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# Efforts to Reauthorize the America COMPETES Act: In Brief

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# Introduction

Throughout American history policymakers have debated questions related to the federal government's support for research and related activities intended to bolster U.S. industrial strength. The debate has continued into the 21st century with great fervor. The America COMPETES Act[1] (COMPETES 2007, P.L. 100-69) and the America COMPETES Reauthorization Act of 2010 (COMPETES 2010, P.L. 111-358) are among the recent efforts to address these questions.

In the early 2000s, many leaders in industry, academia, and government expressed intensifying concerns about U.S. technological leadership and industrial competitiveness. These concerns centered largely on the potential long-term consequences of an erosion in federal funding for basic research in the physical sciences and engineering (PS&E); the adequacy of the U.S. science and engineering workforce; and science, technology, engineering, and mathematics (STEM) education.

# America COMPETES Act

In 2007, Congress responded, in part, to these concerns by enacting the America COMPETES Act with broad bipartisan support. Two pillars formed the core of COMPETES 2007: three-year (FY2008-FY2010) authorizations of appropriations for the National Science Foundation (NSF), Department of Energy (DOE) Office of Science,[2] and National Institute of Standards and Technology (NIST), and authorization of certain federal STEM education and early career researcher programs intended to strengthen the U.S. science and engineering workforce pipeline. The NSF, DOE, and NIST authorizations established a 12.7% annual growth rate[3] for targeted appropriations accounts that support PS&E basic research.[4]

In 2006, President George W. Bush proposed an American Competitiveness Initiative (ACI) that included a proposal to double funding for the targeted accounts over a 10-year period.[5] The "doubling" framework carried over into discussion about COMPETES 2007, whose authorizations for the targeted accounts set a doubling pace of about 7 years. However, appropriations for the targeted accounts fell short of the COMPETES 2007 authorization levels. In aggregate, the targeted accounts grew at an annual pace of 6.6% between FY2007 and FY2010, which, if sustained, would have resulted in doubling over 11 years.[6] Congress also did not appropriate funding for most of the STEM education programs authorized by COMPETES 2007.

[1] The full title of the act is the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act.

[2] The Energy Policy Act of 2005 (P.L. 109-58) provided authorization of appropriations for the DOE Office of Science for FY2008 and FY2009; COMPETES 2007 provided authorizations for FY2010.

[3] Measured as a compound annual growth rate (CAGR) between FY2007 (actual) and FY2010 (authorized) aggregate appropriations levels.

[4] The targeted accounts included all NSF accounts, the DOE's Office of Science, and the NIST Scientific and Technical Research and Services account and the Construction of Research Facilities account.

[5] Previous efforts to double federal funding for R&D agencies include the successful five-year doubling of appropriations for the National Institutes of Health which occurred between FY1998 and FY2003.

[6] For additional information, see CRS Report R41951, *An Analysis of Efforts to Double Federal Funding for Physical Sciences and Engineering Research*, by (name redacted)

# America COMPETES Reauthorization Act of 2010

The concerns that gave rise to the America COMPETES Act had not subsided when the authorizations in the COMPETES 2007 bill came to an end. Accordingly, Congress addressed these ongoing concerns with enactment of COMPETES 2010. Support for COMPETES 2010 lacked the bipartisan, bicameral consensus enjoyed by the original act. Though COMPETES 2010 passed the Senate by unanimous consent, the House vote fell along mostly partisan lines related in large measure to the bill's proposed increases in spending.[7] Like COMPETES 2007, the primary pillars of this act were increased research funding and STEM education. The annual growth rate of the act's authorized appropriations for the targeted accounts for FY2011 through FY2013 was 6.9%, a rate substantially lower than authorized in the original act, but somewhat higher than the growth rate of actual appropriations during the original act's authorization period. COMPETES 2010 also included provisions to increase coordination and reduce duplication in the federal STEM education effort, improve the non-STEM skills of STEM graduate students, and repeal several STEM education programs authorized by COMPETES 2007, some of which had received no funding during the original authorization period.

COMPETES 2010 also included a number of other provisions related to competitiveness and innovation (e.g., authorizing federal agencies to use prize competitions to spur innovation and authorizing regional technology-based economic development programs) and to broadening participation of underrepresented populations (e.g., racial and ethnic minorities, women, persons from rural communities) in STEM education and employment.

Appropriations for the targeted accounts from FY2011 to FY2013 not only fell short of the COMPETES 2010 authorized levels, but actually declined, in aggregate, by 1.8% (a compound annual growth rate of -0.6%) from the FY2010 level.

# Subsequent Reauthorization Efforts

While concerns about U.S. technological leadership and industrial innovation remain, efforts to pass a second reauthorization of the America COMPETES Act have thus far proven unsuccessful. In 2014, Members of the minority in both houses of Congress introduced legislation (H.R. 4159, S. 2757, 113th Congress) to reauthorize the America COMPETES Act. Neither bill was reported by its committee of referral.

