



BEYOND AERO REACHES FULL-SCALE POWER WITH ITS TRL6 HYDROGEN-ELECTRIC PROPULSION SYSTEM

News / Manufacturer



Beyond Aero is reaching Technology Readiness Level 6 for its hydrogen-electric powered aircraft. This achievement is validated by a full-scale propulsion system test campaign in a representative environment, a critical milestone moving Beyond Aero from laboratory promise to real-industrial viability. The TRL6 demonstration took place at Beyond Aero's new integrated hydrogen-electric powertrain lab in Toulouse, France.

Backed by \$50M total funding, Beyond Aero's new integrated hydrogen-electric powertrain lab is now among the world's top three most powerful facilities of its kind. The lab replicates three representative channels with different fuel cell providers, with a capacity reaching 1200 kW across channels. The lab also entails on-site capability to compress, fill, store, and use hydrogen gas at 700 bar with Type IV tanks, ensuring industrial-grade safety and scalability. As well as flight-representative test benches for validation of system performance and certification-ready data gathering.

In addition, Beyond Aero's acquired Universal Hydrogen's intellectual property, flight data and assets. The company secured 100% of Universal Hydrogen's patent portfolio, flight test and digital data, strategic test bench components (including electric turbocompressors), and key talent, representing over \$90 million of prior investment. This acquisition provides Beyond Aero with

proven designs and data that accelerate certification and de-risk integration. This strategic acquisition reinforced the in-flight environment knowledge of the company, completing TRL6.

Industrial validation with world-class partners and IP momentum

The propulsion system was validated in collaboration with leading aerospace suppliers. Key partners include EKPO Fuel Cell Technologies, whose NM20 platform provides the energy-conversion heart of the aircraft; FEV Aerospace, co-engineering the fuel cell system for stringent airworthiness and certification-ready performance; BrightLoop Converters, a specialist in high-performance aerospace DC-DC converters; and AVL, supplying full-system test center infrastructure to enable representative TRL6 campaigns and Dassault Systèmes for the virtual twins, aircraft, and powertrain.

In addition, this milestone was achieved in the respect of the certification compliance since Beyond was supported by Airbus Protect, which brings unmatched authority in safety analysis and certification services (including conducting Functional Hazard Assessments (FHA) and building safety cases for both aircraft and powertrain functions).

EASA signs on to Beyond Aero's certification journey for the BYA-1 hydrogen-electric business jet

Beyond Aero is engaged with EASA through Pre-Application Services. This proactive relationship de-risks certification by aligning test evidence and safety artifacts with CS-23-relevant paths for hydrogen-electric propulsion. Early authority dialogue is typical of novel propulsion programs and critical to establishing a certification basis. EASA's engagement ensures Beyond Aero is not developing in isolation but building toward a recognized regulatory framework.

Eloa Guillotin, CEO of Beyond Aero commented: "We've now reached TRL6, our hydrogen-electric propulsion works at full scale, with ground and in-flight data conditions. That's 18 months of relentless teamwork, powered by an environment where ambition is matched by rigor and where every achievement is the result of collective determination. Leading such a talented, diverse, and purpose-driven team is both an honor and a responsibility."

Dr. Stefan Dwenger, CCO of EKPO Fuel Cell Technologies GmbH stated: "As EKPO we're driving hydrogen solutions for a sustainable future. Our NM20 stack module, the most powerful in the EKPO stack family with 400 kW, is our next step toward CO2-neutral mobility. We are delighted that the increased efficiency of the NM20 stack from 48% to 57% at the rated power point has made a successful contribution, enabling Beyond Aero to achieve Technology Readiness Level 6 (TRL6) with its hydrogen-electric aircraft."

Gianluca Mele, Program Manager, EASA said: "With this pre-application contract, EASA establishes an early and structured engagement with Beyond Aero on hydrogen propulsion technology. Our objective is to provide clarity on the applicable regulatory framework, address novel safety considerations, and ensure that certification activities progress in a consistent, structured and transparent manner. This proactive approach reflects EASA's commitment to supporting innovation while maintaining the highest levels of safety and environmental protection in aviation."

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