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Global Lithium-ion Battery Market Assessment, By Type [Cathode-Lithium Iron Phosphate, Lithium Cobalt Oxide, Lithium Manganese Oxide, Lithium Nickel Manganese Cobalt Oxide, Lithium Nickel Cobalt Aluminium Oxide, Lithium Titanate; Anode; Electrolyte; Others], By Capacity [0-3000 MAH, 3000-10,000 MAH, 10,000-60,000 MAH, Above 60,000], By Construction [Cell, Cylinder, Prismatic, Pack, Module], By End-user [Automotive, Marine, Space and Aviation, Medical, Defence, Energy and Power, Electronics, Others], By Distribution Channel [Online; Offline-Original Equipment Manufacturer (OEMs), Distributors and Dealers, Others], By Region, Opportunities and Forecast, 2018-2032F

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Abstracts

Global Lithium-ion Battery Market size was valued at USD 73.16 billion in 2024 which is expected to reach USD 283.11 billion in 2032. Lithium-ion batteries have become increasingly essential in modern society due to their high energy density, long cycle life, and quick charging capabilities and thus demand for these batteries is increasing globally. The market is benefited from the increasing usage of consumer electronics products, which include portable gadgets like cell phones, tablets, laptops, and other devices. The demand for these devices is growing rapidly, and lithium-ion batteries are the preferred technology for powering them. The need for lithium-ion batteries will

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continue to rise along with customer desire for high-quality, long-lasting gadgets. Additionally, the market is anticipated to exhibit a CAGR of 18.43% for the forecast period between 2025 and 2032 owing to government initiatives, urbanization and an increasing desire for sustainable living. The market is expanding due to the expansion of the global telecommunications industry, which requires reliable backup power systems for cell towers and other infrastructure. Moreover, increased consumption in the marine and aerospace industry for usage in space vehicles and electric vehicles is driving market growth.

The growth of the renewable energy industry is also one of the key drivers for the global lithium-ion battery market. The rapid growth of the global solar energy market is driving demand for energy storage systems that can store excess solar energy during the day for use at night. Additionally, the market for lithium-ion batteries is expanding as a result of the development of new technologies and materials. For instance, advances in battery performance and safety have been made as a result of developments in electrode materials and battery management systems. Although Li-Ion batteries employ less harmful metals like iron, nickel, copper, and cobalt, their production and method of disposal can still pose a serious threat to the environment.

The Emergence of Solid-State Batteries

Solid-state batteries, which use solid electrolytes instead of liquid electrolytes, have the potential to offer higher energy density, faster charging, and improved safety compared to traditional lithium-ion batteries. The development and commercialization of solid-state battery technology could significantly impact the lithium-ion battery market, driving further growth and innovation in the industry. Toyota has been a frontrunner in solid-state battery research and development. The company aimed to commercialize solid-state batteries in their electric vehicles by the early 2020s. Hence the lithium-ion batteries having electrolytes in solid states present a lucrative opportunity for market players to capitalize on, thereby projecting the growth of Global Lithium-ion battery market to all new heights.

Government Support and Investments Fueling Market Expansion

Government initiatives and financial support play a pivotal role in accelerating the growth of the lithium-ion battery market. Recognizing the strategic importance of energy independence and environmental sustainability, numerous governments are implementing policies and providing subsidies to bolster domestic battery production and innovation. These measures not only stimulate economic development but also

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enhance competitiveness in the burgeoning EV sector. Investments are particularly focused on establishing new manufacturing facilities, advancing research and development, and fostering collaborations between public and private entities to drive technological breakthroughs.

For instance, in January 2025, the European Commission approved a ?48 million French state aid measure to support Envision AESC France in setting up a new factory for the production of lithium-ion batteries for electric vehicles in Douai, Hauts-de-France. The project aims to establish a carbon-neutral facility with an annual production capacity of 9 GWh in its first phase, creating approximately 1,000 direct jobs and contributing to the region's economic development.

Growth in Renewable Energy Storage Acting as a Driver for Global Lithium-ion Battery Market

Growth in renewable energy storage is significantly driving the global lithium-ion battery market. As the adoption of solar and wind energy rises, efficient energy storage systems are essential to balance the intermittent nature of these sources. Lithium-ion batteries, with high energy density and fast charge-discharge cycles, are ideal for storing excess energy produced by renewable sources. For example, Tesla's advancements in large-scale lithium-ion energy storage systems highlight the importance of such technologies. These batteries enhance grid reliability by providing stored energy during non-productive periods, ensuring a consistent power supply. This increased focus on renewable energy storage solutions supports the expanding demand for lithium-ion batteries in the global market.

