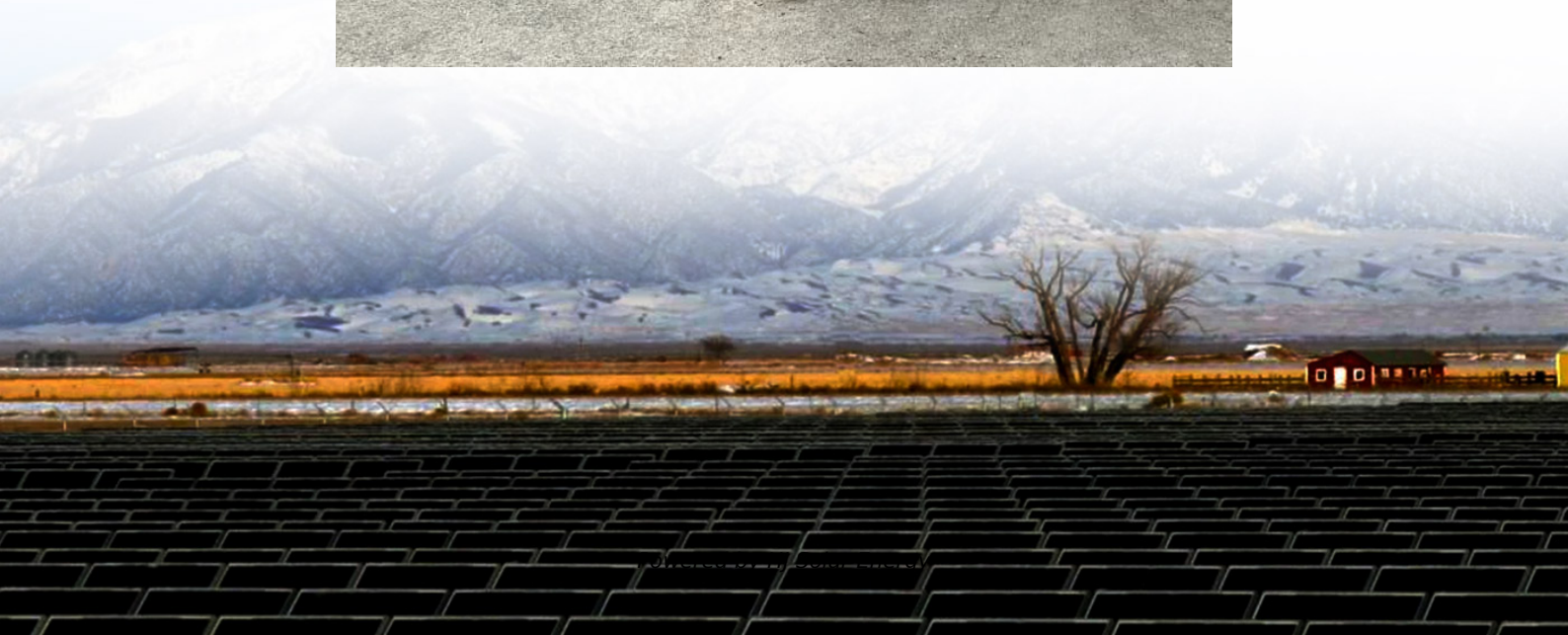


# **LFP battery system cost breakdown in Indonesia 2025**





## Overview

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Sodium-ion batteries (SIBs) are more cost-effective, less prone to thermal runaway, and have a lower environmental impact when compared to lithium-ion batteries (LIBs), yet, SIBs industry lacks scale and maturity relative to LIBs. In 2022, the LIB market was valued at USD \$70 billion and it is.

ity Plan (RUKN) 2024–2026 projects 443 GW of installed capacity by 2060, with 41.6% from Viable Renewable Energy (VRE). As VRE capacity increases, ensuring power sector reliability through expanding energy storage becomes critical. Additionally, electrification of transport would also accelerate.

Lithium-ion (Li-ion) EV battery prices have decreased dramatically over the past few years, mainly due to the fall in prices of critical battery metals: Lithium, cobalt and nickel. For example, the price of cobalt has fallen from roughly \$70,000 per metric ton in 2022 to about \$30,000 in 2024.

