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Strategic Cooperation for Net-Zero Aviation between Campania Region & Clean Aviation JU

5 December 2024 | Naples, IT

Dr. Daniele VIOLATO
Head of Synergies

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Aviation: Huge economic impact

13.5 million Jobs in Europe

Source : ATAG

Massive social & economic value to Europe

4.4% of the European GDP

Sector generates substantial economic benefits

Highly **innovative** sector

High level of technical & engineering skills

Long life cycle

Aviation is key for Europe's competitiveness, industrial leadership & technological sovereignty

Investing in aviation is investing in the long term

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Clean Aviation is a European private-public partnership

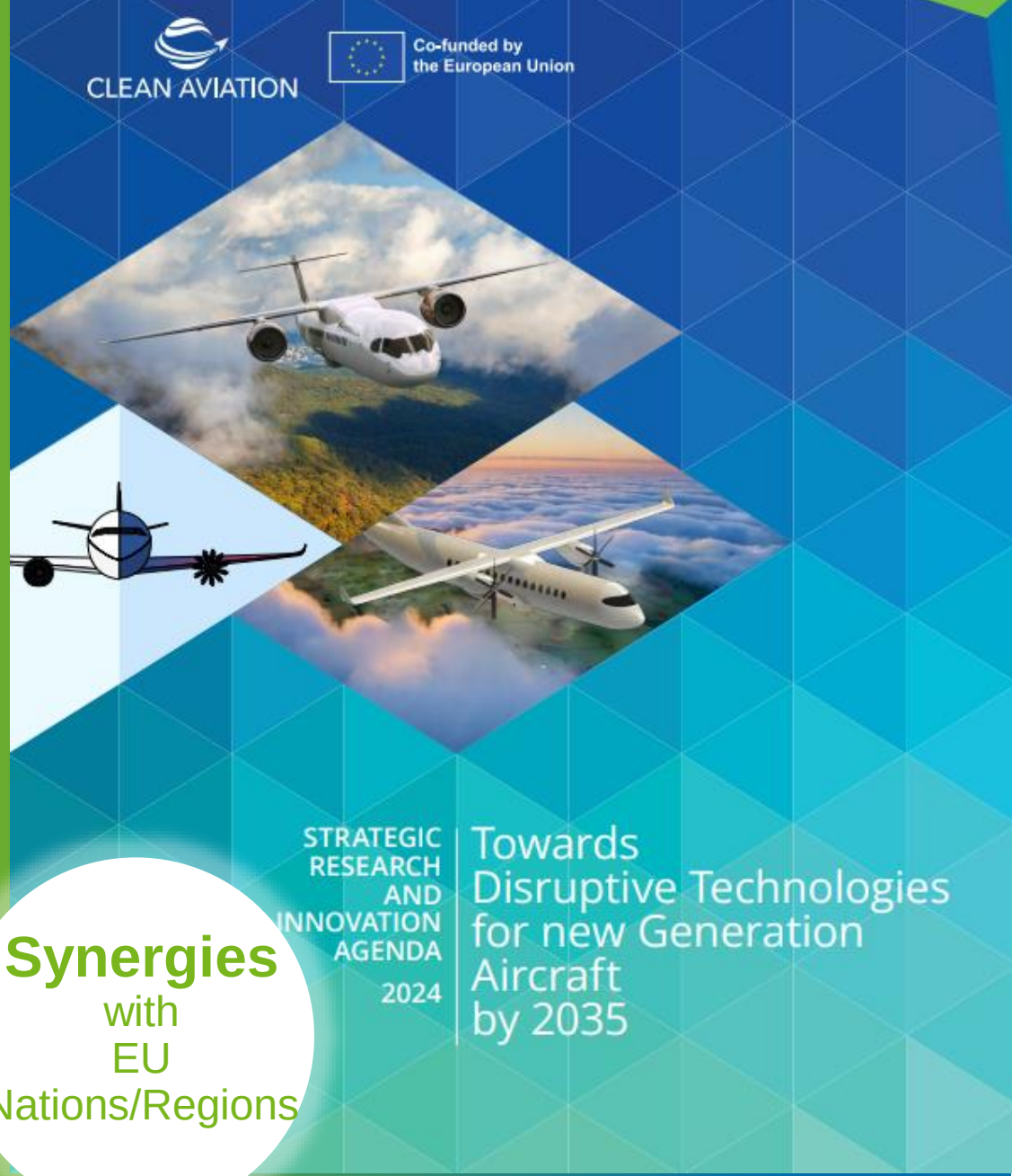
European aviation is committed to climate neutrality

