

## **More Electric Aircraft Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

Market Report | 2023-01-23 | 100 pages | Mordor Intelligence

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### **Report description:**

The more electric aircraft market is projected to witness a CAGR of more than 6% during the forecast period.

The COVID-19 pandemic affected air passenger traffic globally in 2020 and 2021 in several parts of the world, reducing flight activity and impacting airline cash flows. As a result, most airlines have decided to either cancel or defer their aircraft orders. On the other hand, commercial aircraft OEMs have trimmed their production rates as the pandemic decreased demand for new jets. While the COVID-19 situation normalized in 2021 and 2022, the passenger traffic segment and the aircraft delivery segment gained a stable position in the market, which supports the market's growth in the coming years.

Recent technological advances in power electronics, fault-tolerant architecture, electro-hydrostatic actuators, flight control systems, high-density electric motors, and power generation and conversion systems have promoted the more electric aircraft market. With the increasing focus on eco-friendly aircraft, many regulations have been imposed on aircraft emissions. With the increased stringency of emission regulations, manufacturers have shifted toward more electric aircraft.

The more electric aircraft market is growing as aircraft OEMs realize the architecture's potential advantages, like improved fuel efficiency, reduced maintenance costs, and enhanced reliability using modern power electronics. In addition, there are fewer hydraulic and pneumatic components in engine installation. More electric aircraft with short ranges are expected to become viable for regional transportation in the coming years.

### **More Electric Aircraft Market Trends**

Commercial Segment Held the Largest Market Share

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The commercial segment held the highest market share in the more electric aircraft market. There are only a few more electric aircraft in this segment, including the Boeing 787 and Airbus A350 XWB. Over the years, major aircraft manufacturing companies, such as Airbus SE and Boeing Company, have introduced more electric architecture to their commercial aircraft. For its A380 and A350 models, Airbus replaced three hydraulic systems with two electric systems successfully, proving the technology to be safe for aircraft. Airbus plans to replace hydraulic power systems with electrical generators on wide-body aircraft. Boeing recorded 1,006 deliveries of its Boeing 787 Dreamliner aircraft as of December 2021. Boeing 787 is one of the pioneers of more electric architecture systems. The aircraft uses electric systems to replace those previously powered by hydraulics or bleed air from engines.

More electric architecture is being incorporated into new aircraft models. Commercial aircraft engine manufacturers are also incorporating a higher level of more electric architecture into their engines to accommodate future aircraft models. For instance, in December 2021, UK-based BAE Systems invested in its multi-million dollar facility investment to support Aircraft Electrification operations in Endicott, United States. The investment is expected to support the advanced manufacturing of subsystems for control and power conversion systems for aviation applications. Such developments are expected to drive the market's growth during the forecast period.

#### North America to Dominate the Market During the Forecast Period

North America is a large market for more electric aircraft due to a high number of deliveries of aircraft incorporating more electric architecture to the United States. The necessary infrastructure and a strong emphasis on research and development in the electrification of aircraft subsystems are expected to aid the growth of more electric aircraft markets in the North American region. In 2021, Lockheed Martin delivered 142 F-35 fighter jets to the United States and its allies. The power-by-wire system of the F-35 represents a key advancement in more electric aircraft technology. It integrates self-contained electro-hydrostatic actuators (EHAs) to control the primary flight surfaces.

On the other hand, the increasing environmental concerns and stringent regulations for aircraft emissions are the major factors responsible for the dominance of the more electric aircraft market in the region. Though the deliveries of wide-body aircraft like the Boeing 787 Dreamliner and Airbus A350 XWB have slowed down in the region, airlines still have several aircraft on order due for delivery. For instance, as of September 2021, Delta Air Lines, the first North American airline to fly the A350 XWB, operated 17 Airbus A350-900s. Of the 25 A350-900s on order, 8 are yet to be delivered to the airline. Such a demand for newer more electric aircraft from the commercial and military segments is expected to drive the market in the North American region during the forecast period.

#### More Electric Aircraft Market Competitor Analysis

The Boeing Company, Airbus SE, Lockheed Martin Corporation, Honeywell International Inc., and Safran SA are some of the prominent players in the market. Major players in the market are working to develop advanced electric architecture platforms. With the growing focus on the development of more electric components, players are currently facing challenges in validating these systems and components due to the nature of aerospace testing and the high level of sophistication of the systems.

Hence, players are investing in infrastructure dedicated to developing more electric architecture systems. For instance, Collins Aerospace (Raytheon Technologies Corporation) has been building a specialized lab, The Grid, which will be the industry's most advanced electric power systems laboratory. Systems like high-power generators may be designed and evaluated in the lab for the next generation of more electric aircraft, including commercial, military, business aviation, UAV, and urban air mobility platforms. The ongoing developments in terms of electric actuation systems are expected to bring additional opportunities for existing players to increase the percentage of electric architecture in their aircraft, thereby attracting further customers in the

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coming years. For instance,

In July 2021, Pratt & Whitney Canada (P&WC), a business unit of Pratt & Whitney, announced that the company works with De Havilland Aircraft of Canada Limited (De Havilland Canada) to integrate hybrid-electric technology into a De Havilland Canada Dash 8-100 flight demonstrator. The flight demonstrator will include an advanced electric motor and controller from Collins Aerospace. The hybrid-electric propulsion technology and flight demonstrator program is part of a CAD 163M investment by the governments of Canada and Quebec.

In April 2021, Airbus announced that it aims to replace the mechanical rudder controls on A320 Neo-family aircraft, switching to a full electric rudder system by early 2024. The modification will coincide with the entry into service of the long-range A321XLR developed with the 'E-rudder' architecture in mind.

Additional Benefits:

The market estimate (ME) sheet in Excel format

3 months of analyst support

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