After a difficult couple of years which saw the trend of falling lithium battery prices temporarily reverse, a 14% drop in lithium-ion (Li-ion) battery pack cost from 2022-2023 has been recorded by BloombergNEF. The market research and analysis group has published the new edition of its annual.

Typically, energy cells cost ~80-100 \$/kWh in 2024 and power cells ~150-300 \$/kWh. Although, there are some exotic power cells that cost ~\$600/kWh. The Q4/2023 breakdown of NMC vs LFP costs is interesting as a point in time regarding the full cost comparison and potential as well as the current.

The IEA's report claims that battery pack prices fell by 20% in 2024, marking the largest decline since 2017. This decline was driven by low critical mineral



prices and intense competition, which squeezed margins, particularly in China. Lithium prices specifically dropped nearly 20%, reaching. How much do LFP batteries cost?

With both the EV industry and stationary storage sectors increasingly adopting batteries with LFP cathode chemistry, LFP pack average prices were found to be US\$130/kWh and LFP cells at US\$95/kWh. LFP is now just less than 1/3 (32%) cheaper than NMC.

What is the market share of LFP batteries in 2023?

Market data from SNE Research shows LFP batteries gained 53 percent in global market share in 2023, while NMC batteries grew by only 12 percent. With BYD and CATL controlling over 80 percent of the LFP battery market, China holds a commanding lead in both technological and material supply chains.

Will LFP increase the global average price of LFP cells?

The addition of LFP capacities outside of Greater China will raise the global average price of LFP cells in the midterm, but as the manufacturing cost is brought under control through process improvements, the global LFP average cell price will gradually fall below the current level.

How much does an LFP cell cost in 2024?

The average price of an LFP cell was just under \$60/kWh in 2024. Currently, Greater China has a near monopoly in LFP cell manufacturing, considering the negligible LFP production capacity in Europe and North America. However, LFP production capacity is poised to expand, especially in Europe, through this decade.

How much does a LFP cell cost?

The price of LFP cells is over 20% lower than nickel cobalt manganese (NCM) cells. The average price of an LFP cell was just under \$60/kWh in 2024. Currently, Greater China has a near monopoly in LFP cell manufacturing, considering the negligible LFP production capacity in Europe and North America.

What type of batteries do EVs use in Indonesia?

However, the government aims for the domestic EV battery industry to



produce two types of batteries: LFP and Nickel Manganese Cobalt (NMC). Most electric vehicles in Indonesia currently use LFP batteries, which do not contain nickel. Examples of EVs using LFP batteries include those from BYD and Wuling.



## LFP battery system cost breakdown in Indonesia 2025

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### [TrendForce Forecasts Slight Increase in Battery ...](#)

Despite a slight rebound in LFP cathode material prices in November, the impact on energy storage battery costs was minimal. Large-capacity batteries (above 300Ah, with 314Ah being the mainstream model) ...

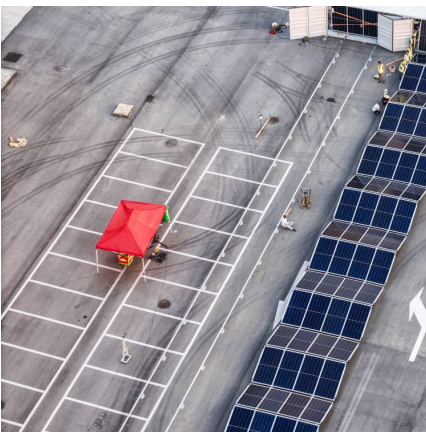
### [Behind the numbers: BNEF finds 40% year-on-year ...](#)

Around the beginning of this year, BloombergNEF (BNEF) released its annual Battery Storage System Cost Survey, which found that global average turnkey energy storage system prices had fallen 40% from 2023 ...



### **Historical and prospective lithium-ion battery cost trajectories ...**

According to the results in Fig. 6, touching the cost-parity point between 2025 and 2026 is possible if the market share of LiB turns to the LFP scenario. This period ...



### [Lithium-Ion Battery Pack Prices Hit Record Low of ...](#)

BloombergNEF's annual battery price survey finds a 14% drop from 2022 to 2023 New York, November 27, 2023 - Following unprecedented



price increases in 2022, battery prices are falling again this year. The price of ...



