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SENATE REPUBLICAN POLICY COMMITTEE

Legislative Notice

No. 12 April 20, 2007

S. 761 - America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act

Calendar No. 70

S. 761 was placed on the Senate Calendar by Rule 14 on March 6. The bill was introduced by Senators Reid and McConnell on March 5.

Noteworthy

- On Friday, April 20, 2007, Senate began consideration of S. 761, the "America COMPETES Act." According to the Majority Leader, amendments will be in order on Monday, April 23, with votes on those amendments expected Tuesday, April 24.

- S. 761 was introduced on March 5, read for a second time and placed on the calendar on March 6. The bipartisan legislation, sponsored by Senators Reid and McConnell, has 52 cosponsors at press time.

- The legislation is based on several of the recommendations from both the "Rising Above the Gathering Storm" report conducted by the National Academies and a report by the Council on Competitiveness titled "Innovate America." S. 761 focuses on three primary areas of importance to maintaining and improving U.S. innovation in the 21st century: 1) increasing research investment; 2) strengthening educational opportunities in science, technology, engineering, and mathematics from elementary through graduate school; and 3) developing an innovation infrastructure.

Highlights

S. 761, the "America COMPETES Act" or the "America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act," was introduced on March 5, 2007. It was read a second time and placed on the Senate Calendar on March 6. The bipartisan legislation, sponsored by Senators Reid and McConnell, currently has 52 cosponsors.

S. 761 contains a revised version of S. 2197, the Protecting America's Competitive Edge Through Energy Act, or the PACE-Energy Act, reported out of the Senate Energy and Commerce Committees in the 109th Congress. S. 761 also includes S. 2802, the American Innovation and Competitiveness Act, which was reported out of the Senate Commerce Committee in the 109th Congress without opposition. Neither bill was taken up by the Senate. In addition, S. 761 includes provisions developed in the 109th Congress by the bipartisan leadership of the HELP Committee to improve science, technology, engineering, mathematics, and critical foreign language skills. An earlier version of S. 761 was introduced in the final days of the 109th Congress as S. 3936, the National Competitive Investment Act, which the Senate did not consider. Unlike an earlier version of this legislation, S. 761 contains no immigration-related provisions.

Sponsors of the bill note that S. 761 would significantly increase the federal investment in basic research, foster an innovation infrastructure, improve the teaching of math, science, engineering, and technology at the K-12 level, and encourage individuals to pursue careers in these fields. Among the highlights, the bill would:

- Double the investment in basic research at the National Science Foundation (NSF), the National Institutes of Standards and Technology (NIST), and the Department of Energy's Office of Science (DOE-SC) over five to ten years; and require consultation with the National Aeronautics and Space Administration (NASA) for interagency efforts to promote innovation and coordinate basic research;

- Improve teacher training in math and science through summer institutes hosted by the NSF and the DOE-SC, and grants to increase university degree programs that combine math and science study with concurrent teacher certification programs; and

- Increase support for Advanced Placement programs to expand access for low-income students to take and succeed in college preparatory courses.

Background

The America COMPETES Act is based on portions of the broad recommendations contained in both the "Rising Above the Gathering Storm" report conducted by the National Academies,[1] and

[1] Text of the report can be found at http://books.nap.edu/catalog.php?record_id=11463.

a report by the Council on Competitiveness titled "Innovate America."[2] The National Academies issued four primary recommendations:

- Increase America's talent pool by vastly improving K-12 science and mathematics;

- Sustain and strengthen the nation's traditional commitment to long-term basic research that has the potential to be transformational to maintain the flow of new ideas that fuel the economy, provide security, and enhance the quality of life;

- Make the United States the most attractive setting in which to study and perform research so that we can develop, recruit, and retain the best and brightest students, scientists, and engineers from within the United States and throughout the world; and

- Ensure that the United States is the premier place in the world to innovate; invest in downstream activities such as manufacturing and marketing; and create high-paying jobs based on innovation by such actions as modernizing the patent system, realigning tax policies to encourage innovation, and ensuring affordable broadband access.

