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February 28, 2008

The Honorable John Spratt
Chairman, Committee on the Budget
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Pursuant to the provisions of clause 4(f) of House Rule X of the Rules of the House of Representatives for the 110th Congress and Section 301(d) of the Congressional Budget Act of 1974, as amended, I am transmitting the Views and Estimates, including Additional and Minority Views, of the Committee on Science and Technology for Fiscal Year 2009. In addition, I am transmitting recommendations to comply with Sec. 207(e) Oversight of Government Performance as required in the FY2008 Budget Resolution.

Sincerely,

Bart Gordon
Chairman

BJG/af

Enclosure

cc: The Honorable Paul Ryan, Ranking Member, Committee on the Budget
The Honorable Ralph Hall, Ranking Member, Committee on Science and Technology

VIEWS AND ESTIMATES
COMMITTEE ON SCIENCE AND TECHNOLOGY
FISCAL YEAR 2009

The President released his FY2009 budget proposal on February 4, 2008. Overall, the $3.1 trillion budget request includes $147 billion for R&D. Once again, the Committee, like the Congress as a whole, is very concerned about our country's budget deficit and its impact on our economic strength. However, the Committee also urges the Budget Committee to recognize the contributions and benefits that research and development and science and technology investments have for our country's economic competitiveness, energy security, education standards, job growth, and environmental health. In particular, the Committee encourages the Budget Committee to use as guidelines the funding levels included in two major authorizing bills signed into law last year – the America COMPETES Act (P.L. 110-69) and the Energy Independence and Security Act of 2007 (P.L. 110-140).

Last year, H.R. 2272, the America COMPETES Act (COMPETES) passed the House of Representatives (367-57) and the Senate (by Unanimous Consent) on August 2, 2007 and was signed into law by the President on August 9, 2007. A response to the 2005 National Academies' report *Rising Above the Gathering Storm*, COMPETES seeks to ensure U.S. students, teachers, businesses, and workers are prepared to continue leading the world in innovation, research, and technology. The law implements recommendations from the Gathering Storm report, and specifically:

- Authorizes $33.6 billion over fiscal years 2008 – 2010 for science, technology, engineering, and mathematics (STEM) research and education programs across the Federal government.
- Keeps research programs at NSF, NIST and the DOE Office of Science on a near-term doubling path;
- Helps to prepare new teachers and helps current teachers improve their skills through NSF's Noyce Teacher Scholarship Program and Math and Science Partnerships Program;
- Creates the Technology Innovation Program (TIP) at NIST (replacing the existing Advanced Technology Program or ATP) to fund high-risk, high-reward, pre-competitive technology development at small entrepreneurial firms with high potential for public benefit;
- Puts the Manufacturing Extension Partnership (MEP), which provides cost-shared technical assistance to small manufacturers to modernize their operations, on a path to doubling over 10 years; and
- Establishes an Advanced Research Projects Agency for Energy (ARPA-E), a nimble and semiautonomous research agency at the Department of Energy to engage in high-risk, high reward energy research;

The FY2009 budget request proposes funding increases for physical sciences research programs as part of the American Competitiveness Initiative (ACI), many of which are consistent with increases authorized in COMPETES. However, the Administration's

budget ignores or neglects several core areas of COMPETES, including math and science education activities at NSF, manufacturing and technology stimulus programs at NIST, and important energy programs including ARPA-E. The Committee asks the Budget Committee to reject these cuts proposed by the Administration and include funding for these important COMPETES programs.

In addition, this year, the Committee plans to move reauthorizing legislation in several areas within the Committee's jurisdiction, which will set appropriate funding levels (where applicable) for agencies and programs and make necessary programmatic changes. These authorizations include:

- NASA;
- Small Business Innovation Research (SBIR) program;
- U.S. Fire Administration; and
- National Nanotechnology Initiative (NNI), a multi-agency program to ensure U.S. leadership in nanotechnology involving NSF, NIST, DOE, DHS, DOT, EPA, and NASA, among other agencies.

The following is a more detailed analysis of the Committee's budget priorities, by subcommittee and agency. In addition, the Committee has provided a section on Oversight of Government Performance, as required by Sec. 207(e) of S. Con Res. 21 (the FY2008 Budget Resolution). Additional charts also are attached showing each agency's FY2009 budget request compared to FY2008 appropriations and authorized levels if available.

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

Department of Energy (DOE)

The Committee has jurisdiction over all Department of Energy civilian national laboratories, civilian energy research, development and demonstration programs, and activities related to the commercial application of energy technologies.

The Committee recognizes there are many important programs at the Department of Energy that are essential to ensuring our ability to harness and utilize energy from diverse sources now and into the future. The Committee believes our energy research and development programs must include a continuum of investments from long-term basic energy research through to demonstration and testing of promising new technologies to expedite their acceptance into the marketplace.

Office of Science

Basic research plays a critical role in enhancing our nation's competitiveness, and the Committee believes the FY2009 budget for the DOE Office of Science of $4.7 billion is a step forward in addressing our near- and long-term needs. The request represents an

increase of approximately $700 million or 18 percent over the appropriated FY2008 level. The Committee believes strong support for basic energy research is needed to achieve major breakthroughs in technologies that will enable our country to secure the energy supplies we need for the future while addressing the challenges of climate change. In addition, basic research in energy sciences supports the education and development of scientists and engineers in a wide array of key areas such as mathematics, computer sciences, and advanced material sciences.

The Office of Science has maintained a long-standing role as steward of large world-class scientific user facilities. However, the Committee is concerned that the expertise to construct and manage these facilities may diminish over the next several years with a wave of imminent retirements. There does not appear to be a significant effort to make it easier to bring in top talent and pass on institutional knowledge in a timely fashion, and so the Committee encourages a review of recruiting and hiring practices to ensure a free-flowing pipeline of such talent in the near future. The Committee appreciates the increased facilities operation hours proposed in the Basic Energy Sciences and Nuclear Physics programs, and continues to support optimal utilization of current facilities even as new facilities are planned.

The Committee fully supports a restoration of funding for the U.S. contribution to the International Thermonuclear Experimental Reactor (ITER) fusion project and research towards a proposed International Linear Collider (ILC). The Committee recognizes that the international agreement approved by Congress for ITER went into force in October 2007, and withdrawal of the U.S. from ITER in violation of this agreement would result in a penalty of €500 million (approximately $750 million). In addition, the credibility of the United States as a reliable partner in large international research projects will be significantly undermined if corrective actions are not taken.

The Committee recognizes that while no formal international agreement currently exists for the ILC, research towards this project is closely coordinated among the U.S., Europe, and Asia. The Committee also supports the High Energy Physics program moving forward with the planned neutrino experiment at Fermilab and the University of Minnesota until a final decision on the level of U.S. participation in the ILC is made.

The Committee supports the FY2009 request for the Basic Energy Sciences program of $298 million above the FY2008 enacted level. The Committee is pleased that the Basic Energy Sciences program is following up on its recent applications-driven workshops with specific research programs acting on their consolidated recommendations, including programs in electrical energy storage, carbon sequestration, and solar energy.

In addition, the Committee supports the Administration's request for increases in the Advanced Scientific Computing Research (ASCR) and the Biological and Environmental Research (BER) programs. The proposed increase for the ASCR program increase is five percent over the FY2008 enacted levels. This program supports a wide variety of research activities throughout the Department as well as research activities of other Federal agencies, in the extramural research community, and in the private sector. The

requested increase of 4 percent over FY2008 enacted levels for BER will enable the Department to further fund the three Bioenergy Research Centers designated in 2007, and in particular, to accelerate research on cellulosic biomass energy conversion and other improvements in bioenergy production. The Committee supports this increase.

Energy Efficiency and Renewable Energy

In the push to discover new energy resources and technologies the contribution of efficiency and conservation to the nation's energy portfolio is often overlooked and understated. This FY2009 Administration budget request is no exception. The President's proposal of $1.26 billion for the Energy Efficiency and Renewable Energy program at DOE represents a 27 percent cut from FY2008 congressional appropriations, with key energy efficiency programs bearing a large brunt of the decreases.

However, the Committee is pleased that proposed funding for the Geothermal Technology Program increased by $10 million to a total of $30 million in FY2009, but notes that this is still far short of the $95 million authorized in the Energy Independence and Security Act of 2007 (P.L. 110-140). The Committee strongly believes the proposed cuts in funding for Solar Energy, Hydrogen, Industrial Technologies, and the Weatherization Program are unjustified and unwise.

The proposed funding for the Solar Energy program would be decreased by $12.4 million, a 7 percent reduction, to a total of $156.1 million in FY2009, which is also $93.9 million below the level authorized in the Energy Policy Act of 2005 (P.L. 109-58). The Committee also notes that the Energy Independence and Security Act of 2007 (P.L. 110-140) specifically authorized an additional $7 million for research in thermal energy storage for concentrating solar power and $10 million for a solar energy workforce development program in FY2009.

Heavy industry accounts for approximately one-third of energy use in the U.S., and the Industrial Technologies Program (ITP) at DOE has maintained a long and successful history of developing technologies and deploying them in industry, despite being funded at one-third of the levels from as recently as FY2000 ($175 million). The Department's own web site states that "ITP's efforts have resulted in over 160 technologies successfully reaching the marketplace, providing significant economic and environmental impacts for the United States." The Committee believes that the Administration's request of $62 million is inadequate to address the scale of challenges in industrial efficiency, and reap the public benefits of advances in this area. To restore this program, the Energy Independence and Security Act of 2007 (P.L. 110-140) calls for $190 million in FY2009, and the Committee strongly recommends that the program be funded as close as possible to this level.

The Committee believes the proposed budget for "Water Power" is much too low. Research in marine and hydrokinetic energy was authorized in the Energy Independence and Security Act of 2007 at a level of $50 million in FY2009. The Administration's budget request provides $3 million for both conventional hydropower

and marine and hydrokinetic energy research. The Committee believes that a much higher level of Federal effort is needed to take advantage of this underdeveloped renewable resource in an environmentally friendly manner.

The Committee feels strongly that advances in energy efficiency technologies coupled with sound conservation practices offer the lowest cost and easiest way to balance our national energy needs, and that the Federal government must play a leadership role in supporting both. While the requested 13.5 percent increase in Building Technologies is commendable, advances in this area are hindered if deployment programs at the Department do not pick up where this vital research and development leaves off. The proposal to zero out the Weatherization program at DOE represents the most short-sighted of the Administration's proposed cuts. And despite token increases, the Federal Energy Management Program (FEMP) remains chronically under-funded given its charge of increasing the efficiency of the entire Federal government. If the pipeline for energy efficiency technologies and practices is to continue to flow from the laboratory shelf to the marketplace, deployment programs such as these must continue to receive strong Federal funding.

Fossil Energy

As underscored by the Committee's unanimous support for carbon capture and sequestration research, development, and demonstration legislation included in the Energy Independence Security Act of 2007 (P.L. 110-140), the Committee is supportive of the increase requested for Fossil Energy to develop more efficient coal-fired power plants and advanced technologies for demonstrating integrated systems of carbon capture and sequestration. The budget request for FY2009 includes an increase of 21 percent over the FY2008 enacted funding for the Clean Coal Power Initiative, FutureGen, and the Fuels and Power Systems program. Because coal provides 50 percent of our country's nation's electric power, the Committee believes it is critical that we make substantial investments in clean coal technologies, especially in carbon capture and sequestration to help reduce the emissions of greenhouse gases associated with electric power production.

The Committee is concerned about the Department's recent announcement that it intends to restructure the FutureGen program due to projected cost increases in the program. First announced in 2003, FutureGen was promoted as a near-zero-emissions power plant that would combine electricity and hydrogen production. Congress has funded the Administration's requests for this program through appropriations of $174 million over the past 5 years. The Department's revised FutureGen initiative will now focus on carbon capture and sequestration technologies at multiple commercial sites being planned by private interests. This proposal is intended to capitalize on industry's investment in Integrated Gasification Combined Cycle (IGCC) clean coal power plants by providing the funds for the CCS component of the IGCC power plants. The Committee recognizes the need to accelerate the development of carbon capture and sequestration technologies and will continue to monitor this program to ensure that it delivers the capability we need in the most cost-effective and rapid time frame possible.

The Committee is disappointed that once again the Administration proposes to eliminate all oil and gas R&D, including the $50 million authorized in the Energy Policy Act of 2005 (P.L. 109-58) for unconventional onshore and offshore natural gas exploration technologies that was primarily intended for small, independent oil and gas producers.

Nuclear Energy

The Administration request for Nuclear Energy (NE) is $629.7 for research and development with nearly half of that request dedicated to the Advanced Fuel Cycle Initiative which is focused on implementing the Global Nuclear Energy Partnership (GNEP). For NE's Research and Development programs, this represents approximately $191.7 million above the FY2008 enacted funding level ($438 million).

The United States has been conducting research on the reprocessing of spent nuclear fuel since 2002 under the Advanced Fuel Cycle Initiative (AFCI). In 2006, the Administration announced a change in this program when it unveiled GNEP as its plan forward to develop advanced, proliferation-resistant nuclear fuel cycle technologies that would maximize the energy extracted from nuclear fuels and minimize nuclear waste. The Committee notes that GNEP has drawn criticism based on the substantial costs estimated for implementing the program and the technical challenges associated with developing, demonstrating and deploying advanced technologies for recycling spent nuclear fuel that do not separate plutonium. Last fall, the National Academies issued a report expressing similar concerns. The FY2009 request is $301.5 million, substantially higher than the FY2008 enacted funding for GNEP of $181 million. The Committee remains concerned about financial and technical difficulties with implementing GNEP as currently proposed by the Administration, but finds general research activities on a closed nuclear fuel cycle to be worthwhile.

