CLEAN AVIATION

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Clean Aviation delivering disruptive technologies: the need for speed

Session 2: Aircraft Technology – Part 3: Policies & Partnerships

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Clean Aviation Strategic Research Innovation Agenda

Clean Aviation's aircraft concepts

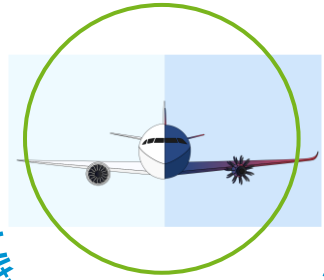
Ultra-efficient **Regional** aircraft

-30% CO_2*

-86% CO_2* incl. **SAF**

Hydrogen powered aircraft

-100% CO_2*



Ultra-efficient **Short and Medium Range** aircraft

-30% CO_2*

-86% CO_2* incl. **SAF**

* non-CO_2 effects not yet quantified

Entry-Into-Service in 2035

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IMPLEMENTATION TIMELINE

EU Funding: **€1.7B**
Private Funding: **> €2.4B**

Phase 1:
Develop concepts, technology options and trade studies

Phase 2: Accelerate **technology maturation through integrated demonstration**

2022
Call 1

2023
Call 2
Call for Expression of Interest

2024
Configuration Of Phase 2
Strategic Vision/SRIA Sept

2025
Call 3 March

2026
Call 4

2027
Call 5

2028 - 2030
TRL 6

End of Phase 2

2035
Entry Into Service

EUfunding
930M

Clean Sky 2 Projects
2014 – **2024**
Clean Sky 2

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Hydrogen aircraft: main tech challenges ahead

Timeframe 2035

H2ELIOS

FLHYING TANK

LH_2 tanks: 2x higher energy density (12 kWh/kg or gravimetric index of 35%)