Studies show that global competition and rapid advances in science and technology will require a workforce that is more scientifically and technically proficient. "The Bureau of Labor Statistics reports that science and engineering occupations are projected to grow by 21.4 percent from 2004 to 2014, compared to a growth of 13 percent in all occupations during the same period."[3] At the same time, "in South Korea, 38 percent of all undergraduates receive their degrees in natural science or engineering. In France, the figure is 47 percent, in China, 50 percent, and in Singapore, 67 percent. In the United States, the corresponding figure is 15 percent."[4]

The Council on Competitiveness' recommendations focused around three themes: talent, investment, and infrastructure. Their recommendations included: build a national innovation education strategy for a diverse, innovative, and technically-trained workforce; catalyze the next generation of American innovators; revitalize frontier and multidisciplinary research; create national consensus for innovation growth strategies; and strengthen America's manufacturing capacity.

In February 2007, the Administration released as part of its FY 2008 budget submission a revised American Competitiveness Initiative (ACI).[5] The proposal is intended to keep America the most innovative and competitive economy in the world by encouraging more aggressive investment by businesses through a permanent enhanced research and development tax credit ($3.2 billion in FY 2008 and $117 billion over 10 years), greatly increasing and prioritizing federal support for vital research (a $764 million increase in FY 2008 for ACI research agencies), and improving

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[2] The executive summary of the report can be found at http://www.innovateamerica.org/files/InnovateAmerica_EXEC%20SUM_WITH%20RECS.pdf. The full report can be found at http://innovateamerica.org/webscr/report.asp.

[3] Congressional Research Service, "Science, Engineering, and Mathematics Education: Status and Issues," CRS Report for Congress 98-871 STM, February 4, 2007.

[4] National Academies, "Rising Above the Gathering Storm," 2005.

[5] For more information, please see http://www.ostp.gov/html/budget/2008/ACIUpdateStatus.pdf.

math and science education for America's students (a $365 million increase in FY 2008 at the Department of Education).

Bill Provisions

Section 1 – Short Title

Section 1 provides that the legislation be cited as the "America COMPETES Act."

Section 2 – Organization of Act into Divisions; Table of Contents

Section 2 organizes the legislation into four divisions. Division A contains sections related to commerce and science; Division B contains sections related to the Department of Energy; Division C contains sections related to education; and Division D contains sections related to the National Science Foundation.

DIVISION A – COMMERCE AND SCIENCE

Division A contains language nearly identical to S. 2802, reported by the Commerce committee on July 19, 2006.

Section 1001 – Short Title

This section provides that this division may be cited as the "American Innovation and Competitiveness Act."

TITLE I – OFFICE OF SCIENCE AND TECHNOLOGY POLICY; GOVERNMENT-WIDE SCIENCE

Section 1101 – National Science and Technology Summit

This section requires the President to convene a National Science and Technology Summit within 180 days of enactment to evaluate the health and direction of the nation's science and technology enterprise and to identify key research and technology challenges and recommendations for research and development investment over the next five years.

Section 1102 – Study on Barriers to Innovation

Section 1102 requires the Director of the Office of Science and Technology Policy to enter into a contract with the National Academy of Sciences to conduct a study to identify forms of risk that create barriers to innovation one year after enactment and four years after enactment.

Section 1103 – National Innovation Medal

Section 1103 amends Section 16 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3711) to rename the "National Technology Medal" as the "National Technology and Innovation Medal."

Section 1104 – Release of Scientific Research Results

Section 1104 requires the Director of the Office of Science and Technology Policy (OSTP), in consultation with the Director of the Office of Management and Budget and the heads of all federal civilian agencies that conduct scientific research, to develop and issue a set of principles for the communication of scientific information by government scientists, policy makers, and managers to the public within 90 days after the date of enactment of this Act.

Section 1105 – Semiannual Science, Technology, Engineering, and Mathematics Days

Section 1105 expresses the Sense of Congress that OSTP should encourage all elementary and middle schools to observe a Science, Technology, Engineering, and Mathematics Day twice in every school year for the purpose of facilitating the interaction of science, technology, engineering, and mathematics mentors and grade school students with the involvement of federal employees, the private sector, and institutions of higher learning in such days.

