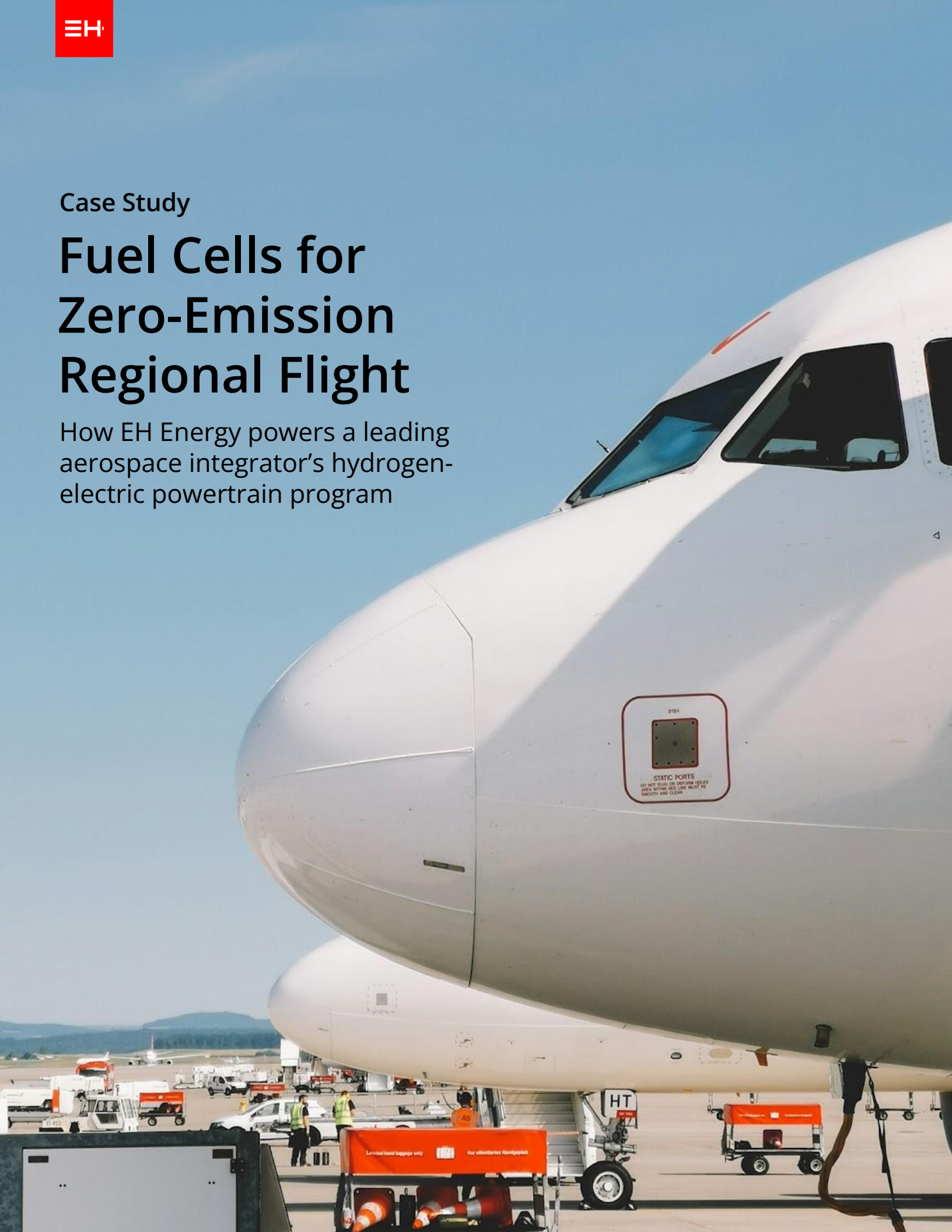
Case Study

Fuel Cells for Zero-Emission Regional Flight

How EH Energy powers a leading aerospace integrator’s hydrogen-electric powertrain program



Overview

EH Energy is the fuel cell partner behind a leading aerospace integrator's program to bring a liquid-hydrogen, fuel-cell-electric powertrain to regional aviation. Targeting a retrofit of regional aircraft, the program is part of a government-backed national aviation initiative. EH Energy is developing and supplying the fuel cell systems at its core.

PROGRAM SNAPSHOT	
Client	A leading aerospace propulsion integrator
Program	A liquid-hydrogen fuel-cell aircraft powertrain and storage system
Aircraft	Retrofit of regional aircraft
EH Energy Role	Development and supply of the fuel cell systems, as a program cooperation partner
Context	Part of a government-backed national aviation program
Status	Active multi-year collaboration; first flight targeted for 2028

The Client

The client is a leading aerospace business specializing in hydrogen and hybrid-electric propulsion and storage systems, founded by veterans of the aviation industry. It leads the government-backed program - developing a complete liquid-hydrogen fuel-cell powertrain for retrofit into regional aircraft - as program manager. The program is supported by a government-backed national growth fund and brings together a consortium of specialist partners - with EH Energy providing the fuel cell technology at the heart of the powertrain.

The Challenge

Bringing a hydrogen fuel-cell powertrain to a regional aircraft is one of the most demanding challenges in clean aviation:

Megawatt-class power from fuel cells.

Regional propulsion needs far more power than any conventional fuel cell system delivers - and it has to come at aviation-grade weight and volume.

Liquid-hydrogen operation.

The powertrain is built around cryogenic liquid-hydrogen storage and distribution, feeding the fuel cells in flight.

The full flight envelope.

Fuel cells must perform reliably across the whole mission - from ground and takeoff through climb and cruise.

Certification and retrofit.

The system must meet aerospace certification requirements and integrate cleanly into an existing airframe.

A funded, milestone-driven timeline.

The program is a government-backed effort working toward a first flight in 2028. There is a high bar for selection, certification and approval.

The Partnership

Within the program consortium, EH Energy contributes the fuel cell technology that the company integrates into the complete hydrogen-electric powertrain.

Fuel cells for the powertrain

EH Energy develops and supplies the fuel cell systems for the program, based on its low-temperature PEM (LT-PEM) fuel cell technology. As a cooperation partner, EH Energy is responsible for the design, development and delivery of the fuel cell stacks and systems that the company integrates into the complete hydrogen-electric powertrain.

Built for integration and certification

Working under the company's program management, EH Energy delivers its fuel cell technology together with the technical documentation needed for integration, certification and continued airworthiness - contributing across the program's milestone phases toward a flight-ready system in 2028.

A multi-year program

The collaboration is a multi-year effort, running through the program's development and test phases toward a targeted first flight in 2028, backed by a national growth fund.

Why EH Energy?

Selection as the fuel cell partner for a certified, government-funded aviation program reflects a demanding evaluation of stack capability. Several factors set EH Energy apart:

Class-leading power density.

A patented flat-plate PEM cell microstructure enables the industry's highest power density in a single-stack architecture - the core requirement for flight.

Aviation-grade LT-PEM.

Proven low-temperature PEM fuel cell technology suited to the demands of the flight envelope.

System-level simplicity.

A single stack with a single balance of plant means fewer components and cleaner integration into the powertrain.

Aerospace track record.

EH Energy fuel cells have been deployed in aerospace ground-test and demonstration programs.

Certified, scalable manufacturing.

ISO 9001:2015 certified operations and a proprietary automated production line, built to scale toward gigawatt-level output.

Partner with EH Energy

EH Energy works with aerospace integrators, OEMs and certification authorities to bring hydrogen fuel cell propulsion into flight. If you are developing a hydrogen aircraft program and need a proven fuel cell technology partner, we welcome the conversation.

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