These batteries store excess energy from solar panels or wind turbines, releasing it when production is low or demand is high. This makes renewable energy more practical and reliable. For example, Tesla has developed large-scale lithium-ion energy storage systems to support renewable energy projects. These innovations enhance grid stability by balancing intermittent renewable energy sources, helping reduce our reliance on fossil fuels and create a sustainable energy future. Such breakthroughs underline the role of advanced energy storage systems in the global market growth by making renewable energy sources more viable and efficient.

Cost Reduction

Advances in manufacturing techniques, economies of scale, and improved battery chemistry have resulted in considerable cost reductions in lithium-ion batteries

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throughout the years. Because of this cost drop, lithium-ion batteries are now inexpensive and competitive with alternative energy storage technologies. As the cost of lithium-ion batteries continues to fall, their use in a variety of applications becomes increasingly economically practical. In the previous three decades, the cost of lithium-ion battery cells has dropped by 97%. The cost has been cut in half between 2014 and 2018 and continues to decrease. Moreover, the prices of key raw materials used in lithium-ion batteries, such as lithium, cobalt, and nickel, have fluctuated over time. Therefore, decreasing cost of lithium-ion batteries is propelling the burgeoning growth of Global Lithium-ion Battery market.

Government Initiatives

Government subsidies and incentives are also essential in promoting market expansion. The use of electric cars and renewable energy sources is being encouraged by several governments throughout the world, which is raising the demand for lithium-ion batteries. Also, some governments are offering financial incentives to encourage the creation and use of novel battery technology, which promotes creativity and lowers prices. For instance, in 2021, the Department of Energy (DOE) unveiled a new set of regulations with the intention of reclaiming market share in the production from China, Japan, and South Korea in manufacturing the key components of advanced lithium-ion batteries. The new regulations stipulate that project receiving federal funding, including the USD 200 million reserved in the agency's 2022 budget to boost battery technology, must manufacture their products within the United States.

Asia-Pacific, a Manufacturing Hub for Consumer Electronics

Asia-Pacific is a major consumer electronics manufacturing hub, including smartphones, tablets, laptops, and wearable gadgets. The major power source for these gadgets is lithium-ion batteries. The presence of significant electronics manufacturers in China, Japan, South Korea, and Taiwan has fueled demand for lithium-ion batteries. 80% of cell manufacturing occurs in China i.e. China manufactures over two-thirds of the worldwide supply of lithium-ion anodes and electrolyte solution, as well as roughly 40% of the cathodes and separation materials used in the majority of the world's advanced batteries. Moreover, the growth in environmental concerns in China has resulted in a ban on traditional fossil fuel-powered scooters in all of its main cities, resulting in an increase in e-scooter sales.

A Major Contribution to Automotive Industry

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Automotive lithium-ion (Li-ion) battery demand grew by around 65% to 550 GWh in 2022, up from approximately 330 GWh in 2021, owing mostly to an increase in electric passenger vehicle sales, with new registrations increasing by 55% in 2022 compared to 2021. The global lithium-ion battery market is being significantly fueled by the automobile sector. The market is expected to expand due to the need for lithium-ion batteries in all sorts of vehicles, including two-wheelers, passenger automobiles, light commercial vehicles, and heavy commercial vehicles. The share for module and pack is increasing rapidly due to expansion of automotive industry. Moreover, the market for lithium-ion batteries is rising as a result of the increasing demand for electric vehicles (EVs), which is being driven by the global effort to reduce carbon emissions. United States automakers General Motors and Ford have vowed to shift their vehicle production to battery-powered or zero-emissions vehicles by 2035.

Impact of COVID-19

The worldwide lithium-ion battery market has been significantly impacted by the COVID-19 outbreak. The outbreak caused problems for the industry's supply chain, production, and logistics. Many factories were forced to shut down due to lockdowns and restrictions imposed by various governments around the world. However, the need for lithium-ion batteries surged as a result of the rising demand for digital products, remote working tools, and medical equipment. Therefore, the COVID-19 pandemic has temporarily hampered the lithium-ion battery sector, but it has also created new opportunities for growth and innovation in the industry.

Impact of Russia-Ukraine War

Due to the war between the two nations, the transportation and logistical networks that underpin the worldwide lithium-ion battery sector got disrupted. Interruption in Ukraine's transportation networks has resulted in delays and higher prices for suppliers and manufacturers as it serves as a key transit nation for products travelling between Russia and Europe.

Key Players Landscape and Outlook

Several players across the globe are making significant investments in research and development projects to introduce new products and increase production capabilities. In this industry, competitive tactics including alliances, mergers, acquisitions, joint ventures, etc. are very common. The market consists of major players such as Contemporary Amperex Technology Co. Ltd., Lg Energy Solutions, and Samsung Sdi

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Co. Ltd.

In February 2022, Panasonic Corporation stated that its Energy Company will set up shop at its Wakayama Factory in western Japan to produce new, huge 4680 (46 millimetres wide and 80 millimetres tall) cylindrical lithium-ion batteries for electric vehicles (EVs).

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