

Sustainable electric aircraft

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Research published in the International Journal of Sustainable Aviation, looks at the opportunities and challenges facing the aviation industry in its aspirations to employ electric aircraft rather than adopt biofuels.

Diego Lentini of Sapienza Università di Roma, Italy and Hernán Tacca

of the Universidad de Buenos Aires, Argentina, explain how the growth of air travel in recent years, COVID pandemic aside, has led to a massive increase in emissions of greenhouse gases and ozone-depleting substances. New ways to power aircraft that are carbon neutral, pollution free, and sustainable are now urgently needed the industry is to become sustainable. Dedicated airframes are now needed in order to make the transition to sustainable, electrically powered aircraft.

Fundamentally, putative electric aircraft suffer from a significant limit on their range. Other types, such as turbo electric aircrafts require [liquid hydrogen](#), which brings its own serious challenges. And, hybrid-electric aircraft require smaller wings and thus can handle only a smaller load.

The team's analysis of current technological solutions and proposals suggests that many of the options envisaged for electric aircraft can give "only a limited relief of the aviation [environmental impact](#), and imply substantial extra costs." Turbo aircraft fed by liquid hydrogen may well offer a viable alternative provided the hydrogen is sustainably sourced, the team suggests, but this would require serious consideration in terms of safety. The team concludes that before electric fleets become tenable for the [aviation industry](#) there needs to be a "[paradigm shift](#) in the fuel infrastructure development, and above all, a decisive policy shift in the way environmental problems are tackled." There perhaps remains a significant delay in departures before we see [electric aircraft](#) taxiing to the runways and taking to the skies.

More information: Diego Lentini et al. Opportunities and challenges for electric propulsion of airliners, *International Journal of Sustainable Aviation* (2021). [DOI: 10.1504/IJSA.2020.112645](https://doi.org/10.1504/IJSA.2020.112645)

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