of a battery's quality -- rose steadily. Over the past 30 years, battery costs have fallen by a dramatic 99 percent; meanwhile, the density of top-tier cells has risen fivefold.

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In contrast to bottom-up models, learning curves require fewer input parameters and data, straightforward and

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pragmatic choice for capturing the trends in battery price reduction (Wentker et al., 2019; Greenwood et al., 2021). Nykvist and Nilsson (2015) analyzed 85 estimates reported between 2007 and 2014 to track the costs of LIBs at the pack ...

BloombergNEF's annual battery price survey finds prices increased by 7% from 2021 to 2022 New York, December 6, 2022 - Rising raw material and battery component prices and soaring inflation have led to the ...

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