

Mathematics and Science in the 2006 State of the Union Address

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The following report was written by Lewis Burke Associates for the Science Policy Committee of the Mathematical Association of America.

On January 31, 2006, President George W. Bush delivered the annual State of the Union Address. Included within that speech is a preview of the major initiatives to be included in the Administration's forthcoming budget proposal for fiscal year 2007. The details of that budget proposal will be released next week. A major theme of the speech that will be important to those concerned about federal support for research and education is the President's American Competitiveness Initiative. Below is a summary of that initiative with additional details to be provided as soon as the FY 2007 budget is released.

The American Competitiveness Initiative (ACI), as proposed by the President, is designed to encourage U.S. innovation and strengthen this Nation's ability to compete in today's global marketplace. The ACI proposes to increase the Federal investment in critical research, ensure that the United States continues to lead the world in opportunity and innovation, and provide our students with a stronger foundation in math and science. The American Competitiveness Initiative commits \$5.9 billion in FY 2007, and more than \$136 billion over 10 years, to increase investments in research and development (R&D), strengthen mathematics and science education, and encourage entrepreneurship and innovation. The President's ACI includes:

- Doubling the Federal commitment to the most critical basic research programs in the physical sciences over the next 10 years;
- Encouraging the expansion of a favorable environment for additional private-sector investment in innovation;
- Improving the quality of education to provide American children with a strong foundation in math and science;
- Supporting universities that provide world-class education and research opportunities;
- Providing job training that affords more workers and manufacturers the opportunity to improve their skills and better compete in the 21st century;
- Attracting and retaining the best and brightest to enhance entrepreneurship, competitiveness, and job creation in America by supporting comprehensive immigration reform; and
- Fostering a business environment that encourages entrepreneurship and protects intellectual property.

Research in the ACI: The centerpiece of the American Competitiveness Initiative is the President's proposal to double over 10 years investment in key Federal agencies that support basic research programs in the physical sciences and engineering, including the National Science Foundation (NSF), the Department of Energy's Office of Science (DoE SC), and the Department of Commerce's National Institute of

Standards and Technology (NIST). The President's FY07 Budget will reportedly include \$137 billion for Federal research and development, an increase of more than 50 percent over 2001. The sum of the budgets of the National Science Foundation, the Department of Energy's Office of Science, and the Department of Commerce's National Institute of Standards and Technology is proposed to double over 10 years, a total of \$50 billion of new funding.

Education in the ACI: The American Competitiveness Initiative proposes \$380 million in new Federal support to improve the quality of math, science, and technological education in K-12 schools and engage children in rigorous courses that emphasize analytical, technical, and problem-solving skills. The American Competitiveness Initiative reportedly will seek to raise student achievement in math and science through testing and accountability, providing grants for targeted interventions, and developing curricula based on proven methods of instruction. The American Competitiveness Initiative includes a number of new and expanded programs, including:

- The Advanced Placement/International Baccalaureate (AP/IB) Program to expand access of low-income students to AP/IB coursework by training 70,000 additional teachers over five years to lead AP/IB math and science courses.
- An Adjunct Teacher Corps to encourage up to 30,000 math and science professionals over eight years to become adjunct high school teachers.
- Math Now for Elementary School Students and Math Now for Middle School Students to promote promising and research-based practices in math instruction, prepare students for more rigorous math courses, and diagnose and remedy the deficiencies of students who lack math proficiency.

ACI and Related Legislation: The ACI contains a majority of the proposals from the Protecting America's Competitive Edge (PACE) Act. The PACE Act was introduced in the Senate last week as a package of three bills: S. 2197 PACE Energy; S. 2198 PACE Education, and S. 2199 PACE Finance. The PACE Act aims to help America maintain its leading edge in science and technology and implements twenty recommendations contained in a recent report by the National Academy of Science titled *Rising Above the Gathering Storm*. The bills now have 60 cosponsors, including both Senate Majority Leader Bill Frist and Senate Minority Leader Harry Reid. PACE is similar to the legislation introduced in December and highlighted at a forum on January 19, by the House Democratic leadership. Representative Bart Gordon (D-TN), House Minority Leader Nancy Pelosi (D-CA) and other Democratic co-sponsors introduced three bills that are specific to education, energy, and research and development – H.R. 4434: 10,000 Teachers, 10 Million Minds Science and Math Scholarship Act; H.R. 4435: Advanced Research Projects Agency-Energy Act (ARPA-E); and H.R. 4596: Sowing the Seeds Through Science and Engineering Research Act. The ACI is also largely consistent with the major themes and objectives of the National Innovation Act of 2005, S. 2109, legislation introduced by Senators John Ensign and Joe Lieberman in December of last year.

The *New York Times* of February 1, 2006, published the text of President Bush's State of the Union address, and included the following:

And to keep America competitive, one commitment is necessary above all. We must continue to lead the world in human talent and creativity. Our greatest advantage in the world has always been our educated, hard-working, ambitious people, and we are going to keep that edge. Tonight I announce the American Competitiveness Initiative, to encourage innovation throughout our economy, and to give our nation's children a firm grounding in math and science.

First I propose to double the federal commitment to the most critical basic research programs in the physical sciences over the next 10 years. This funding will support the work of America's most creative minds as they explore promising areas such as nanotechnology, supercomputing and alternative energy sources. Second, I propose to make permanent the research and development tax credit to encourage bolder private-sector investment in technology. With more research in both the public and private sectors, we will improve our quality of life and ensure that America will lead the world in opportunity and innovation for decades to come.

Third, we need to encourage children to take more math and science and make sure that these courses are rigorous enough to compete with other nations. We have made a good start in the early grades with the No Child Left Behind Act, which is raising standards and lifting test scores across our country. Tonight I propose to train 70,000 high school teachers to lead Advanced Placement courses in math and science, bring 30,000 math and science professionals to teach in classrooms and give early help to students who struggle with math, so they have a better chance at good high-wage jobs. If we ensure that America's children succeed in life, they will ensure that America succeeds in the world.