-30%
GhG reduction
PLUS
SAF
H2

Aircraft Entry into Service
2035

75%
Fleet replacement by 2050

Synergies with EU Nations/Regions



Founding Members of Clean Aviation

The EU represented by the European Commission

1. Aciturri Aeronáutica
2. Aernnova Aerospace
3. Airbus
4. **Centro Italiano Ricerche Aerospaziali (CIRA)**
5. Dassault Aviation
6. DLR
7. Fokker Technologies Holding BV
8. Fraunhofer-Gesellschaft
9. **GE Avio S.r.l.**
10. GKN Aerospace
11. Honeywell International
12. Industria de Turbo Propulsores
13. **Leonardo SpA**
14. Liebherr-Aerospace & Transportation
15. Lufthansa Technik AG
16. Łukasiewicz Research Network – Institute of Aviation
17. MTU Aero Engines
18. National Institute for Aerospace Research (INCAS)
19. ONERA
20. **Piaggio Aero Industries**
21. Pipistrel Vertical Solutions d.o.o.
22. Raytheon - Collins
23. Rolls-Royce Deutschland Ltd & Co KG1
24. Safran
25. NLR
26. Thales AVS France SAS
27. University of Patras

+ 32 Associated Members, incl.

Aeromechs
Politecnico di Torino

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Phase 1 projects

Ultra-efficient Regional Aircraft

Combining Innovative Airframe, Novel Systems & HE power train

HE-ART
2.150-2.850 MW Multi Hybrid Electric propulsion system for regional AiRcrafT
ROLLS-ROYCE (*)

AMBER
2250 MW Multi Power train InnovAtive DeMonstrator for hyBrid-Electric Regional Application
GE AVIO (*)

TheMa4HERA
Thermal Management Solutions for the Hybrid Electric Regional Aircraft
HONEYWELL (*)

HECATE
Hybrid ElectriC regional Aircraft distribution Technologies
COLLINS (*)

HERWINGT
Hybrid Electric Regional Wing Integration Novel Green Technologies
AIRBUS (*)

HERFUSE
Hybrid-Electric Regional FUSelage & Empennages
LEONARDO (*)

ODE4HERA
Open Digital Environment for Hybrid-Electric Regional Architectures
DLR (DEUTSCHES ZENTRUM FUR LUFT – UND RAUMFAHRT)

Ultra-efficient Short Medium Range

Combined powerplant & Airframe efficiency

HEAVEN
Ultrafan – Hydrogen & hybrid gas turbine design
ROLLS-ROYCE (*)

SWITCH
Sustainable Water-Enhanced-Turbofan (WET) Comprising Hybrid-electrics
MTU AERO (*)

OFELIA
Open fan engine demonstrator incl. gas turbine design hybridisation for Environmental Low Impact of Aviation
SAFRAN (*)

UP WING
Ultra Performance Wing
AIRBUS (*)

FASTER-H2
Fuselage H2 integration & Ultra efficient empennage
AIRBUS (*)

COMPANION
Common Platform and Advanced INstrumentation Readiness for ultra efficient propulsion demonstration
AIRBUS (*)

AWATAR
Advanced Wing MATuration And integration
ONERA (OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES)

Hydrogen Powered

Novel concepts with H2 direct burn & fuel cell based propulsion

CAVENDISH
Hydrogen and dual fuel combustion technologies
ROLLS-ROYCE (*)

HYDEA
Hydrogen engine integration in flying platform
GE AVIO (*)

NEWBORN
NExt generation high poWer fuel cells for airBORNe applications
HONEYWELL (*)

