



ZEROAVIA

The First Practical Zero Emission Aviation Powertrain

Q3 2019

First Practical Zero Emission Aviation Powertrain

Our Mission: Accelerate the World's Transition to Sustainable Aviation

Starting with:

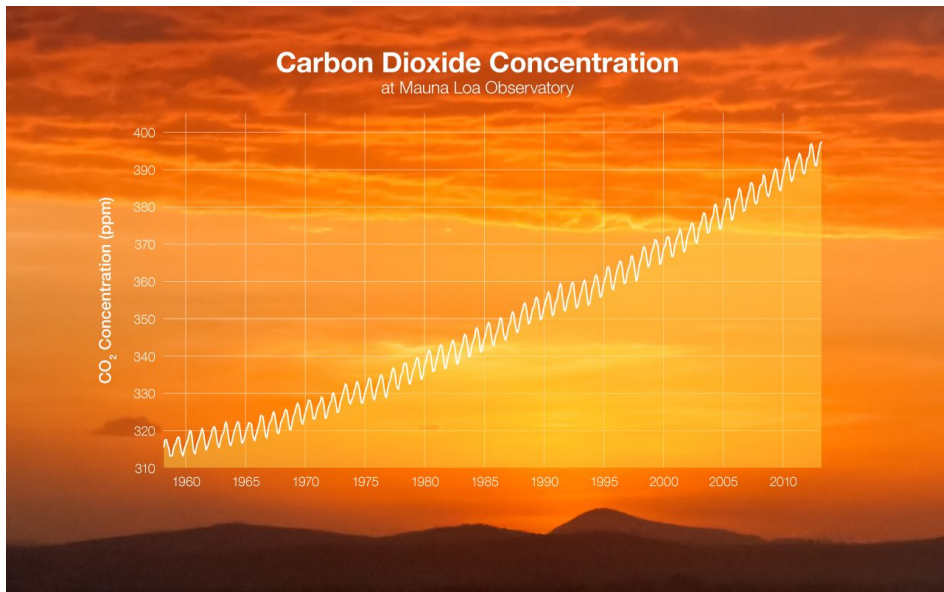
Zero emission 500 mile air travel @ half of today's cost

\$100B+ in clean, faster, more convenient local travel

2020: 300-mile @6 seats; first 19-seat flight
2022-23: 500-mile commercial ops, 19-seat

Why We Do It

**Aviation emissions particularly harmful;
growing 4x by 2050**



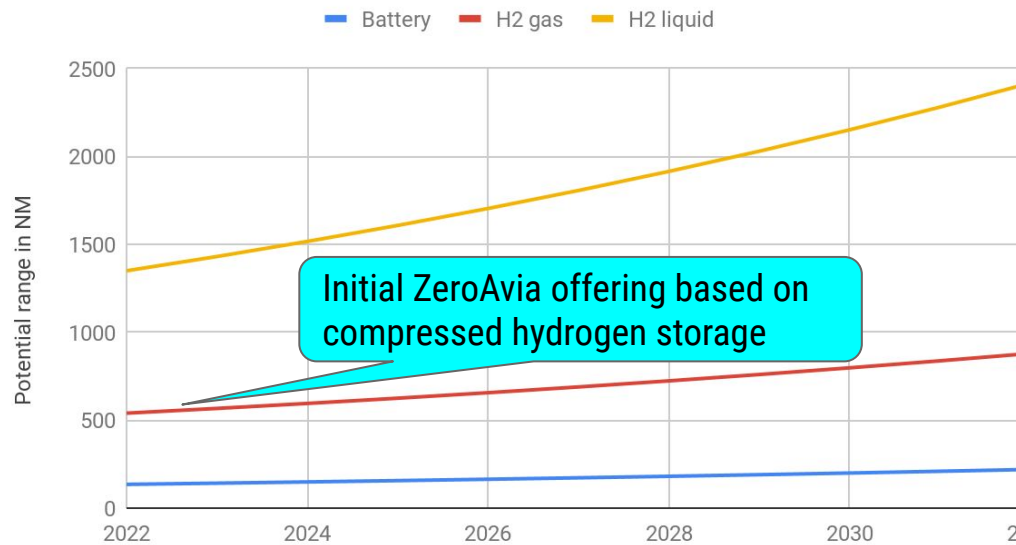
Air travel has increasingly poor user experience



