Aeronautics and Air Transport Research

FP7

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DG RTD-H.3 - Aeronautics

Greek Energy & Transport Info Day, Athens, 30 September 2010
Outline

• Current call (2011)
• Hints from lessons learnt
• Next calls (2012, 2013)
Outline

• Current call (2011)
• Hints from lessons learnt
• Next calls (2012, 2013)
Overall budget 2.15 billion €
- 955 million € Collaborative RTD
- 800 million € Clean Sky
- 350 million € SESAR

6 calls within Collaborative RTD

Aeronautics research in FP7
Aeronautics and Air Transport Workprogramme Collaborative Research (955 million Euro)

Activities

1. The **greening** of air transport
2. Increasing **time** efficiency
3. Ensuring **customer** satisfaction and safety
4. Improving **cost** efficiency
5. **Protection** of the aircraft and passengers
6. **Pioneering** the air transport of the future
Results 3rd Call – 2010 (Closed on 14 January 2010)

Budget 108 million Euro

Level 1 + CA

160 proposals - 529 million requested funding –
27 projects selected – 97 million recommended funding –

Support Actions (SA)

25 proposals - 9 million requested funding –
10 projects selected – 3 million recommended funding –

Russia Coordinated Call

8 proposals - 11 million requested funding –
3 projects selected – 4 million recommended funding –

China Coordinated Call

4 proposals - 6 million requested funding –
2 projects selected – 3 million recommended funding –

About 1/3 of contracts ready for signature, the others will be sent to coordinators in the next days
89 Level 1 projects: 323.0 million (Incl. Russia and China calls)
8 Level 2 projects: 200.2
2 CA: 2.9
23 SA: 9.7
Air-TN (CA): 1.9
Clean-Sky (SA): 2.0

539.7 million

Distribution of the 323.0 million (Level 1)

- Greening: 66.4 million (21%)
- Time Efficiency: 7.1 (2%)
- Customer + Safety: 42.1 (13%)
- Cost Efficiency: 165.1 (51%)
- Security: 9.1 (3%)
- Pioneering: 33.2 (10%)

323.0 million (100%)
Outline

• Current call (2011)
• Hints from lessons learnt
• Next calls (2012, 2013)
Budget: 121.3 million Euro

- Level 2: 6 topics open, 107 million €
- Level 1 and CA: only the activity “Pioneering” open, 11.3 million €
- SA: 3 million €

Time schedule

- Call opening date: July 20th 2010
- Call closing date: December 2nd 2010 17:00 h Brussels local time
- Evaluation phase: January 24th to February 24th 2011
- Start of first projects: June to July 2011
Workprogramme Scope

• Includes:

  Technologies, services and operations of all components of the air transport system from airport kerbside to airport kerbside (i.e. aircraft, airport and air traffic management)

• Excludes:

  Non-travel aspects, ticketing and ground vehicles
**Level 1 (EU-funding: max. up to 4 million €)**
Upstream research and technology development activities from basic research to validation at component or subsystem level through analytical and/or experimental means in the appropriate environment – CP-FP, CSA(Coordinating)

**Level 2 (EU-funding: minimum 6 million €, max. 40 million €)**
Downstream research and technology development activities up to higher technology readiness, centred on the multidisciplinary integration and validation of technologies and operations at a system level in the appropriate environment (large scale flight and/or ground test beds and/or simulators) – CP-IP

**Level 3**
Research and technology development activities up to the highest technology readiness, in fully integrated system of systems in the appropriate operational environment – Clean Sky JTI, SESAR JU

**Supporting Programme implementation (EU-funding: max. 300 K€)**
Activities aiming at setting mechanisms or developing strategies for programme implementation – CSA(Supporting)
Research, Technology & Product Development

Research and technology acquisition
- Fundamental knowledge
- Technology development
- Technology validation

Product development
- Demonstrators
- Prototypes
- Product definition
- Product design and development
- Product demonstration
- Production

EU Framework Programme
- Level 1
  - Collaborative Projects
- Level 2
- Level 3

New in FP7:
- Level 3
  - Clean Sky JTI
  - SESAR JU

EUREKA
- -10
- -5
- 0
- +5

Years
4th Call Aeronautics and Air Transport – 2011

Level 1 and Coordination Actions

Activity open:

6. Pioneering the air transport of the future

Activities closed:

1. The greening of air transport
2. Increasing time efficiency
3. Ensuring customer satisfaction and safety
4. Improving cost efficiency
5. Protection of Aircraft and Passengers
Level 1 - Pioneering the Air Transport of the Future (CP-FP and CSA-CA)
Up to 4 million € funding/project

Goals
Setting the foundations of new paradigms and technologies enabling step changes in air transportation in the 2nd half of 21st century

Breakthrough and Emerging Technologies
- Lift
- Propulsion
- Interior space
- Life-cycle

Step Changes in Air Transport Operation
- Novel air transport vehicles
- Guidance and control
- Airports

Promising Pioneering Ideas in Air Transport
- The cruiser/feeder concept
- Take-off and landing with ground-based power
- New sources of aircraft main propulsive power
Six Topics open in four Activities:

1. The greening of air transport
   - Systems approach to improved core engine thermal efficiency

2. Increasing time efficiency
   - Integrated approach to total airport management for operational efficiency

3. Ensuring customer satisfaction and safety
   - Integrated approach to a human-centred cabin physical environment

4. Improving cost efficiency
   - Integrated approach to smart airframe structures
   - Integrated approach to efficient propulsion and related aircraft systems for small-size aircraft
   - Integrated modular actuation systems for the future all-electric aircraft

Level 2 - (CP-IP) Up to 40 million € funding/project
AAT.2011.1.4-2. Systems approach to improved core engine thermal efficiency

Objective: Increase engine thermal efficiency above OPR 50:1 for reduced CO₂ emissions minimising NOₓ increase

Scope: Integration of key technologies:
- Innovative compressor for ultra-high pressure ratio cycle
- HP-LP compressor inter-cooling
- Low NOₓ combustion
- Advanced structural components for high OPR

AAT.2011.2.3-3. Integrated approach to total airport management for operational efficiency

Objective: Overcome fragmentation of airport activities - land side and air side-

Scope: Innovative integration of all airport operations (system of systems):
- Passenger flow
- Baggage flow
- Apron operation
- Fleet management
- Security monitoring
- Air quality and noise monitoring
- IT architecture for single information management system
AAT.2011.3.5-1. Integrated approach to a human-centred cabin physical environment

**Objective:** Place human needs at the centre of future cabin designs regarding health, safety, comfort as well work-load conditions for crew

**Scope:** Integration of technologies and concepts key to physical environment:
- Noise and vibration
- Air quality and cabin pressure
- Materials and systems
- On-board safety related systems and procedures
- Lighting and virtual environments
- Human factor issues

AAT.2011.4.4-3. Integrated approach to smart airframe structures

**Objective:** Step change in ‘intelligent’ structures regarding self-sensing, multifunctional materials and morphing for reduced operational costs

**Scope:** Integration of key technology developments, including supporting modelling tools, focusing on two major applications:
- Wing morphing for improved lift and reduced drag during take-off, cruise and landing
- Self-sensing and multifunctional materials for smart process control and quality assurance in manufacturing and for smart in-service self-monitoring and self-healing of structures.
AAT.2011.4.4-4. Integrated approach to efficient propulsion and related aircraft systems for small-size aircraft

**Objective:** Improve the capability to develop environmentally acceptable, safe, reliable and economic propulsion units that the small size aircraft industry (up to 19 pax. fixed-wing and rotorcraft) needs

**Scope:** Integration of key technologies for a range of small gas turbine engines and propulsion related systems. Two fronts of action:

- Performance improvements of key engine components, including modern engine control technologies
- Airframe-propulsion integration with regard to aircraft overall configuration

AAT.2011.4.4-5. Integrated modular actuation systems for the future all-electric aircraft

**Objective:** Introduce full electric actuation in all aircraft systems as a definite step in the elimination of on-board hydraulics for a full electric aircraft

**Scope:** Scalable systems approach through modular components to demonstration of full electrical actuation for a broad range of aircraft types on:

- Primary and secondary flight controls
- Landing systems
- Thrust reversers and doors

Embracing sensors, motors, controller, materials, wireless data flow...
1. Supporting the organisation of conferences and events of special relevance to aeronautics and air transport research