H2ELIOS
HydrogEn Lightweight & Innovative tank for zerO-emisSion aircraft
ACITURRI (*)

FLHYing Tank
Liquid hydrogen load bearing tank for commuter
PIPISTREL (*)

HYPoTrade
Hydrogen Fuel Cell Electric Power Train Demonstration
PIPISTREL (*)

TROPHY
Technological Research On Propulsion by HYdrogen
SAFRAN

FAME
Fuel cell propulsion system for Aircraft Megawatt Engines
AIRBUS (*)

HEROPS
Hydrogen-Electric ZeRo Emission Propulsion System
MTU AERO ENGINES AG

Support Action

CLAIM
Clean Aviation Support for Impact Monitoring
DLR (DEUTSCHES ZENTRUM FUR LUFT – UND RAUMFAHRT)

Transversal Projects

CONCERTO
Construction Of Novel CERTification methOds and means of compliance for disruptive technologies
DASSAULT (*)

HERA
Hybrid-Electric Regional Aircraft Architecture and technology integration
LEONARDO (*)

SMR ACAP
SMR Aircraft architecture and technology integration Project
AIRBUS (*)

ECARE
European Clean Aviation Regional Ecosystem/synergies with regions

(*) Consortium Leader

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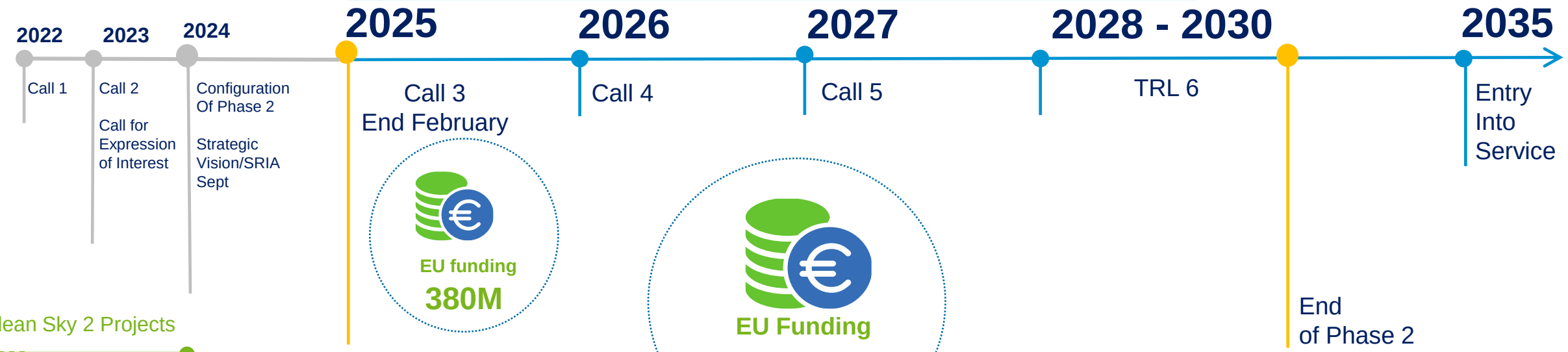
Clean Aviation implementation

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**



Clean Sky 2 Projects

201 – 024

Clean Sky 2

Clean Aviation synergies with Regions for Net-Zero Aviation

OBJECTIVE: to foster a globally competitive and sustainable European aviation sector

Expected impact:

- Increased **exploitation** opportunities & **internationalization** for "local" supply chain (incl. SMEs, start-ups)
  - "local" supply chain **increasingly connected** to EU-leading aviation industry
- Additional **capabilities and resources** for sustainable aviation
- Development of new **skills** in loco
- Support **job** creation & European competitiveness

Strong support by

- Clean Aviation members
- EU Commission DG R&I

Paris Airshow June 2023 - Memorandum of Cooperation signature

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Clean Aviation synergies with Regions for Net-Zero Aviation

Key elements for impactful cooperation with Regions

- **Strong strategic/technical alignment**
  - Smart Specialization Strategy & Clean Aviation SRIA
  - Joint technical roadmap
- **Regions's commitment to align ambitious investments**
  - Regional Funding (e.g. Cohesion Funds/ERDF)
- **Memorandum of Cooperation (MoC)**
- **Connect to the largest number of Aeronautic Regions**
- **Clean Aviation's Calls requesting synergies**

