A more Electric Innovation Chain in Europe

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Clean Sky, Innovation Takes Off

www.cleansky.eu
Clean Sky: Innovation takes off

Europe’s largest Aeronautics Research Programme ever

- CS1 started in 2008 within FP7, up to 2017; continuation decision in 2014 with CS2 in H2020
- Environmental objectives for CS1: CO2 and noise
- Environment, competitiveness and mobility for CS2
- CS1: 1.6 B€ value; CS2: 4 B€
- Integrated breakthrough technologies, up to full scale demos
- 600 participants in CS1
Integrated Program Structure

Clean Sky Technology Evaluator

Concept          Aircraft

Green Rotorcraft       Green Regional Aircraft       Smart Fixed Wing Aircraft

TECHNOLOGIES & DEMONSTRATORS

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MEA = 10% of Clean Sky
A wide « innovation chain »

- >500 Partners
- 65 Associates
- 6x2 Leaders
- ~230 participations in Systems for Green Operations
Clean Sky 2: a big step forward

1.8b€ Total EU Funding Proposed

Clean Sky is now about 85% of the EU-funded aeronautical research
SGO - Management of Aircraft Energy

Member and Partner Know-How from previous R&T projects

SGO Technology Development & Validation of Electrical Aircraft Systems

Electrical Equipment

Thermal Management Equipment

Load Management Functions

Stakeholders in the WP
One example of flight tests: ATR-72 testbed

MEA Modifications:
- **EPGS Mod**: Electrical Power – Modification of ACWF generation and distribution
- **E-EMS Mod**: Electrical Power – Installation of 270V DC Generation distribution including Electrical Power Center (EPC) and Simulated Resistive Electrical Load (SREL)
- **E-ECS Mod**: Air Conditioning – Installation of an Experimental electrical environmental control sys. – E-ECS (one pack)
- **EMAs Mod**: Installation of two electrical actuator EMAs – FCS/LG (each mounted on a dedicated test bench, both located in Cabin)

and:
- New AC Primary Electrical Distribution
- Cabin Electrical & E-ECS power racks
- 270VDC Electrical Energy Management Power Center (E-EM EPC)
- Simulated Resistive Load (SREL)
- EMAs electrical loads (in cabin)
- FTI/Flight Test Station (FTES)
Avionics / cockpit

Cabin & cargo systems

Major loads

Electrical wing

Landing gear systems

Small Air Transport Systems

+ MEA-related activities in other Platforms, e.g. Airframe and Large Aircraft
Clean Sky framework intended to bring:
- An optimized, balanced funding for airframer and equipments manufacturers (and engine manufacturers)
- A close collaboration between systems suppliers and airframers
- The involvement of bottom-up innovation processes from SMEs and Universities to integrators
- A novel, integrated system design environment with appropriate tools
Hosting a unique blend of high tech companies throughout Europe, and a set of advanced test-benches, Clean Sky is the ideal house for highly contributing to the development of “more electric” widespread innovation

First Call for Proposals for Clean Sky 2 launched in December – will close end of March:
We need your talents