Section 1106 – Study Service Science

Section 1106 expresses a Sense of Congress that the Federal Government should better understand and respond strategically to the emerging management and learning discipline known as "service science."

Subsection (b) requires the Director of OSTP, through the National Academy of Sciences, to conduct a study on how the Federal Government should best support service science through research, education, and training.

TITLE II – INNOVATION PROMOTION

Section 1201 – President's Council on Innovation and Competitiveness

Section 1201 requires the President to establish a President's Council on Innovation and Competitiveness to develop a comprehensive agenda to promote innovation in the public and private sectors. The Council will include the Secretaries of Commerce, Defense, Education, Health and Human Services, Homeland Security, Labor, and Treasury along with the heads of the National Aeronautics and Space Administration, the Securities and Exchange Commission, the National Science Foundation, the Office of the United States Trade Representative, the Office of Management and Budget, the Office of Science and Technology Policy, the Environmental Protection Agency, and other relevant federal agencies involved in innovation. The Council should consult with advisors from the private sector, labor, scientific organizations,

academic organizations, and other nongovernmental organizations working in the area of science or technology.

Section 1202 – Innovation Acceleration Research

Section 1202 requires the President to establish the "Innovation Acceleration Research Program" to support and promote innovation in the United States by requiring each department or agency that sponsors scientific research to set as a goal 8 percent of its annual research budget to be directed towards innovation acceleration research.

TITLE III – NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Section 1301 – NASA's Contribution to Innovation

Section 1301 directs that NASA be regarded as a full participant in interagency activities to promote competitiveness and innovation and to enhance science, technology, engineering, and mathematics education. It expresses the Sense of Congress that funding NASA at the levels authorized in the National Aeronautics and Space Administration Authorization Act of 2005 (42 U.S.C. 16611(d)) (NASA Authorization Act of 2005 (P.L. 109-155)) would enable a balanced execution of NASA's mission areas and robust participation in the interagency process identified above, thereby contributing to U.S. innovation and competitiveness.

Section 1302 – Aeronautics Institute for Research

Section 1302 consolidates NASA's aeronautics research authorized under the NASA Authorization Act of 2005 (P.L. 109-155) into an Aeronautics Institute for Research within NASA.

Section 1303 – Basic Research Enhancement

Section 1303 establishes within NASA a Basic Research Executive Council to oversee the distribution and management of programs and resources engaged in support of basic research activity. The Council will set criteria for identification of basic research, set the priority of research activity, review and evaluate research activity, make recommendations regarding needed adjustments in research activities, and provide annual reports to Congress on research activities.

Section 1304 – Aging Workforce Issues Program

Section 1304 expresses the Sense of Congress that the Administrator of NASA should implement a program identifying and addressing aging workforce issues in aerospace.

Section 1305 – Conforming Amendments

Section 1305 amends Section 101(d) of the NASA Authorization Act of 2005 (42 U.S.C. 16611(d)) by adding that certain assessments undertaken by NASA to examine the number and

content of science activities which may be considered fundamental, or basic research, whether incorporated within specific missions or conducted independently of any specific mission. This section also requires NASA to assess how NASA science activities can best be structured to ensure that basic and fundamental research can be effectively maintained and coordinated in response to national goals in competitiveness and innovation.

Section 1306 – Fiscal Year 2008 Basic Science and Research Funding

Section 1306 provides additional authorization, above the levels authorized in the NASA Administration Act of 2005 (P.L. 109-155), of $160 million for the funding of basic science and research for FY 2008. The availability of these funds is made contingent upon unobligated balances being available to NASA.

TITLE IV – NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

Section 1401 – Authorization of Appropriations

Section 1401 authorizes appropriations for the National Institute of Standards and Technology (NIST) from FY 2008 through FY 2011, including authorizations for the Hollings Manufacturing Extension Partnership Program (MEP). The MEP authorizations would be taken from the authorizations provided for NIST. Authorization levels will be set as follows:

	FY 2008	FY 2009	FY 2010	FY 2011
NIST Total	$703.611	$773.972	$851.369	$936.506
MEP	$115	$120	$125	$130

All amounts are in millions.

Section 1402 – Amendments to the Stevenson-Wydler Technology Innovation Act of 1980

Section 1402 eliminates the Under Secretary of Commerce for Technology at the Department of Commerce and the related agency at the Department of Commerce.