### Costs

The Q4/2023 breakdown of NMC vs LFP costs is interesting as a point in time regarding the full cost comparison and potential as well as the current competition between Europe vs. Chinese supply chains.

### Battery Cost Index

The Fastmarkets Battery Cost Index is an easy-to-use cost model for total cell costs, including cost breakdown of active anode material (AAM), cathode active material (CAM), separator, electrolyte, other materials, energy, labor and ...



### [LFP cell average falls below US\\$100/kWh as battery ...](#)

It will however be likely to happen before the end of this decade, with BNEF forecasting that the average pack will cost about US\$113/kWh in 2025, and decline in cost sharply to around US\$80/kWh by 2030.





### The cost of a 60 kWh LFP battery may drop to \$2160 in 2025

Based on the search results provided, the cost of a 60 kWh LFP (lithium iron phosphate) battery pack for electric vehicles is projected to drop significantly in 2024.



### [Prices of Lithium Batteries: A Comprehensive Analysis](#)

Lithium battery prices fluctuate due to raw material costs (e.g., lithium, cobalt), manufacturing innovations, geopolitical factors, and demand surges from EVs and renewable ...

### [Plummeting battery prices in China may normalise ...](#)

The decline in battery prices in China will eventually benefit consumers in the global markets as well. The Battery Energy Storage System (BESS) industry could benefit the most from plummeting battery prices. ...



### 2025 Energy Storage Battery Prices: Trends, Drivers, and What's ...

Why 2025 Is a Pivotal Year for Energy Storage Costs 2025 is shaping up to be the year when energy storage battery prices make lithium-ion cells cheaper than a Starbucks ...



### Chinese battery tech dominance reshapes Indonesia's supply chain

Andry Satrio Nugroho, an economist at the Institute for Development of Economics and Finance (INDEF), said Indonesia's EV policy has naturally leaned toward lower ...

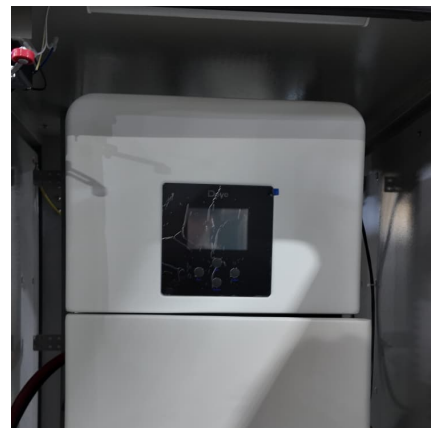


### Cost Projections for Utility-Scale Battery Storage: 2023 Update

Figure ES-2 shows the overall capital cost for a 4-hour battery system based on those projections, with storage costs of \$245/kWh, \$326/kWh, and \$403/kWh in 2030 and \$159/kWh, \$226/kWh, ...

### [A 920% tariff on anode materials from China "would ...](#)

However, at present AAM accounts for only 10-15% of LFP battery system cost, she noted. "Within a standard LFP battery, if the tariff was applied to the AAM within the cell, at 150% tariff level it would increase that to ...





### [The Real Cost of Commercial Battery Energy Storage ...](#)

What are the costs of commercial battery storage? Battery pack - typically LFP (Lithium Uranium Phosphate), GSL Energy utilizes new A-grade cells. Battery Management System (BMS) - ensures safety and balances ...

### [Chinese battery tech dominance reshapes Indonesia's ...](#)

Andry Satrio Nugroho, an economist at the Institute for Development of Economics and Finance (INDEF), said Indonesia's EV policy has naturally leaned toward lower-cost options, leaving the nickel-based battery ...



### **Raw material cost , Storage Lab**

This analysis calculates the raw material cost for common energy storage technologies and provides the raw material breakdown and impact of raw material price changes for lithium-ion battery packs. Figure 1 compiles raw material cost ...

### [BNEF: Lithium-ion battery pack prices drop to record ...](#)

Battery prices saw their biggest annual drop since 2017, with lithium-ion battery pack prices down by 20% from 2023 to a record low of \$115/kWh, according to analysis by BloombergNEF (BNEF). Factors driving ...