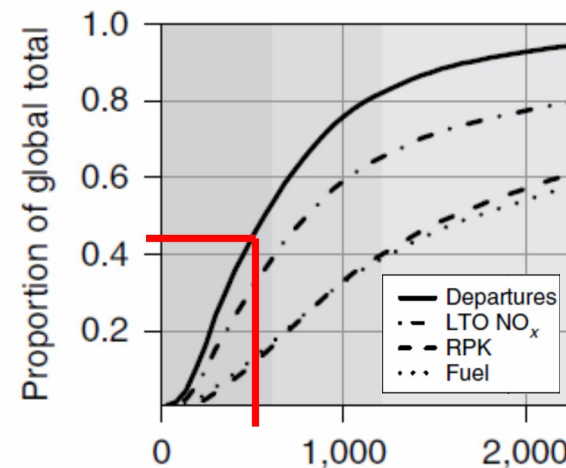
How: Electric but Not Battery

Battery aircraft, while being conceptually simpler, will likely be limited to shorter range missions

Future Fuel options - Battery, H2 gas and H2 Liquid*



500-mile range covers almost 50% of all trips worldwide**

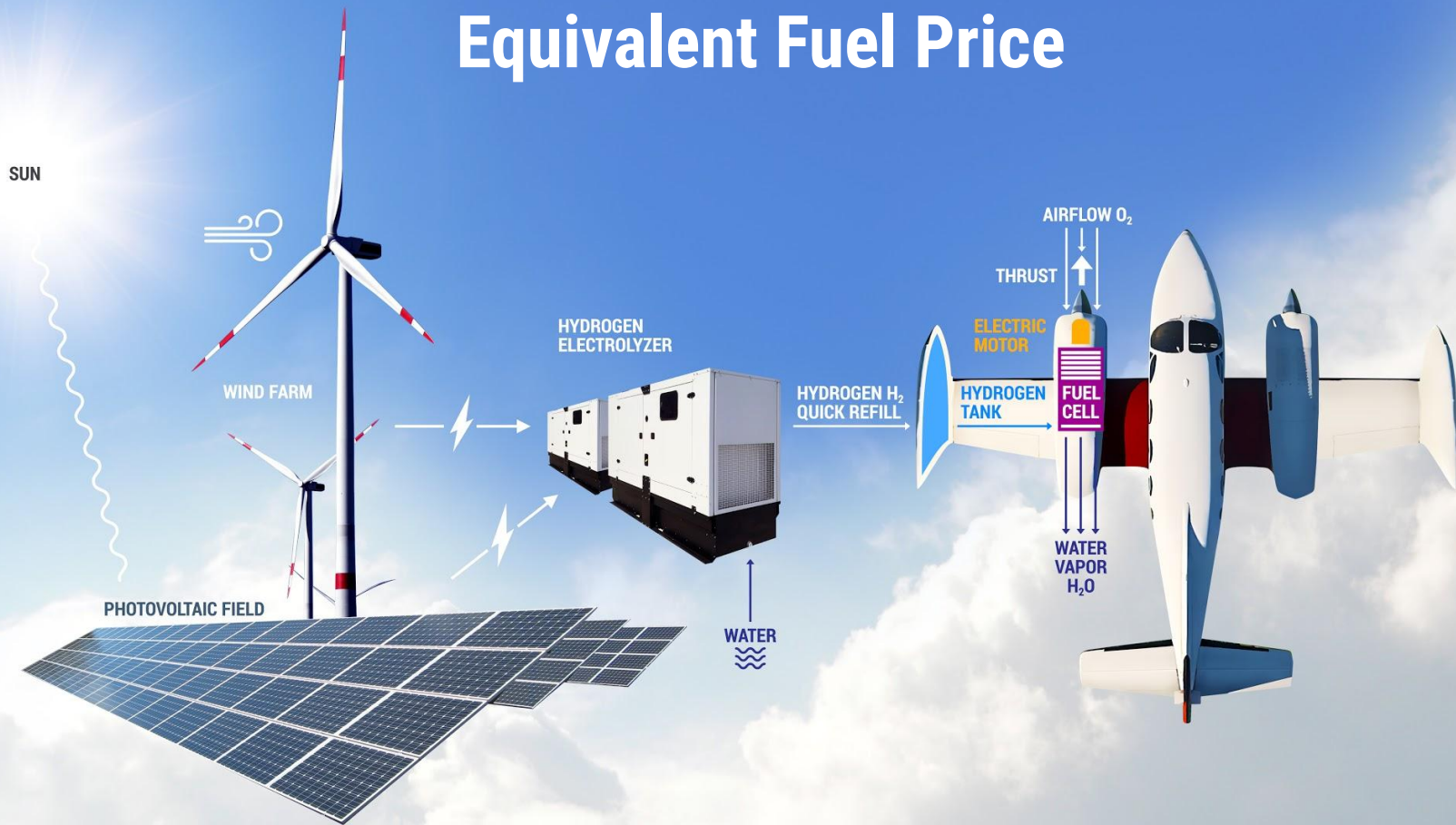


*Sources: batteries: 250 Wh/kg @system level 2022, 5% YoY improvements (more optimistic than Schafer (2018));

