

## **REVITALIZING U.S. AERONAUTICS RESEARCH AND DEVELOPMENT**

**THE ISSUE: There are still significant improvements to be made in aeronautics research to address critical air travel and workforce challenges.**

Today's national airspace is incapable of meeting the demands of the Next Generation Air Transport System. Critical issues such as the ease of air travel and the speed with which we travel globally continue to threaten the efficiency of civil aviation. Additionally, economic and environmental barriers – as well as the need for critical breakthroughs in technology (such as fuel efficiency, emissions and noise reductions) – must be overcome. The ability for the U.S. to address those – and other – critical issues, *and* keep the U.S. as the global aeronautics leader is dependent upon appropriate government funding of aeronautics R&D programs, and bolstering the future workforce with the necessary engineering and science education.

Aeronautics R&D has been the key to the success of U.S. industry in the world marketplace. Other countries are investing considerable public funds in their commercial aircraft industry with the objective of increasing their own product markets. This inevitably takes market share away from U.S. industry. Current proposals to reduce aeronautics R&D funding will continue to harm the already declining U.S. market share.

Without change, the current trend shows a bleak future. U.S. investments in aeronautics R&D continue to deteriorate, thereby placing the U.S. civil aeronautics competitive position at risk. The FY06 NASA aeronautics budget has declined 20% from FY04 to just \$852.3M. The projected budget continues the downward slope to just \$717.6M by FY2010.

**BACKGROUND: The U.S. has maintained leadership in aeronautics through continued investments in long-term research.**

The U.S. has been the world leader in aeronautics since the Wright Brothers' flight in 1903. As a result of this position of leadership, U.S. military aircraft dominate the skies and the U.S. civil aeronautics industry is the largest positive contributor to the balance of trade. From its inception in 1915, NACA – and later NASA - has invested continuously in aeronautics research and technology, and over the years, academia and industry have come to depend on NASA's investment in long-term research to provide pre-competitive research and screening of high-risk concepts. Using the fundamental NASA research, industry then focuses on product development and implementation.

But the U.S. must not become complacent. The Europeans plan to assume the role of global leader in aeronautics technology by 2020. They have a well-documented and well-supported vision, an aggressive research agenda and are willing to make the necessary investments at the very time that the U.S. is decreasing its investments. In addition, Brazil and Canada have increased their support of regional aircraft, which are growing in size and may soon compete with U.S. aircraft.

Competition in the commercial aircraft industry is global in scope. With only a few firms supplying each segment of the market, the actions of one firm significantly affect the actions of its competitors. If international companies receive subsidies that affect pricing and output, this alters the competitive landscape for U.S. industry.

Further complicating the issue is the age of the American aerospace workforce. The institutional knowledge held in NASA and industry is draining at an alarming rate. The U.S. graduates a fraction of the aerospace engineers graduated by other nations, such as China and India. In 2003, less than 50% of the students who received PhD's at American schools were American students. The U.S. must work to retain those within the aeronautics workforce, as well as entice young minds – skeptical about a career in aeronautics – to join the workforce. The only way to do this is make a commitment to investing in long-term research.

The U.S. must recommit to a national vision and strategy for aeronautics and a supporting research agenda. This vision must be developed in partnership by industry, academia and the federal government. The Congressionally mandated five-year aeronautics roadmap developed by the National Institute of Aerospace (NIA) lays out the much-needed strong research agenda.

**THE RECOMMENDATION: We ask that Congress and the Administration adopt a two-pronged solution:**

- 1) Implement the funding and programmatic recommendations contained in the NIA plan;***
- 2) Develop an updated national aeronautics vision and strategy.***