Section 1403 – Innovation Acceleration

Section 1403 establishes the Innovation Acceleration Research Program of Section 1202 at NIST, to be known as the "Standards and Technology Acceleration Research Program." The program will support and promote innovation in the United States through high-risk, high-reward research. No less than 8 percent of the funds made available to the measurement laboratories at NIST each year will be set aside for the program.

Section 1404 – Manufacturing Extension

Section 1404 amends Section 25(c)(5) of the National Institute of Standards and Technology Act (15 U.S.C. 278k(c)(5)) by inserting a probationary program for MEP centers that have not received a satisfactory rating. If the issues of a center are not addressed in one year, the Director will be required to conduct a competition to select a new operator for the center.

Subsection (b) allows the acceptance of funds from other federal agencies and the private sector by the Secretary of Commerce and Director to strengthen U.S. manufacturing.

Section 1405 – Experimental Program to Stimulate Competitive Technology

Section 1405 re-establishes the Experimental Program to Stimulate Competitive Technology (EPSCoT), previously managed by the Technology Administration, at NIST.

Subsection (d) requires that in making awards under this section, the Director of NIST shall ensure that the awards are made on a competitive basis. A special emphasis will be given to those projects which would increase the participation of women, Native Americans (including Native Hawaiians and Alaska Natives), and other underrepresented groups in science and technology. Subsection (d)(2) imposes a matching requirement that not less than 50 percent of the cost of activities (other than planning activities) carried out by an EPSCoT award be funded by non-federal sources.

Section 1406 – Technical Amendments to the NIST Act and Other Technical Amendments

Section 1406 makes several technical amendments to the NIST Act.

TITLE V – OCEAN AND ATMOSPHERIC PROGRAMS

Section 1501 – Ocean and Atmospheric Research and Development Program

Section 1501 requires the Administrator of the National Oceanic and Atmospheric Administration (NOAA), in consultation with the Director of NSF and the Administrator of NASA, to establish a coordinated program of ocean and atmospheric research and development to promote United States leadership in ocean and atmospheric science.

Section 1502 – NOAA Ocean and Atmospheric Science Education Programs

Section 1502 requires the Administrator of NOAA to conduct, develop, support, promote, and coordinate formal and informal educational activities at all levels to enhance public awareness and understanding of ocean, coastal, and atmospheric science and stewardship by the general public.

Subsection (b) requires the Administrator of NOAA and appropriate NOAA programs, along with NOAA stakeholders, to develop a science education plan that sets forth education goals and strategies for NOAA, as well as programmatic actions to carry out such goals and priorities over the next 20 years.

DIVISION B – DEPARTMENT OF ENERGY

Division B contains language nearly identical to S. 2197, reported by the Committee on Energy and Natural Resources Commerce committee on April 24, 2006.

Section 2001 – Short Title

Section 2001 specifies that this Division may be referred to as the "Protecting America's Competitive Edge Act through Energy (PACE-Energy) Act."

Section 2002 – Definitions

Section 2002 provides definitions for purposes of the Division.

Section 2003 – Mathematics, Science, and Engineering Education at the Department of Energy

Section 2003 creates a "Director of Mathematics, Science, and Engineering Education Programs" at the Department of Energy to coordinate all mathematics, science, and engineering education department-wide. Section 2003 also amends the Department of Energy Science Education Enhancement Act to establish new programs in science, mathematics, and engineering education, including:

- Specialty Schools for Math and Science – Creates a competitive grant program to assist States in establishing or expanding public, statewide specialty schools that provide comprehensive mathematics, science, and engineering education. In addition, it authorizes scientific and engineering staff of the National Laboratories to assist in teaching courses in statewide specialty schools in mathematics and science education, and to use National Laboratory scientific equipment in the teaching of courses. This portion of Section 2003 authorizes $140 million over four years for these schools.

- Experiential-Based Learning Opportunities – Establishes summer internships, including internships at the National Laboratories, for middle and high school students to promote experiential, hands-on learning in math and science. This portion of Section 2003 authorizes $15 million annually for this program from FY 2008 through FY2011.