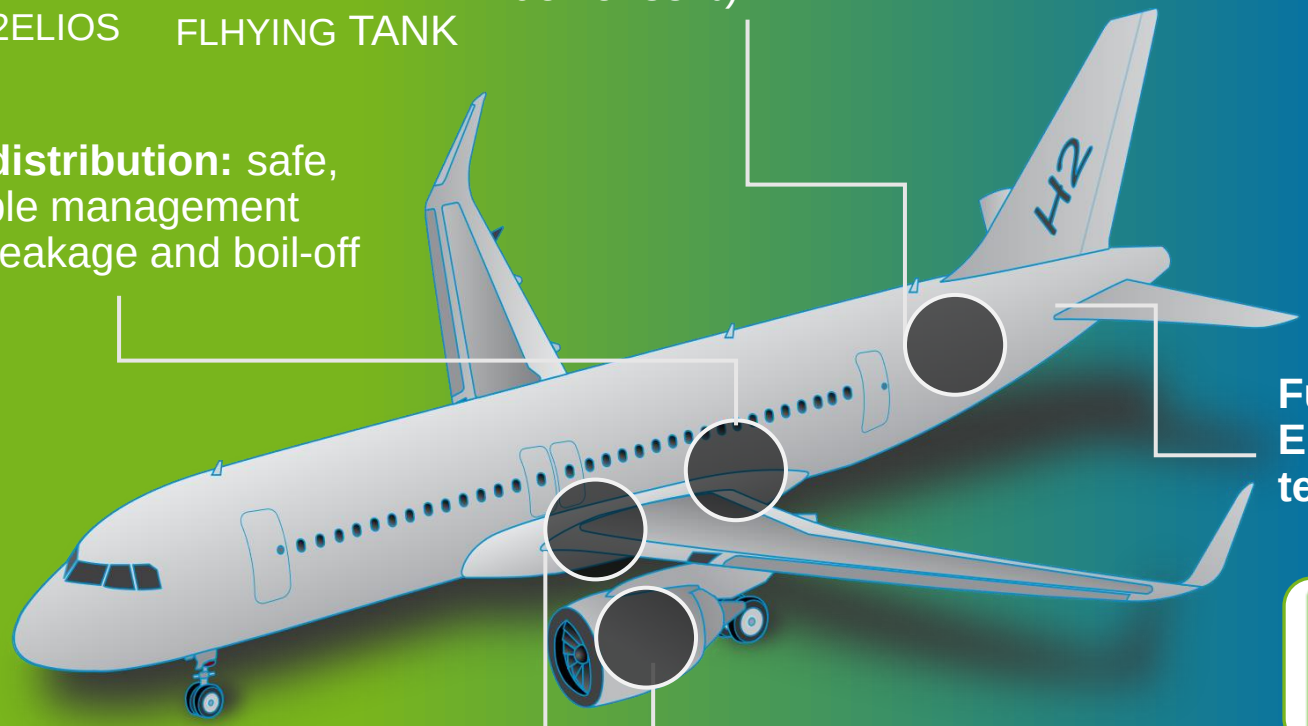
H2

-15% Energy Eff

TRL2 by 2024
TRL3 by 2026
TRL5/6 by 2030

EASA

LH_2 distribution: safe, reliable management incl. leakage and boil-off



Fuselage & Empennage technologies

FASTER H2

Fuel cell system: 2-3x higher power density (2kW/kg), high life-time

H_2 turbines: high efficiency and low NOx emissions

THEMA4HERA NEWBORN FAME HEROPS HYPOTRADE CAVENDISH HYDEA

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INTEGRATION, CERTIFICATION & DIGITALIZATION

EASA | concerto | HERA | ODE4HERA

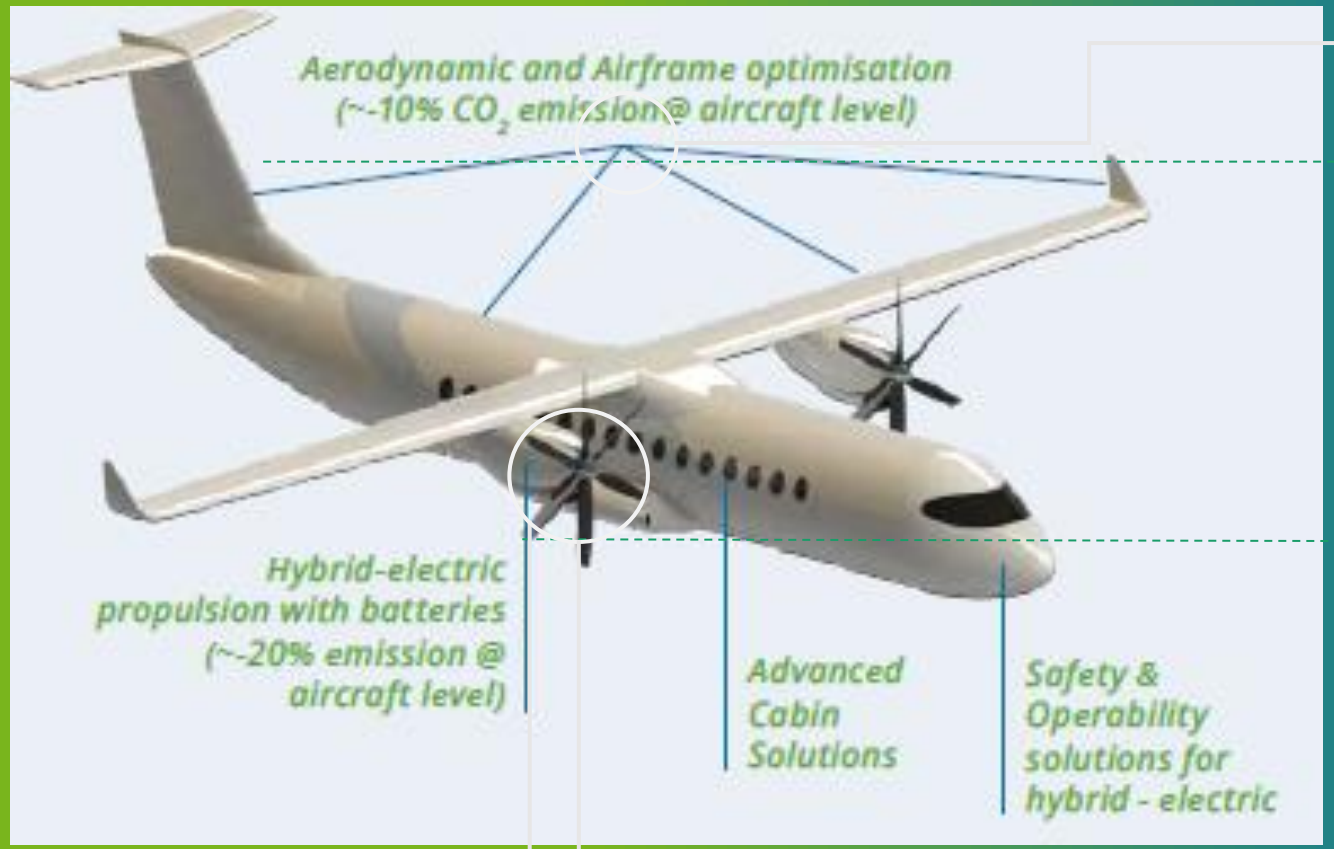
SAF

-30% Energy eff

TRL3 by 2024
TRL4 by 2026
TRL6 by 2030

Regional Aircraft: main tech challenges ahead

