

PROJECT

## HyPoGA

### **Feasibility study of a superefficient hybrid power train as a replacement unit for existing engines - Hybrid Power for General Aviation (HyPoGA)**

**Funding:** European (Horizon 2020)

**Duration:** May 2015 - Oct 2015

**Status:** Complete

**Total project cost:** €71,429

**EU contribution:** €50,000



**Call for proposal:** H2020-SMEINST-1-2014

[CORDIS RCN : 196694](#)

#### **Objectives:**

Worldwide, over 280,000 General Aviation (GA) aircrafts are in use (28,000 in Europe) and most aircraft in this engine-power class (approx. 200 kW) are operated several hours per day in commercial services. The total operating costs are about 213 T€ per year.

Combustion engines are designed for the maximum power needed for take-off and climbs (peak-loading), though in cruise flight only approx. 65% of the power is required. The overall objective of the HyPoGA innovation project is to develop a superefficient, hybridized 200 kW aircraft engine by integration of a 140 kW combustion and a 60 kW electrical engine which will allow a fuel reduction of about 30% and a total cost reduction of 27% ~ 48 T€. This engine will be certified as a replacement unit according to EU and US aviation laws and regulations. The annual demand for replacement engines is ~3,000.

The additional weight of the electrical components (electrical engine, batteries) is counter played by the weight reduction of a smaller combustion engine and the fuel savings. The innovative power train will contribute significantly to reduced costs of operations and a massive reduction of CO2 emission. Furthermore, the electrical engine constitutes a back-up increasing the safety of aircraft operations (two engines instead of one). These aspects create a unique selling point and competitive advantage for potential customers.

The objectives of the feasibility study are:

1. a market research study and analysis (SWOT-Analysis)
2. a technological feasibility (e.g. final design definition)
3. an economic and financial feasibility (including marketing strategy, certification, financial plan).

The results will be elaborated in a business plan.

#### **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:**

**Jockel Bernhard**

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**EU Contribution:** €50,000

**Partner Organisations:**

**Limbach Stefan**

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**EU Contribution:** €0

**Technologies:**

Aircraft propulsion  
Hybridized 200 kW aircraft engine

**Development phase:** Research/Invention

Transport

**STRIA Roadmaps:** electrification

**Transport mode:** Air transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Decarbonisation

**Geo-spatial type:** Other