Electric Planes

By: Rapid Access International, Inc.

November 2021

There is much incentive for airlines to find solutions to reduce their carbon footprint. These incentives include the threat of sustainability-based regulations; greener alternatives for short haul flights – including high-speed trains; consumer demand for greener transportation alternatives; and the prospect of governments adding carbon taxes on carbon intensive activities.

Carbon offsets and the use of biofuels have characterized some early strategies to deal with the issue. These approaches do mitigate the problem, but electric aircraft technologies promise energy and carbon efficiencies that could resolve much of these industry challenges.

The Spirit Electric Airplane

LA-based startup company, Wright Electric Inc[1], aims to have an all-electric plane that can carry 100 passengers ready for purchase by 2027.[2] The so-called 'Spirit' plane is just a BAe 146 regional aircraft – manufactured by BAE Systems Plc – retrofitted with electric motors by Wright Electric.

With other firms, such as Airbus, aiming to have electric or hydrogen-powered aircraft ready by around 2035, the timeframe for delivery of the Spirit aircraft provides a great competitive advantage for the company. The range of the aircraft is just one hour, or 460 miles. But this is a real sweet spot for airlines looking to reduce their carbon footprint on the busiest short haul passenger flights, such as those between New York and Boston, Tokyo and Osaka, Paris and London, Doha and Dubai, etc.

Indeed, many of these shorter flights offer the least justification for their current carbon emissions. With alternative forms of transportation requiring a similar time commitment from passengers, and the potential for higher taxes and regulation, the introduction of the 'Spirit' aircraft appears to be well timed.

Wright Electric Inc

Wright Electric has an impressive list of partners listed on their website. These include NASA, the US Air Force and US Army, Honeywell, easyJet, Viva Aerobus, and others. The company has an aggressive technology roadmap, with the development of motors, inverters and propulsion fans through 2022, and a steady incorporation of one, two, and then all four electric engines in their test flights ahead of bringing the Spirit aircraft into service. Their website actually has this listed as early as 2026.

The stated goal of the company is to make all single-aisle flights shorter than 800 miles zero-emissions. Given that 45% of all aviation emissions are from single aisle flights[3], this is crucial target market for the company, and for the global aim of reducing these emissions.

---

[1] see Company Website: https://www.weflywright.com/technology

[2] Ryan, Charlotte. "100-Seat Electric Plane Will Be Ready by 2027, Says L.A. Startup". Bloomberg. November 4, 2021. Accessed on November 6, 2021. Available at: https://www.bloomberg.com/news/articles/2021-11-04/hundred-seat-electric-plane-ready-by-2027-startup-wright-says

[3] Company website, *op. cit.*

To achieve this goal, the company is looking to introduce a single-aisle aircraft called the Wright 1, that will fly short to medium routes of 800 miles or less. This version will be designed to carry up to 186 passengers, and the company has plans for this version to enter service in 2030. This would connect cities like San Francisco and Seattle with zero emissions.

The company has some details on the various technologies under development on their website at https://www.weflywright.com/technology. Here, the company outlines the key components: Motors, Inverters, and their Full Propulsion System.

Going Forward

Wright Electric appears to have certain time-to-market advantages over traditional aircraft manufacturers, such as Airbus. But, there are no guarantees that all will actually go to plan. There are also some other companies engaged in the race to build zero-emissions aircraft, including ZeroAvia Inc. and Heart Aerospace. Not to mention, other companies are retrofitting smaller aircraft in similar fashion. MagniX is one of these companies – working on substituting a single electric motor in place of the nine-passenger Cessna Caravan's turboprop engine.

One way or another, it seems that the airline industry will have much to celebrate in being able to provide zero-emission options over the next decade. And, perhaps less to fear in terms of sustainability-based regulations, carbon taxes, and changing consumer demand.