Although the FY2009 budget request eliminates funding for the University Reactor Infrastructure and Education Assistance program, it does include directions to Nuclear Energy, through its Energy Research Initiative process, to designate at least 20 percent of the R&D appropriated funds for purposes of supporting R&D activities at university research institutions through competitive awards focused on advancing nuclear energy technology. While the Committee is supportive of this effort to help universities expand their R&D capabilities and strengthen the nuclear science programs at institutions of higher education, the Administration's proposal is not an adequate replacement for the University Reactor Infrastructure and Education Assistance program.

ARPA-E

On August 9, 2007 the President signed into law the America COMPETES Act (P.L. 110-69) which authorized the establishment of an Advanced Research Projects Agency for Energy, or ARPA-E. Like other provisions in the COMPETES Act, this followed on the direct recommendation of the National Academies' report *Rising Above the Gathering Storm* which called for an ARPA-E to fill the gap in the existing energy programs by performing high-risk, high-reward R&D in collaboration with the university and private sector. ARPA-E is intended to be unique not only in the type of research it conducts, but also in how it conducts that research.

The COMPETES Act calls for initial year funding of $300 million, with such sums thereafter. The *Gathering Storm* report and other legislative proposals in Congress called for subsequent years to be funded at levels exceeding $1 billion. However, the Administration has failed to request funding for this critical program. The establishment of ARPA-E is a priority for the Committee, and we strongly encourage funding for the initial year of this program at $300 million, with expectations that full operations will eventually exceed $1 billion.

Innovative Technology Loan Guarantee Program

The FY2009 budget requests $19.9 million to administer the Innovative Technology Loan Guarantee Program established in Title XVII of the Energy Policy Act of 2005 (P.L. 109-58). The FY2008 omnibus appropriations bill included $38.5 billion for loan obligation authority for FY2008 and FY2009. Within that authority, $18.5 was designated for nuclear power facilities, $6 billion for coal-based power generation and industrial gasification facilities, $2 billion for advanced coal gasification projects, $10 billion for renewable and efficiency projects and $2 billion for front end advanced nuclear facilities. The Administration's FY 2009 request does not seek additional loan obligation authority, but requests extension for the loan authority until 2011 for nuclear facilities and a 2010 extension for all other projects.

Final regulations for the Loan Guarantee Program were issued in October 2007. The Committee is supportive of this program as a financial tool to support commercialization of innovative technologies that will result in significant reductions in carbon emissions.

National Oceanic and Atmospheric Administration (NOAA)

The President's FY2009 budget request for the National Oceanic and Atmospheric Administration (NOAA) is $4.2 billion, nearly 5 percent above the FY2008 enacted funding. The Committee is very pleased to see the Administration increase the request for NOAA. The previous years' budget requests for flat or reduced funds as compared to current year funding were unrealistic and have prevented NOAA from making the investments required to improve forecasting, further our understanding of climate and weather patterns, and to better manage our coastal and ocean resources.

The National Weather Service (NWS) request is 2 percent over the FY2008 enacted funding level. Much of the increase for NWS is to provide for the mandatory pay raise and other inflationary operation and maintenance costs and does not represent an increase in program funding. The Administration's request does include some important investments in key forecasting equipment including the Advanced Weather Interactive Processing System, the Wind Profiler Network, and for Hurricane Forecast Modeling. However, the small overall increase may not be sufficient to fully cover all operational and maintenance requirements for NWS, especially if our country experiences a year with high frequency of severe weather events and hurricanes that result in damage or loss to weather monitoring and forecasting equipment. In addition, the request will not

enable NWS to move new monitoring and forecasting equipment from research to fully operational mode.

The President's budget request would increase the overall budget for the National Environmental Satellite Data and Information Service (NESDIS) by 21 percent (a $203 million increase). The budget for NESDIS is dominated by the procurement, acquisitions and construction (PAC) accounts for the polar and geostationary satellite systems. Also reflected in this increase is $74 million in funding to develop and deploy high priority climate sensors that were de-manifested from the National Polar-Orbiting Operational Environmental Satellite System (NPOESS) in 2006. The Committee supports this increase in funding for climate sensors. Maintaining the continuity of climate data records is extremely important if we are to expand our understanding of changing climate patterns and their potential impacts on our society and our environment.

The Operations, Research and Facilities (ORF) account for NESDIS contains the programmatic funding for management, processing, analyzing, and archiving the data received from all of NOAA's weather monitoring equipment – ground-based and space-based. This program accounts for data processing and analyses at data centers located in Kentucky, North Carolina, Maryland, and West Virginia. This account also supports a number of regional climate centers. The FY2009 request for these accounts once again is significantly below the FY2008 enacted levels. While funding for these programs is small relative to the procurement of satellite systems, funding for data analyses, processing, management, and archiving is essential to obtain value from the large investments made in the satellites that gather and transmit the data to support weather forecasting and climate prediction.

NOAA operates two satellite systems that collect data for weather forecasting. The polar satellites orbit the earth and provide information for medium to long-range weather forecasts. The geostationary satellites gather data above a fixed position on the earth's surface and provide information for short-range warnings and current weather conditions. Both of these systems are scheduled for replacement. Both of these new satellite series must be launched around 2014 to avoid gaps in satellite data.

The Committee continues to follow the procurement programs for these two satellite series very closely. In addition, the Committee continues to have serious concerns about the development of these new satellite series both in terms of meeting our need for continuity of weather and climate data and in terms of the present and future impacts on the NOAA budget. The Committee remains concerned about the progress of the NPOESS program. Development of a key sensor continues to be behind schedule and to require additional funds. The Committee believes the requested level of funding for NPOESS is the minimum required to ensure this satellite procurement continues to move forward, meet the planned launch schedule, and avoid in gap in polar satellite coverage.

The current series of Geostationary Operational Environmental Satellites (GOES-N, O and P) are in the final stages of development. The majority of the increase in the FY2009 request in the GOES program is to initiate the procurement of the new GOES-R series. The Committee supports the requested increase and notes the importance of providing sufficient funds in the early stages of procurement of a new satellite series to adequately develop and assess preliminary designs for satellite instruments. The reduction in funding for the GOES-R program that occurred in the FY2008 appropriations process may result in schedule delays and cost increases to the overall program. The Committee encourages a robust overall budget for NOAA that accommodates the procurement of this vital satellite system.

The Government Accountability Office reported in October 2007 that the estimate for the new GOES series of satellites – GOES-R – was $7 billion, but could rise by as much as an additional $2 billion. The Committee believes NOAA's decision to obtain independent cost estimates and to restructure the program to achieve cost reductions to reduce technical risks was sound. However, the Committee is concerned the cost savings that will be achieved by reducing the number of satellites in the series may not be cost effective in the long run. The Committee supports the Administration's decision to include an option of four additional satellites in the solicitation for the GOES-R program.

Oceanic and Atmospheric Research

The office of Oceanic and Atmospheric Research contains more than half of the research programs at NOAA. Again, the budget proposes to reduce these programs, this year by nearly $16 million (4 percent) below the FY2008 enacted levels. Most of the reductions are within the Ocean, Coastal, and Great Lakes program. Climate Research and Weather and Air Quality Research receive small increases in the overall budget proposed while the budget for Ocean, Coastal and Great Lakes Research is significantly reduced. The overall budget allocation for research at NOAA is inadequate to support the future needs of the Agency and the Nation for improved forecasting and management of natural resources.

The Presidential-appointed U.S. Commission on Oceans released its report in 2004 recommending that Congress double the Federal ocean and coastal research budget over the next five years. No budget proposal since the report was issued has included increases in ocean research funding at NOAA that would achieve a doubling of funding for ocean research programs. Once again, the Administration's budget request for this area of research is cut below current funding levels.

Environmental Protection Agency (EPA)

The FY2009 budget request for the Environmental Protection Agency (EPA) is $7.1 billion, approximately $400 million less than the FY2008 enacted budget for the agency. The bulk of the reduction has once again come from the State and Tribal Assistance

Grants, the account that funds maintenance and upgrading of wastewater treatment infrastructure across the nation.

The President's FY2009 proposal for EPA's Science and Technology (S&T) programs is $790 million. This includes $763.5 million in the Science and Technology program account plus a transfer of $26.4 million from the Superfund account to support Superfund-related research. This request reflects approximately 1 percent increase from the FY2008 enacted level of $785.7 million, which was broken out into $760 million for S&T programs generally and $25.7 million for Superfund research. The majority of this increase comes from a $19.8 million addition to the homeland security research division of the Office of Research and Development (ORD).

The EPA's Science Advisory Board reviews EPA's S&T budget request each year. Since their report on the FY2005 budget proposal, the Board's reports have indicated concerns about the erosion of EPA's budget for S&T. Their review of the FY2008 budget proposal stated, "The mission of the Environmental Protection Agency is to protect human health and the environment. To do that in an effective and efficient way requires a deep understanding of environmental science and technology. However, between 2004 and the proposed 2008 budget, the overall support for Research and Development has declined by 25 percent in inflation adjusted terms" (EPA-SAB-STC-031407).

The Committee shares the Board's views on this issue and supports the reinvigoration of environmental research and development through a real increase in funding for EPA's S&T programs. The Committee believes investments in research and development will return dividends in the form of more cost-effective environmental protection programs and a cleaner, healthier environment.

SUBCOMMITTEE ON RESEARCH AND SCIENCE EDUCATION

National Science Foundation (NSF)

The National Science Foundation (NSF) is the primary source of Federal funding for non-biomedical research conducted at colleges and universities, including 86 percent of funding for computer sciences, 77 percent of funding for mathematical sciences, 54 percent of funding for environmental sciences, 46 percent of funding for engineering, and 40 percent of funding for the physical sciences. In addition, since its creation in 1950, NSF has been tasked with strengthening science, technology, engineering and mathematics (STEM) education at all levels. NSF's education programs are unique in their peer review processes, their linkage to higher education, and their resulting capacity to develop new and improved educational materials and assessments, create better teacher training techniques, and move promising ideas from research to educational practice.

NSF's funding of basic research across nearly all fields of science and engineering and its education programs to prepare the next generation of scientists and engineers, as well as to increase the scientific and technical literacy of all Americans, provide the underpinnings for assuring future U.S. economic competitiveness and national security.

Recognizing the key role of NSF in science and engineering research and education and responding to the recommendations of the National Academies report, *Rising Above the Gathering Storm,* Congress authorized substantial funding increases for NSF in the recently enacted America COMPETES Act (P.L. 110-69). In addition to providing for a budget doubling for NSF over 7 years, COMPETES takes advantage of the expertise and experience of NSF in STEM education by modifying and enlarging existing NSF programs focused on teacher training and in-service teacher professional development. These provisions respond to the first and highest priority action item of the *Gathering Storm* report, which is to increase substantially the number of K-12 STEM teachers who are well grounded in their subjects and skilled in pedagogical techniques for teaching science and math.

The President's FY2009 budget request would provide $6.854 billion for NSF, which is $822 million, or 13.6 percent above the FY2008 appropriations level and $472 million, or 6.4 percent below the FY2009 authorization level. While providing robust growth for the NSF research accounts, the President's budget proposal provides only a 4.6 percent increase for NSF's K-12 STEM education programs, which falls far short of providing the funding called for in COMPETES. In particular, the Robert Noyce Teacher Scholarship program would receive $103 million less than the authorized amount and the Math and Science Partnerships, which is the principal program for teacher professional development of current STEM teachers, would receive $60 million less than authorized.

The Committee recommends that the NSF Education and Human Resources Directorate receive $995 million for FY2009, which is the authorized level and is $205 million above the request. The additional funding would be used to fully fund the Robert Noyce Teacher Scholarship program, which will provide scholarships for STEM majors who take tailored courses needed to become certified as teachers and agree to teach for two years for each year of scholarship support, and to fully fund the Math and Science Partnerships. In addition, the increase will support COMPETES initiatives to increase the number of undergraduate degrees in STEM fields and the number of graduate STEM degrees in emerging, interdisciplinary fields that are important for innovation and economic development. The Committee recommends that this $205 million be added to the President's request for NSF, thereby providing NSF with total funding of $7.059 billion for FY2009.

SUBCOMMITTEE ON SPACE AND AERONAUTICS

National Aeronautics and Space Administration (NASA)

NASA's FY2009 budget request is $17.6 billion, approximately $400 million less than the amount stipulated for FY2009 in the FY2005 five-year budget plan that accompanied the President's Vision for Space Exploration (VSE). That shortfall replicates the practice in each of the previous two years - in FY2007 the Administration's request was $1.02 billion less than pledged in the President's VSE five-year budget plan; in FY2008, the request was $690 million less. The Committee is very concerned about the cumulative effects of these budgetary shortfalls, which, coupled with the Office of Management and Budget's under-budgeting for the costs of Space Shuttle and the International Space Station (ISS) in that same five-year budget plan, have created strains and stresses that are visible in all of the agency's programs.

The Committee notes with concern that in spite of the fact that the NASA Authorization Act of 2005 (P.L. 109-155) directs NASA to launch the Crew Exploration Vehicle (CEV) "as close to 2010 as possible", the FY2009 budget request not only doesn't provide any additional funding to move the CEV operational date closer to 2010, it only provides funding sufficient to deliver the CEV in 2015—a year *later* than the date directed by the President in his 2004 Vision for Space Exploration. In addition, the FY2009 budget request would do nothing to reverse cuts to much of the rest of the Exploration Initiative, including cuts to exploration-related technology R&D and ISS research funding. Moreover, all of NASA's human space flight programs face funding challenges in the out-years of the budget request, including that no funding has been identified for post-2010 Shuttle transition and retirement costs; reserves in the ISS and Constellation programs remain extremely low or negative; and funding proposed for post-Shuttle ISS crew and cargo support is so reduced that even NASA itself thinks it is likely to prove inadequate.

