THE ELECTRIC SOLUTION

magniX

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Shifts and Trends in Culture

Environmental Awareness

On-Demand Economy

Door-to-Door Convenience for Travel

Almost half of worldwide airline flights are under 500 miles*

World's first electric aircraft certified by EASA

According to IATA, the recovery in short haul (domestic) travel is still expected to happen faster than long haul (international) travel post COVID-19

**Source: OAD Data*

Right Time, Right Place

Advancements in Technology - Propulsion Precedes Every Step

Piston Engine

- In 1903, Charlie Taylor built a simple 12-horsepower gasoline engine
- The Wright brothers used the engine to power their new glider and the airplane was born

Jet Engine

- In 1932, British RAF cadet Frank Whittle patented his version of the Turbojet engine
- This significantly advanced commercial aviation with faster flight speeds and greater reliability than piston engines

Electric Propulsion

- In 2009, magniX began developing electric motors
- The magniPropulsion systems have been successfully retrofitted and flown on a Harbour Air Beaver and a Cessna Grand Caravan

Battery Technology Advancements

- In the past decade, battery technology advancements from automakers to new players have paved the way for electric aviation

OUR PURPOSE

To connect communities by enabling every person in the world to fly

OUR VISION

To become the world's most recognized and trusted company that powers on-demand, affordable and clean air travel

magniX at a Glance

- Established in 2009
  - Developed superconducting, axial flux, radial flux, and other electric motor topologies ad technologies
- Transitioned in late 2017 to an all-electric propulsion business focused on aerospace
- We provide electric propulsion for retrofits and new design aircraft
  - On path to Part 33 cert 1H 2022
- Opened >40,000 sqft facility in Everett, WA

magniPropulsion

The world's first and only flight-proven all-electric propulsion systems for commuter/commercial aircraft, enabling low-cost, sustainable air travel

640 kW Max T/O	560 kW Continuous	407 lbs	203 kg
3220 Nm Max T/O	2820 Nm Continuous	1900 rpm	

Changing The View of Air Transportation

- True Point-to-Point
  - Connecting Communities with Smaller Airports / Smaller Aircraft / On Demand
- Fit equipment to mission: Size, efficiency, noise, emissions
  - Short, Medium, Long Haul – Battery, Hydrogen, SAF
- Door-to-door traveling
  - Multi-fleet multi-model solutions
  - Multi node optimization: cost, emissions, service

Accessible

operators can justify offering many more short distance flights - on a wider network of routes, at lower prices and on-demand

Low Cost

electric aircraft do not need fuel and require less maintenance, making them up to 80% lower-cost to fly per hour

Clean

magniX electric aircraft propulsion systems make less noise, burn no fuel and create zero carbon emissions

What Can Policymakers Do?

- Tax incentives, rebates, grants, new policy
  - Operators' move to cleaner aircraft
  - New routes using cleaner aircraft
  - Airports to prepare for cleaner aircraft
  - 'Aspirational' policies on short route flights (e.g. all domestic flights 100% emission free; <200 miles must be 50% less emission)
  - Set clear aviation emissions standards (present and future – not past)
- Education system should focus on practical and critical thinking in STEM

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The road ahead … more work to do

energy storage	Current batteries have a fraction of the energy density of aviation fuels. Higher-performing battery chemistries than today's lithium-ion ones are being developed. Other forms of energy storage, such as hydrogen fuel cells, are being fielded by the automotive industry.
certification	The 2-seater Pipistrel Velis Electro received EASA type certificate in Q2 2020, an aviation first for an electric aircraft, under CS-22 and newly developed special conditions. A mature certification framework under Part21 (EASA) or Part33 (FAA) is still being developed
ecosystem	Optimized and distributed connection to the grid, apron fast-charging or battery quick replacement, "green" ecosystem and airports infrastructure are all key enablers towards the aerospace electric revolution

Making Electric Flight Real with Commercial Partners

Eviation's Alice is a 9-passenger all-electric aircraft built to make air travel affordable and sustainable for regional transport.

In 2019, Eviation selected magniX to provide its propulsion system for the Alice planes. The Alice plane, together with magniX motors, made its debut on the 2019 Paris Air Show and is expected to first fly in 2021.

EVIATION

Harbour Air Seaplanes is a scheduled floatplane airline based in British Columbia, Canada.

In December 2019, Harbour Air and magniX conducted the successful flight of the world's first all-electric commercial aircraft, a five-passenger DHC-2 de Havilland Beaver powered by a magniX propulsion system. This aircraft continues flying in Canada.

HARBOUR AIR SEAPLANES

Universal Hydrogen is aspiring to make hydrogen-powered commercial flight a near-term reality. They are working on hydrogen infrastructure and distribution, as well as conversions for hydrogen-powered regional aircraft.

magniX has been selected as the propulsion partner for Universal Hydrogen's project to develop the world's largest hydrogen-based commercial aircraft using a Dash-8.

Sydney Seaplanes is an Australian seaplane airline in and around the Sydney region and is the largest seaplane operator in Australia.

Sydney Seaplanes selected magniX propulsion for their Electric Cessna Caravan Supplemental Type Certificate (STC) Program that they plan to serve to operators in the South Pacific.

SYDNEY SEAPLANES

UK-based start-up Faradair is developing an 18-passenger hybrid-electric aircraft for operations starting 2026.

magniX was selected to provide the electric propulsion systems for the aircraft.

faradair

magniX

The Electric Solution

Thank you!