

Ampaire Wins NASA Award for Innovative Hybrid Powerplant System Research

New AMP Drive AMP-H270 Configuration for Smaller Aircraft and Distributed Propulsion Can Serve Multiple Markets

Los Angeles (December 09, 2022) Ampaire, a leader in electric aviation, has won a \$150,000 Phase 1 award from NASA under its Small Business Innovative Research (SBIR) program. The award is for the High Efficiency Powertrain for Hybrid Aircraft (HEPHA) project.

The Phase 1 award will fund sizing, architecture and other analytical studies over six months as a prelude to a potential Phase 2 award that would fund the system's installation and testing on Ampaire's Cessna Skymaster testbed aircraft, the ARPA-E Bird. This aircraft has also been used for previous research by the Department of Energy's ARPA-E advanced programs unit. It will play a role in a \$9 million ARPA-E SCALEUP award announced November 22, 2022 to mature individual systems that will eventually be certified on Ampaire's nine-passenger, hybrid-electric Eco Caravan.

"These wins from NASA and the DOE recognize Ampaire's leadership in electrified aviation. They also recognize the near-term potential to field hybrid-electric aircraft that will revolutionize aviation by lowering emissions and the cost of travel," said Ampaire CEO Kevin Noertker. He cited a series of recent Ampaire accomplishments: the first flight of the world's largest hybrid-electric plane, the nine-passenger Eco Caravan on Nov. 18, 2022; a global MRO support agreement with Air France Industries KLM Engineering & Maintenance; and an order for 50 Eco Caravan aircraft from lessor/financier MONTE.

Under the new NASA SBIR program, the ARPA-E Bird would be equipped with a hybrid propulsion drivetrain in the nose and an electric drive system in the rear for a multi-mode hybrid system. Ultimately, the system could be certified for light aircraft or used as part of larger power systems on regional aircraft and even transport category single-aisle jets.

The new AMP Drive AMP-H270 powertrain is a 270 kW system that has about half the power output of the AMP-H570 system that powers the Eco Caravan. The new drive system combines an ultra-efficient DHK180A4 compression ignition engine from DeltaHawk Engines of Racine, WI with an integrated electrical drive designed by Ampaire. The DeltaHawk engine runs on Jet-A and compatible sustainable aviation





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fuels. The Ampaire solution for the testbed aircraft provides a 45 percent cruise efficiency gain over the conventional combustion engines it replaces and double the efficiency of comparable gas turbines.

The NASA SBIR program will aid Ampaire in continuing to develop intellectual property on new hybrid configurations. It also positions the company's AMP Drive technology to participate in future development programs, such as NASA's SUSAN program, the Subsonic Single Aft Engine Aircraft, and Ampaire's commercial transport class product roadmap. The proposed commercial transport size aircraft for the SUSAN program would rely on a combustion powerplant in the tail with distributed electric propulsion along the wings.

About Ampaire

Los Angeles-based Ampaire was formed in 2016 with a mission to become the world's most-trusted developer of practical, compelling electric aircraft. The company has developed a platform of technologies to upgrade passenger and cargo aircraft to hybrid-electric power—the quickest, most capital efficient approach to making commercial electric air travel a reality with available technology. Ampaire has scored a series of industry firsts since the 2019 maiden flight of its Electric EEL technology testbed aircraft, including the longest flight for a hybrid-electric aircraft—1,135 statute miles en-route from Los Angeles to Oshkosh, Wisconsin, and flying the world's first hybrid-electric 9+ passenger plane, Ampaire's Eco Caravan. For more information about Ampaire, <https://www.ampaire.com>.

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