The Committee also continues to be concerned about proposed funding for Aeronautics programs. In the FY2009 budget request, Aeronautics remains at a level that is only ¼ to 1/3 as much as the funding provided in 1994—and significantly lower than the FY2001 budget level. As a result, many aviation experts are worried about NASA's ability to continue supporting critical interagency research goals in air traffic management and aviation safety. NASA is a major participant in the interagency initiative to develop the next generation air traffic management system, and its R&D will be critically important to that effort. The interagency initiative assumes NASA will be given the resources necessary to carry out its R&D tasks.

In addition, the reductions in NASA's Aeronautics budget have led to a situation where all but 16 percent of NASA's FY2009 Aeronautics funding is dedicated to in-house activities, with little money available to support R&D conducted in partnership with universities and industry. The Committee notes that this is likely to result in a diminution of new and innovative research concepts from academia as well as a reduction in the relevance of NASA's research to the needs of the aviation industry.

The Committee also is aware that NASA's science programs are facing significant stresses. Roughly $4 billion was removed from the five-year budget plan for NASA's science programs over the last three years, resulting in significant disruptions. The

FY2009 budget request and its five-year run-out requests funds for a number of new space and Earth science initiatives, the majority of which will cost over $500 million, and several of which will have costs that exceed several billion dollars. While the Committee is pleased that the FY2009 budget request will initiate two of the missions recommended in the National Academy of Sciences decadal strategy for Earth science research and applications, and includes several new research projects within the science account, the Committee is very concerned that no new funding was included in NASA's science account to pay for these additional programs. Instead, funds are simply shifted among the various parts of the science account—an approach that runs a high risk of proving unsustainable.

The Committee believes that NASA's space and aeronautics programs represent some of the nation's most challenging and exciting R&D initiatives. As such, they can inspire our young people, advance our understanding of the universe as well as of our home planet Earth, and they can generate technological advances that will benefit both our quality of life and our economic competitiveness. That will only be possible with a balanced NASA program of science, aeronautics, and human space flight and exploration. If NASA is to be successful in carrying out the tasks it has been given by the White House and Congress, it is going to need resources commensurate with those tasks. Thus, the Committee believes that NASA should receive additional funding in FY2009 above the level contained in the President's FY2009 budget request.

Federal Aviation Administration (FAA)

The FY2009 budget request for the Federal Aviation Administration's R&D programs contains an increase over the FY2008 level, but provides less than is authorized for R&D in FY2009 in H.R. 2881, the House-passed FAA Reauthorization Act of 2007. The Committee believes that the need for such R&D expenditures is clear, given the important role FAA R&D will play in promoting aviation safety and increased air transportation capacity and efficiency, as well as enabling informed international agreements on noise, emissions, and other environmental issues. For example, the FAA is the lead agency in the interagency effort to develop the next generation air traffic management system, and the success of that initiative will be dependent on the FAA receiving the resources needed to develop and implement the components of the next generation system. The Committee believes that for FY2009, the FAA's R&D programs should receive no less than the funding authorized in H.R. 2881.

TECHNOLOGY AND INNOVATION SUBCOMMITTEE

National Institute of Standards and Technology (NIST)

The National Institute of Standards and Technology (NIST) is a non-regulatory agency of the Department of Commerce and the nation's oldest Federal laboratory. Its mission

is to promote U.S. innovation and industrial competitiveness by advancing measurement science and supporting the development of technical standards. NIST's wide range of high-quality programs puts it in an excellent position to play a key role in enhancing U.S. competitiveness.

The America COMPETES Act provided the first comprehensive authorization of NIST's programs in 15 years, putting NIST on a 10-year path to doubling by authorizing balanced increases for both the intramural research laboratories and the extramural industrial technology programs. However, the Administration's FY2009 budget proposes only $638 million for NIST, 28 percent lower than the amount authorized in COMPETES. The request includes increases for the intramural programs while eliminating or severely reducing funding for the extramural programs. The Committee believes this is a mistake, as the industrial technology programs have strong track records and serve a critical function in supporting U.S. competitiveness.

The Committee believes that the proposal to eliminate Federal support for the Manufacturing Extension Partnership (MEP) is particularly problematic. Since 2000, the nation has lost 3.4 million manufacturing jobs, 272,000 of which were in 2007 alone. MEP is the only Federal program that specifically targets small- and medium-sized manufacturers to help them modernize their operations, improve their competitiveness, and reduce or reverse job losses. According to a survey commissioned by NIST, small- and medium-sized manufacturers who used MEP services in FY2006 created or retained 52,000 jobs, increased or retained sales of $6.8 billion, leveraged $1.7 billion in new private-sector investment, and generated cost savings of $1.1 billion. The Committee strongly supports this program, and does not agree with the Administration's stated position that MEP can operate without Federal funding.

The Committee also is disappointed to see no funds requested for the Technology Innovation Program (TIP). TIP was created in COMPETES to provide cost-shared support for innovative technology development by small- and medium-sized companies and joint ventures, updating and building upon the proven success of the Advanced Technology Program (ATP). The Committee has heard testimony that there is a systematic lack of private venture capital for high-risk, high-reward, seed-stage technology development, creating an urgent need for programs such as TIP to fill this gap. A failure to fund these programs risks sacrificing opportunities for U.S. technical advancement and long-term economic growth. The Committee believes that TIP plays an important role in supporting U.S. innovation, and that reducing or eliminating funding for it would significantly reduce U.S. economic competitiveness.

The budget request includes funding to complete the construction of high-performance laboratory space at the NIST campus in Boulder, CO. The Committee continues to support this project and believes it will significantly enhance NIST's missions.

Department of Homeland Security (DHS)

The Committee oversees the R&D activities of the Department of Homeland Security (DHS) which are primarily housed in the Science and Technology (DHS S&T) Directorate and the Domestic Nuclear Detection Office (DNDO). The Committee is pleased that the research and development budget is increased significantly for both DHS S&T and DNDO. The Administration has requested an increase of $38.5 million to $868.8 million for DHS S&T, which includes $736.7 million for the research account. For DNDO, the Administration has requested $563.8 million, an increase of $79.4 million.

The Committee remains concerned that DHS lacks balance between both long and short term research and between its various R&D missions. While the Committee is pleased that the Under Secretary is committed to a strong investment in long term basic research (defined as eight years or longer to development), the Department's R&D portfolio (including both DHS S&T and DNDO) appears to remain strongly weighted towards end-stage technology development with little focus on basic research in spite of assertions that basic research accounts for 20 percent of the total investment. Moreover, the proposed cut to the University Centers of Excellence program will further diminish the Department's investment in long term basic research. And, the minimal funding proposed would be further diluted by the Administration's plan to create additional Centers, potentially forcing Centers to seek private funding in order to conduct R&D critical to their missions. The Committee believes that emphasizing short term research makes the Department significantly less agile and responsive, locking our country into a single technological response to emerging and future threats.

The Committee also believes that DHS is not properly balancing its research portfolio among R&D divisions. The Department's highest priorities, as indicated by the funding request, remain nuclear detection and biological research. While these might be the most important areas, the Committee has yet to see any formal risk assessment justifying this prioritization of nuclear detection and biohazard research in spite of repeated requests in the 110th Congress.

Thus, while the Committee is pleased to see an increase in funding in many critical areas such as explosives detection, cybersecurity, infrastructure protection, and border security technologies, the Department's request is only a small step in the right direction. A formal risk assessment is essential to ensure that the Department's resources are able to address both short- and long-term risks to the nation.

In addition, homeland security-related research is supported by a number of agencies, including the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), the Department of Energy (DOE) and others. The Committee is concerned that DHS has not leveraged these resources to its maximum benefit.

Finally, while the Department has a plan to improve responsiveness to customers, the Committee is concerned that research supported by S&T and DNDO ignores the needs of state and local government officials. Recent technologies developed and tested by the Department, including the counter-MANPADS system and nuclear material

detection technology, have been all but rejected by state and local users because of their high purchase and maintenance costs. Moreover, DNDO once again requests funding for the Advanced Spectroscopic Portal detection technology in spite of serious reservations on the part of Congressional investigators, the Government Accountability Office, and others about their effectiveness. The Committee strongly recommends a formal structure for processing reviews and comments from end users and evaluators to ensure that technology coming out of DHS meets performance and cost requirements. The Department must also streamline testing and evaluation protocols, as well as work openly with expert agencies, such as NIST, to provide customers with valid and useful test results.

U.S. Fire Administration and FIRE Grants

The Committee oversees the U.S. Fire Administration (USFA), housed within the Federal Emergency Management Agency (FEMA) at the Department of Homeland Security (DHS). The Committee believes that the President's FY2009 budget does not adequately fund USFA and continues the Administration's neglect of programs for firefighters. The FY2009 request of $40.9 million is 5.5 percent ($2.4 million) below the FY2008 enacted level. This year, the Technology and Innovation Subcommittee reported out H.R. 4847, a bill to reauthorize the Fire Administration. H.R. 4847 authorizes USFA at $70 million for FY2009. Members of the fire service community urged funding the agency at this level when they testified at a Technology and Subcommittee hearing in October of last year.

Through training opportunities, fire education and awareness programs, data collection, fire policy analysis, and other services, USFA provides important leadership to the Nation's first responders. The Committee is concerned that the Administration's request, which is $29 million below the proposed authorization, will not meet the full demand for USFA leadership and programming that exists from firefighters and public safety personnel around the country. Additionally, the Committee is concerned that the Administration proposes to transfer USFA from a stand-alone account to FEMA's Operations, Management, and Administration account in FY2009. This move could further compromise funding for the agency. The Committee will exercise oversight to ensure USFA remains intact.

The Committee also oversees two programs that provide funding opportunities to local fire departments to meet their equipment and staffing needs: the Assistance to Firefighters Grant (AFG) program and the Staffing for Adequate Fire and Emergency Response (SAFER) grant program. For FY2009, the Administration requests $287 million for the AFG program and, as in previous years, no funding for the SAFER grant program. This is a 49 percent decrease ($273 million) from the FY2008 funding level for AFG and a 100 percent decrease ($190 million) for the SAFER program over FY2008. The FY2009 request is $713 million below the authorized level for the AFG program (P.L. 108-375) and $1.2 billion below the authorized level for SAFER (P.L. 108-136). The Committee believes that the President's FY2009 request for the AFG and

SAFER programs continue to ignore the growing pressures on local fire departments as they are called on to prepare for and respond to an increasing array of hazards. The Committee believes that funding the AFG program well below the authorized level, and providing zero funding for SAFER, neglects the needs of firefighters and the community's they serve.

Department of Transportation (DOT), Surface Transportation

The Committee oversees surface transportation research and development (R&D) activities at the Department of Transportation (DOT). These activities are managed by several administrations within DOT, including the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The Research and Innovative Technology Administration (RITA) is responsible for coordinating research portfolios across the Department. The Bureau of Transportation Statistics (BTS) is also a component of RITA.

While the Committee is pleased that the Administration requested the authorized amount of $39 million for RITA, the Committee is concerned that the requested increase will not support the emerging research priorities identified by the 2006 Transportation Research, Development and Technology Strategic Plan. Just over 10 percent of the total requested funding ($1.5 million) for RITA will go toward supporting R&D, and less than half of the requested funding will support coordination of DOT research activities. Nearly $5 million, an amount totaling more than the requested increase, is proposed for maintenance of a nationwide global positioning system (GPS) system that will be carried out on behalf of the U.S. Coast Guard (USCG), which is part of the Department of Homeland Security (DHS). While the Committee understands the need for technological expertise in developing important global positioning capabilities, important priorities identified in the strategic plan are left unfunded in this request. The Committee has not seen any justification for requiring RITA to perform this R&D, which may be more appropriately housed in the U.S. Coast Guard (which requests $16 million for R&D activities in FY2009). The Committee believes more emphasis should be given to research coordination that supports energy efficiency, congestion reduction, and safety as emphasized in the RITA strategic plan.

In addition to those research priorities identified by RITA, the Committee urges that current research into intelligent transportation systems, materials technology, and other fields be leveraged to support enhanced mobility and energy efficiency. FTA's Research and University Research Centers account supports research and development related to public transit, training programs, and university research. The Committee is pleased that FTA's multi-year research program plan includes improving the accessibility of transit and improving safety and security while considering the needs of the mobility-impaired population. The Committee is concerned that FTA will be limited in its ability to carry out needed research under the proposed FY2009 budget, however, which is cut by $5 million from FY2008 to $60 million. The Committee recommends that

funding for Research and University Research Centers be increased to the authorized level of $69.8 million in FY2009.

The increase in funding for all components of research, development, and technology within the Federal Highway Administration will provide an important resource for transportation officials around the nation. The Committee is pleased to see a strong investment in surface transportation research, development, and deployment, which is increased by $27 million from FY2008 to $196.4 million. Additionally, the increase of $8.4 million to $110 million for intelligent transportation systems (ITS) will support important developments in technology for safety and energy efficiency. The increase of $2 million to $26.7 million in the training and education account will support technology transfer from research results at FHWA. The Committee strongly supports this proposed funding.

The FHWA research, development, technology, and education investment of $66.4 million in infrastructure research has an appropriate focus on bridges following the collapse of the I-35W bridge in Minnesota in August 2007. The Committee is pleased that technology transfer is also a portion of this program, as technology deployment to the user community is a crucial step in meeting FHWA's important goals of improving infrastructure longevity, safety, and performance.

