

A woman with dark hair is seen in profile, looking out of an airplane window. The window shows a bright sunset or sunrise with a gradient of orange, yellow, and blue. The woman's face is partially in shadow, and her hand is resting near her chin.

Revolutionizing the Skies KLM's Journey to Zero Emission Aviation

EFC Partner event
8th May 2025

KLM's efforts towards more sustainable aviation...



Alternative Aviation
Fuel (SAF)



Fleet renewal



Operational
Measures



Waste & circularity



Multi Modality

ZEA PROGRAM



Innovation
(battery-electric and
hydrogen flying)

... supporting two tech streams for a better future



Battery-electric



Hydrogen

• We took off on a robust exploration process




Join in to understand

Joint ecosystem approach
with AF and HV 

OEMs Individual meet-ups

Advisory Boards
  

MRO partnerships 


Knowledge institutes
  

Explore

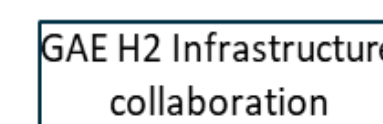
Initiatives with industry partners:

- EFC Tour
- Demonstrator with ZeroAvia



Materialise

Join collaboration platforms to lobby in value chain



De Duurzame
Luchtvaart tafel

ZEA Knowledge Center: organize interaction between industry and KLM experts

Technology as part of a system change

New technologies



Battery



- Full Electric
- Hybrid Electric



- Weight > x 50
- Energy density
- Thermal runaway



Hydrogen

- Fuel Cell
- Combustion

- Volume > x 4
- High pressure
- Cryogenic (-253 C)
- Flammable

Challenges

- Safety
- Renewable energy
- Infrastructure
- Aircraft design & certification
- Regulations
- Payload-Range
- Investments
- Supply chain
- Use of airspace
- Passenger acceptance

Value Chain

Mission

**To make Zero
Emission
Aviation a
reality**



 **AeroDelft**

Building knowledge & relationships.

Learning with partners in the value chain.



Learn to walk before you run.

But aim high: ZeroAvia x KLM LH2 Demonstrator.



Safety, Regulations & Compliance

Procurement & Transport

Refueling Operations

Airport Selection

Flight & Ground Operations

Commercial Scale-up



**You can't go big
if you don't start small.**