

## Halfway through, the HYCARUS project brings along first results

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**Zodiac Aerospace** is the coordinator of HYCARUS<sup>1</sup> - a European research and development project aiming to demonstrate how promising hydrogen-air Proton Exchange Membrane (PEM) fuel cell system technologies are in non-essential aircraft applications. Launched in May 2013, HYCARUS is now half-way through its duration bringing along first promising results mainly linked to the development and integration of a **Generic Fuel Cell System (GFCS) for on-board aircraft applications**.

The initial consortium welcomed on board a new member of the Zodiac group, Zodiac Aerotechnics, hence growing in a consortium of 10 partners from 5 European countries. The Europe's leading system integrator – Zodiac Aerospace (FR, DE, NL, CZ); fuel cell research organization – CEA (FR); world leader aircraft manufacturer – Dassault Aviation (FR); world leader in gases, technologies and services for Industry and Health – Air Liquide (FR), Europe's leading test facility organizations – INTA (ES) & JRC-IET (BE) and Europe leader in collaborative R&D consultancy – ARTTIC (FR), have been working together since 18 months towards the HYCARUS key objective, to test the GFCS under flying conditions.

HYCARUS successfully accomplished a number of tasks including in particular completion of specifications and sizing of a GFCS. Preliminary designs of various systems and components necessary for the GFCS integration, such as the membrane electrode assembly, the fuel cell stack, the battery system and the detailed design of the GFCS, were completed. The project will now build on these first results to demonstrate the GFCS in a representative environment, in accordance with the TRL6 level. The consortium started with the preparations for the "Permit to Fly" with the aim to achieve the GFCS aircraft integration in 2015 and the flight-tests in 2016.

The GFCS is a demonstrator which will serve as a precursor for the systems that will be mounted as secondary power sources on-board business jets; but the fuel cell systems of this type are also designed to supply cabin interiors, such as galleys, lavatory or crew rest compartment in a large commercial aircraft. These applications / technologies will contribute to reducing aircraft fuel consumption and green-house gas emissions and offer innovative services to aircraft manufacturers, airlines and business jet operators.

*HYCARUS is partially supported by the Fuel Cell and Hydrogen Joint Undertaking (FCH JU), an initiative of the European Union driven by the joint cooperation of European public research centers and private industries actively engaged in the investigation of the fuel cells usage. For more information, visit [www.hycarus.eu](http://www.hycarus.eu).*

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<sup>1</sup> HYCARUS stands for *HYdrogen Cells for AiRborne Usage*