

Zunum Aero's Hybrid Aircraft

We are in a golden era of aviation with the State of Washington at the cutting edge via a staggering breadth of innovation that tops a century of leadership.

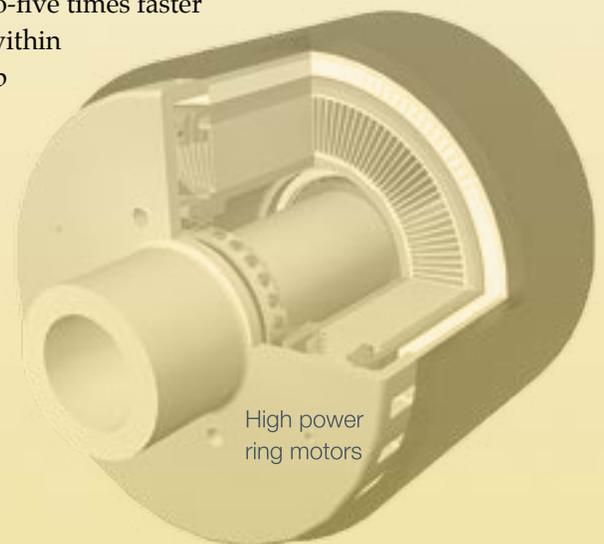
Reusable rockets, micro-satellites and affordable spaceflight are opening new horizons in space. At lower altitudes, vast new markets for global air travel are driving record order books for advanced airliners. Lower still, armies of drones, not content with transforming agriculture, surveying, security and imaging, are now plotting to deliver stuff to you right where and when you want it.

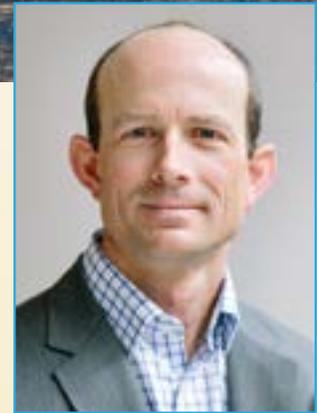
Yet, amid this innovation, vast intermediate altitudes of sky have emptied. Runways outside the hubs are much quieter, communities much less connected to the air system, and the time it takes to travel from Everett to Spokane hasn't improved in decades.

With support from our partners at Boeing HorizonX and JetBlue Technology Ventures, we at Zunum Aero are working to conquer this near horizon, bringing fast and affordable travel to every community. By so doing, we intend to establish aviation as the dominant mode for fast regional travel worldwide, and as a flexible, capital-light alternative to high-speed rail and highways.

Our mid-sized hybrid-to-electric aircraft, with cabins built for walk-on and walk-off service (no baggage belts, less TSA, like boarding a bus or a train), are tailored for mass transit to low service airfields. From 700 miles in the early 2020s, these quiet, green and comfortable flights will extend to 1,000 miles by 2030. Departures to communities across the Northwest will become as commonplace as flights to hubs from SeaTac Airport today, getting you there two-to-five times faster at a fraction of the fare. Many of the 64 NPIAS airports within our state will be lit up by point-to-point services and hub feeders, helping revitalize under-served communities, and multiplying in-state employment by carriers and airports.

While this may seem improbable given the air system of today, recognize that the current merely reflects the economics of the jet engine. Larger aircraft are much more efficient, as are flights over longer ranges, than smaller aircraft or shorter flights. This has powered the





70-year transition of aviation to large, long-haul airliners and high-volume hubs. In contrast, our smaller hybrid-to-electrics fly as efficiently as larger ones, and mid-sized hybrids flying regionally are competitive with the largest airliners over these distances. The unique economics of the hybrids will transform regional air travel, with aircraft of a wide range of sizes emerging to provide fast, frequent service to large numbers of communities.

We are over three years into development of our first aircraft powered by quiet range-optimized powertrain and propulsion technologies, targeted for the early 2020s. Our multidisciplinary team is comprised of leading technologists from across the aircraft, aircraft engine and electric vehicle disciplines. To enable an early start of testing and staged development, we are progressing prototypes of all innovative systems, including the hybrid-to-electric powertrain, the quiet electric propulsor, wing sections with integrated battery modules and a rugged composite-metal airframe. Our key milestones are a flying test bed for the full-scale powertrain and propulsor within two years, leading to a non-conforming test article in four years, and a FAR Part 23 certification soon afterwards.

Zunum Founder and Aero CTO **Matt Knapp** has been the lead designer of innovative aircraft for over 20 years. Matt has a BS and MS in aerospace from MIT and is a certified flight instructor.

We are proud to be in Washington, and at the heart of the global aerospace industry. Our deep engineering bench, the concentration of leading aviation suppliers, and the global leadership of our companies, makes this the ideal environment for ventures like ours (and do not get us started on Northwest living!). We also see tremendous benefit from our aerospace tax incentives, and from leadership of our state on climate change. Building on these, we believe Washington will help establish the US as a leader of this new era of fast, affordable and green regional air, and once again, transform the lives of billions around the world. 