- National Laboratories Centers of Excellence in Mathematics and Science Education – Establishes a program at each of the National Laboratories to support a Center of Excellence in Mathematics and Science at one public secondary school. It also requires the Secretary to consider the performance of these Centers in determining the contract award fee for the management and operations contractor of each national laboratory.

- Summer Institutes – Establishes a program of summer institutes at each of the National Laboratories, and through grants to universities and other nonprofit entities, to strengthen the math and science teaching skills of K-12 teachers. This portion of Section 2003 authorizes $190 million over four years for these institutes.

- Nuclear Science Education – Creates a program for competitive, merit-based grants to universities that establish or expand nuclear science and engineering degree programs. This portion of Section 2003 would authorize approximately $140 million over four years for these grants.

Section 2004 – Department of Energy Early Career Research Grants

Section 2004 authorizes research grants for early-career scientists and engineers pursuing innovative, independent research. Eligible individuals must have completed a doctorate within the previous 10 years, and must show promise in a field of science or technology. Grants awarded under this section would be for five years, at a level of up to $100,000 per year during the grant period. Section 2004 authorizes $91 million over four years for this program.

Section 2005 – Advanced Research Projects Authority–Energy

Section 2005 establishes the Advanced Research Projects Authority – Energy (ARPA-E) as a new agency within the Department of Energy. The mission of ARPA-E will be to support research with the potential to overcome long-term, high-risk technological barriers in the development of applied energy technologies (including carbon-neutral technologies).

Section 2006 – Authorization of Appropriations for the Department of Energy Office of Science

Section 2006 authorizes a doubling of Office of Science funding over 10 years. The authorization is $4.6 billion.

Section 2007 – Discovery Science and Engineering Innovation Institutes

Section 2007 establishes multi-disciplinary institutes centered at National Laboratories to apply fundamental science and engineering discoveries to technological innovations related to the missions of the Department and the global competitiveness of the United States. Each Institute will be authorized to receive $10 million in federal funding annually.

Section 2008 – PACE Graduate Fellowship Program

Section 2008 establishes a competitive graduate fellowship program for up to 700 students pursuing doctoral degrees. This section authorizes $93 million over four years for these fellowships.

Section 2009 – Title IX Compliance

Section 2009 requires the Department of Energy to conduct annual compliance reviews of two grant recipients to determine compliance with the provisions of Title IX of the Education Amendments of 1972. Title IX of the Education Amendments of 1972 requires government agencies to ensure that female students have equal access to the programs supported by federal grants.

Section 2010 – High-Risk, High-Reward Research

Section 2010 requires the Secretary of Energy to establish a grant program to encourage the conduct of high-risk, high-reward research at the Department of Energy.

Section 2011 – Distinguished Scientists Program

Section 2011 establishes a joint program between universities and national laboratories to support up to 100 distinguished scientist positions. These scientists will hold joint appointments at the labs and their universities, and will promote academic and scientific excellence cooperation between the two institutions. Section 2011 authorizes $290 million over 4 years for these appointments.

DIVISION C – EDUCATION

Division C is adapted from S. 3936, the National Competitiveness Investment Act of 2006.

Section 3001 – Findings

Section 3002 – Definitions

Section 3002 contains definitions that are used throughout the Education Division.

TITLE I – TEACHER ASSISTANCE

SUBTITLE A – TEACHERS FOR A COMPETITIVE TOMORROW

Section 3111 – Purpose

Section 3111 provides that the purpose of this subtitle is to develop and implement undergraduate programs leading to a baccalaureate degree with concurrent teacher certification that provide integrated courses of study in mathematics, science, engineering, or critical foreign languages and teacher education. Also provided will be master's degree programs in mathematics, science, or critical foreign language education for current teachers to enhance their content knowledge and pedagogical skills.

Section 3112 – Definitions

Section 3112 contains definitions that are used in this subtitle.