SEC. 207(E) OVERSIGHT OF GOVERNMENT PERFORMANCE

Under Sec. 207(e) of S. Con Res. 21 (the FY2008 Budget Resolution), committees were directed to review programs within their jurisdictions to root out waste, fraud, and abuse in program spending.

In the 110th Congress, the Science and Technology Committee re-established the Subcommittee on Investigations and Oversight (I&O) to help identify places where waste, fraud or abuse could create savings for the Federal taxpayer. Early in this Congress, the Subcommittee held a hearing on a Department of Defense aeronautics research program (DP-2) which had survived as an item of Congressional interest for more than a decade. Over the years, more than $60 million had been spent on this program with no clear need, no clear client, no clear mission and no clear technical accomplishments. Following that hearing, the Appropriations Committee acted to terminate funding for this program.

Much of what the Committee has found falls into the realm of maladministration. Program after program seems to be badly managed, with important work being starved of funding as a result. For example, a world class environmental research lab at the Savannah River National Lab has been effectively de-funded by the Department of Energy, its 40 years of research abruptly terminated, for no good reason.

In addition, in a supposed effort to save money, EPA set about closing their library system, a step that would deny to their own researchers as well as the interested public, access to unique collections of materials on chemicals and the environment. No plan to put those materials on line was in place when EPA undertook this “cost savings” effort and no cost estimate of what a proper effort to digitize their holdings was ever developed. EPA management claimed they would save money through digitization, but since they made no effort to digitize records, even as they shuttered their library doors and filled dumpsters with materials, it is difficult to take the agency’s proposal seriously. Under pressure from this Committee and others, the EPA stopped their closure program, but not before irreversible harm had occurred to some of the holdings and facilities.

The National Polar Orbiting Environmental Satellite System (NPOESS) also has been so badly managed by NOAA, NASA, and the U.S. Air Force that it has suffered from cost overruns of many billions of dollars. In addition, this program suffered from inaccurate and overly optimistic cost estimates from its inception. To keep the overall cost growth down, the Administration approved a re-scoping of the program in 2006 that jettisoned sensors essential to tracking climate change. However, these sensors are critical for understanding climate change and its impacts, and alternate plans must be implemented and funded to maintain continuity of these data. So the “savings” gained by removing these sensors from the NPOESS program are not savings at all. The cost of the sensors will now be borne by other programs at NOAA and NASA. While the Administration has included some initial funding in the new budget request to restore several climate sensors and some funding to initiate work at NASA on priority

monitoring projects identified by the National Academy last year, there is still no comprehensive budget plan to ensuring the continuity of earth observations needed to anticipate and address the impacts of climate change. Therefore, the cost overruns associated with unrealistic cost projections and poor management of NPOESS exceed the simple bottom line increases to that program.

Unfortunately, rewarding bad management with budget cuts would be counterproductive to the desires of Congress and the public. There is broad-based support for seeing environmental science facilities and weather satellites funded and operating. Further cuts in these budgets would only jeopardize our ability to acquire vital weather and climate forecasting information. There is no cheap fix for some of the problems that the Committee has uncovered and no obvious savings for taxpayers in fixing these problems, but the problems must be addressed.

There is one area of potential savings toward which the Budget Committee may wish to turn its attention. The I&O Subcommittee has learned of a software development tool created as part of an acquisition by the National Reconnaissance Office that holds the promise of reducing software development time, and coding errors, by half. The Federal government budgeted more than $65 billion for IT systems in FY2008, with another $43 billion in intelligence-related acquisitions that appear (based on the limited information available in unclassified sources) to be IT-related. A very high proportion of these expenditures are for software development. If the costs of development could be cut in half by using this tool, and by developing other across-the-board development tools that would reduce costs, the taxpayer could see tens of billions of dollars in savings year-in and year-out.

The Clinger-Cohen Act of 1996 requires OMB to analyze, track and evaluate the risks and results of major government investments in information systems. The Budget Committee might consider directing OMB to investigate this tool and begin coordinating the development and deployment of this and similar tools that can realize savings across the government. This is an area where serious efforts at savings have still not been undertaken, but the pay-off could be enormous. The Committee on Science and Technology would be happy to work with the Committee on the Budget to pursue this matter.

FIGURE 1
Funding for PL 110-69, America COMPETES Act
(dollars in millions)

Programs	President's FY2008 Request	COMPETES Act FY2008 Authorization	Omnibus Approps*	Delta Omnibus/ FY08 Auth	%	Delta Omnibus/ President FY08	%	President's FY2009 Request	COMPETES Act FY2009 Authorization	Delta President FY09/ COMPETES	%	Delta President FY09/ Omnibus	%
NIST													
Scientific & Technical Research and Services	500.5	502.1	440.5	(61.6)	-12%	(60.0)	-14%	535.0	541.9	(6.9)	-1%	94.5	21%
Construction & Maintenance	93.9	150.9	160.5	9.6	6%	66.6	71%	99.0	86.4	12.6	15%	(61.5)	-38%
Technology Innovation Program (TIP)	0.0	100.0	65.2	(34.8)	-35%	65.2	100%	0.0	131.5	(131.5)	-100%	(65.2)	-100%
Manufacturing Extension Partnership (MEP)	46.3	110.0	89.6	(20.4)	-19%	43.3	94%	4.0	122.0	(118.0)	-97%	(85.6)	-96%
National Science Foundation	6429.0	6600.0	6065.0	(535.0)	-8%	(364.0)	-6%	6854.1	7326.0	(471.9)	-6%	789.1	13%
Research and Related Activities	5131.7	5156.0	4821.0	(335.0)	-6%	(310.7)	-6%	5594	5742.3	(148.3)	-3%	773.0	16%
Major Research Instrumentation (MRI)	*114.4*	*115.0*	*93.9*	*(21.1)*	*-18%*	*(20.5)*	*-18%*	*115*	*123.1*	*(8.1)*	*-7%*	*21.1*	*22%*
Faculty Early Career Development (CAREER)	*156.5*	*165.4*	*167.8*	*2.4*	*1%*	*11.3*	*7%*	*181.9*	*183.6*	*(1.7)*	*-1%*	*14.1*	*8%*
Research Experiences for Undergraduates (REU)	*56.9*	*61.6*	*57.7*	*(3.9)*	*-6%*	*0.8*	*1%*	*61.6*	*68.4*	*(6.8)*	*-10%*	*3.9*	*7%*
Experimental Programs to Stimulate Competitive Research (EPSCoR)	*107.0*	*120.0*	*115.0*	*(5.0)*	*-4%*	*8.0*	*7%*	*113.5*	*133.2*	*(19.7)*	*-15%*	*(1.5)*	*-1%*
Integrative Graduate Education and Research Traineeship	*42.4*	*47.3*	*37.8*	*(9.5)*	*-20%*	*(4.6)*	*-11%*	*38.8*	*52.5*	*(13.7)*	*-26%*	*1.0*	*3%*
Graduate Research Fellowship/R&RA (GRF)	*8.1*	*9.0*	*8.1*	*(0.9)*	*-10%*	*0.0*	*0%*	*8.1*	*10.0*	*(1.9)*	*-19%*	*0.0*	*0%*
Professional Science Master's Degree Program	*0.0*	*10.0*	*0.0*	*(10.0)*	*-100%*	*0.0*	*0%*	*0*	*12.0*	*(12.0)*	*-100%*	*0.0*	
Education and Human Resources	750.6	896.0	725.6	(170.4)	-19%	(25.0)	-3%	790.4	995.0	(204.6)	-21%	64.8	9%
Mathematics and Science Education Partnership (MSP)	*46.0*	*100.0*	*48.5*	*(51.5)*	*-52%*	*2.5*	*5%*	*51*	*111.0*	*(60.0)*	*-54%*	*2.5*	*5%*
Robert Noyce Scholarship	*10.0*	*89.8*	*15.0*	*(74.8)*	*-83%*	*5.0*	*50%*	*11.6*	*115.0*	*(103.4)*	*-90%*	*(3.4)*	*-23%*
Science, Mathematics, Engineering, and Technology Talent Expansion	*29.7*	*40.0*	*29.7*	*(10.3)*	*-26%*	*0.0*	*0%*	*29.7*	*50.0*	*(20.3)*	*-41%*	*0.0*	*0%*
Advanced Technological Education	*51.6*	*52.0*	*51.6*	*(0.4)*	*-1%*	*0.0*	*0%*	*51.6*	*57.7*	*(6.1)*	*-11%*	*0.0*	*0%*
Integrative Graduate Education and Research Traineeship/EHR (IGERT)	*25.0*	*27.1*	*25.0*	*(2.1)*	*-8%*	*0.0*	*0%*	*25*	*30.1*	*(5.1)*	*-17%*	*0.0*	*0%*
Graduate Research Fellowship/EHR (GRF)	*97.5*	*96.6*	*88.1*	*(8.5)*	*-9%*	*(9.4)*	*-10%*	*116.7*	*107.2*	*9.5*	9%	*28.6*	*32%*
Major Research Equipment and Facilities	244.7	245.0	220.7	(24.3)	-10%	(24.0)	-10%	147.5	262.0	(114.5)	-44%	(73.2)	-33%
Agency Operations and Award Management	285.6	285.6	281.8	(3.8)	-1%	(3.8)	-1%	305.1	309.8	(4.7)	-2%	23.3	8%
National Science Board	4.0	4.1	4.0	(0.1)	-2%	(0.0)	-1%	4	4.2	(0.2)	-5%	0.0	1%
Inspector General	12.4	12.4	11.4	(0.9)	-8%	(1.0)	-8%	13.1	12.8	0.3	2%	1.7	15%
Laboratory Science Pilot Program (Sec. 7026)	0.0	5.0	0.0	(5.0)	-100%	0.0	0%	0	such sums			0.0	0%

FIGURE 1
Funding for PL 110-69, America COMPETES Act
cont'd
(dollars in millions)

Programs	President's FY2008 Request	COMPETES Act FY2008 Authorization	Omnibus Approps*	Delta Omnibus/ FY2008 Authorization	%	Delta Omnibus/ President FY2008	%	President's FY2009 Request	COMPETES Act FY2009 Authorization	Delta President FY2009/ COMPETES	%	Delta President FY2009/ Omnibus	%
Department of Energy (DOE)													
DOE Science, Engineering and Mathematics Programs													
Pilot Program of Grants to Specialty Schools for Science and Mathematics (Chapter 1)	*0.0*	*14.0*	*0.0*	*(14.0)*		*0.0*	*0%*	*0*	*22.5*	*(22.5)*	*-100%*	*0.0*	*0%*
Experiential Based Learning Opportunities (Chapter 2)	*0.0*	*7.5*	*0.0*	*(7.5)*		*0.0*	*0%*	*0*	*7.5*	*(7.5)*	*-100%*	*0.0*	*0%*
Summer Institutes (Chapter 4)	*0.0*	*15.0*	*0.0*	*(15.0)*		*0.0*	*0%*	*6.4*	*20.0*	*(13.6)*	*-68%*	*6.4*	*100%*
National Energy Education Development (Chapter 5)	*0.0*	*0.5*	*0.0*	*(0.5)*		*0.0*	*0%*	*0*	*such sums*			*0.0*	*0%*
Nuclear Science Program Expansion Grants for Institutions of Higher Education	0.0	3.5	0.0	(3.5)		0.0	0%	0	6.5	(6.5)	-100%	0.0	0%
Nuclear Science Competitiveness Grants for Institutions of Higher Education	0.0	3.0	0.0	(3.0)		0.0	0%	0	5.5	(5.5)	-100%	0.0	0%
Hydrocarbon Systems Science Program Expansion Grants for Institutions of Higher Education	0.0	3.5	0.0	(3.5)		0.0	0%	0	6.5	(6.5)	-100%	0.0	0%
Hydrocarbon Systems Science Competitiveness Grants for Institutions of Higher Education	0.0	3.0	0.0	(3.0)		0.0	0%	0	5.5	(5.5)	-100%	0.0	0%
Early Career Awards for Science, Engineering, and Mathematics Researchers	0.0	25.0	0.0	(25.0)		0.0	0%	10	25.0	(15.0)	-60%	*10.0*	*0%*
Office of Science	4397.9	4486.0	4017.7	(468.3)	-10%	(380.2)	-9%	4722	5200.0	(478.0)	-9%	704.3	18%
Basic Energy Sciences	*1498.5*		*1269.9*			*(228.6)*	-15%	*1568.2*				*298.3*	*23%*
Advanced Scientific Computing Research	*340.2*		*351.1*			*10.9*	3%	*368.8*				*17.7*	*5%*
Biological and Environmental Research	*531.9*		*544.3*			*12.4*	2%	*568.5*				*24.2*	*4%*
High Energy Physics	*782.2*		*688.3*			*(93.9)*	-12%	*805.0*				*116.7*	*17%*
Nuclear Physics	*471.3*		*432.7*			*(38.6)*	-8%	*510.1*				*77.4*	*18%*
Fusion Energy Sciences	*427.9*		*286.5*			*(141.4)*	-33%	*493.1*				*206.6*	*72%*
Science Laboratory Infrstructure	*79.0*		*64.8*			*(14.2)*	-18%	*110.3*				*45.5*	*70%*
Science Program Direction	*185.0*		*177.7*			*(7.3)*	-4%	*203.9*				*26.2*	*15%*
Workforce Development for Teachers and Scientists	*11.0*		*8.0*			*(3.0)*	-27%	*13.6*				*5.6*	*70%*
Safeguards and Security	*71.0*		*75.9*			*4.9*	7%	*80.6*				*4.7*	*6%*
Discovery Science and Engineering Innovation Institutes	0.0	10.0	0.0	(10.0)		0.0	0%	0	10.0	(10.0)	-100%	0.0	0%
Protecting America's Edge (PACE) Graduate Fellowship Program	0.0	7.5	0.0	(7.5)		0.0	0%	8.4	12.0	(3.6)	-30%	8.4	0%
Distinguished Scientist Program	0.0	15.0	0.0	(15.0)		0.0	0%	0	20.0	(20.0)	-100%	0.0	0%
Advanced Research Projects Agency — Energy (ARPA-E)	0.0	300.0	0.0	(300.0)		0.0	0%	0.0	such sums				0%
*Includes across the board reduction for the Department of Energy; for NSF, the omnibus includes only major accounts and Noyce and EPSCoR sub-accounts - the other numbers are NSF estimates													
TOTAL	**11467.6**	**12361.5**	**10838.5**	**(1523.0)**	**-12%**	**(629.1)**	-5%	**12238.9**	**13548.8**	**(1309.9)**	**-10%**	**1400.4**	**13%**

