

## European Solar Energy Storage

# Analysis of energy storage lithium-ion battery industry



## Overview

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Global demand for Li-ion batteries is expected to soar over the next decade, with the number of GWh required increasing from about 700 GWh in 2022 to around 4.7 TWh by 2030 (Exhibit 1). Batteries for mobility applications, such as electric vehicles (EVs), will account for the vast bulk of demand in 2030—about 4,300 GWh;

The global battery value chain, like others within industrial manufacturing, faces significant environmental, social, and governance (ESG).

Some recent advances in battery technologies include increased cell energy density, new active material chemistries such as solid-state batteries, and cell and packaging production.

Battery manufacturers may find new opportunities in recycling as the market matures. Companies could create a closed-loop, domestic supply chain that involves the collection.

The 2030 Outlook for the battery value chain depends on three interdependent elements (Exhibit 12): 1. Supply-chain resilience. A resilient battery value chain is one that is regionalized and diversified. We envision that each region will cover over 90 percent of local.

The global lithium-ion battery market was estimated at USD 75.2 billion in 2024 and is expected to grow at a CAGR of 15.8% from 2025 to 2034. Lithium-ion batteries are ideal rechargeable battery used in EVs, renewable energy storage. Increasing transition towards green energy is.

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But a 2022 analysis by the McKinsey Battery Insights team projects that the entire lithium-ion (Li-ion) battery chain, from mining through recycling, could grow by over 30 percent annually from 2022 to 2030, when it would reach a value of more than \$400 billion and a market size of 4.7 TWh. 1.

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The global Lithium-Ion Battery Energy Storage System (BESS) market is experiencing robust growth, projected to reach \$4205 million in 2025 and maintain a Compound Annual Growth Rate (CAGR) of 24% from 2025 to 2033. This expansion is fueled by several key drivers. The increasing integration of.

This report covers the following energy storage technologies: lithium-ion batteries, lead-acid batteries, pumped-storage hydropower, compressed-air energy storage, redox flow batteries, hydrogen, building thermal energy storage, and select long-duration energy storage technologies. The user-centric.

The Battery Energy Storage System Market size is estimated at USD 76.69 billion in 2025, and is expected to reach USD 172.17 billion by 2030, at a CAGR of 17.56% during the forecast period (2025-2030). Rapid cost declines in lithium-ion cells, supportive procurement mandates, and rising. What is the global lithium-ion battery market size?

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What percentage of lithium-ion batteries are used in the energy sector?

Despite the continuing use of lithium-ion batteries in billions of personal devices in the world, the energy sector now accounts for over 90% of annual lithium-ion battery demand. This is up from 50% for the energy sector in 2016, when the total lithium-ion battery market was 10-times smaller.

What is lithium ion battery used for?

Lithium-ion batteries are ideal rechargeable battery used in EVs, renewable energy storage. Increasing transition towards green energy is driving market growth. Global renewable energy generation capability is predicted to enhance by more than two times by 2030.

Are lithium-ion batteries the future of energy storage?

While lithium-ion batteries have dominated the energy storage landscape, there is a growing interest in exploring alternative battery technologies that offer improved performance, safety, and sustainability .

What is the future of lithium ion batteries?

Recent advancements enable 80 % recharge in under 30 min, enhancing usability in transportation and consumer applications. The demand for lithium-ion batteries is rapidly expanding, particularly in EVs and grid energy storage. Improved recycling processes and alternative materials are critical for minimizing environmental impact.

What is the energy density of a lithium ion battery?

The energy density of lithium-ion batteries used in grid applications is a critical parameter influencing their effectiveness in storing and delivering power. Typically, grid-scale lithium-ion batteries have energy densities ranging from 100 to 200 Wh/kg .

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### Battery Energy Storage Market Size, Share, Growth Report, 2032

As a result, the demand for battery energy storage solutions is expected to continue growing, driven by the need to optimize renewable energy utilization, enhance grid flexibility, and accelerate the transition toward a sustainable energy future.



### Energy Storage Grand Challenge Energy Storage Market ...

As part of the U.S. Department of Energy's (DOE's) Energy Storage Grand Challenge (ESGC), this report summarizes published literature on the current and projected markets for the global deployment of seven energy storage technologies in the ...

### Advancing energy storage: The

## future trajectory of lithium-ion battery

By bridging the gap between academic research and real-world implementation, this review underscores the critical role of lithium-ion batteries in achieving decarbonization, integrating renewable energy, and enhancing grid stability.



## Battery Energy Storage System Market Size

Lithium-ion variants' battery energy storage system market size is projected to widen as scaling lowers per-kilowatt-hour costs. Diversification across chemistries reduces supply-chain risk and opens project financing to ...

## Battery Energy Storage Market Size, Share, Growth ...

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## Lithium-ion battery demand forecast for 2030 , McKinsey

The global market for Lithium-ion batteries is expanding rapidly. We take a closer look at new value chain solutions that can help meet the growing demand.

## Lithium-Ion Battery Energy Storage System 2025-2033 Analysis: ...

The lithium-ion battery energy storage system (BESS) market is experiencing a period of significant growth, driven by the increasing demand for renewable energy integration and grid stabilization.



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## Lithium-Ion Battery Market Size, Growth Outlook 2025-2034

The lithium-ion battery market size crossed USD 75.2 billion in 2024 and is expected to grow at a CAGR of 15.8% from 2025 to 2034, driven by the shift to green energy and rising use in EVs and renewable energy storage.



## Executive summary - Batteries and Secure Energy Transitions - Analysis

Lithium-ion batteries dominate both EV and storage applications, and chemistries can be adapted to mineral availability and price, demonstrated by the market share for lithium



iron phosphate (LFP) batteries rising to 40% of EV sales and 80% of new battery storage in 2023.

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