H2 gas: 1000 Wh/kg 2022, 5% YoY; H2 liquid: 2500 Wh/kg, 6% YoY, all based on supplier information

**Schafer et al (2018) - Technological, economic and environmental prospects of all-electric aircraft.

Renewable On-Site H₂ = ~\$2 / G Equivalent Fuel Price















First Product: PT6 Replacement for 500nm in 2022



Lower fuel, maintenance costs; lower noise; zero emissions end-to-end

Cheaper, Zero Emission PT6 Level Performance

	H ₂ - electric	Battery-electric	Turboprop-jet fuel
Acquisition costs			
Fuel burn & associated costs			
Maintenance intervals			
Total variable costs			

Hydrogen powertrains can provide up to 40% OPEX savings for small operators

Consistently Hitting our Milestones for 18 Months

2019 milestones

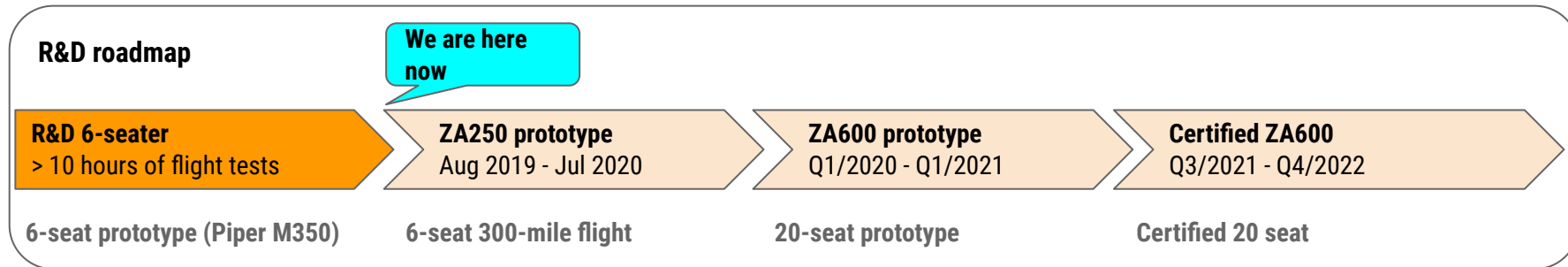
- **July:** Hydrogen fuel cell and tank integration tests
- **April:** Max Range, Max Speed & Formation flights
- **March:** First full pattern flight
- **February:** First flight after FAA's Exp. R&D Certificate
- **January:** First high speed taxi tests: 50kts, 95kt

2018 milestones

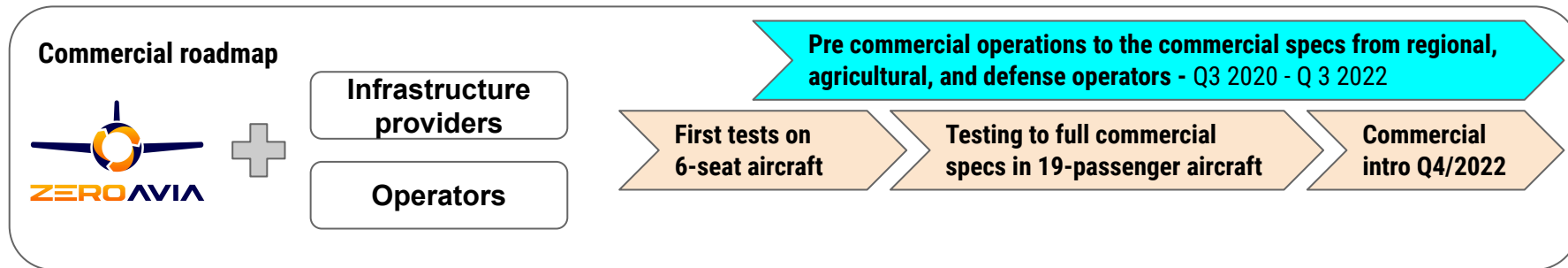
- **October:** Runway Flying El Camino demos: 60 kts, 75kts
- **July:** First 1000+ RPM run and First 100kW power-up
- **May:** First starts; SW & HW integration tests



