



## MISSION AND VISION STATEMENT

The Clean Aviation Joint Undertaking (CAJU) will develop disruptive new aircraft technologies to support the European Green Deal and climate neutrality by 2050. These technologies will deliver net greenhouse gas (GHG) reductions of no less than 30%, compared to 2020 state-of-the-art.

The technological and industrial readiness will allow the deployment of new aircraft with this performance no later than 2035, enabling 75% of the world's civil aviation fleet to be replaced by 2050.

The aircraft developed will enable net CO<sub>2</sub> reductions of up to 90% when combined with the impact of sustainable 'drop-in' fuels, or zero CO<sub>2</sub> emissions in flight when using hydrogen as an energy source.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 5: Climate, energy and mobility

**Type of Partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Total estimated budget:** EUR 4.1 bn

**EU commitments:** Up to EUR 1.7 bn

**Partners' commitments:** At least EUR 2.4 bn

**Predecessor under Horizon 2020:** Clean Sky 2 Joint Undertaking

## FIND OUT MORE

<https://clean-aviation.eu/>

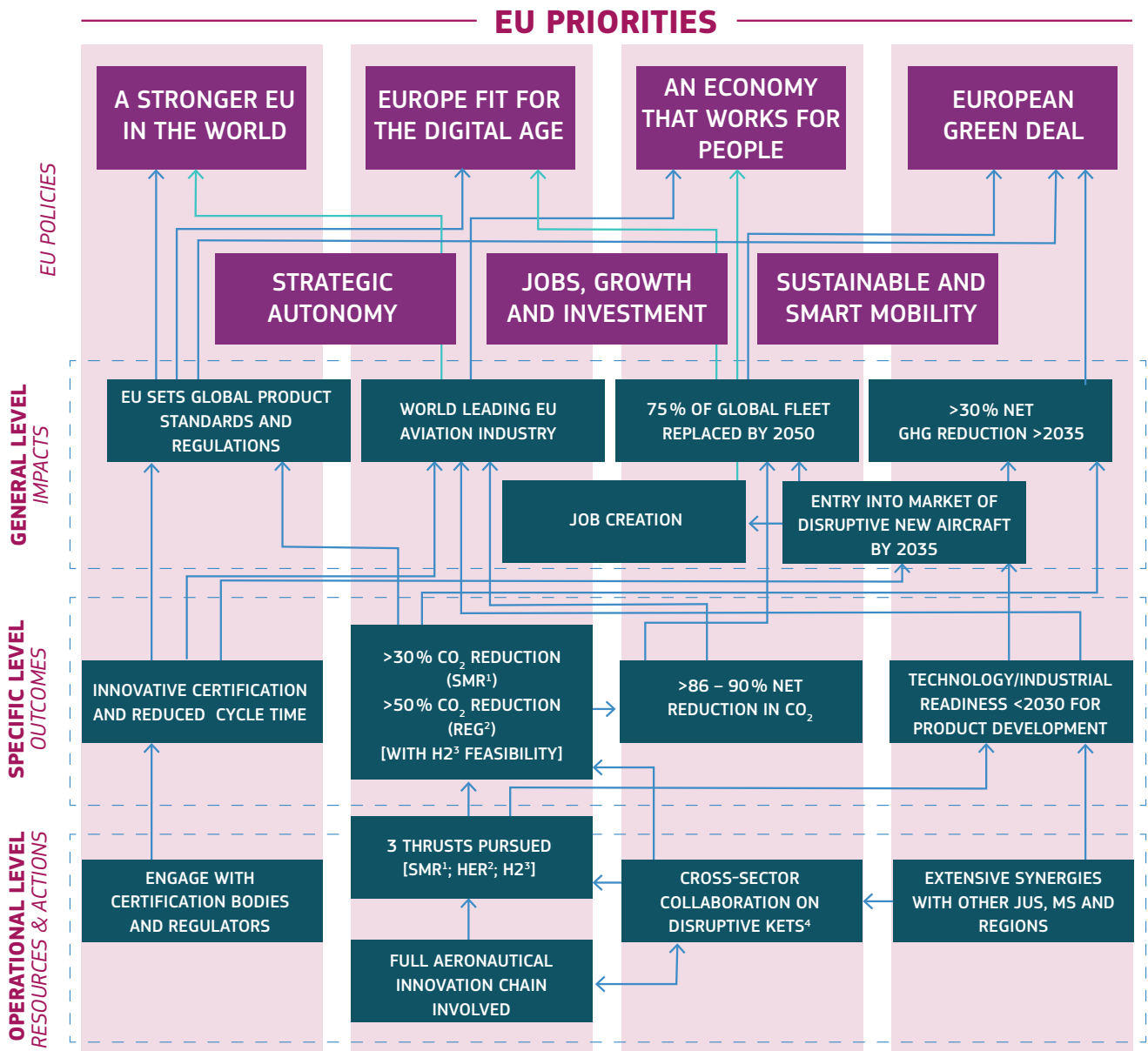


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**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**



<sup>1</sup>SMR: ultra-efficient Short-Medium Range aircraft; <sup>2</sup>HER: Hybrid-Electric Regional aircraft; <sup>3</sup>H<sub>2</sub>: disruptive technologies to enable Hydrogen-powered aircraft; <sup>4</sup>KETS: Key Enabling Technologies



