ZUNUM Aero

Bringing you **electric air travel**
out to a thousand miles.

"We envision a short-haul system capable of operating from every runway and urban area V/STOL port in the United States and very comfortable in an environmental sense."

John Shaffer, FAA Administrator, 1970

FAST, AFFORDABLE, AND EVERYWHERE

In the new era we are bringing to life, there is freedom: to live where you want to live, quickly get where you need to go, and to travel on your own schedule. Freedom from long drives to airport hubs, lengthy lines and waits, inconvenient flight times, noise and emissions.

Our range-optimized hybrid-to-electric aircraft bring airliner economics to mid-sized aircraft, traveling over ranges from 700 miles in the early 2020s to over 1,000 miles by 2030. Flying point-to-point to thousands of secondary airports and feeders to hubs, the hybrids will power a distributed air system that complements the concentrated airliners and hubs of today -- bringing high-speed connectivity to every community, and fast, flexible, personalized travel to all.

Get there on your schedule

Travel 2 to 4 times faster door-to-door, with departures from nearby airports, and walk-on, walk-off services much like boarding a bus or a train.

Fly to every community

Services to 5,000+ secondary airports in the US alone, and another 15,000 around the world.

Much lower fares

Our range-optimized hybrids bring airliner economics to mid-sized regional aircraft, reducing fares between 40 and 80 percent.

Tread lightly

Quiet electric propulsion cuts community and cabin noise by 75%, emissions by 80%, targeting zero emissions for regional aviation by 2040.

TECHNOLOGY

Distributed regional network

Using a radically different air network from the concentrated airliners and hubs of today, we'll leverage thousands of dormant secondary community airports. That allows us to circumvent the traffic, congestion and time wasted on the ground -- getting us to destinations 2 to 4 times faster at half the cost -- in a quiet, green aircraft.

Quiet electric propulsors

Our propulsors combine range-optimized quiet fans with integrated fault-tolerant electric motors and controllers. Our low-pressure fans deliver exceptional efficiency, strong off-cruise performance, and feature regenerative braking to replace noisy spoilers. Meanwhile, 40% shorter runway requirements, 75% lower community noise, and highly responsive power without altitude lapse are key to door-to-door times.

BREAKTHROUGH AIRCRAFT

Future-proof flexible platform
- Design for future speeds and range
- Economy, Performance, Stretch variants

Quiet electric propulsors
- Best-in-class short-take off, climb
- Quiet regenerative braking
- All-hours access to small airfields

Pilot optional cockpit
- Fly-by-wire

Comfortable and safe
- Exceptionally quiet interior
- Best-in-class fault tolerance
- Aviation-grade battery containment

Intuitive control and optimization
- Flight optimized energy delivery
- Integrated control, 1-touch modes

Range-optimized hybrid powertrain
- Energy sipping battery-first flights
- Low-maintenance powertrain
- Easy upgrade to future technologies

Operating cost	Max range	Max cruise speed	Take-off distance
8¢/seat mile	**700+ miles**	**340 mph**	**2,200 ft**

Regional hybrid-to-electric aircraft

Our energy-sipping hybrid architecture, ultra-low maintenance powertrain, plug-in charge depleting operation, short runways, fast climb and descent, optimal cruise speeds — all result in unparalleled economics and door-to-door times. Our modular airframe design doesn't tie us to any technology, future-proofing the aircraft over the 20-year life of the airframe.

Optimization and control platform

Providing flight energy optimization, real-time power management, fault detection and recovery, the platform determines the optimal energy usage plan for each flight, and queries the aircraft's energy sources in air, maximizing the use of battery power over the course of the charge-balanced flight. Assisted control of multiple propulsors make flight operation simple across scenarios. Fault-tolerant capabilities detect and identify faults and reconfigure powertrain and controllers mid-flight.

FAST DOOR-TO-DOOR

Wondering how much time you'll save by flying in a Zunum Aero aircraft?

