

## STS: Ultra-Performing Wing project (UP Wing) on HAR wing design and development for SMR aircraft

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### Abstract

Sustainable aviation is a major challenge that requires technology developments in many different areas. One important area is the reduction of green-house gas (GHG) emissions, which is directly related to aircraft operations and energy efficiency. One of the key components for improving aircraft efficiency is drag reduction, and increased wing aspect ratio is a key enabler for that.

Therefore this STS will focus on technologies for design and development of high aspect ratio (HAR) wings for short- and medium range (SMR) aircraft. This category of aircraft is responsible for a major contribution in aviation GHG emissions and is therefore important to address. At the same time, these aircraft have high-tech wings with advanced aerodynamics, optimized structures and complex integration of primary and secondary flight controls. Such technology developments are being pursued in the Clean Aviation UP Wing project (2023-2026, [1]). The further improvement of these high-tech wings requires advanced modelling, innovative computational methods and design tools for all required technology areas. In particular, increasing the wing aspect ratio will require special attention for load control, for which combined numerical-experimental investigations are being completed in the UP Wing project.

The STS will invite papers on the design, modelling, analysis, testing, validation, manufacturing and assembly of all the relevant technologies that are involved in the development of these advanced high-aspect ratio wings.

### References

- [1] <https://www.clean-aviation.eu/up-wing>.