**PARTNERSHIP'S Key Performance Indicators**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	TARGET >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Newcomers (cross-over from non-aeronautical domains)	# and funding (euro)	N/A	TBD	TBD	TBD	TBD
Country participation (EU 27 and associated countries)	#	H2020 evaluation for first year level	TBD	TBD	TBD	TBD
Collaboration and Synergies <ul style="list-style-type: none"> <li>• within Horizon Europe</li> <li>• within other EU Budget</li> <li>• with national programmes</li> <li>• regional programmes [RIS3]</li> </ul>	# and funding leveraged	H2020 evaluation or first year level	TBD	TBD	TBD	@ end of programme: >€100 m <sup>(1)</sup>
Leverage effect from private sector contribution	# (defined as private sector contribution divided by the EU contribution)	H2020 evaluation or first year level	TBD	>0.41	>1.0	>1.41 (@ end of programme)
<b>OUTCOMES</b>						
Technology Readiness Levels	Critical technologies reaching TRL6 by 2030	H2020 evaluation or first year level	0	0	TBD	TBD
Demonstrated CO <sub>2</sub> emissions reduction potential <ul style="list-style-type: none"> <li>• from SMR <sup>(2)</sup></li> <li>• from HER <sup>(3)</sup></li> </ul>	%	2020 state-of-the-art technology	N/A	N/A	N/A	(> 2035) >30 % >50 %
<b>IMPACTS</b>						
Net GHG emissions reduction	%	compared to 2020 state-of-the-art	N/A	N/A	N/A	>30 % (>2035)
Market deployment of CA solutions	# solutions (manufacturing ready)	TBD	Minimum 2 new aircraft (order by 2030, delivery by 2035)			
Fleet renewal	% (of the global fleet)	TBD	TBD	TBD	TBD	75 % (>2050)
Time To Market Reduction (TTMR)	%	2020 certification processes	TBD	TBD	TBD	30 % (2030)
Cost reduction of certification	%	2020 certification processes	TBD	TBD	TBD	30 % (2030)
EU aeronautics leadership	Global market share in leading technologies	2020 market share	EU aeronautics maintains its 2020 global market share			

<sup>1</sup> with 3 JUs, 2 Cluster R&I WP areas

<sup>2</sup> SMR: Short-Medium Range aircraft

<sup>3</sup> HER: Hybrid Electric Regional aircraft



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

The challenge of transforming air transport towards climate neutrality is huge. Meeting this challenge will require a level of R&I that goes well beyond today's programmes. The sector currently estimates that it will take at least EUR 12 bn in R&I effort in the timeframe of Horizon Europe. Beyond this massive effort, policy instruments and public / public-private financing instruments will also be essential to close the gap from research outcomes towards implementation in the fleet by 2050. The overall funding level required for R&I will require strong synergies from regional and national to EU level, and across a wide array of funding and financing sources in the EU's Multiannual Financial Framework.

### REGIONS

Clean Sky 2 has developed synergies with the Regions and European Structural Investment Funds (ESIF) through Memorandum of Understandings (MoUs) with national and regional authorities aligning objectives with regional strategies and Regional Strategy for Research and Innovation for Smart Specialisation (RIS3). Eighteen MoUs have been signed with Member States/Regions, and twelve Clean Sky Synergy Labels have been awarded to complementary activities. More than fifty projects have been supported by ESIF with a budget above EUR 50 million.

The Clean Aviation JU will also develop synergies with national and regional authorities on the basis of the RIS3 and utilising the European Regional Development Fund (ERDF) Operational Programmes in place or under preparation for 2021-2028. At least EUR 100 million plus involving the top 30-40 regions with relevant RIS3 will be targeted.

### EU RECOVERY FUND

The CAJU plans to leverage recovery plans and NextGenEU funding as made available to the Member States and where earmarked for innovation. Active discussions are underway with Member States such as France, Spain, Italy, Germany and the Netherlands.

### NATIONAL INNOVATION PROGRAMMES

The CAJU plans to develop an innovation architecture spanning the major national R&I programmes in Member States and Associated Countries. Participation by national authorities will be by mutual agreement and based on the significance of the national efforts and budget available and the commitment to align roadmaps and programmes so as to achieve practical synergies in technology development, both in terms of content and timing (as related to the ambition of the Clean Aviation SRIA and SBA Objectives). Together with the NextGenEU funds at least 100% leverage, i.e., a further EUR 1.7 billion will be targeted through this collaboration and joint programming.

### FUNDING AND SYNERGIES WITHIN HORIZON EUROPE

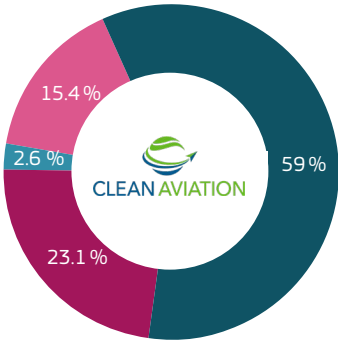
Within Pillar II of Horizon Europe, synergies with other proposed Partnerships are most notably (but not exclusively) with the **Clean Hydrogen Partnership** (fuel cells, as well as hydrogen as a potential fuel source) and the **European Battery Alliance**. The exacting standards needed for aerospace applications seem unnecessary for other sectors; yet once they are established the spin-off to other sectors is substantial. We believe the performance levels of fuel cells and batteries that can be unlocked through an aeronautics programme linked to Clean Aviation can allow Europe not to follow or catch up, but to leapfrog Asia. Other synergistic effects are evident with the proposed Partnership for Air Traffic Management i.e., **SESAR 3**. The partnership will need to have effective and efficient means to draw key results from the **collaborative research programme for aeronautics** under the control of the relevant Cluster 5 Clean Planet Directorate and unit.

Outside the cluster, more opportunities exist with **Key Digital Technologies**, other research instruments related to digital technologies, the **Made for Europe** partnership, and the **Space Initiative**, especially when it concerns hydrogen related technologies.



**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- SMEs**

**GEOGRAPHICAL COVERAGE**

