

PROJECT

IGNITE

High performance generation channel Integration and Testing

Funding: European (Horizon 2020)

Duration: Nov 2018 - Oct 2022

Status: Ongoing

Total project cost: €875,674

EU contribution: €799,688



Call for proposal: H2020-CS2-CFP07-2017-02

[CORDIS RCN : 218532](#)

Background & policy context:

Conventional aircraft currently use three-stage synchronous generators to provide 115Vrms 400Hz AC power to downstream electrical loads. The recent introduction of variable frequency generators has permitted simplification of the mechanical drive train, offering greater power capability than traditional constant frequency generator technologies. The IGNITE project will take a step further and move away from AC power to the DC power to achieve further efficiency improvement and mass reduction.

Objectives:

The IGNITE Consortium will bring together their world-leading expertise in the field of machines, electrical drive integration and testing including test rig design, supervisory control and data acquisition (SCADA), test rig integration of high-performance electrical generation systems, test rig commissioning, test planning and test management, to develop a high-performance test rig for high-voltage direct current (HVDC) power generation channel testing and demonstration. IGNITE will also integrate the power electronic conversion and quick disconnect system developed in two other topics with the IGNITE test bench and SCADA system.

The high performance HVDC power generation channel to be developed by IGNITE will embrace multiple advancements including:

- Robust and reliable test equipment for HVDC power generation systems
- High-efficiency, high-speed permanent magnet machine drives
- Advanced test rig combining environmental effects and degradation of the system under test
- Advanced control for high-speed electrical generators
- Fast data acquisition system which is capable of capturing rapid change system variables and parameters

The integrated HVDC power generation system developed within IGNITE will demonstrate an innovative high-efficiency and robust power generation technology for future LPA applications. It will also open doors for power sharing between different HVDC power sources to further improve the efficiency of aircraft under different operating conditions.

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)

Other programmes: JTI-CS2-2017-CfP07-LPA-01-45 High Performance Generation Channel Integration

Lead Organisation:

The University Of Nottingham

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United Kingdom

EU Contribution: €622,386

Partner Organisations:

Aeromechs SRL

Address:

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Italy

EU Contribution: €177,301

Technologies:

Aircraft design and manufacturing
Transformer Rectifier Unit (TRU) equipment to supply an HVDC distribution system

Development phase: Research/Invention

STRIA Roadmaps: Transport electrification, Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other