New York to Cleveland

	Today	Zunum
Route	JFK to CLE	FRG to BKL
Door-to-door time H:MM	4:23	2:36
Fare	$288	$160

San Jose to Lake Tahoe

	Today	Zunum
Route	SJC to RNO	RHV to TVL
Door-to-door time H:MM	4:11	1:40
Fare	$105	$65

Performance

Max cruise speed	340 mph
Max range	700+ miles
Max altitude	25,000 ft
All engine distance to 50 ft obstacle	2,200 ft
Landing distance with 50 ft obstacle	2,500 ft
Rate of climb	1,600 ft per minute
Time to climb	sea level to FL 25 18 minutes

Economics and weights

Seating capacity	12 economy, 9 premium, 6 executive
Operating cost	8¢ per seat mile, $250 per hour
Max take-off weight	11,500 lbs
Max payload	2,500 lbs
Maximum fuel	1,300 lbs

Powertrain

Architecture	Series hybrid with range extender
Max power	1 MW variants
Battery mass	Under 20% of max take-off weight
Turbogenerator	500 kW variants
Emissions	0.0 to 0.3 lbs CO2/ASM
Sideline noise	65 EPNdB

Hybrid-to-electric powertrain

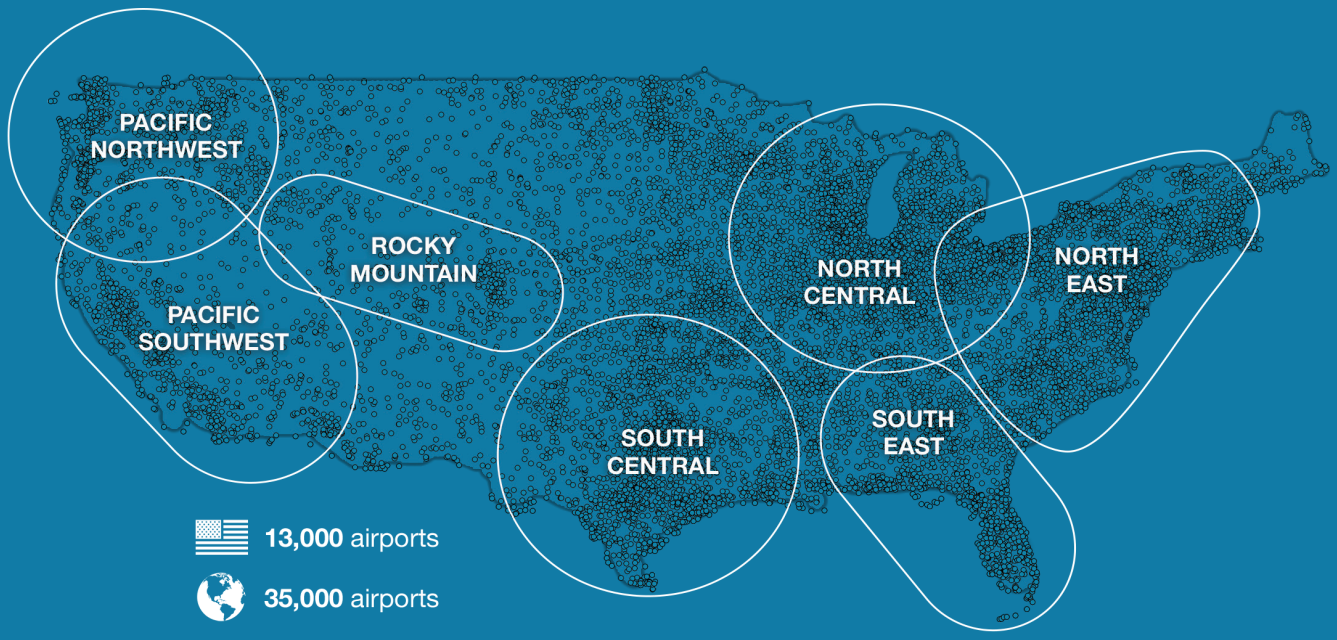
Our series hybrid powertrain was designed for an eventual transition to fully electric, without requiring any mechanical retrofitting. Designing with batteries at 12 to 20% of total weight, we've future-proofed our aircraft, enabling us to embrace future technologies and fly faster over time. Our batteries and range extenders are sized specifically for regional distances, with an optimized system that balances the depletion of batteries and use of range-extenders in-flight.

Airframe-integrated batteries

With the need to carry only a small quantity of fuel, we are able to achieve aerodynamic and structural optimization with a more efficient, simpler, lightweight, low cost design. This includes internal bays for modular battery packs that are designed for easy, quick removal. Our standardized airframe-integrated storage bays are battery technology independent and the fuselage is designed for the eventual transition to fully-electric operation. The bays include containment and temperature controls for fail-safe, extended life operation.

Democratizing access to high speed travel.

Be part of the revolution bringing the future of electric aviation to life.



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To find out more about partnering with us, contact us at **info@zunum.aero** or visit us online at **zunum.aero**.