In April 2015, the chairman and the ranking member of the House Committee on Science, Space, and Technology introduced separate bills titled America COMPETES Reauthorization Act of 2015. The chairman's bill, H.R. 1806, passed the House by a largely partisan vote of 217-205 in May 2015 and was referred to the Senate Committee on Commerce, Science, and Transportation. Explanatory materials associated with the bill do not mention the "targeted accounts" or a doubling goal, instead emphasizing year-over-year increases in authorizations.

The ranking member's bill, H.R. 1898, was referred to the House Committee on Science, Space, and Technology Subcommittee on Research and Technology and the House Committee on Education and the Workforce Subcommittee on Higher Education and Workforce Training.

Both H.R. 1806 and H.R. 1898 include a wide range of R&D, STEM education, and other science and technology policy provisions, but they take disparate approaches to a number of issues, including authorization periods, authorization levels, and STEM education.

[7] For further discussion, see "From the Hill," *Issues in Science and Technology*, vol. 26, no. 4 (Summer 2010).

For example, H.R. 1806 would authorize appropriations for FY2016 and FY2017 for NSF, NIST, and the DOE Office of Science. Notably, the bill would provide no increase for these agencies between FY2016 and FY2017. Compared to FY2015 enacted appropriations, NSF would grow by a compound annual rate of 1.7% for FY2016 and FY2017, NIST by 4.2%, and the DOE Office of Science by 2.6%.[8] In contrast, H.R. 1898 provides five-year authorizations (FY2016-FY2020) that would increase NSF authorizations of appropriations by a compound annual rate of 4.9%, NIST by 8.5%,[9] and the DOE Office of Science by 5.1% over the FY2015 enacted appropriations levels.

Another example is that H.R. 1806 would authorize appropriations for the NSF Research and Related Activities (R&RA) account at the directorate level. This was last done in FY1999.[10] In contrast, H.R. 1898 would provide authorizations at the R&RA account level, providing discretion to NSF in allocating funding among the directorates. Some contend that the approach taken in H.R. 1806 would politicize the allocation of NSF funding by replacing the judgment of the scientific community with that of elected officials. Others assert that the more detailed authorizations are an appropriate exercise of congressional discretion and fiduciary responsibility. As part of this directorate-level direction, H.R. 1806 would reduce FY2016 and FY2017 authorizations for social and behavioral sciences by 44.9% and geosciences by 8% from their respective FY2015 levels.[11]

In the Senate, a bipartisan effort by members of the Senate Commerce, Science, and Transportation Committee, led by Senator Cory Gardner and Senator Gary Peters, and members of the innovation and competiveness working group, established by committee chairman Senator John Thune, has sought input from academic, business, nonprofit, and federal agency stakeholders on R&D policy priorities. The working group held several roundtable discussions focused on basic research, STEM education, and commercialization of federally funded research. Subsequently, the Senators sought additional comments from stakeholders on STEM education and workforce issues, research commercialization, and technology transfer. In this regard, the working group posted questions on each topic and invited public comment. The committee expects the results of the roundtables and public comments to be used in drafting legislation in 2016.[12]

The Energy Title of America COMPETES Reauthorization Act of 2015 (S. 1398) was introduced in the Senate in May 2015 and referred to the Committee on Energy and Natural Resources. This bill would authorize appropriations for the DOE Office of Science and the Advanced Research Projects Agency-Energy (ARPA-E) for FY2016-FY2020, both by a compound annual growth rate of 4.0% above their FY2015 levels. In addition, the bill would consolidate, eliminate, or repeal authorizations for a number of DOE STEM education programs. A hearing was held on S. 1398 in June 2015. The provisions of S. 1398 were incorporated in the Energy Policy Modernization

[8] Since H.R. 1806 was written, Congress has enacted FY2016 appropriations. Aggregate FY2016 appropriations for NSF, NIST, and the DOE Office of Science were lower than the aggregate amount authorized in H.R. 1898 for FY2016, and higher than the aggregate amount authorized in H.R. 1806.

[9] According to staff of the House Committee on Science, Space, and Technology, H.R. 1898 incorrectly specifies the total authorized funding levels for NIST for FY2017 to FY2020, overstating the total by $310 million for each year. NIST's compound annual growth rate for H.R. 1898 is calculated using the adjusted figures.

[10] P.L. 105-276.

[11] Since H.R. 1806 was written, Congress has enacted FY2016 appropriations. NSF has not yet published information on how its FY2016 R&RA appropriation will be allocated by directorate.

[12] U.S. Senate, Committee on Commerce, Science, and Transportation, *2015 Report & Look Ahead*, December 30, 2015.

Act of 2015 (S. 2012), which was reported by the Senate Committee on Energy and Natural Resources in September 2015. Provisions of S. 1398 may be incorporated in a more comprehensive bill to reauthorize the America COMPETES Act.

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