

PROJECT

COMPASS

Competitive Auxiliary Power Units for vehicles based on metal supported stack technology

Funding: European (Horizon 2020)

Duration: Oct 2016 - Sep 2019

Status: Complete

Total project cost: €3,920,303

EU contribution: €3,920,303



Call for proposal: H2020-JTI-FCH-2015-1

[CORDIS RCN : 204426](#)

Objectives:

The COMPASS project is a collaborative effort of AVL, Plansee, Nissan and Research Center Jülich to develop advanced SOFC APU systems for range extender applications in passenger cars. The consortium is perfectly integrated from powder-, cell-, stack-, APU system technology providers to vehicle manufacturer and an academic partner.

The project will use innovative metal supports SOFC stack technology, which enables key features like rapid start up and mechanic robustness for this application. Within the project advanced APU systems will be developed with electrical efficiency above 50%, a start up time below 15min and a small packaging size suitable for integration into battery electrical vehicles. Under the lead of NISSAN also a prototype vehicle will be build up, where an APU system will be completely integrated into the electrical powertrain.

A major focus of the project is technology validation and systematic durability/reliability development. Therefore in a specific workpackage all validation activities are concentrated. The validation testing includes tests on stack, APU system and vehicle level. The APU system will furthermore undergo automotive testing like vibration, altitude, climate chamber and salt spray. In an additional dedicated workpackage manufacturing cost and business case analyses will be performed. These analyses will help to reduce the technology cost by design-to-cost and design-to-manufacture measures and show the business case of this new powertrain concept compared to other alternative and conventional propulsion concepts. This project is worldwide the first approach to integrate SOFC APU systems into electrical powertrains and will help to significantly improve APU systems also for other applications like heavy duty trucks, marine and leisure/camping.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Avl List Gmbh

Address:

Hans-List-Platz
8020 Graz
Austria

Organisation Website:

<http://www.avl.com>

EU Contribution: €1,996,988

Partner Organisations:

Forschungszentrum Juelich GmbH

Address:

Leo-Brandt-Strasse
52425 JUELICH
Germany

Organisation Website:

<http://www.fz-juelich.de>

EU Contribution: €545,141

Nissan Motor Manufacturing (Uk) Limited

Address:

Washington Road
Sunderland
SR53NS
United Kingdom

EU Contribution: €581,375

Plansee Ag

Address:

Breitenwang, Muehl
6600 REUTTE
Austria

Organisation Website:

<http://www.plansee.com>

EU Contribution: €796,799

Technologies:

EV support technologies
On-demand range-extending service for EVs

Development phase: Validation

STRIA Roadmaps:

Transport electrification, Vehicle design and manufacturing, Low-emission alternative energy for transport

Transport mode: Road transport

Transport sectors: Passenger transport

Transport policies: Environmental/Emissions aspects

Geo-spatial type: Other