Aircraft Battery Market Assessment, By Battery Type [Lead Acid Battery, Nickel Cadmium Battery, Lithium-ion Battery], By Application [Commercial Aircraft, Military Aircraft, Business and General Aviation Aircraft, UAV], By End-user [OEM, Aftermarket], Region, Opportunities and Forecast, 2018-2032F

Market Report | 2025-04-22 | 221 pages | Market Xcel - Markets and Data

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Report description:

Global aircraft battery market is projected to witness a CAGR of 10.44% during the forecast period 2025-2032, growing from USD 653.69 million in 2024 to USD 1446.71 million in 2032F owing to the aviation industry's transformation and experimentation with sustainability and innovation. The push towards electric and hybrid-electric aircraft, coupled with advancements in battery technology, is reshaping the market landscape. High-energy-density batteries are becoming essential components in modern aircraft, supporting propulsion and auxiliary systems. Furthermore, the rise of Unmanned Aerial Vehicle (UAV) and Urban Air Mobility (UAM) initiatives is expanding the application scope of aircraft batteries. As manufacturers and stakeholders invest in research and development, the market is poised for continued growth, characterized by technological advancements and increased adoption across various aviation segments. The focus on sustainability and efficiency is a focus among the key competitors as they launch new products in the market.

For instance, in April 2025, Saft Groupe SAS, a subsidiary of TotalEnergies SE, launched a new 28V lithium-ion battery for backup and powerful engines starting for business jets and helicopters. The new lithium-ion battery is maintenance-free and has a 20% greater capacity than its rivals. A single aircraft's weight might be lowered by 20 to 30 kg by converting to lithium-ion batteries, which would also benefit CO2 emissions and fuel usage.

Electrification in Aviation to Fuel the Aircraft Battery Market

The global aircraft battery market growth is directly proportional due to the aviation industry's shift towards electrification. Electric and hybrid-electric aircraft are increasingly being developed to reduce carbon emissions and improve fuel efficiency. This transition necessitates advanced battery systems capable of powering electric propulsion and onboard systems. Hence, there is a growing demand for high-performance batteries that meet modern aircraft's stringent requirements.

Technological advancements in battery chemistry and design are driving the aircraft battery market forward. The development of high-energy-density batteries, such as lithium-ion and lithium-metal variants, offers improved performance, reduced weight, and enhanced safety. These innovations are critical for supporting the power needs of next-generation aircraft, including electric vertical takeoff and landing (eVTOL) vehicles and unmanned aerial systems.

For instance, in October 2024, T-DRONES launched new batteries for long-endurance UAVs. The UAV batteries produced by T-DRONES are more compact and lightweight, featuring a low discharge rate and enhanced lifespan. These batteries can endure over 500 complete charges and discharge cycles during their entire operational life. Furthermore, they continue to retain high capacity and efficiency even after numerous cycles.

Urban Air Mobility to Transform the Global Aircraft Battery Market

Urban Air Mobility (UAM) is emerging as a transformative concept in the aviation industry, aiming to alleviate urban congestion by deploying eVTOL aircraft. These aircraft rely heavily on advanced battery systems for propulsion and operational efficiency. Therefore, the growing interest and investment in UAM projects are fostering the development and adoption of high-performance aircraft batteries. Moreover, advancements in battery technology, such as solid-state designs with higher energy density and improved thermal stability, are addressing critical challenges like endurance and reliability. These innovations are pivotal in enabling longer flight times and ensuring sustainable urban transportation solutions.

For instance, in November 2024, Guangzhou EHang Intelligent Technology Co. Ltd developed its high-energy solid-state battery technology in collaboration with the Low-Altitude Economy Battery Research Institute of the Hefei International Advanced Technology Application Promotion Center and Shenzhen Inx Energy Technology Co., Ltd. With the integration of this solid-state battery, the EH216-S successfully conducted a continuous flight test lasting 48 minutes and 10 seconds. This advancement caters to various flight needs and enhances flight endurance by 60% to 90%.

OEM Segment Leads in the Aircraft Battery Market with Higher Market Share

The original equipment manufacturer (OEM) end-user segment leads the aircraft battery market due to its pivotal role in integrating advanced battery systems into new aircraft designs. This dominance is driven by increasing demand for commercial and defense aircraft, as well as emerging platforms like UAMs and UAVs. OEMs benefit from advancements in lithium-ion and solid-state battery technologies, which enhance energy density, safety, and lifecycle performance. Additionally, OEMs collaborate closely with battery manufacturers to meet stringent regulatory standards and ensure reliability across diverse operating conditions. Their focus on innovation and sustainability aligns with the industry's shift toward hybrid-electric and fully electric aircraft, further cementing their leadership in the market. This strategic position enables OEMs to drive growth while meeting evolving aviation demands.

North America Leads the Aircraft Battery Market with Higher Number of Industry Players

North America holds a prominent position in the global aircraft battery market, driven by robust research and development activities and the presence of key industry players. The region's focus on advancing electric and hybrid-electric aircraft technologies has spurred significant investments in battery innovation. Collaborations between aerospace companies and battery manufacturers are fostering the development of high-performance, aviation-specific battery systems. Furthermore, supportive regulatory frameworks and government initiatives aimed at promoting sustainable aviation are contributing to market growth. As a result, North America continues to lead in the adoption and advancement of aircraft battery technologies.

For instance, in September 2023, magniX USA, Inc. launched Samson batteries, specially designed for the aerospace industry. Key Features include a high energy density tailored for the aviation sector, proprietary safety technology, and a design refined for certification purposes. This battery has the capability of exceeding 1,000 complete discharge cycles, thereby minimizing operational expenses. Engineered for seamless integration, these batteries are perfectly suited for powering helicopters and eVTOLs, and they are applicable in other fields, such as marine vessel operations.

Future Market Scenario (2025-2032F)

- The adoption of solid-state battery technology is likely to enhance energy density and safety in aircraft applications.
- Implementing battery swapping systems are expected to reduce turnaround times for electric aircraft.
- Advancements in fast-charging technologies could enable rapid recharging of aircraft batteries, improving operational efficiency.
- Establishing comprehensive recycling initiatives are likely to be projected to address environmental concerns associated with battery disposal.

Key Players Landscape and Outlook

Key players in the aircraft battery market employ a range of strategies to maintain competitiveness and drive growth. These include heavy investments in research and development to innovate battery technologies, such as lithium-ion and solid-state batteries with higher energy density, longer lifespans, and enhanced safety features. Strategic collaborations and partnerships are crucial to meeting stringent regulatory standards and accelerating product development. Players focus on developing lightweight and compact batteries to optimize aircraft performance and reduce fuel consumption. Additionally, they prioritize creating reliable power systems for critical applications like avionics and emergency systems. Companies also collaborate and deliver specific battery technologies for clients with custom requirements.

For instance, in September 2023, EaglePicher Technologies, LLC was awarded by Saab to design and develop a 24-volt lithium-ion battery for the Gripen E-series fighter aircraft. The newly introduced 24-volt, 36 amp-hour lithium-ion main and emergency batteries enhance redundancy and strengthen the Gripen E-series. These batteries supply power to avionics and weapon systems, providing improved, immediate power for engine start during harsh weather operations.

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