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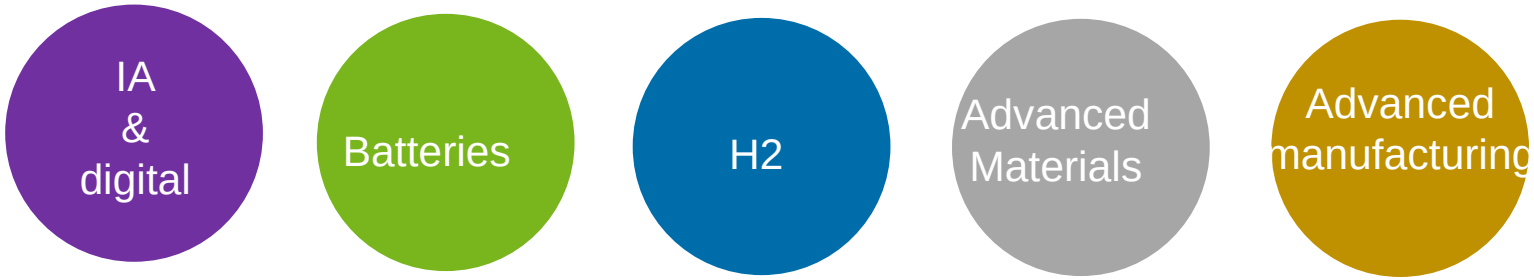
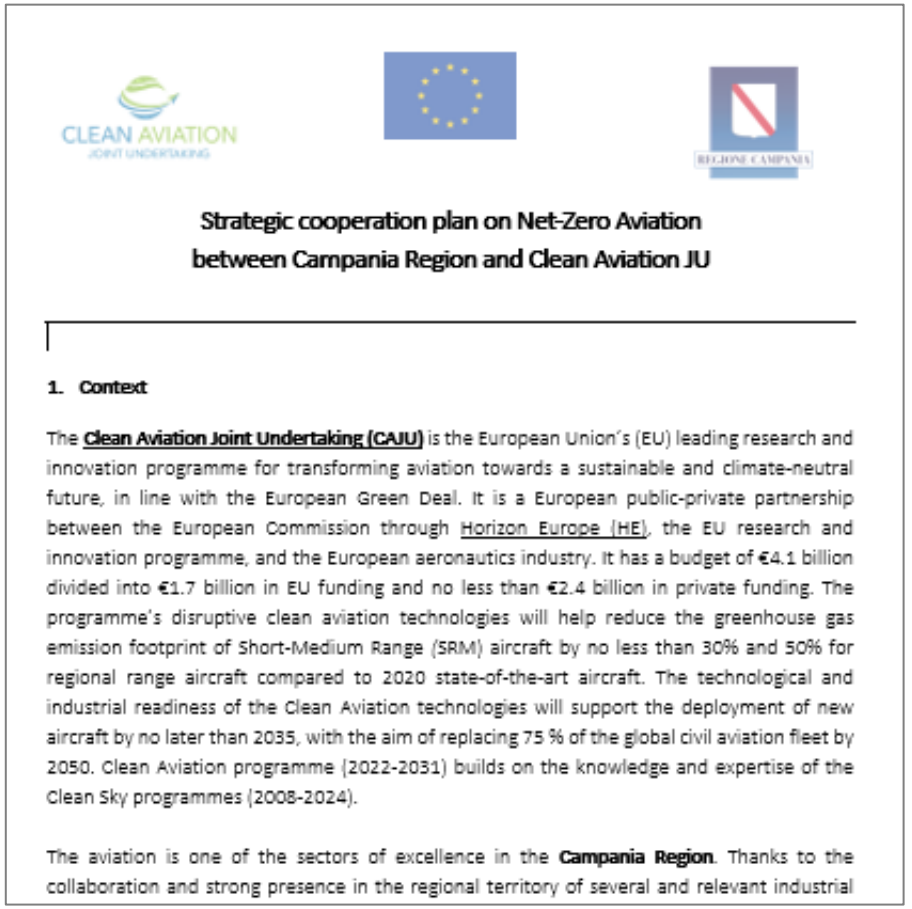
Joint technical roadmap between Campania Region & Clean Aviation JU

