



CLEANSKY

INFO DAY Call SP1-JTI-CS-2009-02

15 DECEMBER 2009

SGO Calls for Proposal



Design and manufacture of an aircraft tractor for Smart Operations on ground

❖ Topic #: JTI-CS-2009-2-SGO-01-001:

❖ 1. Context and technical challenges

- ▶ Dispatch Towing consists in towing aircraft with engine off from gate to runway has been identified as a promising solution for greener aircraft operations. As today's aircraft have not been designed for this kind of operation, the design of a specific Dispatch Towing Vehicle (DTV) is required to overcome the limitations of current aircraft.
- ▶ This DTV prototype will then be used during trials with real aircraft to validate its performance and its compliance to the defined requirements in order to prove the relevance of the concept.
- ▶ If the concept is proved relevant, there are huge market opportunities for deployments of such DTV on airports.



Design and manufacture of an aircraft tractor for Smart Operations on ground

❖ 2. Expected feedback

- ▶ The expected work is to design and manufacture a specific Dispatch Towing Vehicle (DTV) prototype able to perform Dispatch Towing regardless the limitations of current aircraft.
- ▶ This vehicle will have to fulfil the requirements and comply with international standard as described in the topic description sheet
- ▶ The DTV must be universal in its aircraft category. Three aircraft categories are identified:
 - **Regional aircraft**
 - **Single aisle (e.g. A320...)**
 - **Twin aisle (e.g. A330, A380...)**
- ▶ The relevant aircraft data will be provided during the negotiation phase with the selected applicant.
- ▶ This DTV prototype will then be used during trials with real aircraft to validate its performance and its compliance to the defined requirements in order to prove the relevance of the concept.



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❖ 3. Additional information

- ▶ The expected work will cover specification, design and manufacturing aspects of the DTV prototype.
- ▶ The applicant must have experience on the manufacturing of ground vehicles for industrial application, and must show a deep understanding of the aircraft towing technical stakes.

❖ 4. Maximum allowed Topic Budget

- ▶ 2 000 k€ maximum budget



Design of electrical equipments for the PROVEN tests rig

❖ Topic#: JTI-CS-2009-2-SGO-04-002

❖ 1. Context and technical challenges

- ▶ Due to the recent improvement in power electronics, the More Electrical Aircraft has been identified as a promising concept to reduce the aircraft emissions.
- ▶ Previous R&T projects have shown benefits of electrical systems but also emphasized further improvements in weight and integration are required to demonstrate significant benefits at aircraft level.
- ▶ The advanced electrical network developed in the frame of Clean Sky are very challenging, because a high level TRL (Technology Readiness Level) and also performance improvement are expected for aeronautic application. The high integration level would limit the flexibility of the hardware.
- ▶ Airbus has developed a ground test rig, named PROVEN and already used in the MOET project, to validate the concept of the more electrical aircraft and find the most relevant architectures and will require high-fidelity equipment to perform ground tests for new electrical architectures in WP4 of SGO-ITD.
- ▶ This CfP is as well an opportunity for companies not in Clean Sky to develop their products for large aircraft applications.

Design of electrical equipments for the PROVEN tests rig

❖ 2. Expected feedback

- ▶ The aim of the Call for Proposal is to define additional hardware necessary for the project, and which will be proposed for manufacturing in a subsequent call, if proved relevant.
- ▶ The main stakes are to reduce the weight of electrical systems, increase the integration of components and improve performance.
- ▶ The proposed work will consist in designing equipment to be used on advanced HVDC aircraft electrical network. The foreseen equipments are:
 - **2 starter generators between 100 kVA & 150kVA**
 - **1 flexible power electronics centre ensuring about 10 functions, such as engine starting, inverter, active rectifier, ...**
- ▶ The applicant will have to deliver a definition dossier for the studied solutions. Each definition dossier has to provide equipment design, performances, justifications for key design choices and interfaces for further rig integration.



Design of electrical equipments for the PROVEN tests rig

❖ 3. Additional information

- ▶ The applicant will have to demonstrate key technologies on real hardware and also show compliance of the proposed solutions with Airbus requirements. The applicant could use their current aircraft products, relevant prototype developed in other projects or specific demonstrators.
- ▶ The expected work will cover technology studies, specifications and designs. Manufacturing aspect will be covered by a later call.

❖ 4. Maximum allowed Topic Budget

- ▶ 1 000 k€ maximum budget



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