Section 3113 – Programs for Baccalaureate Degrees in Mathematics, Science, Engineering, or Critical Foreign Languages, with Concurrent Teacher Certification

Section 3113 authorizes competitive grants for partnerships to develop and implement programs that integrate programs of study for undergraduate students majoring in mathematics, engineering, science, or a critical foreign language, with teacher education, so that students can

obtain baccalaureate degrees with concurrent teacher certification. These partnerships will consist of institutions of higher education, departments of mathematics, engineering, science, or critical foreign languages, teacher preparation programs, and high-need local educational agencies and their schools.

Section 3114 – Programs for Master's Degrees in Mathematics, Science, or Critical Foreign Languages Education

Section 3114 authorizes competitive grants for partnerships to develop and implement two- or three-year part-time master's degree programs in mathematics, science, or critical foreign language education for current teachers to improve their content knowledge and pedagogical skills.

Section 3115 – General Provisions

Section 3115 contains provisions that will be applicable to both the baccalaureate and master's degree programs. Grants will be for five years; matching funds would be required; and grant funds will be used only to supplement, not supplant, other Federal or State funds. The Secretary will be required to evaluate the programs and provide an annual report to Congress.

Section 3116 – Authorization of Appropriations

Section 3116 authorizes to be appropriated a total for both programs of $210,000,000 for FY 2008, and such sums as may be necessary for each of the three succeeding fiscal years, and specify the proportion of the total funding that is to be spent carrying out each of the two programs.

SUBTITLE B – ADVANCED PLACEMENT AND INTERNATIONAL BACCALAUREATE PROGRAMS

Section 3121 – Purpose

Section 3121 provides that the purpose of this subtitle is to raise academic achievement through Advanced Placement (AP) and International Baccalaureate (IB) programs by increasing the number of teachers serving high-need schools who are qualified to teach AP or IB courses in mathematics, science, and critical foreign languages; increasing the availability of such courses in high-need schools; and increasing the number of students attending high-need schools who take such courses and take and pass the examinations.

Section 3122 – Definitions

Section 3121 contains definitions that are used in this subtitle.

Section 3123 – Advanced Placement and International Baccalaureate Programs

Section 3123 authorizes competitive grants to achieve the purposes of this subtitle and authorizes to be appropriated $58,000,000 for FY 2008, and such sums as may be necessary for each of the three succeeding fiscal years.

TITLE II – MATH NOW

Section 3201 – Math Now for Elementary School and Middle School Students Program

Section 3201 authorizes a grant program to improve instruction in mathematics for elementary school and middle school students, and to provide targeted help to students struggling with mathematics, to enable all students to reach or exceed grade-level academic achievement standards. State educational agencies will be awarded grants on a competitive basis to enable them to award grants to eligible local educational agencies. Priority will be given to applications for projects that implement statewide strategies for improving mathematics instruction and raising the mathematics achievement of students, particularly those in grades four through eight. There will be a matching requirement, but the Secretary would have the authority to waive all or part of it in cases of serious hardship. The section authorizes to be appropriated $146,700,000 for FY 2008, and such sums as may be necessary for each of the three succeeding fiscal years.

TITLE III – FOREIGN LANGUAGE PARTNERSHIP PROGRAM

Section 3301 – Findings and Purpose

Section 3301 provides that the purpose of this title is to increase significantly both the opportunities to study critical foreign languages programs and the number of students who become proficient in critical foreign languages.

Section 3302 – Definitions

Section 3302 contains definitions that are used in this title.

Section 3303 – Program Authorized

Section 3303 authorizes a competitive grant program to enable institutions of higher education and local educational agencies working in partnership to establish articulated programs of study in critical foreign languages so that students from elementary school through postsecondary education can advance their knowledge successfully and achieve higher levels of proficiency in a critical foreign language.

Section 3304 – Authorization of Appropriations

Section 3304 authorizes to be appropriated $22,000,000 for FY 2008, and such sums as may be necessary for each of the three succeeding fiscal years.

TITLE IV – ALIGNMENT OF EDUCATION PROGRAMS

Section 3401 – Alignment of Secondary School Graduation Requirements with the Demands of 21st Century Postsecondary Endeavors and Support for P-16 Education Data Systems

Section 3401 provides that this title authorizes competitive grants to States to promote better alignment of elementary and secondary education with the knowledge and skills needed to succeed in academic credit-bearing coursework in institutions of higher education. The title also authorizes competitive grants to support the establishment or improvement of statewide P-16 education longitudinal data systems to assist States in improving the rigor and quality of content knowledge requirements and assessments, and enable States to have valid and reliable information to inform education policy and practice. The section authorizes to be appropriated $100,000,000 for FY 2008, and such sums as may be necessary for FY 2009.