Timeframe 2035



WING

HERWINGT

FUSELAGE

HERFUSE

Multi-MW Hybrid Electric Power Systems

HE-ART

AMBER

Electrical Distribution & Thermal management

THEMA4HERA

HECATE

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INTEGRATION, CERTIFICATION & DIGITALIZATION

EASA

concerto

SMR ACAP

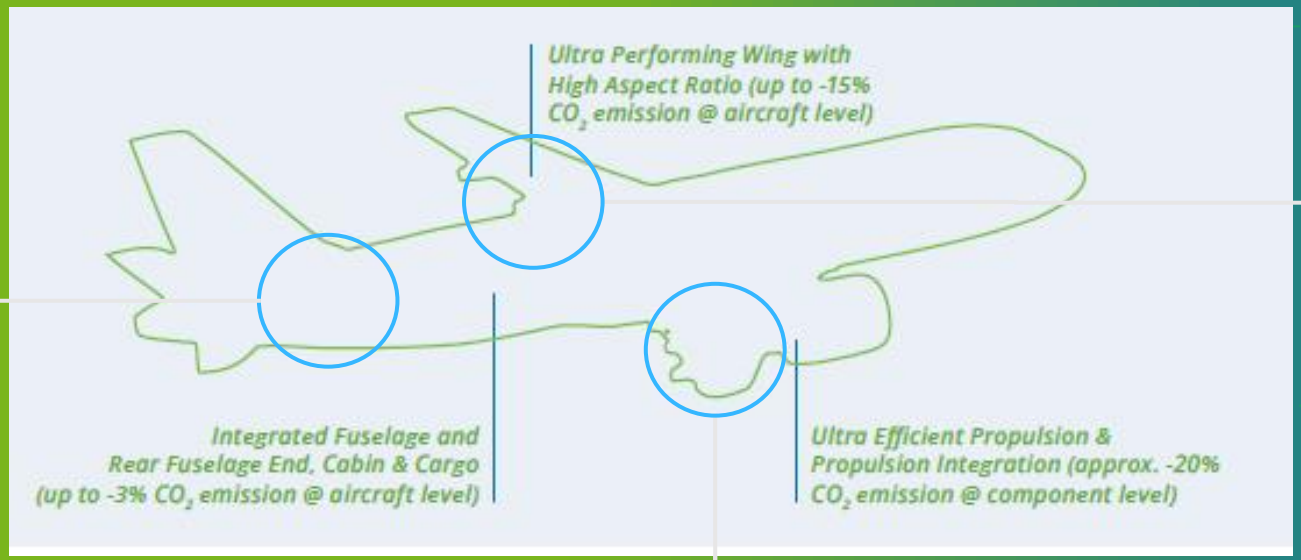
SAF

-30% Energy eff

TRL3 by 2024
TRL4 by 2026
TRL6 by 2030

SMR Aircraft: main tech challenges ahead

Timeframe 2035



WING

UPWING

AWATAR

Fuselage Technologies

MFFD

Propulsion concepts

HEAVEN

OFELIA

SWITCH

Electrical Distribution & Thermal management

THEMA4HERA

HECATE

SMR ACAP

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Thank You