### [LFP Batteries: Scale-Up Challenges, Supply Risks](#)



Lithium iron-phosphate (LFP) batteries are the powerhouse of the EV battery market, capturing nearly half of the market share in 2025. LFP batteries account for a sizable majority (60-70%) all of Chinese EV production.



### **What is the CAPEX of BESS?**

According to the NREL, CAPEX for utility-scale BESS could fall as much as 47% by 2030 and 67% by 2050 under optimistic scenarios. Key drivers will include: Battery Pack ...



### [Lithium Battery Costs: Key Drivers Behind Pricing Trends](#)

Lithium battery costs impact many industries. This in-depth pricing analysis explores key factors, price trends, and the future outlook.





[LFP cell average falls below US\\$100/kWh as battery ...](#)

In May, commodity price reporting agency Fastmarkets said that it expected nickel manganese cobalt (NMC) Li-ion battery pack prices to fall below US\$100/kWh in 2027, and lower-cost lithium iron phosphate (LFP) ...



**Utility-Scale Battery Storage , Electricity , 2022 , ATB , NREL**

Current Year (2021): The 2021 cost breakdown for the 2022 ATB is based on (Ramasamy et al., 2021) and is in 2020\$. Within the ATB Data spreadsheet, costs are separated into energy and ...

[All The Factors Behind Li-ion Battery Prices](#)

Notably, the LFP battery chemistry is slowly capturing some of the market that was dominated by NMC before, hence the global averages for price are expected to be lower than before due to lowering cost of LFP. ...



**Utility-Scale Battery Storage , Electricity , 2024 , ATB , NREL**

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### Inception Report

So, the use of these materials contribute to higher production costs and potential supply chain risks as the anode accounts for 10-15% of the total battery costs, while the ...



### The Real Cost of Commercial Battery Energy Storage in 2025

Average Installed Cost per kWh in 2025 In today's market, the installed cost of a commercial lithium battery energy storage system -- including the battery pack, Battery ...

### What Are the Predicted LiFePO4 Battery Cost Trends for 2025

By 2025, recycled content could constitute 40% of new LFP battery production in regulated markets, creating a \$9.2 billion secondary materials economy. Automotive manufacturers are ...





### Lithium ion battery materials?

Lithium ion battery costs range from \$40-140/kWh, depending on the chemistry (LFP vs NMC), geography (China vs the West) and cost basis (cash cost, marginal cost and actual pricing). This data-file is a breakdown of lithium ion ...

### [Lithium Iron Phosphate \(LFP\) Battery Energy Storage: ...](#)

LFP batteries dominate energy storage with safety, long lifespan, low cost. Key for grids, industry, homes. Future: lower costs (¥0.3/Wh by 2030), massive growth (2000GWh+), global expansion.

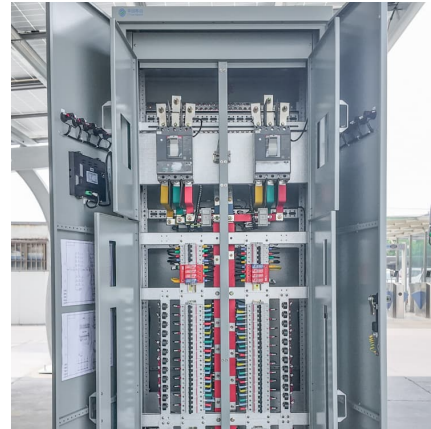


### [Where are EV battery prices headed in 2025 and ...](#)

The addition of LFP capacities outside of Greater China will raise the global average price of LFP cells in the midterm, but as the manufacturing cost is brought under control through process improvements, the global LFP average ...

### Lithium-Ion Battery Pack Prices Hit Record Low of \$139/kWh

BloombergNEF's annual battery price survey finds a 14% drop from 2022 to 2023 New York, November 27, 2023 - Following unprecedented price increases in 2022, ...



### **of Battery Suppl ChainEcosystem n Indonesia Requestyfor ...**

Policy (RPP KEN) already targets 178 million EVs by 2060, while RUKN sets a battery energy storage storage goal of 18 GW. Alternatively for a more ambitious energy transition scenario, ...

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