

PROJECT

LIFT

Lightweight Innovative Generator for Future Air Transportation

Funding: European (Horizon 2020)

Duration: Nov 2018 - Oct 2021

Status: Ongoing

Total project cost: €599,870

EU contribution: €599,870



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

[CORDIS RCN : 218535](#)

Background & policy context:

LIFT will deliver a beyond state-of-the-art solution for lightweight non-active components for a megawatt range electrical machine proposed for Clean Sky 2 Large Passenger Aircraft IADP work package 1.6.1 as defined in the Topic Description JTI-CS2-2017-CfP07-01-4.

As stated in the Topic Description, the non-active parts of electrical machines contribute to 30-40% of the weight of the machine. LIFT proposes a number of solutions to reduce the mass and the weight of these non-active parts ranging from using composites or metal foams to corrugated structures that are all within the expertise of the University of Nottingham. In total, our preliminary workings illustrate that it is possible to deliver a mass and weight saving of at least 50% using a combination of technologies without significantly diminishing performance.

Objectives:

As a result of the research and innovation activities within the project, UNOTT foresees the generation of new knowledge in the following areas:

- An innovative MW-class generator with a record power density in excess of 25kW/kg will be developed
- Innovative thermal management systems will be developed exploiting the voids within lightweight materials
- A new family of lower-noise e-machines will be incepted, taking advantage of the voids within lightweight materials
- Development of novel mechanical models and advanced manufacturing methods for cylindrical lattice materials as required for e-machine designs, backed up by experimental testing
- The power density boundaries and limitations charts for future aerospace PM machines will be established for different speeds

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-01-41 Advanced manufacturing for MW range power dense electrical machines for aerospace applications

Lead Organisation:

The University Of Nottingham

Address:

University Park
Nottingham
NG7 2RD
United Kingdom

EU Contribution: €599,870

Technologies:

Composite materials
Composite materials for structural purposes in the aircraft

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