

ESPOSA – modern turbine engines for small aircraft

VZLU together with PBS Velká Bíteš prepared an international RTD project ESPOSA (Efficient Systems and Propulsion for Small Aircraft)

VZLU together with PBS Velká Bíteš prepared a proposal for international RTD project under the acronym **ESPOSA (Efficient Systems and Propulsion for Small Aircraft)**. The project proposal has been submitted for the 4th call of 7th Framework Programme of the EU and was finally approved for the EC funding.

The goal of this project is to develop and integrate novel engine components for a range of small gas turbine engines up to approx. 1000 kW and to develop new lean manufacture technologies. The project will also deal with engine related systems that will contribute to the overall propulsion unit efficiency, safety and pilot workload reduction. The new engine systems and engine technologies developed within ESPOSA should **deliver 10-14% reduction in direct operating costs (DOC)**. The ESPOSA project plans to deliver better GTE engine affordability and reduction of direct operating costs through the development of advanced concepts for key engine components and engine systems.

The ESPOSA project was initiated due to high interest of the General Aviation community in **new modern turboprop and turboshaft propulsion units**. The reason for this interest is mainly obsolescence of currently used engines, absence of affordable certified turbine propulsion for 2-5 passenger aircraft or for light helicopters, too high purchase price for 5-19 passenger turboprop aircraft, willingness to reduce operating costs, higher efficiency of new propulsion units and better environmental impact (reduction of CO₂ and NO_x emissions).

Research work comprises performance improvements of key engine components, their improved manufacturing in terms of costs and quality. New engine component technologies will be backed by novel modern electronic engine control based on COTS (Component off-the-shelf), pioneering the engine health monitoring for small engines and providing advanced, more electric solutions for fuel and propeller control systems. The project also addresses problematic design areas connected with turboprop/turboshaft engine installation into airframe structure, including the use of composite materials. The work will be carried out taking into account particulars of different aircraft configurations.

The Kick-Off meeting of the ESPOSA project was held in Warsaw on 11-12 October 2011.

The total project budget is 37,7 mil. EUR (EC contribution is 25 mil. EUR). ESPOSA builds on the results of an integrated project of the 6th Framework Programme CESAR (Cost Effective Small Aircraft), which ran from 2006-2010 under the coordination of VZLU.

A consortium of 39 companies from 15 European and non-European countries will participate in the project. The key element for their participation is their willingness to devote their research and technological effort to small aircraft sector. The consortium consists of stable industrial companies and renowned research organizations and universities, more than a third of participants belong to SMEs.

A Czech company, **PBS Velká Bíteš, is the coordinator of the project** with an administrative assistance from Aerospace Research and Test Establishment (VZLU), which already has experience with coordination of similar project in terms of budget and number of participants from FP6 (the CESAR project).

More information on:

www.esposa-project.eu