- **Developed by Campania Region and Clean Aviation JU**
  - Key technical inputs by **Leonardo**, **CIRA** and **DAC**
- **Annexed to Campania call "Aerospazio 2025"**
- **Defines technical areas of interventions**

- **Contributions enabling technologies, e.g.:**





Strategic cooperation plan on Net-Zero Aviation
between Campania Region and Clean Aviation JU

1. Context

The **Clean Aviation Joint Undertaking (CAJU)** is the European Union's (EU) leading research and innovation programme for transforming aviation towards a sustainable and climate-neutral future, in line with the European Green Deal. It is a European public-private partnership between the European Commission through Horizon Europe (HE), the EU research and innovation programme, and the European aeronautics industry. It has a budget of €4.1 billion divided into €1.7 billion in EU funding and no less than €2.4 billion in private funding. The programme's disruptive clean aviation technologies will help reduce the greenhouse gas emission footprint of Short-Medium Range (SRM) aircraft by no less than 30% and 50% for regional range aircraft compared to 2020 state-of-the-art aircraft. The technological and industrial readiness of the Clean Aviation technologies will support the deployment of new aircraft by no later than 2035, with the aim of replacing 75 % of the global civil aviation fleet by 2050. Clean Aviation programme (2022-2031) builds on the knowledge and expertise of the Clean Sky programmes (2008-2024).

The aviation is one of the sectors of excellence in the **Campania Region**. Thanks to the collaboration and strong presence in the regional territory of several and relevant industrial

3rd CALL FOR PROPOSALS

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Clean Aviation's Call 3 topics – funding opportunities

REGIONAL (REG)

- Demonstration of a Hybrid-Electric Propulsion System for Regional aircraft, including Pylon and Nacelle Integration and modification
- Demonstration of On-board Systems relevant for hybridisation of Regional aircraft
- Flight Test Demonstration of Hybrid-Electric Propulsion for Regional aircraft

€ 145 M

SMALL-MEDIUM RANGE (SMR)

- Ground Test Demonstration and Preparation of Flight Test of an Ultra High Bypass Ratio Ducted Geared Turbofan Engine for SMR Aircraft
- Flight Test Demonstration of an Unducted Engine Architecture for SMR Aircraft
- Ground Test Demonstration up to TRL5 of On-Board NPE Systems Architecture for SMR Aircraft

€ 205 M

FAST TRACK AREAS (FTAs)

- Design and Integration of a High-Performance Battery System on a Hybrid-Electric Regional aircraft
- Crashworthiness of fuselage integrated LH2 storage solutions
- Advanced Concepts for Reliable Power Electronics Conversion and Distribution in Aviation

€ 15 M

AIRCRAFT CONCEPT INTEGRATION & IMPACT (ACI&I)

- Aircraft concept and key technologies integration and impact assessment

€ 15 M

See clean-aviation.eu for more details

TOTAL EU FUNDING € 380 M

Clean Aviation's Call 3 - upcoming milestones

30 January: Pre-publication[1] of the draft amended work programme 2024-2025[2] including the topic descriptions

13 February 2025: Brokerage Onsite Event (Brussels), where potential participants can pitch in person their ideas for Proposals and discuss them with relevant parties.

End of February 2025: Launch of the Call for Proposals.

4 March 2025: Online Info Day, Clean Aviation will provide guidance on preparing and consolidating proposals.

(1) The final funding value and the list of topics for call 3 are subject to changes based on approval of the amendment to the work programme 2024-2025 by the Governing Board on the 13 of February.
(2) The Work Programme outlines strategic priorities, specific research and innovation activities, funding opportunities, and timeline.

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CLEAN AVIATION ANNUAL FORUM 25

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18 & 19 MARCH 2025 BRUSSELS

MASTERING THE SHIFT

#CAAF2025

Thank you