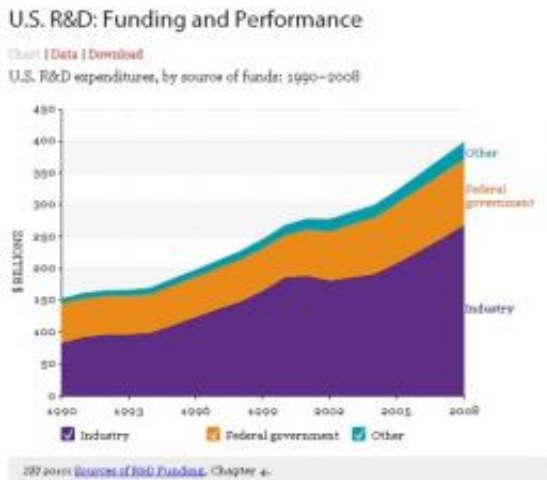


The Scientific State of the Union

January 29 2010, By Devin Powell, ISNS



Industry and the federal government are the largest supporters of U.S. R&D. Industry invested \$268 billion in R&D in 2008, 67% of the estimated \$398 billion national total. It has been the main funding source for U.S. R&D since 1980. Federal R&D support in 2008 stood at \$104 billion. Other sources -- chiefly universities and colleges and other not-for-profit organizations -- added another \$26 billion. Credit: NSF

The guest list for Wednesday night's State of the Union address included two young but elite members of the scientific community. High school students Li Boynton and Gabriela Farfan spent the school night with the First Lady at the first State of the Union address delivered by President Barack Obama.

The two aspiring scientists, who have individually received awards for creating new ways to detect contaminated water and unlocking the

secrets of color-changing gemstones, listened as the president highlighted an issue that will likely shape their future careers and the economic health of the nation: the need to spend more federal money on science and technology research.

"[W]e need to encourage American innovation," said Obama, echoing a historically-popular topic for State of the Union speeches.

But Wednesday night's speech also described a proposed freeze in federal spending that has left the scientific community wondering which government agencies will be impacted.

"The talk reflected the conflicting priorities that the administration and the country face," said Al Teich, director of science and policy programs at the American Association for the Advancement of Science. "On the one hand, he mentioned China, India, and countries that are trying to leap ahead of us, but on the other hand he talked about [reductions in] the budget."

Science and technology have long been considered crucial to the economic health of the United States. In 2005 a National Academies report recommended a doubling of basic research funding to keep the United States competitive and called for new grants for energy research and for early-career scientists.

In the 2008 State of the Union address, President George W. Bush called on Congress to "double federal support for critical basic research in the physical sciences" over 10 years.

While on the campaign trail, then-candidate Obama pledged to support doubling funding for basic research over ten years. Wednesday night he reiterated the importance of basic research.

"Last year, we made the largest investment in basic research funding in history -- an investment that could lead to the world's cheapest solar cells or treatment that kills cancer cells but leaves healthy ones untouched," said Obama.

He also continued to place special emphasis on the need for energy research, which received a substantial boost last year when the 2009 American Recovery and Reinvestment Act allocated \$32.7 billion to the Department of Energy.

"[N]o area is more ripe for such innovation than energy," said Obama.

The speech mentioned two energy companies that are using DOE grant money to develop and produce energy-related technologies. North Carolina-based Celgard, which sells parts for high-tech lithium-ion batteries, was given a nod for its plans to create 1,200 jobs using the \$49.2 million it received as a DOE grant. Obama also gave California-based solar panel manufacturer Solyndra a tip of the hat for plans to hire 1,000 employees with its DOE loan.

According to a report presented to Congress yesterday by a senior DOE official, the U.S. global market share in solar photovoltaic production has slipped from 45 percent to less than 10 percent over the past 15 years. Globally, the United States manufactures only 1 percent of all lithium-ion batteries.

But federal funding for science and technology during the previous decade has actually increased.

According to the National Science Foundation, spending on research and development during George W. Bush's presidency rose from \$66.4 billion in 2000 to \$103.7 billion in 2008.

Now scientists are worried about what will happen when the recent Recovery Act funding expires in 2011.

"It's a cliff that we're approaching," said Teich. "But one of the saving graces is that some of the grants awarded will be spent over several years and smooth the money out."

White House Press Secretary Robert Gibbs told reporters on Tuesday that the proposed budget freeze mentioned in Obama's speech is intended to cut \$250 billion from the budget over 10 years.

"Spending related to our national security, Medicare, Medicaid, and Social Security will not be affected," Obama said. "But all other discretionary government programs will."

The impact that this freeze will have on government agencies involved in science and technology is not yet clear. More details will emerge on Monday, Feb. 1, when the proposed fiscal year 2011 budget is scheduled to be released.

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