

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.

Contact Us

