CASE STUDY

# AEROBREW – SCALABLE AND SUSTAINABLE FUEL FOR AVIATION

### *Problem – Challenge*

*Aviation contributes over 2 percent of global $CO_2$ emissions, posing a significant challenge for decarbonization. With rising demand for air travel, $CO_2$-free propulsion systems (such as batteries or hydrogen) can only cover a fraction of the energy needs. There is a massive need for sustainable aviation fuel (SAF). Innovative solutions are required that reduce emissions without needing fundamental changes to existing infrastructure. The aviation industry needs scalable and efficient fuel solutions to achieve substantial emissions reductions. Current technologies for SAF are not yet scalable or economically viable on a global scale.*

### *Solution*

*The Paul Scherrer Institute (PSI) and climate start-up Metafuels are jointly developing the aerobrew technology, which enables the seamless transition from fossil kerosene to sustainable aviation fuel through a patented process that converts green methanol into SAF. The technology allows production of bio-SAF as well as eSAF depending upon whether bio-methanol or e-methanol is used as feedstock.*

*For the e-route, green methanol is produced from green hydrogen ($H_2$) and sustainably sourced $CO_2$.*

*Green hydrogen is generated via water electrolysis using renewable electricity, while $CO_2$ is sourced from biogenic sources or waste biomass (such as wood or plant waste) or directly from the air in the long term.*

*A key advantage of aerobrew is that when blended with conventional jet fuel, the resulting SAF can be used in conventional engines without modifying existing aircraft fleets or refueling infrastructure, simplifying the transition to climate-friendly aviation. aerobrew Demonstration plant, operational in 2025 at PSI, will demonstrate the industrial-scale conversion of methanol to SAF and lay the groundwork for commercial deployment.*

*Supported by a 4.4 million Swiss Franc grant from the Swiss Federal Office of Energy's (BFE) Pilot & Demonstration program, the project will unlock scale-up of the technology for global commercial use, marking a major step in decarbonizing aviation.*

*For the legal framing of this collaboration, PSI's TTO has supported for more than 50 agreements to date.*

*Climate-friendly aviation made possible by eSAF from green methanol.*

*Looking into the future of flight: Sustainable fuels like eSAF make climate-friendly mobility possible without losing the fascination of air travel.*