

HYDROGEN TAKES OFF – SUSTAINABLY INTO THE FUTURE



Powerful, scalable hydrogen drives are crucial for emission-free aviation. The H2-FINITY research project developed this technology for UAVs and studied their potential application for small aircraft. A milestone was reached with the successful maiden flight of a hydrogen-powered UAV. The follow-up project HYDRO-BUNNY takes these achievements even further and enables autonomous, sustainable hydrogen refueling for unmanned aerial vehicles - an important step towards climate-neutral aviation.

Maiden flight in H2-FINITY: a milestone H2-FINITY, in which TECCON, mb+Partner, ZAL and Thelsys were involved, made significant progress with the first successful flight of their hydrogen-powered

drone on November 8, 2024. The UAV, for which a hydrogen powertrain was developed, proved the basic functionality of its fuel cell propulsion system. The successful demonstration shows the potential of hydrogen as a primary energy carrier for UAV and paves the way for wider applications of hydrogen-powered UAVs and small aircraft.

HYDRO-BUNNY: the next level

Building on the success of H2-FINITY, project HYDRO-BUNNY is advancing hydrogen technology for UAVs. HYDRO-BUNNY is being carried out jointly by TECCON, mb+Partner, ZAL and the IFPT at Hamburg University of Technology (TUHH). The project is developing an autonomous refueling system that supplies UAVs with hydrogen and requires

no human intervention. The combination of a self-sufficient energy supply and an innovative refueling process ensures continuous operational readiness even in remote areas, significantly improving flight duration, efficiency and economic viability. In addition to gaseous hydrogen, the use of liquid hydrogen is also being investigated in order to further increase the energy density and enable even longer flight times.

Practical applications

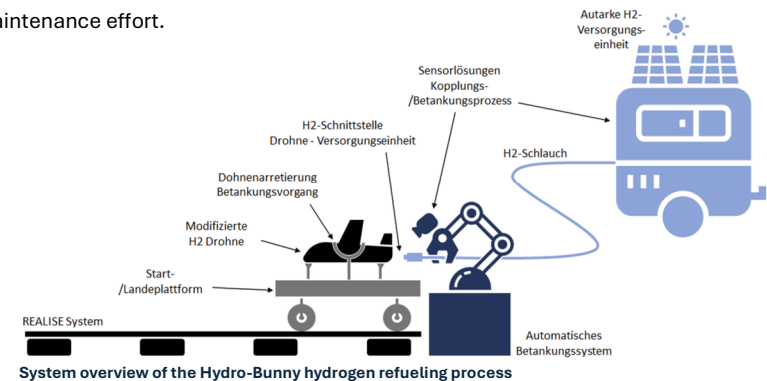
HYDRO-BUNNY opens up new possibilities for the use of UAVs in critical and demanding missions. For example, drones could control large hilly areas of forest thanks to self-sufficient energy supply and autonomous hydrogen refueling. The integration of liquid hydrogen technology significantly increases the range and enables long-duration missions with minimal maintenance effort.



Mid-term milestone meeting at ZAL on April 10, 2024



First flight at Rotenburg airfield on November 8, 2024



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