FIGURE 2
NASA - FY2008
(dollars in millions)

Programs	President's FY2008 Request	NASA Auth FY2008	Omnibus Approps	Delta Omnibus/ Authorization	%	Delta Omnibus/ President	%
NASA							
Science, Aeronautics, and Exploration	10483.1		10543.1			60.0	1%
Science	5516.1		5577.4			61.3	1%
Earth Science	*1497.3*		*1544.1*			*46.8*	*3%*
Heliophysics	*1057.2*		*1070.4*			*13.2*	*1%*
Planetary Science	*1395.8*		*1405.5*			*9.7*	*1%*
Astrophysics	*1565.8*		*1599.5*			*33.7*	*2%*
Exploration Systems	3923.8	4357.3	3842.0	(515.3)	-13%	(81.8)	-2%
Constellation Systems	*3068.0*		*3030.1*			*(37.9)*	*-1%*
Advanced Capabilities	*855.8*		*840.9*			*(14.9)*	*-2%*
Aeronautics Research	554.0	990.0	625.3	(364.7)	-58%	71.3	13%
Cross-Agency Support	489.2		556.4			67.2	14%
Education Programs	*153.7*		*180.0*			*26.3*	17%
Advanced Business Systems	*103.1*		*83.5*			*(19.6)*	*-19%*
Innovative Partnerships	*198.1*		*180.0*			*(18.1)*	*-9%*
Shared Capabilities	34.3		33.7			*(0.6)*	*-2%*
Exploration Capabilities	**6791.7**		**6733.7**			**(58.0)**	-1%
Space Operations	6791.7	6546.6	6765.7	219.1	3%	(26.0)	0%
Space Shuttle	*4007.5*		*4000.0*			*(7.5)*	*0%*
International Space Station	*2238.6*		*2220.0*			*(18.6)*	*-1%*
Sapce and Flight Support	*545.7*		*545.7*			*0.0*	*0%*
Inspector General	**34.6**	**34.6**	**32.6**	(2.0)	-6%	(2.0)	-6%
TOTAL AGENCY	**17309.4**	**18686.3**	**17309.4**	(1376.9)	-8%	0.0	0%

FIGURE 3
NASA - FY2009*
(dollars in millions)

Programs	Omnibus Approps	President's FY2009 Request	Delta President FY09/ Omnibus	%
NASA				
Science	**4706.2**	**4441.5**	(264.7)	-6%
Earth Science	*1280.3*	*1367.5*	*87.2*	*7%*
Planetary Science	*1247.5*	*1334.2*	*86.7*	*7%*
Astrophysics	*1337.5*	*1162.5*	*(175.0)*	*-13%*
Heliophysics	*840.9*	*577.3*	*(263.6)*	*-31%*
Aeronautics	**511.7**	**446.5**	(65.2)	-13%
Exploration	**3143.1**	**3500.5**	357.4	11%
Constellation Systems	*2471.9*	*3048.2*	*576.3*	*23%*
Advanced Capabilities	*671.1*	*452.3*	*(218.8)*	*-33%*
Space Operations	**5526.2**	**5774.7**	248.5	4%
Space Shuttle	*3266.7*	*2981.7*	*(285.0)*	*-9%*
International Space Station	*1813.2*	*2060.2*	*247.0*	*14%*
Space and Flight Support	*446.3*	*732.8*	*286.5*	*64%*
Education	**146.8**	**115.6**	(31.2)	-21%
Cross-Agency Support	**3242.9**	**3299.9**	57.0	2%
Inspector General	**32.6**	**35.5**	2.9	9%
TOTAL AGENCY	**17309.4**	**17614.2**	**304.8**	**2%**

*Account structure for NASA was reorganized in the FY2009 budget request

FIGURE 4
Department of Energy
Applied Technology Programs
(dollars in millions)

Programs	President's FY2008 Request	EPACT/ HR6 Auth FY2008	Omnibus Approps*	Delta Omnibus/ Authorization	%	Delta Omnibus/ President	%	President's FY2009 Request	EPACT/HR6 Auth FY2009	Delta President FY09/ Authorization	%	Delta President FY09/ Omnibus	%
DEPARTMENT OF ENERGY													
Energy Efficiency and Renewable Energy	**1236.2**		**1722.4**			**486.2**	**39%**	**1256.1**				(466.3)	-27%
Hydrogen	213.0	648.0	211.1	(436.9)	-67%	(1.9)	-1%	146.2	720.0	(573.8)	-80%	(64.9)	-31%
H-Prize		*[1]*							*[1]*				
Biomass and Biorefinery Systems	179.2	377.0	198.2	(178.8)	-47%	19.0	11%	225.0	398.0	(173.0)	-43%	26.8	14%
Grants for Biofuel Production R&D in Certain States		*25.0*							*25.0*				
Cellulosic Ethanol and Biofuels Research		*50.0*											
University Based R&D Grant Program		*[2]*							*[2]*				
Solar Energy	148.3	200.0	168.5	(31.5)	-16%	20.2	14%	156.1	250.0	(93.9)	-38%	(12.4)	-7%
Thermal Energy Storage R&D		*5.0*							*7.0*				
Solar Energy Curriculum Development and Certification		*10.0*							*10.0*				
Daylighting Systems and Direct Solar Light Pipe Technology		*3.5*							*3.5*				
Solar Air Conditioning R&D		*2.5*							*2.5*				
Photovoltaic Demonstration Program		*15.0*							*30.0*				
Wind Energy	40.1		49.5			9.4	23%	52.5				3.0	6%
Geothermal Energy	0.0	95.0	19.8	(75.2)	-79%	19.8	100%	30.0	95.0	(65.0)	-68%	10.2	52%
Geothermal from Oil and Gas/Geopressured		*10.0*							*10.0*				
Intermountain Geothermal West Consortium		*5.0*							*5.0*				
International Geothermal Energy Development		*5.0*							*5.0*				
High Cost Geothermal Energy Grant Program		*such sums*							*such sums*				
Hydropower/Marine and Hydrokinetic	0.0	50.0	9.9	(40.1)	-80%	9.9	100%	3.0	50.0	(47.0)	-94%	(6.9)	-70%
Vehicle Technologies	176.1	270.0	213.0	(57.0)	-21%	36.9	21%	221.1	310.0	(88.9)	-29%	8.1	4%
Lightweight Materials R&D		*[4]*							*[4]*				
Building Technologies	86.5		109.0			22.5	26%	123.8				14.8	14%
*Commercial Insulation Demonstration Program^*		*[5]*							*[5]*				
Bright Tomorrow Lighting Prizes		*[1]*							*[1]*				
Industrial Technologies	46.0	184.0	64.4	(119.6)	-65%	18.4	40%	62.1	190.0	(127.9)	-67%	(2.3)	-4%
Federal Energy Management Program	16.8		19.8			3.0	18%	22.0				2.2	11%
Facilities and Infrastructure	7.0		76.1			69.1	987%	14.0				(62.1)	-82%
Weatherization and Intergovernmental Actitivies	204.9	750.0	222.8	(527.2)	-70%	17.9	9%	58.5	900.0	(841.5)	-94%	(164.3)	-74%
Program Direction and Support	118.3		114.8			(3.5)	-3%	141.8				27.0	24%
Renewable Energy Innovation Manufacturing Partnership		*25.0*											

FIGURE 4
Department of Energy
Applied Technology Programs
cont'd
(dollars in millions)

Programs	President's FY2008 Request	EPACT/ HR6 Auth FY2008	Omnibus Approps*	Delta Omnibus/ Authorization	%	Delta Omnibus/ President	%	President's FY2009 Request	EPACT/HR6 Auth FY2009	Delta President FY09/ Authorization	%	Delta President FY09/ Omnibus	%
Electricity Delivery and Energy Reliability	**114.9**		**138.6**			**23.7**	**21%**	**134.0**				**(4.6)**	**-3%**
R&D	86							100.2				100.2	
*Energy Storage Basic Research^^*									*50.0*				
*Energy Storage Applied Research^^^*									*80.0*				
*Energy Storage Research Center^^^*									*100.0*				
*Energy Storage Systems Demonstration^^^*									*30.0*				
*Vehicle Energy Storage Demonstration^^^*									*30.0*				
*Secondary Applications and Disposal of Electric Drive^^^*									*5.0*				
Smart Grid Demonstrations		*100.0*							*100.0*				
Electricity Restructuring	0							0				0.0	
Operations and Analysis	11.6							14.1				14.1	
Program Direction	17.4		**16.8**			(0.6)	-3%	**19.7**				2.9	17%
Fossil Energy Research and Development	**558.2**		**742.8**			**184.6**		**754**				**11.2**	
Coal	426.6		493.4			66.8		*623.7*				130.3	26%
Carbon Capture and Sequestration RD&D		*240.0*							*240.0*				
Carbon Capture (Large Scale Demonstration)		*200.0*							*200.0*				
Geologic Sequestration Training and Research (study)		*1.0*											
Geologic Sequestration Training and Research (grants)		*such sums*							*such sums*				
National Academies Study		*1.0*											
Grant Program		*such sums*											
University Based R&D Grant Program		*[3]*							*[3]*				
Natural Gas Technologies	0.0		19.8			19.8		0.0				(19.8)	-100%
Oil Technology	0.0		5.0			5.0		0.0				(5.0)	-100%
Program Direction	130.0		148.6			18.6		126.3				(22.3)	-15%
Plant and Capital Equipment	0.0		12.9			12.9		5.0				(7.9)	-61%
Fossil Energy Environmental Restoration	9.6		9.5			(0.1)		9.7				0.2	2%
Import-Export Authorization	0.0		0.0			0.0		0.0				0.0	0%
Advanced Metallurgical Research	0.0		0.0			0.0		0.0				0.0	0%
Special Recruitment Programs	0.7		0.7			0.0		0.7				(0.0)	-6%
Cooperative R&D	0.0		5.0			5.0		0.0				(5.0)	-100%
Ultra-Deepwater and Unconventional Natural Gas+	0.0	100.0	50.0	(50.0)	-50%	50.0	100%	0	100.0	(100.0)	-100%	(50.0)	0%
Office of Nuclear Energy	**801.7**		**961.6**			**159.9**		**853.6**				**(108.0)**	**-11%**
University Reactor Infrastructure and Education	0.0		0.0			0.0		0				0.0	0%
Research and Development	567.7	355.0	603.8			36.1		629.7	495.0			25.9	4%
Infrastructure	157.7	140.0	239.3			81.6		143.4	145.0			(95.9)	-40%
Program Direction	76.2		80.9			4.7		80.5				(0.4)	0%
Innovative Technology Loan Guarantee Program (Administrative Expenses)	**8.4**		**5.5**			**(2.9)**		**19.9**				**14.4**	**262%**

*Includes across the board reduction in E&W

[1] Total prize amounts delineated in law, not by fiscal year

[2] $25 million total (not by fiscal year) authorized

[3] $10 million total (not by fiscal year) authorized

[4] $80 million authorized for FY08-FY12

[5] $8 million authorized for FY08-FY14

^To be funded through EERE and Office of Science

^^To be funded primarily through DOE Office of Science

^^^To be funded through EDER and EERE

+ $100 million in funding is authorized for the Ultradeep program, $50 million of which is mandatory spending (not discretionary appropriations, although it is listed as "Omnibus Approps")

FIGURE 5
Department of Homeland Security
S&T Directorate and DNDO
(dollars in millions)

Programs	President's FY2008 Request	Omnibus Approps	Delta Omnibus/ President FY08	%	President's FY2009 Request	Delta President FY09/ Omnibus	%
DHS S&T Directorate							
Management and Administration	142.6	138.6	(4.0)	-3%	132.1	(6.5)	-5%
Border and Maritime	25.9	25.5	(0.4)	-2%	35.3	9.8	39%
Chemical and Biological	228.9	208.0	(20.9)	-9%	200.4	(7.6)	-4%
Command, Control, and Interoperability	63.6	57.0	(6.6)	-10%	62.4	5.4	9%
Explosives	63.7	77.7	14.0	22%	96.1	18.5	24%
Human Factors	12.6	14.2	1.6	13%	12.5	(1.7)	-12%
Infrastructure and Geophysical	24.0	64.5	40.5	169%	37.8	(26.7)	-41%
Innovation	59.9	33.0	(26.9)	-45%	45.0	12.0	36%
Laboratory Facilities	88.8	103.8	15.0	17%	146.9	43.1	42%
Test, Evaluation, and Standards	25.5	28.5	3.0	12%	24.7	(3.8)	-13%
Transition	24.7	30.3	5.6	23%	31.8	1.6	5%
University Programs	38.7	49.3	10.6	27%	43.8	(5.5)	-11%
TOTAL	**799.1**	**830.3**	**31.2**	**4%**	**868.8**	**38.5**	**5%**
DHS Domestic Nuclear Detection Office (DNDO)							
Management and Administration	34.0	31.5	(2.5)	-7%	38.9	7.4	23%
Research, Development, and Operations	319.9	323.5	3.6	1%	334.2	10.7	3%
Sytems Acquisition	208.0	129.8	(78.3)	-38%	190.7	61.0	47%
TOTAL	**561.9**	**484.8**	**(77.2)**	**-14%**	**563.8**	**79.1**	**16%**