2. Stimulating the participation of small and medium size enterprises (SME) and other small organisations for improved integration of the European Research Area

3. Assessing the role and needs of air freight in air transport

4. Exploring opportunities and stimulating research cooperation with Canada

5. Exploring opportunities and stimulating research cooperation with Japan

6. Assessing the educational needs of engineers and researchers in aeronautics and air transport

7. Technology support for crisis coordination for the air transport system following major disruption events

Supporting Programme Implementation (CSA-SA)
Up to 300 K€ funding per project
## FP7 Aeronautics - 4th Call

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<thead>
<tr>
<th>Category</th>
<th>Greening</th>
<th>Time</th>
<th>Customer &amp; Safety</th>
<th>Cost</th>
<th>Security</th>
<th>Pioneer</th>
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<tbody>
<tr>
<td><strong>Level 2</strong></td>
<td>Open for 1 Topic</td>
<td>Open for 1 Topic</td>
<td>Open for 1 Topic</td>
<td>Open for 3 Topics</td>
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<td>Max. 40 M€ EC grant / project</td>
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<td><strong>Level 1</strong></td>
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<td>CLOSED</td>
<td>Open</td>
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<td>Max. 4 M€ EC grant / project</td>
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<td><strong>Networks of Excel.</strong></td>
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**Notes:**
- **Closed** topics are no longer accepting applications.
- **Open** topics are still accepting applications.

*DG RTD-H.3 Aeronautics - 20*
Outline

• Current call (2011)
• Hints from lessons learnt
• Next calls (2012, 2013)
For a proposal to be successful it must show a very high quality.

- 1st FP7 Call 2007 - 220 M€ available - 194 proposals (829 M€) - 36 retained
- 2nd FP7 Call 2008 - 210 M€ - 253 (918 M€) - 43
- 3rd FP7 Call 2010 -108 M€ - 203 (556 M€) – 42

....the increasing number of submitted proposals and ....the limited budget available for this and next calls
Although trivial ….

Start with the **eligibility** of your own proposal….

- Do it yourself….

- It is sad to see good proposals **not eligible** because of:
  - Too late submission, *(2nd Dec. 2010, 17h00 Brussels time)*
  - Exceeding budget max limit*,
  - Provided incomplete Part A & B

*) For Collaborative Projects of small or medium-scale (CP-FP) a maximum **requested Community contribution** of up to **4.0 million €** is an additional eligibility criterion.
Focus to the Evaluation criteria applicable to:

- Collaborative Projects
- Coordination and Support Actions

Understand the criteria well and address them all

- Put yourself in the “shoes” of the evaluator.
- Do not use your company’s acronyms without additional information.
Although trivial ….

Be specific:

- e.g. Main concept and objectives clearly stated,

- State-of-the-art,
  - address all aspects (experimental, numerical, etc)
  - include references,
  - include your own work,

- What You will do beyond the state-of-the-art?
  - Clear description of Work Packages,
  - Realistic Timetable,
  - Specific and measurable deliverables,
Remember:

E. g.: “Management” in FP7 does not cover the “technical management”

– linking together all the project components,
– maintaining communications with the Commission, etc
– The allocated budget should reflect these activities.
Calculate properly *(Form A3)*:

Maximum reimbursement rates of eligible costs:

- Research and technological development = 50% or 75%*
- Demonstration activities = 50%
- Other activities (including management) = 100%

*) For participants that are non profit public bodies, secondary and higher education establishments, research organisations and SMEs.
Outline

- Current call (2011)
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Aeronautics and Air Transport
5th & 6th calls

**Tentative**

5th Call: 157 Mio
6th Call: 136 Mio

- Share between Level-1 & Level-2 in WP2012 and WP2013 → 50:50 at the end of FP7

- Introduction of Level-0
  - incubate new fundamental knowledge & disruptive ideas
  - strong potential for innovation

- Level-1 + CSA-CA
  - Focus on greening, cost-efficiency, pioneering

- Level-2
  - Complementing previous L2 research projects & ongoing demonstration work in the ‘Clean Sky’ Integrated Technology Demonstrators
THANK YOU!

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Our websites:
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http://cordis.europa.eu/fp7/transport/