



## AEROSPACE & DEFENSE WORKFORCE ENHANCEMENT

**Background:** As the world's largest aerospace professional society, serving a diverse range of more than 30,000 individual members from 88 countries, and 95 corporate members, the American Institute of Aeronautics and Astronautics (AIAA) urges Congress to enact and sustain policies that will enhance a robust, technologically-proficient aerospace and defense (A&D) sector that is essential to our national security.

The adequacy of the U.S. science and engineering workforce is an ongoing concern of Congress and the aerospace industry. Scientists and engineers are essential to U.S innovation and growth, including in the A&D sector. To that end, the Government Accountability Office recently reported that the number of science, technology, engineering, and mathematics (STEM) degrees awarded grew 55 percent from 1.35 million in the 2002-2003 academic year to over 2 million in the 2011-2012 academic year. AIAA commends the programs that have been put in place by Congress, and hopes to see these continually enhanced.

**Issue: Workforce Preparation.** Building on this success, AIAA strongly believes that the 114<sup>th</sup> Congress should pass legislation, with a theme similar to portions of the recent America COMPETES and FIRST Acts, that includes provisions that will enhance the pipeline of STEM-educated workers into the U.S. economy. The National Science Foundation (NSF) Graduate Research Fellowship, the oldest STEM program available to graduate students, should be enhanced to provide additional funding to graduate students in STEM fields today. In addition, Congress should include both tax incentives for industry to participate in STEM outreach and built-in minimum requirements for STEM-related activities associated with STEM-based contracts under the Federal Acquisition Regulation.

**Issue: Foreign Professionals in STEM Fields.** While bolstering the U.S. base of STEM workers, Congress should also renew its interest in facilitating the immigration of foreign professional workers in STEM fields. Efforts in the 112<sup>th</sup> and 113<sup>th</sup> Congress to pass legislation that would provide expedited immigration avenues to foreign workers in STEM fields failed, and it is AIAA's belief that these efforts should be revived in the 114<sup>th</sup> Congress. Highly skilled, foreign-born workers who have been educated at U.S. colleges and universities in STEM fields are engines of entrepreneurship and economic growth. Keeping more of these foreign-born STEM graduates in the United States is vital to ensuring economic prosperity throughout the A&D sector and enhancing that sector's contributions to U.S. competitiveness. If those graduates are able to remain in the U.S., it alleviates the likelihood that they will set up a business that will compete with U.S. interests in their home countries or elsewhere.

**Issue: Maintaining a Skilled Workforce.** In addition to implementing programs that will help drive qualified individuals into the STEM workforce, industry, government, and academia must do a better job of sharing information and facilitating exchange with one another. Such efforts will go a long way to developing and preserving critical skills in the workforce. The Department of Defense (DoD) has programs for temporary exchange of DoD and private sector employees who work in the field of information technology in the Information Technology Exchange Program. This type of model should be expanded to include intergovernmental agreements throughout the A&D sector that includes exchange between industry, government, and academia alike. Congress should play a key role in encouraging the

Administration to develop a program that conducts this exchange. Mechanisms should be put in place to encourage industry to continue training and development activities with the current workforce.

**Issue: Integrating New Knowledge Into the Workforce.** Finally, with many new, exciting fields emerging in A&D engineering, Congress must continue to work to develop programs that will help integrate these fields into the knowledge base and competency of the existing workforce. For example, advances in technology have increased workforce reliance on computational tools. This potentially adds risk to the research and design process unless a proper balance is encouraged to complete adequate end demonstrations of the technology through simulations, ground tests, and flight tests. Developing and sustaining the skills necessary to strike this balance is important to long-term U.S. preeminence in aviation, and teaching these skills in STEM mentoring programs ensures retention of hard-won lessons.

**AIAA Recommendations:**

Pass legislation, with a theme similar to portions of the recent America COMPETES and FIRST Acts, that includes provisions to enhance the pipeline of STEM-educated workers into the U.S. economy

- Enhance NSF Graduate Research Fellowship funding
- Provide tax incentives for industry to participate in STEM programs and training and development programs for the existing workforce

Pass STEM visa legislation similar to that considered in the 112th Congress to encourage the retention of foreign professional STEM workers in U.S. industry

Direct more exchange between government, industry, and academia in the A&D sector via inter-government personnel agreements, and provide incentives to participate in these activities

Develop programs that enable integration of emerging A&D fields into the knowledge base and competency of the existing workforce, including the skills necessary to complete end demonstrations of new technologies