GREENHOUSE GAS AVIATION EMISSIONS REDUCTION TECHNOLOGIES TOWARDS CLIMATE NEUTRALITY BY 2050

HORIZON EUROPE INFO DAYS 2021

Michael Kyriakopoulos

Senior Expert, RTD.C3

2021 – 2027
Greenhouse gas aviation emissions reduction technologies towards climate neutrality by 2050

Scope

The impact of aviation to environment and climate is driven by long-lived effects from CO2 emissions and shorter-lived ones from non-CO2 emissions (water vapor, nitrogen oxides, sulphur oxides, aerosols, contrails and contrail cirrus).

Non-CO2 emissions have a temporal and spatial variability and are not proportional to CO2 ones. Despite the high uncertainty, studies have demonstrated that their impact might be as high as 2-4 times the CO2 emissions.

- reduction of full-flight fuel burn and CO2 emissions
- reduction of aviation non- CO2 emissions
HORIZON-CL5-2021-D5-01-05

Greenhouse gas aviation emissions reduction technologies towards climate neutrality by 2050

Expected outcome

Deliver transformative technologies that will:

- substantially reduce non-CO2 emissions
- reduce the uncertainty and foster in-flight measurement of non-CO2 emissions
- Improve aircraft performance (including engine, hybrid-electric systems, electric & electromechanical systems, integrated H2 storage, management systems, light-weight multi-functional materials and structures and/or morphing capabilities)

PS. Propulsion technologies and their integration (TRL>3), will be dealt in the European Partnership on Clean Aviation (EPCA)
HORIZON-CL5-2021-D5-01-05

Greenhouse gas aviation emissions reduction technologies towards climate neutrality by 2050

**Type of action:** Research and Innovation Actions

**EU contribution:** between EUR 2.00 and 6.00 million / total: EUR 25 million

**Deadline:** 14 Sep 2021
NEXT GENERATION DIGITAL AIRCRAFT TRANSFORMATION IN DESIGN, MANUFACTURING, INTEGRATION AND MAINTENANCE

Michael Kyriakopoulos
Senior Expert, RTD.C3
HORIZON-CL5-2021-D5-01-06

Next generation digital aircraft transformation in design, manufacturing, integration and maintenance

Scope

Accelerate and reduce the cost of whole aircraft lifecycle (from design and manufacturing to operations and recycling).

As software becomes a vital part of the aircraft, new digital methods, tools and certification processes are of outmost importance.

- Digital-physical scaled demonstrator aircrafts for education, research and development
- Synergies with the European High Performance Computing platform and European Digital Twin initiatives should be exploited.
Expected outcome

Deliver transformative technologies that will:

- allow flawless entry into service of future European aircrafts (e.g. Multi-disciplinary model-based digital twins, etc)
- enable flexible integration of simulation ecosystems in an extended enterprise context and allow multi-disciplinary design, optimisation and uncertainty quantification
- advance further composite manufacturing, maintenance-repair-overhaul (MRO) and health assessment processes and procedures
- enable model-based validation and certification, measurement and prediction of hardware and software reliability, new standards and alternative methods of compliance
HORIZON-CL5-2021-D5-01-06

Next generation digital aircraft transformation in design, manufacturing, integration and maintenance

Type of action: Research and Innovation Actions

EU contribution: between EUR 3.00 and 6.00 million / total: EUR 29 million

Deadline: 14 Sep 2021
On behalf of the RTD.C3 Head of Unit, Mrs Jane Amilhat and the RTD.C3 team

Thank you!

# HorizonEU

http://ec.europa.eu/horizon-europe