DIVISION D – NATIONAL SCIENCE FOUNDATION

Division D is adapted from Title III of S. 2802, the American Innovation and Competitiveness Act, as reported by the Commerce Committee on July 19, 2006.

Section 4001 – Authorization of Appropriations

Subsection (a) authorizes appropriations for the National Science Foundation (NSF) at the following levels for four years.

	FY 2008	FY 2009	FY 2010	FY 2011
NSF	$6.808	$7.433	$8.446	$11.2

All amounts are in billions.

Section 4002 – Strengthening of Education and Human Resources Directorate through Equitable Distribution of New Funds

Section 4002 provides for annual funding increases for the education and human resources programs of the National Science Foundation to ensure the continued involvement of experts at the National Science Foundation in improving science, technology, engineering, and mathematics education at the elementary, secondary, and postsecondary levels. As appropriations for the National Science Foundation increase, funds for the education and human resources programs will increase by a proportional amount.

Section 4003 – Graduate Fellowships and Graduate Traineeships

Section 4003 requires the Director of NSF to expand both the Graduate Research Fellowship Program and the Integrative Graduate Education and Research Traineeship Program for an additional 1,250 students each over the next five years. Within the amounts authorized under Section 4001, this section authorizes appropriations at the following levels in FY 2008 through

2011 to support the expansion of the Graduate Research Fellowship Program (GRF) and the Integrative Graduate Education and Research Traineeship Program (IGERT).

	FY 2008	FY 2009	FY 2010	FY 2011
GRF	$24	$36	$48	$60
IGERT	$22	$33	$44	$55

All amounts are in millions.

Section 4004 – Professional Science Master's Degree Programs

Section 4004 requires the Director of NSF to establish an NSF clearinghouse to share program elements used in professional science master's degree (PSMD) programs and other advanced degree programs related to science, mathematics, technology, and engineering, to help institutions of higher education establish professional science master's programs.

Subsection (b) requires the Director to award grants to four-year institutions of higher education to facilitate the institutions' creation or improvement of professional science master's degrees programs. The program will make awards to a maximum of 200 four-year institutions of higher education for a three year period.

Within the amounts authorized under Section 4001, subsection (d) authorizes appropriations at the following levels in FY 2008 through 2011 to carry out this section.

	FY 2008	FY 2009	FY 2010	FY 2011
PSMD	$15	$18	$20	$20

All amounts are in millions.

Section 4005 – Increased Support for Science Education through the National Science Foundation

Within the amounts authorized under Section 4001, Section 4005 authorizes appropriations for the science, mathematics, engineering, and technology talent program established in section 8(7) of the National Science Foundation Act of 2002 (P.L. 107-368) at the following levels in FY 2008 through 2011.

	FY 2008	FY 2009	FY 2010	FY 2011
Tech Talent	$40	$45	$50	$55

All amounts are in millions.

Section 4006 – Meeting Critical National Science Needs

Section 4006, subsection (a) requires the Director of NSF to include consideration of the degree to which NSF awards, and research activities assist in, meeting critical national needs in innovation, competitiveness, the physical and natural sciences, technology, engineering, and mathematics.

Subsection (b) requires the Director of NSF to give priority in the selection of awards and the allocation of NSF resources under the Research and Related Activities budgetary account to those projects that can be expected to make contributions in physical and natural sciences, technology, engineering, and mathematics, or which can be expected to enhance competitiveness or innovation in the United States.

Section 4007 – Reaffirmation of the Merit-Review Process of the National Science Foundation

Section 4007 clarifies that nothing in this Act shall be interpreted to require or recommend that NSF change its (1) merit-review system or (2) peer review process. These processes should continue to be used in determining what grants NSF will fund.

Section 4008 – Experimental Program to Stimulate Competitive Research

Section 4008 authorizes the NSF's Experimental Program to Stimulate Competitive Research (EPSCoR) at $125 million for FY 2008, of the funds authorized in Section 4001, increasing each year from FY 2009 to FY 2011 by the same percentage by which NSF's overall funding increases.

