

ELECTRIFYING THE FUTURE OF AVIATION

Implementing alternatives to fossil fuel usage is one path the commercial aviation industry may use in the future to help reduce costs and address environmental concerns.



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As an increasing number of electric vehicles take to the road, many are realizing battery-powered vehicles are capable of meeting drivers' demands while also operating at a significant cost savings, leading some to wonder if aircraft electrification could be a viable alternative in the not-so-distant future.

Not surprisingly, several small capacity aircraft are in development. In December 2019, a fully electric commercial plane completed a test flight in Canada. The six-seater seaplane was fitted with a 750-horsepower electric motor and successfully completed its planned flight, which lasted less than 15 minutes. This milestone is just one illustration of how the aviation industry could be entering the electric age sooner than most might believe. Critical drivers that could spark the transition to electricity include operational cost savings and environmental concerns.

Even though the motor vehicle industry is still early in its transition, it is very apparent that the maintenance needed for electric components, like motors and batteries, is far less than that for equivalent fossil-fueled vehicles. This is due to motors and electronics that are more streamlined as compared to an internal combustion engine. While the initial upfront cost of new infrastructure for electrification may seem prohibitive, the total cost of ownership is typically much lower.

Although discussions of electrification may not jump straight to battery-powered replacements for a Boeing 737 or Airbus A321, the process of implementing electrification will affect every aspect of the aviation industry and will be first seen on the ground operations. Just as battery-powered cars have a lower cost of ownership, battery-powered tugs and baggage handling equipment should bring environmental and long-term cost benefits. And unlike aircraft, which must fly hundreds of miles to be cost-effective, ground equipment covers very short distances between opportunities to recharge.

As airports have been built and transformed over the years, most infrastructure plans have never considered using electricity to replace fossil fuel consumption. Therefore, current facilities are largely inadequate for powering the ground support equipment and aircraft of the future. Beyond just building

enough capacity, one of the biggest electrification infrastructure challenges today is standardization. Each group jumping into the market is creating its own hardware and method for charging, which could significantly impact ease of infrastructure adoption. Electric vehicle manufacturers and owners are already experiencing this firsthand.

Fortunately, the aviation industry has a proven track record of standardizing aircraft ground power connections. It is imperative this tradition be maintained and common standards be developed in concert with the aircraft and ground support equipment. This will be crucial for airports and airlines to be able to efficiently implement these new technologies.

The economic downturn as a result of the COVID-19 pandemic has not reduced the calls for reduced fossil fuels in all places — including airports. Although it is likely the pace of environmental regulation may slow in response to the crisis, it will not stop. Airlines and airports will continue to be challenged to find alternatives that do not use fossil fuels for existing equipment. The aviation industry will continue to meet the needs of its customers and will find a way to adapt and grow in this new normal.

As with all changes of this magnitude, it is critical to find a trusted adviser who can help develop a flexible plan that adapts to the realities of the evolving technologies and not invest in false starts. This not only saves money, but also gives airports and airlines confidence in the ability to adapt to whatever the future brings.



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