Wright Electric hits 1 Megawatt of Shaft Power on the world's most advanced aviation electric motor, next plans for NASA altitude testing

PARIS, FRANCE, June 19, 2023 — Wright Electric, Inc., a world leader in advanced motor, generator, and inverter technologies, announced today at the Paris Air Show that the company has achieved 1 Megawatt (1,300 horsepower) with its revolutionary aerospace electric motor-generator. Wright also announced the company has signed a Space Act Agreement with NASA to conduct altitude testing at its NASA Electric Aircraft Testbed (NEAT).

The Wright propulsion system can be used as a motor or generator, enabling it to be configured as a turbogenerator or Auxiliary Power Unit for high altitude power in commercial or defense related applications. The Wright propulsion system can also be used in ground applications including heavy duty equipment and rail.

Jeff Engler, Founder and CEO of Wright Electric, explained, “Achieving 1 Megawatt, specifically 1 Megawatt of shaft power, is an important step in reaching Wright’s goal of making all single-aisle flights under 800 miles zero emissions. Commercial class airplanes need megawatt-sized propulsion systems for a full passenger load take off. We are excited to bring our motor to the NEAT facility at NASA, where it will be tested at up to 40,000 feet, and we are confident our motor is more than ready for that challenge.”

Wright has worked on development programs with NASA, the U.S. Department of Energy, the U.S. Army, and the U.S. Air Force in its motor and generator development efforts.

For more information, please visit: https://www.weflywright.com/

About Wright Electric
Wright Electric, Inc. (Wright) is a U.S.-based company working to decarbonize the industries that are hardest to decarbonize. Wright focuses on three main areas: (1) propulsion systems for electric aircraft, (2) lightweight generators for industrial and defense applications, and (3) specialized energy storage solutions for the aerospace and defense industries. The company was founded in 2016 by a team of aerospace engineers, powertrain experts, and battery chemists. Wright works with airlines such as easyJet, and has development contracts with NASA, the U.S. Army, the U.S. Air Force, and the U.S. Department of Energy ARPA-E. Wright has been funded through Y Combinator, the Clean Energy Trust, venture funds, and family offices.

About the NASA Electric Aircraft Testbed (NEAT)
The NASA Electric Aircraft Testbed (NEAT) is an aeronautics test facility at the forefront of sustainable aviation research and development. Located at NASA’s Neil A. Armstrong Test Facility in Sandusky, Ohio, NEAT provides end-to-end testing of megawatt
(MW)-scale electrified aircraft powertrains to demonstrate next-generation hybrid and turboelectric commercial aircraft capabilities.

Designed with a reconfigurable architecture, NEAT offers a safer and more cost-effective approach to maturing electrified aircraft propulsion (EAP) technologies while remaining on the ground.

The facility is built to accommodate single-aisle commercial airliners and provides a unique environment for industry, academia, and government to perform both individual and integrated tests of electrical powertrain systems and components under realistic flight conditions. See here for more information: https://www1.grc.nasa.gov/aeronautics/eap/facilities/neat/

Downloadable image: https://www.dropbox.com/s/pyno5xxz8tdzd1c/2023-06%20Wright%20Motor.jpeg?dl=0
Frequently Asked Questions:

When will you start tests with NASA’s NEAT platform?
Later in 2023 or early 2024

What is the purpose of altitude testing?
One issue that affects electric motors is high altitude operations due in part to the thinner air density at high altitude, which can cause short circuiting and electromagnetic interference. Wright's propulsion system is specifically designed to operate at 40,000 ft, so the future aircraft can mimic the operations of a typical airplane. Testing in NASA’s altitude chamber lets us verify the performance of Wright's propulsion system in a controlled environment before testing at 40,000 ft on a plane. NASA's NEAT facility is special because it's one of the few altitude chambers in the world that's outfitted for megawatt-class electric propulsion systems. The NEAT facility is a major benefit to the electric aircraft industry because it allows shared testing which reduces costs on any individual company. NASA started building it many years ago, reflecting their future thinking for what would be needed in the industry.
What progress have you made with your plans to convert BAe 146 regional jets to electric propulsion?
We are modeling and testing the Wright electric propulsion system with the nacelle/fan of the BAe 146 engine concurrently with our laboratory testing of the electric propulsion system. We expect to have further updates on this later this year.

What other applications are there for this propulsion system?
The propulsion system can be used as a motor or generator, enabling it to be configured as a turbogenerator or Auxiliary Power Unit for high altitude power in commercial or defense related applications. Wright has also fielded interest from ground applications including heavy duty equipment and rail.

What is in-slot cooling and how does it differ to what is normally done in motors? And can I confirm it is oil cooling?
In-slot cooling places the coolant adjacent to the conductors, enabling higher current loading and greater specific power. We are using oil cooling, MIL PRF 23699, commonly used in turbine engines.

How does this motor relate to the ARPA-E ASCEND program?
The motor under test was developed under a NASA program. The ASCEND motor is an advanced version of this motor, using technologies that we are proving-out in lab on this first version. Also, the electric propulsion unit (EPU) being developed in ASCEND is now 2 MW, not 500 kW, supporting development of fan testing at cruise load for the Wright Spirit. The target is 16 kW/kg for the EPU for the ASCEND program.