FIGURE 6
Department of Transportation R&D
(Surface Transportation)
(dollars in millions)

	President's FY2008 Request	SAFETEA-LU/ FAA Auth FY2008	Omnibus Approps	Delta Omnibus/ FY2008 Authorization	%	Delta Omnibus/ President	%	President's FY2009 Request	SAFETEA-LU/ FAA Auth FY2009	Delta President/ FY2009 Authorization	%
Department of Transportation (Surface)											
Research and Intelligent Transportation Systems (FHWA)	410.0	429.8	429.8	0.0	0%	19.8	5%	429.8	429.8	0.0	0%
Research and University Research (FTA)	61.0	65.5	65.4	(0.1)	0%	4.4	7%	60	69.8	(9.8)	-14%
Research and Innovative Technology Administration (RITA)	39.0	39.0	39.0	0.0	0%	0.0	0%	39	39.0	0.0	0%
Research & Development	*12.0*		*12.0*	*12.0*		*0.0*	*0%*	*12*	*12.0*	*0.0*	*0%*
Bureau of Transportation Statistics (BTS)	*27.0*	*27.0*	*27.0*	*0.0*	*0%*	*0.0*	*0%*	*27*	*27.0*	*0.0*	*0%*
University Transportation Centers		76.7	76.7	0.0	0%			76.7	76.7	0.0	0%

FIGURE 7
National Oceanic and Atmospheric Administration
(dollars in millions)

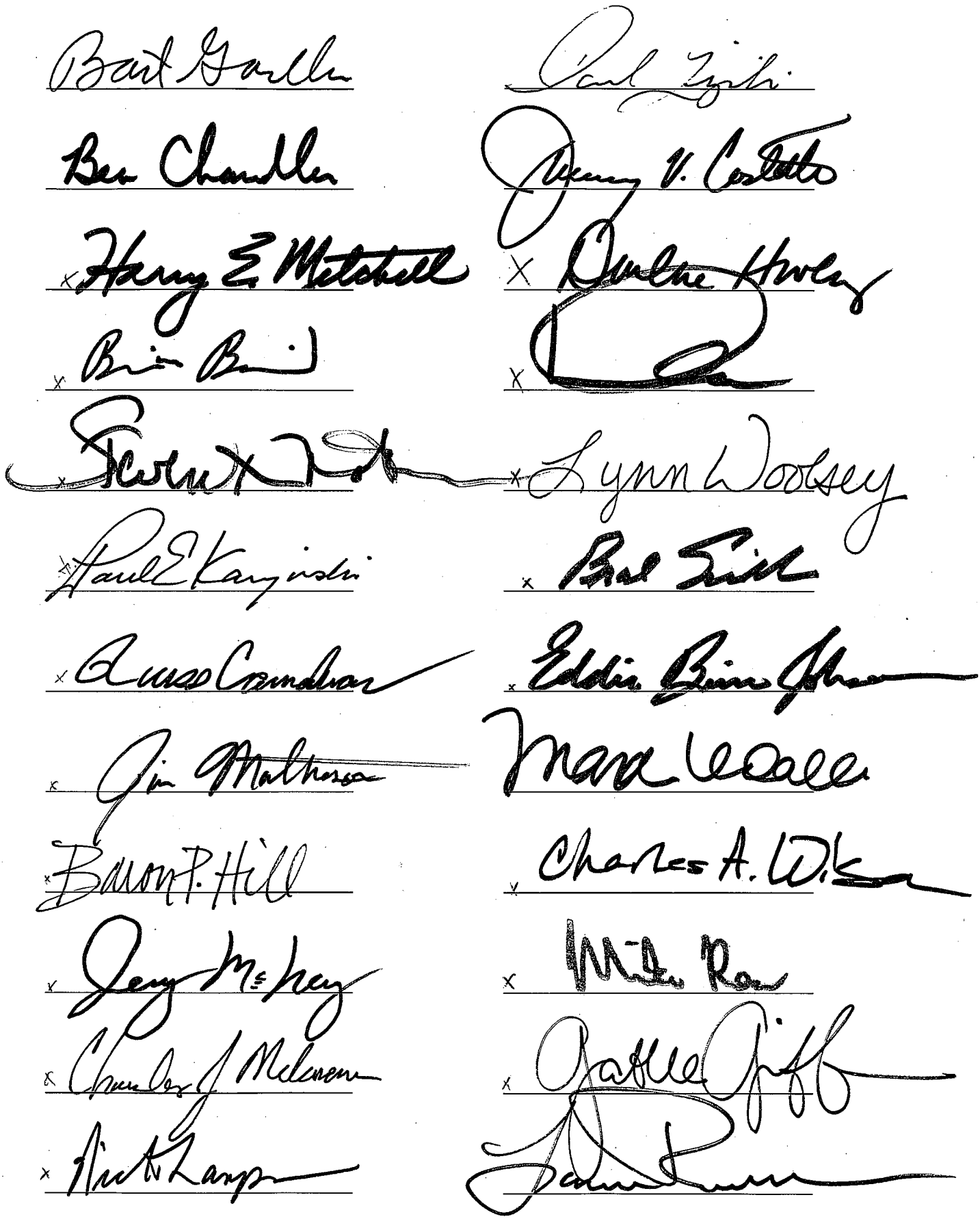
Programs	President's FY2008 Request	Omnibus Approps	Delta Omnibus/ President	%	President's FY2009 Request	Delta President FY09/ Omnibus	%
NOAA							
National Weather Service	903.5	911.4	7.9	1%	930.7	19.3	2%
Oceanic and Atmospheric Research	368.8	398.0	29.2	8%	382.6	(15.4)	-4%
National Environmental Satellite, Data, and Information Service	978.3	955.1	(23.2)	-2%	1157.9	202.8	21%
Program Support	442.1	420.8	(21.3)	-5%	494.8	74.0	18%
National Ocean Service	468.5	524.5	56.0	12%	476.6	(47.9)	-9%
National Marine Fisheries Service	795.9	710.6	(85.3)	-11%	782.3	71.7	10%
TOTAL NOAA	**3957.1**	**3920.4**	**(36.7)**	**-1%**	**4109.8**	**189.4**	**5%**

FIGURE 8
Environmental Protection Agency
(dollars in millions)

Programs	President's FY2008 Request	Omnibus Approps	Delta Omnibus/ President	%	President's FY2009 Request	Delta President FY09/ Omnibus	%
EPA							
Science and Technology	754.5	760.0	5.5	1%	763.5	3.5	0%
Environmental Programs & Management	2298.2	2327.9	29.7	1%	2,338	10.5	0%
Inspector General	38.0	41.1	3.1	8%	39.5	(1.6)	-4%
Buildings & Facilities	34.8	34.2	(0.6)	-2%	35	0.8	2%
Oil Spill Response	17.0	17.0	0	0%	17.7	0.7	4%
Superfund Program Funds	1211.4	1216.7	5.7	0%	1230.6	13.9	1%
Superfund S & T	26.1	25.7	(0.4)	-2%	26.4	0.7	3%
Superfund Inspector General	7.1	11.5	4.4	62%	7.2	(4.3)	-37%
Total Superfund	1244.7	1253.9	8.9	1%	1264.2	10.3	1%
Lust	72.5	105.8	34.0	47%	72.3	(33.5)	-32%
State & Tribal Assistance Grants	2744.4	2926.2	181.8	7%	2621.9	(304.3)	-10%
Recission	5.0	5.0	0.0	0%	10	5.0	100%
Total EPA	**7199.4**	**7461.5**	**262.0**	**4%**	**7142.5**	**(319.0)**	**-4%**

FIGURE 9
U.S. Fire Administration
(dollars in millions)

Programs	President's FY2008 Request	FY2008 FIRE Authorization	Omnibus Approps	Delta Omnibus/ President		President's FY2009 Request	FY2009 Authorization	Delta President FY09/ Omnibus	%
US FIRE ADMINISTRATION									
U.S. Fire Administration	43.3	68.8	43.3	0.0	0%	40.9		(2.4)	-6%
Assistance to Firefighter Grants	300.0	1000.0	560.0	260.0	87%	287	1000	(273.0)	-49%
Staffing for Adequate Firefighting and Emergency	0.0	1130.0	190.0	190.0	100%	0	1159	(190.0)	-100%



List of Signatures

Representative Bart Gordon
Representative Daniel Lipinski
Representative Ben Chandler
Representative Jerry Costello
Representative Harry Mitchell
Representative Darlene Hooley
Representative Brian Baird
Representative David Wu
Representative Steven Rothman
Representative Lynn Woolsey
Representative Paul Kanjorski
Representative Brad Miller
Representative Russ Carnahan
Representative Eddie Bernice Johnson
Representative Jim Matheson
Representative Mark Udall
Representative Baron Hill
Representative Charles Wilson
Representative Jerry McNerney
Representative Mike Ross
Representative Charles Melancon
Representative Gabrielle Giffords
Representative Nick Lampson
Representative Laura Richardson

Minority Views and Estimates
Committee on Science and Technology
Fiscal Year 2009 (FY09)

We are mindful that the nation faces tight budgetary constraints and recognize the difficulty in striking a balance between adequately funding our nation's priorities while at the same time exhibiting fiscal restraint to reduce the deficit. We are in agreement with the majority that if we are to remain ahead of the global curve with regards to competitiveness and innovation, we must make the appropriate investments in research, development, technology, and math and science education.

We applaud the President for putting forward a budget that reduces the deficit and keeps America on track to double the funding for physical sciences and engineering at the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST), and the Office of Science at the Department of Energy (DOE). Building on the President's American Competitiveness Initiative (ACI) and Republican-led efforts in the last Congress, this Committee stepped up to the plate and enacted the America COMPETES Act (COMPETES) (P.L. 110-69) last year, authorizing increased levels of funding for these agencies. We were disappointed to see that the Appropriators did not adequately fund these agencies in the FY08 Omnibus (P.L. 110-161). The funding they provided was not only 12 percent below the level that we authorized in COMPETES, it was 6 percent below the President's FY08 budget request levels. This is simply unacceptable, and a situation we do not want to see again.

Department of Energy (DOE)

We are pleased to see the Office of Science's budget request at an increase of $700 million over the appropriated FY08 level. We were very disappointed that the Appropriators cut funding to many important programs at the Office of Science in the FY08 Omnibus and hope that the Budget Committee will set full funding levels for these programs in FY09. Programs such as High Energy Physics and projects such as the International Thermonuclear Experimental Reactor (ITER) cannot withstand another round of cut or zeroed out budgets, respectively, without having a detrimental effect on high energy physics and fusion research in the United States and on the reputation of our country as a reliable international partner in scientific research.

We would like to point out that the bulk of the cuts to the Office of Energy Efficiency and Renewable Energy's (EERE) budget request is due to the absence of $187 million in congressionally directed projects from FY08, $65 million in the Hydrogen Technology Program and $224 million in the Weatherization and Intergovernmental Activities program. Of the cuts in the Hydrogen program, $32 million are due to the transfer of three activities to Vehicle Technologies, and the remaining reduction reflects a deferral of certain R&D to focus on barriers in hydrogen storage and fuel-cell components. According to DOE, the Weatherization program will be refocused to high-return State and Local programs, and the funding that would have gone to Weatherization Assistance

Program Grants will be used for higher-priority R&D which benefits all Americans. We would also like to point out that the $12 million in cuts to the Solar Energy program represent the down-selection of industry contracts and the transfer of Solar Heating and Cooling to Buildings Technology.

While we are pleased to see a significant increase in the Geothermal Technology program in FY09, we are disappointed that the Department did not request funding for geothermal energy production from oil and gas fields (co-production) and recovery and production of geopressured resources as provided for in Section 616 of the Energy Independence and Security Act of 2007 (P.L. 110-140). According to a National Renewable Energy Lab workshop in May of 2006, it is estimated that in the next twenty years, these two resources (co-production and geopressured) could provide as much as 70,000 MW of new power which would approach 10 percent of our total national electric power needs. In addition, substantial supplies of gas could be recovered from geopressured resources.

In all, the FY09 budget request for EERE continues key elements of the Advanced Energy Initiative within the constraints of a tight federal budget.

We would like to echo the disappointment that the majority has expressed for the Administration's recommendation that the Petroleum Oil Technology and Natural Gas Technologies research and development programs be terminated as well as its recommendation that the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund be repealed. In light of the fact that our country relies on fossil fuels for about 85 percent of the energy it consumes, it makes sense to continue funding R&D programs that will help us become more dependent on domestic sources of oil and gas rather than on foreign sources.

A majority of us are in disagreement with the majority views on the establishment of an Advanced Research Projects Agency for Energy (ARPA-E). We do not feel that creating a new agency to do work that is currently being done at the Department of Energy is a justified use of the limited funds available to the department and we support the department's decision to not establish ARPA-E, but to engage in ARPA-E-type projects within the current DOE structure.

