A pioneering Wing Design for a Hybrid Electric Regional Aircraft with a maximum capacity of 100 seats and a range of 500 km to 1000 km

HERWINGT

Hybrid Electric Regional Wing Integration Novel Green Technologies

ABOUT HERWINGT

Hybrid-electric based on H_2 / batteries solutions for regional flights and ultra-efficient aircraft design, utilizing thermal engines suitable for the adoption of sustainable aviation fuels (SAF), will trigger a technology revolution targeting climate-neutral aviation in Europe by 2050.

HERWINGT project is one of the game-changers that will drive this transformation aiming to design an innovative wing for the future Hybrid-Electric Regional Aircraft and pursuing a 15% fuel reduction, at wing level, through:

- Wing drag reduction at wing level more than 15%
- Wing weight reduction at wing level more than 20%

In addition, **HERWINGT** commits to delivering:

A roadmap towards the wing full-scale demonstration at aircraft level with a first flight in 2028.

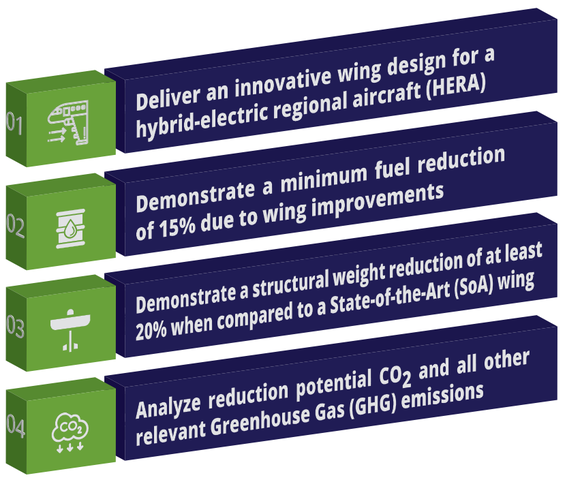
Digital twins and a life cycle assessment of the components, subsystems, and full wing system compatible with the reference aircraft digital framework and requirements.

and proposes:

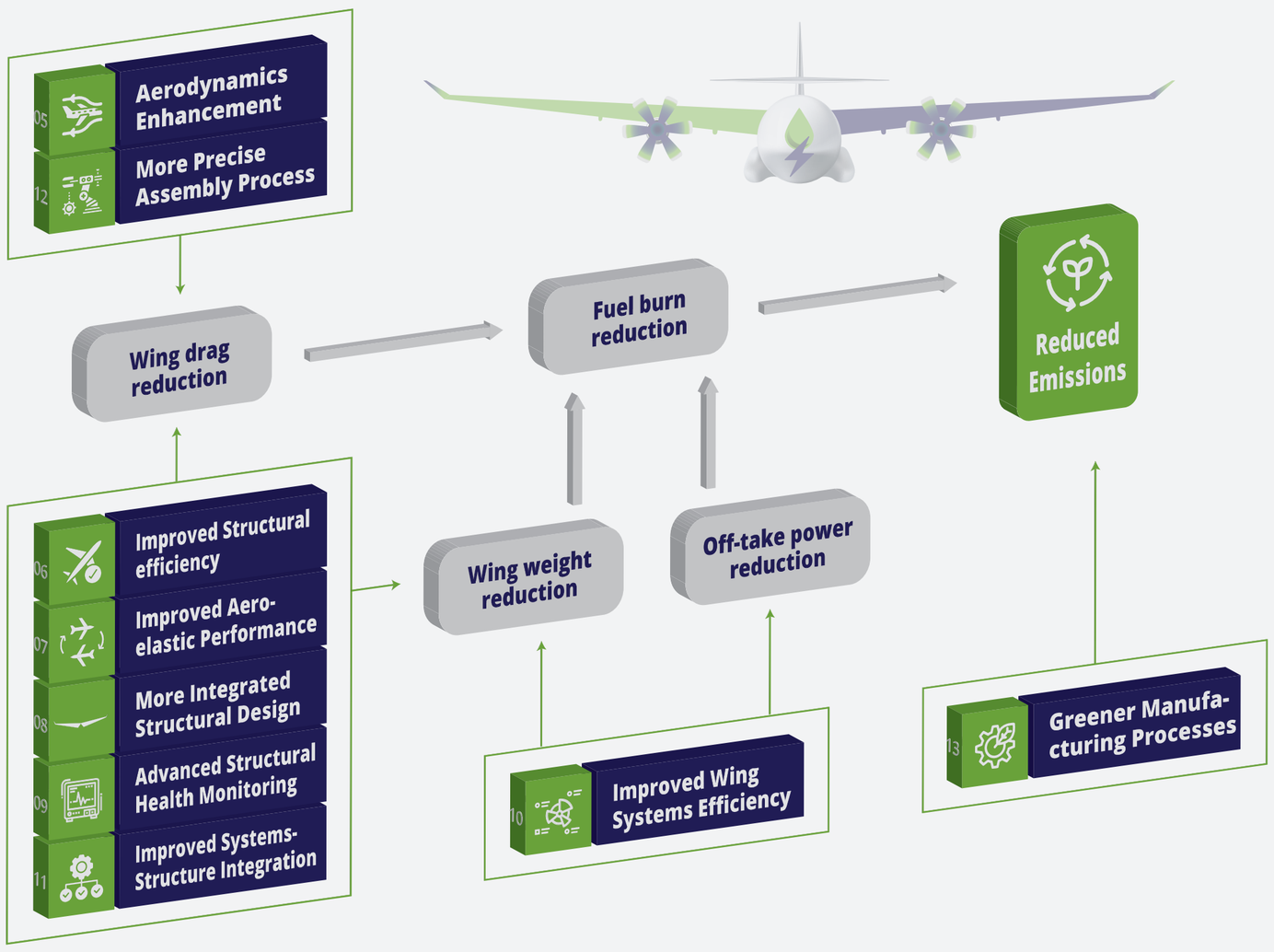
A qualification and certification plan linked to the proposed activities and suitable for Hybrid-Electric Regional (HER) aircraft.

TECHNOLOGY OBJECTIVES

The wing design process will be challenging due to the necessity to incorporate new technical solutions relevant to the wing systems. In addition, all the proposed technical solutions should be fully aligned with the overall target to reduce emissions. These challenges are translated into thirteen technology objectives (TOs).



Interdependency among the Technology Objectives and their direct effects on the quantitative HERWINGT targets



The level of interdependency among the TOs is such that improvement in one single TO could improve the quantitative targets in several directions. The latter shows that more than 80% of the reduction in fuel consumption will result from drag reduction while wing weight reduction will have a considerably limited effect. Even though the TOs 5 to 12 have a direct positive impact on drag reduction, the reduction in fuel consumption will require a multidisciplinary approach, and the apt selection of technologies, aligned with such an approach, is highly related to the successful completion of the TOs 1 to 4.

HERWINGT TEAM

AIRBUS

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101102010

01.01.2023

36 months

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The project is supported by the Clean Aviation Joint Undertaking and its members.
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Clean Aviation Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

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Co-funded by the European Union

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