

Lithium Sulfur Battery - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2020 - 2029

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Report description:

The Lithium Sulfur Battery Market size is estimated at USD 233 billion in 2024, and is expected to reach USD 499.79 billion by 2029, growing at a CAGR of 16.5% during the forecast period (2024-2029).

Key Highlights

- Over the medium term, factors such as increasing demand for electric vehicles due to the various countries' supportive government policies and initiatives to reduce emissions and the increasing demand for energy storage devices amid increasing renewable energy installation drive growth in the market during the forecast period.
- On the other hand, the high cost of lithium-sulfur batteries is likely to restrain the market growth during the forecast period.
- Nevertheless, advancements in battery technology have dramatically increased the demand across end-user industries. Also, the government's investment is increasing to develop high-energy-density batteries for the military and aviation sectors. This will likely create immense opportunities for the market studied during the forecast period.
- The Asia-Pacific is expected to be the largest and fastest-growing market during the forecast period, with most of the demand coming from countries like China, Japan, and other countries.

Lithium Sulfur Battery Market Trends

Aerospace Segment to Dominate the Market

- In the aerospace sector, batteries are a vital component and have multiple applications in satellites, high-altitude aircraft, outer

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space vehicles, and unmanned aerial vehicles. Batteries in aerospace can be either primary (single-use) or secondary (rechargeable). Any battery designated for use as a power source in aircraft-installed or regularly carried equipment must be secure, have a high energy density, be lightweight, dependable, require minimal maintenance, and efficiently function in various environmental conditions.

- The installation of lithium-sulfur batteries is increasing across the aerospace sector as this sector requires batteries with higher energy density. Therefore, it can provide longer-lasting and more powerful energy storage. The aerospace sector is also moving toward lower emission sources.

- Lyten, a US-based battery startup company, is looking toward electric aircraft as a potential market for its energy-dense lithium-sulfur batteries. In June 2023, the company announced the commissioning of its lithium-sulfur battery pilot line in Silicon Valley. The lithium-sulfur pilot line is expected to start delivering commercial battery cells in 2023 to early adopting customers within the defense, logistics, automotive, and satellite sectors.

- Furthermore, the utilization of drones for various purposes is increasing worldwide, which can be equipped with such batteries. The investment in manufacturing drones is growing significantly.

- In July 2023, DroneShield was awarded a USD 33 million contract with an unnamed U.S. government agency. The contract covers the supply of equipment such as DroneGun Mk4, which can be used to disrupt the control and navigation capabilities of multiple drones.

- The growth in the aviation sector is mainly driven by the increasing number of air passengers globally because of the cheaper airfare in recent times, developing economic conditions, and rising disposable income.

- Due to the coronavirus pandemic, According to the International Air Transport Association (IATA), commercial airlines generated about USD 727 billion in revenue in 2022. However, the market's revenue was estimated to reach USD 779 billion by the end of 2023.

- The abovementioned factors will likely drive growth in the aerospace sector, boosting the demand for lithium-sulfur batteries during the forecast period.

Asia-Pacific to Dominate the Market

- Asia-Pacific is expected to dominate the global lithium-sulfur battery market. Countries in the region, such as China, Japan, and South Korea, are the leading supporters and are contributing to the growth of the market studied. Countries like Australia, India, and Vietnam are also following plans to set up lithium-based battery manufacturing facilities in their countries during the forecast period.

- The region is significantly making efforts to supply clean electricity to every corner and reduce dependency on conventional fuels, such as kerosene and diesel, for their lighting and mobile phone charging needs. Lithium-sulfur battery integrated energy storage solutions will likely witness an increasing adoption rate due to their technical benefits, such as high energy density and storage capacity.

- The demand for these batteries in the region is expected to grow rapidly, owing to the adoption of energy storage systems and electric vehicles for on-grid and off-grid applications. Further, the increasing installation of renewable energy generation facilities also boosts the demand for such batteries.

- Furthermore, the Chinese government is investing in building charging stations nationwide to promote electric vehicle sales. For instance, in January 2022, the Chinese government announced plans to build enough charging stations for 20 million electric vehicles by 2025.

- The development of charging infrastructure is propelling EV adoption in the country. As of May 2022, China Electric Vehicle Charging Infrastructure Promotion Alliance (EVCIPA) confirmed that there were nearly 1.42 million charging stations across the country, including 806 AC charging stations, 613 thousand DC charging stations, and 485 DC-AC combined charging stations.

- Japan aims to establish a policy named 'Well-to-Wheel Zero Emission,' in line with the global efforts to eliminate emissions, focusing on energy supply and vehicle innovation by 2050 and replacing all vehicles with EVs to reduce greenhouse gas emissions

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by around 80% per vehicle, including an approximate 90% reduction per passenger vehicle. Such government initiatives are likely to increase the demand for electronic vehicles, which, in turn, is expected to increase the demand for lithium-sulfur batteries.

- Similarly, in April 2023, the South Korean government, in partnership with the three leading battery companies (LG Energy Solution Ltd, Samsung SDI Co., Ltd and SK on Co., Ltd.), announced plans to jointly invest USD 15.1 billion by 2030 to develop advanced battery technologies, including solid-state batteries.

- The initiative will enable South Korea to begin commercial production of solid-state batteries ahead of global competitors. The participating battery firms will establish pilot production plants in South Korea, serving as centers for product development and manufacturing innovation. These facilities will be used to test and manufacture advanced products, including solid-state batteries, before initiating mass production at overseas production sites. As a part of this effort, LG Energy Solutions set out a target for commercializing the production of lithium-sulfur batteries by 2027, primarily for the aerospace sector to start with.

- Therefore, based on the above factors, the Asia-Pacific is expected to dominate the lithium-sulfur battery market during the forecast period.

Lithium Sulfur Battery Industry Overview

The lithium-sulfur battery market is fragmented. Some of the major players in the market include (in no particular order) GS Yuasa Corporation, LG Energy Solutions Ltd, Saft Groupe SA, Gelion PLC, and Sion Power Corporation, among others.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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