National Aeronautics and Space Administration (NASA)

The Committee has sought to enable NASA to succeed as a multi-mission agency in carrying out the goals expressed in the President's vision for space exploration and the NASA Authorization Act of 2005 (P.L. 109-155). The Committee has remained supportive in the ensuing years, but has grown increasingly concerned as NASA's requests have repeatedly been below spending profiles originally proposed when the vision was introduced. As a result, we share many of the views expressed by the majority.

We are concerned that the current FY09 budget request of $17.6 billion fails to even keep pace with inflation and further jeopardizes NASA's ability to successfully accomplish its

portfolio of missions. We are especially concerned about the threat this request poses to manned spaceflight capabilities. From FY05 thru FY10, NASA estimates that the agency will be forced to absorb $2.7 billion in costs for returning the Space Shuttle to flight following the Columbia accident, and an additional $2.4 billion of previously unanticipated costs to retire the Space Shuttle. This has contributed to delays in the development of a Shuttle replacement as well as cuts in important exploration-related research to offset these costs.

According to the FY09 budget request, March 2015 is the earliest date NASA has committed for delivery of the Crew Exploration Vehicle and its Ares 1 launcher. This date has slipped as a result of past under-funding. We are very concerned that once the Shuttle is retired in 2010, the United States will find itself entirely reliant on other nations for as long as five years, to access our multi-billion dollar Space Station. Furthermore, NASA is now faced with the task of asking Congress for further exceptions from the Iran, North Korea and Syria Non-Proliferation Act, so it can continue to purchase Russian cargo and Soyuz flights at a cost of nearly $2 billion for hardware and services. We would rather see these funds used to purchase similar capabilities from American aerospace companies. Failure to enact an exception to this Act will leave the United States without any capability to utilize the Space Station. Furthermore, this impending, and widening, gap in the transition from the Shuttle to the Constellation poses a significant threat to the highly skilled aerospace workforce similar in magnitude to the loss that accompanied the transition from the Apollo program to the Space Shuttle. This is an unfortunate situation.

We applaud recent efforts by NASA to initiate a new series of science missions. It is imperative that the cadence of missions be improved to keep the science community fully engaged and to sustain the pipeline of future scientists and engineers. We are especially pleased to note NASA's budget proposes to initiate missions recommended by the recently completed decadal survey on Earth Science and applications.

NASA's Aeronautics enterprise is by far the federal government's largest program supporting civil aeronautics R&D. It has been subject to a number of reductions and reorganizations over the last decade, resulting in a budget that is today a fraction of its funding level compared to the late 1990s. NASA and our country simply cannot afford to absorb more cuts to Aeronautics research at the risk of completely ceding this important source of technological and industrial advantage.

Our government is now in the early stages of designing and developing a successor to the nation's current, outmoded air traffic control system. Many of the new technologies that will enable this system – called NextGen – are under development within NASA's Aeronautics program. At a minimum, the President's FY09 budget request for aeronautics must be fully met. Otherwise, we are at risk of long-term congestion in our national airspace system.

We agree with the majority on the importance of NASA's space and aeronautics programs. We also recognize the importance of global leadership in space and

aeronautics if we are to maintain our national security, expand our economy, and advance our technological base. NASA has been asked to do too much with too little. The Committee believes that NASA will be unable to carry out the goals laid out in the President's vision and by Congress without additional funding in FY09.

National Science Foundation (NSF)

In keeping with the plan outlined in the ACI to double funding for research at NSF over the next 10 years, the FY09 budget request for NSF is $6.9 billion, an increase of 13.6 percent, or $822 million over the FY08 Omnibus. We are pleased to see the increases spread across all of the research fields NSF supports.

Within the Education and Human Resources account, we agree with the majority that the Robert Noyce Scholarship program, which we expanded in COMPETES, and the Math and Science Partnership program are not adequately funded in the FY09 request. However, we maintain that many of the FY09 authorized amounts remain too high and encourage the Budget Committee to consider setting increased funding levels for these programs to meet the goals in COMPETES, but in a fiscally responsible manner.

While COMPETES accelerates the path of doubling funding for NSF over a 7-year period, most of our Members remain committed to the 10-year doubling path established in the House-passed version of COMPETES and supported by the President.

Department of Commerce –National Institute of Standards and Technology (NIST)

We strongly support the President's request of $535 million for NIST's Scientific, Technical, and Research Services (STRS) account, which is $94 million or 21 percent more than the FY08 enacted level of $441 million. This increase reflects the priorities laid out in the President's ACI and overwhelmingly supported by both Chambers of Congress in COMPETES. However, we object to the President's FY09 request to discontinue the Manufacturing Extension Partnership (MEP) and Technology Innovation Program (TIP). NIST's laboratory and extramural activities directly support our nation's international competitiveness and economic well-being and should be funded in accordance with the levels agreed to in COMPETES.

Department of Commerce – National Oceanic and Atmospheric Administration (NOAA)

We support the FY09 budget request for NOAA of $4.1 billion, a $203 million (5.2 percent) increase over the FY08 enacted level. We believe this request reflects the importance of the products and services NOAA provides.

We believe that the request for the National Weather Service (NWS) of $930.7 million, a 2.1% increase over the FY08 enacted level, is an appropriate level to allow for NWS to invest in new forecasting technology while maintaining the high standard for weather products and services they provide. This includes $4.3 million for operating and

maintaining the 12 existing and 3 soon-to-be-deployed hurricane buoys, a critical "front line" technology that provides critical information on cyclone formation, locations, and intensity. The FY09 budget request includes a new request of $5.7 million for the NOAA All Hazards Weather Radio Improvement Project (WRIP), to update obsolete technologies and prevent national weather radio blackouts. The Department of Homeland Security views the All Hazards Weather Radio as part of the National Alert System.

We agree with the majority regarding support for FY09 request for $74 million for the National Environmental Satellite Data and Information Service (NESDIS) for the acquisition of key climate sensors for National Polar-Orbiting Operational Satellite System (NPOESS). We were very disappointed that Appropriators cut $25 million from the individual Commerce, Justice, State Appropriations bills passed in both the House and the Senate that was for climate sensor acquisition when the FY08 Omnibus was put together.

We believe that the Operations, Research and Facilities (ORF) account of NESDIS is completely adequate for NOAA to conduct data analysis, processing, management, and archiving. The decrease in the FY09 funding request for ORF is due to the absence of $25.8 million in congressionally directed projects from FY08.

We agree with the majority views that there are still significant concerns with the progress of the NPOESS program, and we will continue to closely follow its advances. The funding request level in the FY09 budget will satisfy the needs of this program to continue with satellite procurements. Furthermore, we were pleased by the Administration's recognition that there is a natural ebb and flow in the level of necessary funding for satellite programs as it goes through its development, procurement, and operational phases and that the greater level of funding expected to be requested in future years is entirely appropriate to the nature of satellite technology procurements.

We are pleased to join the majority in their support of the significant increase of $242 million for the Geostationary Operational Environmental Satellite (GOES-R) program. NOAA is ready to begin awarding contracts for the individual instruments that will be integrated into this satellite, and we feel that the request level is entirely appropriate at this phase of the GOES-R program development.

We disagree with the majority views that the request of $383 million for the Office of Ocean and Atmospheric Research (OAR) is inadequate to support the future needs of NOAA. The reduction of requested funds for FY09 from the FY08 enacted is in large part due to the absence of congressionally directed projects.

Department of Homeland Security (DHS)

We are pleased to see that the FY09 budget request includes $868.8 million dollars for the Science and Technology Directorate (S&T), an increase of 4.6 percent from FY08 levels. The increased funding will primarily go to support new, high-priority laboratories:

initial operations at the National Biodefense Analysis and Countermeasures Center (NBACC) and construction on the National Bio- and Agro Defense Facility (NBAF). However, we continue to be concerned that the distribution of funding within S&T is heavily weighted towards specific hazards that are based primarily on programmatic inertia. We welcome increases in the FY09 request to some overlooked divisions, particularly the Border/Maritime division, but believe S&T should continue to adjust its funding in support of effective, efficient, and evolving defenses across the hazards spectrum.

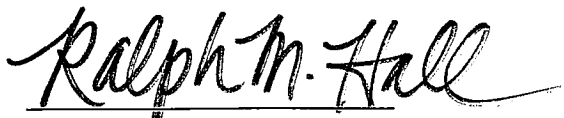
The FY09 budget request includes $561.9 million for the Domestic Nuclear Detection Office (DNDO), an increase of $81 million or 16.8 percent from enacted FY08 levels. We are supportive of the research activities of DNDO in the Exploratory Research Project and Academic Research Initiative, but concerned that the requested increase would primarily fund procurement and deployment of 120 Advanced Spectroscopic Portal (ASP) systems. The ASP program is currently under review by DHS and GAO and pursuant to the 2007 Homeland Appropriations Act will require certification by the Secretary before procurement may begin. Therefore, we urge caution before committing to large procurements for this program.

Federal Aviation Administration (FAA) – Research and Development

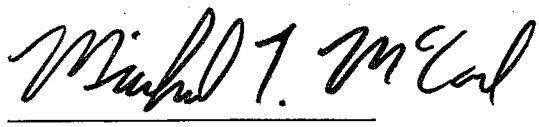
We support the Administration's budget request for FAA Research and Development. The FAA R&D enterprise has, over the years, produced technologies enabling a much safer and more efficient national air transportation system. Despite these efforts, however, traffic has grown at a much faster rate. For FY09, FAA has requested a budget increase coinciding with efforts related to NextGen. As FAA endeavors to operate its current air traffic control system, and at the same time incorporating NextGen-related technologies, it is vitally important that their budget request be fully funded.

United States Fire Administration (USFA)

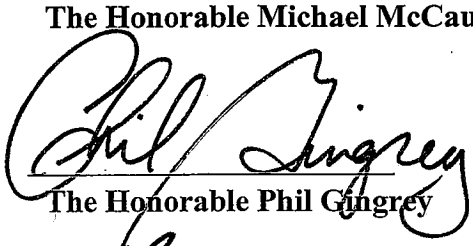
The FY09 budget request includes $40.9 million for the USFA, a decrease of $2 million from FY08 enacted levels and nearly $30 million below the authorized level. The mission of USFA is to "reduce life and economic losses due to fire and related emergencies, through leadership, advocacy, coordination and support." This organization provides vital assistance in the areas of training, fire education and awareness, and oversees grants to a number of local fire departments across the country. These activities have made a substantial impact over the last 30 years. The Committee recently passed a reauthorization bill for USFA that we believe accurately reflects the programmatic needs of the agency. We urge funding at the full $70 million request and the continuation of USFA as a separate line item within the budget for the Federal Emergency Management Agency (FEMA).



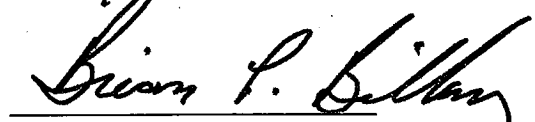
The Honorable Ralph Hall



The Honorable Michael McCaul

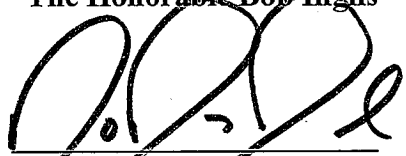


The Honorable Phil Gingrey



The Honorable Brian Bilbray

The Honorable Bob Inglis

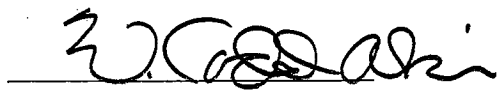


The Honorable Mario Diaz-Balart

The Honorable Tom Feeney

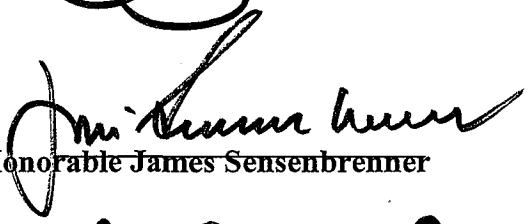
The Honorable Randy Neugebauer

The Honorable Adrian Smith



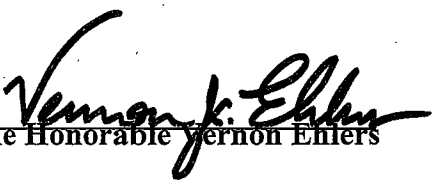
The Honorable W. Todd Akin

The Honorable Roscoe Bartlett



The Honorable James Sensenbrenner

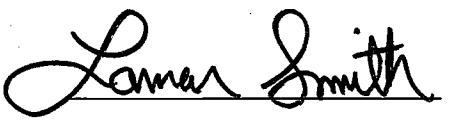
The Honorable Frank Lucas



The Honorable Vernon Ehlers

The Honorable David Reichert

The Honorable Judy Biggert



The Honorable Lamar Smith

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Eddie Bernice Johnson
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ADDITIONAL VIEWS
COMMITTEE ON SCIENCE AND TECHNOLOGY
FISCAL YEAR 2009

In addition to the Views and Estimates provided by the Committee on Science and Technology, I strongly recommend that several programs to Broaden Participation receive funding at least to keep up with inflation. In addition, I request full funding for several programs authorized by the America COMPETES Act.

I would like the following programs at National Science Foundation to receive, at least, the following budget authorizations listed. The "Plus-up" amount represents how much should be ADDED to the President's FY09 budget request. Rationale is provided below.