Section 4009 – Encouraging Participation

Subsection (a) requires the Director of NSF to establish a program to provide mentors for women who are interested in careers in science, technology, engineering, and mathematics.

Subsection (b) requires the Director of NSF to establish a program to provide grants to community colleges to provide apprenticeships and other appropriate training to allow women to enter higher-paying technical jobs in fields related to science, technology, engineering, or mathematics.

Section 4010 – Cyberinfrastructure

Section 4010 requires the Director of NSF to develop and publish a plan that describes the current status of broadband access for scientific research purposes in EPSCoR-eligible jurisdictions, and outlines actions that could be taken to ensure that broadband connections are available to enable participation in NSF programs that rely heavily on high-speed networking and collaborations across institutions and regions.

Section 4011 – Federal Information and Communications Technology Research

Section 4011 requires the Director of NSF to establish a grant program for basic research in advanced information and communications technologies focused on enhancing or facilitating the availability and affordability of advanced communications services to all Americans. Within the amounts authorized by Section 4001, Section 4011 authorizes appropriations to carry out this section at the following levels in FY 2008 through 2011.

	FY 2008	FY 2009	FY 2010	FY 2011
Telecommunications Basic Research	$45	$50	$55	$60

All amounts are in millions.

Section 4012 – Robert Noyce Teacher Scholarship Program

Section 4012 increases support for the Robert Noyce Scholarship Program to recruit and train individuals to become math and science teachers in high-need local educational agencies. It increases the undergraduate scholarship amount from $7,500 to $10,000 per year for a maximum of two years (in exchange for teaching service) and adds a summer internship component for freshmen and sophomores interested in the program. Within the amounts authorized by Section 4001, Section 4012 authorizes appropriations to carry out this section at the following levels in FY 2008 through 2011.

	FY 2008	FY 2009	FY 2010	FY 2011
Noyce Program	$117	$130	$148	$200

All amounts are in millions.

Section 4013 – Sense of the Senate Regarding the Mathematics and Science Partnership Programs of the Department of Education and the National Science Foundation

Section 4013 expresses the Sense of the Senate that mathematics and science partnership programs operated by the Department of Education and the National Science Foundation are complementary, not duplicative, and the two agencies should have ongoing collaboration to ensure the two components continue to work in concert.

Section 4014 – National Science Foundation Teacher Institutes for the 21st Century

Section 4014 specifically authorizes and increases support for the Teacher Institutes for the 21st Century summer institute program at the National Science Foundation, to provide cutting-edge professional development for elementary and secondary school math and science teachers who teach in high-need schools. Within the amounts authorized by Section 4001, Section 4014 authorizes appropriations to carry out this section at the following levels in FY 2008 through 2011.

	FY 2008	FY 2009	FY 2010	FY 2011
Teacher Institutes	$84	$94	$106	$140

All amounts are in millions.

Administration Position

A Statement of Administration Policy was not available at press time.

Cost

The Congressional Budget Office has not issued a cost estimate on this bill.

The sponsors of the bill have estimated the costs based on the authorizations contained in S. 761 to be $59.94 billion over FY 2008-2011. This amount reflects $3.265 billion for Division A (National Institutes of Standards and Technology), $20.64 billion for Division B (Department of Energy), $2.15 billion for Division C (Education), and $33.89 billion for Division D (National Science Foundation).

Possible Amendments

Numerous amendments addressing the variety of issues contained in the bill are anticipated. Those known at press time include:

- a managers' amendment;

- a Wyden/Smith amendment that would permit the Secretary of Education to provide grants of up to $150,000 to public or private high schools, community colleges, or four-year colleges or universities to strengthen the capacity of eligible institutions to provide instruction in nanotechnology. The amendment would authorize $15 million in FY 2008 and such as sums as necessary for FY 2009-2013; and

- a DeMint amendment that would permit the Secretary of Education to provide education opportunity grants to low-income secondary school students to pay the cost (up to $1,200 per course and $4,050 per academic year) of math and science courses at an institution of higher education.