Supporting R&D and early commercial spec testing are crucial



Potential for public support and cross-border efforts



Team with Proven Success & Deep Experience

->- = Pilots



Val Miftakhov,
Founder & CEO

Google, McKinsey, DOE,
eMotorWerks (Founder &
CEO; acquired in 2017)
Pilot, fixed wing & rotorcraft
Physics PhD, Princeton;
MIPT



Gabriel DeVault,
Head of Drivetrain

Zero Motorcycles (founding
team), InspecTools
(founding team; acquired
2018), JOBY Aviation
Private pilot



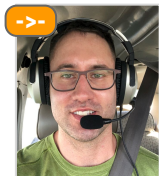
Julia Batishcheva,
CFO

eMotorWerks CFO
(acquired in 2017),
Vivus, SH (an AI SW
DOD contractor); BS
Economics



Katya Akulinicheva,
IR and UK operations

Finance experience in M&A,
PE, Cleantech VC
BA/MA Politics & Economics,
Oxford; MBA, INSEAD



James Lawson,
Regulatory

FAA Designated
Engineering Rep, Zee
Aero, BAE, Crane
Aerospace, Astronics;
MEng Loughborough



Vadim Belogorodsky,
System Integration

CANtrolls (Founder),
System engineer at
Schramm, One Motion
BS Electrical Eng,
Widener



Ben Drobiz,
Embedded architect

Tesla (architect of Model
S/X/3 onboard systems);
Rochester Institute of
Tech, Mech/Computer
Eng



Julian Renz,
Partnerships

SYSTEMIQ, Air Liquide,
BMW, tado
MSc Chemical Eng, TUM,
Tech Mgmt, CDTM



Leonid Ganapolsky,
Drivetrain Test & Validation

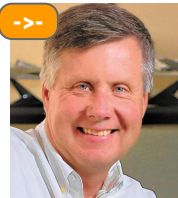
Sonos, Tesla, eMotorWerks
(acquired in 2017)
CS, Project Management
Golden Gate University



Aleksandr Kikhtenko, Head of the
Remote Engineering office

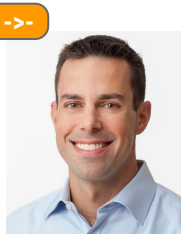
Expert on mobile power plants, both
terrestrial and aerial
Electroavtomatika, AeroStart;
Industrial electronics NCS TU

Strong Advisory Board



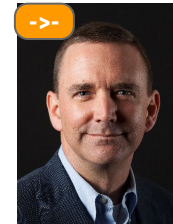
John Uczekaj, Aviation Industry Relations Advisor

CEO & President, Aspen Avionics; EVP & GM, Honeywell; Board Member, General Aviation Manufacturers Association; 2012 honoree, Living Legends of Aviation (Entrepreneur of the Year)



Andrew Patton, Business Advisor

Google (Wing, X), GrowthPoint Technology Partners, Titan Aerospace, Boeing; Aerobatic Pilot; Princeton Mech & Aerospace; Stanford MBA



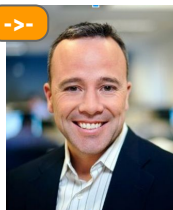
David Walrod, Investment Advisor

Managing Director / Partner @Sabia Capital, Pier 88, Pacific Growth Capital, Vodafone Ventures, Bridgescale Partners, Oak Investment Partners; McKinsey & Company; Board Member @5+ VC-funded startups; UC Berkeley Foundation Trustee Harvard JD, MIT PhD & Berkeley AB Physics



Brian Snow, Investment Advisor

Impala Ventures, Pristine Environments (Founder & CEO; acquired by MAST Capital in 2017), Vornado Realty Wharton MBA, MS Georgetown



Micah Myers, Investment Advisor

CEO, Pace Avenue; Board Member, eMotorWerks (acquired in 2017); Co-Founder & SVP, CleanPowerFinance (acquired in 2018); Principal, Claremont Creek Ventures. Fighter pilot MBA, Stanford; BA, UC Davis



Roger Atkins, EV Business Advisor

Founder EVOutlook; LinkedIn Top Voice; Advisory Board Member with Momentum Dynamics, Energy Disruptors, RENU ventures. Brand Ambassador of Rimac Automobili and Pariss Electric



Julian Chu, Business Advisor

Google, GE, McKinsey, Ford MBA, UMich MS Aerospace, UMich BS Physics, UHongKong



Ron Mangon, Aircraft systems Advisor

Mangon Aircraft (aircraft repair & maintenance) Certified Piper, Cessna, Lycoming, Continental mechanic



Michael Reich, Investment & Talent Acquisition Advisor

Founder & President, MRA Retained Executive Search; built exec teams that led to 16 IPOs and 40 profitable M&A events; Founder, Silicon Valley Aviation