Program	**Plus-up from FY09 request**	**Note**	
America COMPETES Diversity Programs - underfunded			
NSF: Science, Technology, Engineering and Math Talent Expansion Program (STEP)	$20,300,000	*$50,000,000*	*total in COMPETES*
NSF: Advanced Technology Education (ATE)	$6,080,000	*$57,700,000*	*total in COMPETES*
NSF: Experimental Program to Stimulate Competitive Research (EPSCoR)	$5,691,203	*$133,200,000*	*total in COMPETES*
NSF: 'Partnerships for Access to Laboratory Science-- Sec 7026 of COMPETES Act	$5,000,000	*$5,000,000*	*total in COMPETES*
NSF: Hispanic-serving Institutions Undergraduate Program-- Sec 7033 of COMPETES Act	$5,000,000	*n/a*	*no amount specified in COMPETES*
NSF: Faculty Early Career Development (CAREER) Program	$1,690,000	*$183,600,000*	*total in COMPETES*
DOE: Summer Institutes-- Sec 3185 of COMPETES Act	$20,000,000	*$20,000,000*	*total in COMPETES*
DOE: Outreach and Experiential-based Programs for Minority Students— Sec 3135 of COMPETES Act	$7,500,000	*$7,500,000*	*total in COMPETES*

Other Diversity Programs - underfunded			
Informal Science Education (ISE)	$1,493,202	$67,493,202	*total inflation-adjusted level funding*
ADVANCE Women's Program	$1,051,050	$21,841,050	*total inflation-adjusted level funding (based on FY08)*
Broadening Participation in Computing (BPC)	$284,108	$14,284,108	*total inflation-adjusted level funding*
Graduate Research Fellowships - Women in Engineering and Computer Science	$533,691	$8,593,691	*total inflation-adjusted level funding*
Opportunities to Enhance Diversity in the Geosciences (OEDG)	$256,386	$4,856,386	*total inflation-adjusted level funding*
Minority Post-Docs	$601,239	$4,001,239	*total inflation-adjusted level funding*
Graduate Research Diversity (GRD) - ENG	$17,250	$76,725	*total inflation-adjusted level funding (based on FY08)*
Significant Opportunities in Atmospheric Research and Science (SOARS) - GEO	$28,425	$538,425	*total inflation-adjusted level funding*

Explanation of Function 250 Science Requests FY2009

America COMPETES Diversity Programs - underfunded

The following programs were authorized in the America COMPETES Act, H.R. 2272, signed into law on August 9, 2007. They are under-funded by the Administration's budget and should receive full funding, as recommended by the authorizing committees.

NSF: Science, Technology, Engineering and Math Talent Expansion Program (STEP)

NSF: Advanced Technology Education (ATE)

NSF: Experimental Program to Stimulate Competitive Research (EPSCoR)

NSF: Partnerships for Access to Laboratory Science-- Sec 7026 of COMPETES Act

NSF: Hispanic-serving Institutions Undergraduate Program-- Sec 7033 of COMPETES Act

NSF: Faculty Early Career Development (CAREER) Program

DOE: Summer Institutes-- Sec 3185 of COMPETES Act

DOE: Outreach and Experiential-based Programs for Minority Students— Sec 3135 of COMPETES Act

Science, Technology, Engineering and Math Talent Expansion Program (STEP)

The Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP) seeks to increase the number of students receiving associate or baccalaureate degrees in established or emerging STEM fields. Broadening participation of ethnic minorities is key in funding decisions for STEP. *Full funding of the $50 million authorization is recommended.*

Advanced Technology Education (ATE)

With an emphasis on two-year colleges, the Advanced Technological Education (ATE) program focuses on the education of technicians for the high-technology fields. It involves partnerships between academic institutions and employers to improve STEM education at the undergraduate and secondary school levels. *Full funding of the $57.7 million authorization is recommended.*

Experimental Program to Stimulate Competitive Research (EPSCoR)

The mission of EPSCoR grant program is to avoid undue geographical concentration of science research and education. Unique goals are to activate effective jurisdictional and regional collaborations among academic, government and private sector stakeholders that advance scientific research, promote innovation and provide multiple societal benefits. *Full funding of the $133.2 million authorization is recommended.*

NSF: 'Partnerships for Access to Laboratory Science (PALS)— Sec 7026 of COMPETES Act

The pilot program will foster partnerships between high-need high schools, universities, and industry to fund grants for the improvement of laboratory equipment, materials, curricula and teacher training. It was created in the America COMPETES Act, Section 7026. *Full funding of the $5 million authorization is recommended.*

NSF: Hispanic-serving Institutions Undergraduate Program—

Sec 7033 of COMPETES Act

This is a competitive grant program to enhance STEM education at Hispanic-Serving Institutions and to increase the retention and graduation rates of students pursuing associates or baccalaureate degrees in STEM. *Funding of $5 million is recommended.*

NSF: Faculty Early Career Development (CAREER) Program

A new research grant program awards funds to early-career scientists. Minority researchers sometimes leave STEM careers because of the great difficulty in obtaining research grant funding during their pivotal early career years. Based on recommendations by the National Academies' *Rising Above the Gathering Storm* report, the program was created to strengthen the pipeline. *Full funding of the $183.6 million authorization is recommended.*

DOE: Summer Institutes-- Sec 3185 of COMPETES Act t

Two-week program hosted by Department of Energy-sponsored National Laboratory that provides hands-on science, technology, engineering, or mathematics laboratory experience for not less than 2 days. The program is for K-12 teachers and provides training to teachers from high-need school districts. It specifies the inclusion of women and minorities. *Full funding of the $20 million authorization is recommended.*

DOE: Outreach and Experiential-based Programs for Minority Students— Sec 3135 of COMPETES Act

This is an internship program for low-income students to promote experience-based learning opportunities during the summer. The program is targeted toward minority students and is intended to provide hands-on learning experiences at a National Laboratory or elsewhere within the Department of Energy. *Full funding of the $7.5 million authorization is recommended.*

Other Diversity Programs - underfunded

The following programs are already in existence but are requested by the Administration for decreases, flat funding, or increases that are below the rate of inflation. In most cases, the suggested figure was calculated beginning with the FY07 *actual outlay, reported by NSF, adding annual inflation rates of 3.2% for FY08 and 2.3% for FY09 (predicted). This strategy for calculating "flat-funding," or inflation-adjusted dollars, was devised in consultation with the House Committee on Budget.*

Informal Science Education (ISE)
ADVANCE Women's Program
Broadening Participation in Computing (BPC)
Graduate Research Fellowships - Women in Engineering and Computer Science
Opportunities to Enhance Diversity in the Geosciences (OEDG)
Minority Post-Docs
Graduate Research Diversity (GRD) - ENG
Significant Opportunities in Atmospheric Research and Science (SOARS) - GEO

Informal Science Education (ISE)

The ISE program invests in projects that develop and implement informal learning experiences to increase interest, engagement, and understanding of science by individuals of all ages and backgrounds. Projects may target either public audiences or professionals whose work directly affects informal STEM learning and demonstrate strategic impact, innovation, and collaboration. *At least "flat funding" in inflation-adjusted dollars in the amount of $67,493,202 is recommended.*

ADVANCE

The goal of the ADVANCE program is to develop systemic approaches to increase the representation and advancement of women in academic science and engineering careers. Proposals that address the participation and advancement of women with disabilities and of women from underrepresented minority groups are encouraged. *At least "flat funding" in inflation-adjusted dollars calculated from the FY08 estimate in the amount of $21,841,050 is recommended.*

Broadening Participation in Computing (BPC)

The Broadening Participation in Computing (BPC) program aims to significantly increase the number of U.S. citizens and permanent residents receiving post secondary degrees in the computing disciplines, with an emphasis on students from communities with longstanding underrepresentation in computing: women, persons with disabilities, and minorities. The BPC program also aims to develop effective strategies for

encouraging individuals to pursue academic careers in computing and become role models. *At least "flat funding" in inflation-adjusted dollars in the amount of* $14,284,108 *is recommended.*

Graduate Research Fellowship –

Women In Engineering and Computer Science

NSF offers approximately 1,000 graduate fellowships for women in this competition. The Graduate Research Fellowship provides three years of support for graduate study leading to research-based masters or doctoral degrees and is intended for students who are at the early stages of their graduate study. *At least "flat funding" in inflation-adjusted dollars in the amount of* $8,593,691 *is recommended.*

Opportunities to Enhance Diversity in the GeoSciences

The program supports activities that will lead to an effective program for diversity in the geosciences. It focuses on increasing research opportunities for both undergraduate and graduate students from underrepresented groups, and enhancing infrastructure for institutions that serve minority populations. Collaborations are encouraged between research institutions and minority serving institutions as well as two and four year colleges with large minority populations. *At least "flat funding" in inflation-adjusted dollars in the amount of* $4,856,386 *is recommended.*

Minority Post-Docs

The Directorate for Biological Sciences (BIO) and the Directorate for Social, Behavioral and Economic Sciences (SBE) offer Minority Postdoctoral Research Fellowships and related supporting activities in an effort to increase the participation of underrepresented groups in selected areas of science. These fellowships support training and research in STEM fields in a host institution only in the areas of biology and social, behavioral, and economic sciences within the purview of NSF. *At least "flat funding" in inflation-adjusted dollars in the amount of* $4,001,239 *is recommended.*

Graduate Research Diversity

NSF awards three-year Graduate Research Fellowships for doctoral candidates in STEM. Within the engineering fellowships, this program reflects the continuing effort by the Directorate for Engineering to promote increased participation of new Ph.D. students in all fields of engineering research with particular emphasis on individuals from underrepresented groups. *At least "flat funding" in inflation-adjusted dollars calculated from the FY08 estimate in the amount of $76,725 is recommended.*

Significant Opportunities in Atmospheric Science (SOARS)

The mission of SOARS® is to broaden participation in the atmospheric and related sciences by engaging students from groups historically underrepresented in science and preparing them to succeed in graduate school. *At least "flat funding" in inflation-adjusted dollars in the amount of* $538,425 *is recommended.*

In summary, these items at the National Science Foundation and Department of Energy are key to our national competitiveness and to promoting diversity in our STEM workforce. NSF has a record of strong performance, and as a senior member of the Committee on Science and Technology, I will continue to advocate for appropriate authorization increases in programs important to diversifying our science and technology workforce. Thank you for considering my requests.

Sincerely,

Eddie Bernice Johnson
Member of Congress

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UNITED STATES
HOUSE OF REPRESENTATIVES

Additional Views and Estimates
Committee on Science and Technology
Fiscal Year 2009 (FY09)

I am very pleased by the high level of agreement among my colleagues on the Committee on Science and Technology concerning the President's proposed FY 2009 budget proposal released on February 4, 2008. I am proud of our committee's tradition of bipartisan collaboration. We are united in our agreement that if we are to remain ahead of the global curve with regards to competitiveness and innovation, we must place a high priority on making investments in research, development, technology, and math and science education. That said, with a key exception that I will discuss in more detail below, I concur with the Minority Views and Estimates.

With respect to one program under the jurisdiction of the Subcommittee on Energy and Environment on which I serve, I concur with the majority's Committee Views and Estimates concerning funding for the Advanced Research Projects Agency for Energy (ARPA-E) at the Department of Energy.

The dangerous truth is that America is losing economic influence and diplomatic leverage because since 1973, we have not changed our dependence upon oil for 98 percent of energy used for transportation. From reliance upon 30% imported oil and gas in 1974, Americans have grown dependent upon imported oil and gas for 60% of what we consume. The U.S. is the world's #1 importer of oil. China is #2. More than ever, Americans are at the mercy of world events.

Two Congressional studies by the Government Accountability Office in 2007 called for dramatic changes in energy policies to conserve oil, and diversify America's energy sources by developing and deploying advanced energy technologies. Former Chairman Sherwood Boehlert and I requested, "Crude Oil: Uncertainty about Future Oil Supply Makes it Important to Develop a Strategy for Addressing a Peak and Decline in Oil Production" (GAO-07-283). Our current Chairman Bart Gordon requested, "Challenges for Developing and Deploying Alternative Energy Sources for the Future," (GAO-07-106.) These GAO reports provided further validation for the findings and recommendations of the National Academies' report, "Rising Above the Gathering Storm." That report called for dramatic changes in American energy policies, and in particular the establishment of an ARPA-E.

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The International Energy Agency (IEA) and our own Energy Information Administration (EIA) have both documented that world oil production has been virtually unchanged at a plateau during the last 30 months. Meanwhile, demand has steadily increased led by developing countries, such as India and China. Thus, it is an application of the economic laws of supply and demand that explain why oil prices have increased three times to over $100/barrel (bbl) since 2004.

On January 22, 2008, Jeroen van der Veer, Chief Executive of Shell Oil wrote a "Shell Energy Scenarios" letter and column distributed worldwide that didn't use the word peak oil. However, he warned, "We are experiencing a step-change in the growth rate of energy demand due to population growth and economic development, and Shell estimates that after 2015 supplies of easy-to-access oil and gas will no longer keep up with demand. As a result, society has no choice but to add other sources of energy."

Just yesterday, on February 27, 2008, Deutsche Bank issued a report, "The 100mb/d peak oil market." The report noted that two leading executives of major independent oil companies, the CEO's of France's TOTAL and ConocoPhillips have warned that peak oil is imminent for all practical purposes. Concurring with Mr. van de Veer, the report said, "We can easily see oil demand exceeding 100mb/d by 2015…but why is 100mb/d supply so hard? Simple, it's the declines. Even with today's 5% decline rate, to sustain a 100mb/d oil market will require some 8mb/d of new annual supply growth, *a level that has never been achieved.*" [emphasis mine] The report concluded that oil prices might rise to a level of $150 bbl by 2010 – not adjusted for inflation – before demand destruction could reduce them. Demand destruction is an economic euphemism for a recession. As this Deutsche report and many other economic experts warn, the U.S. is already hovering on the brink of a recession with oil at $90-$100 bbl.

I am a scientist and engineer with 20 years of experience working on research and development programs by the Defense Department and 15 years serving in the Congress reviewing federal government research and development programs. Based upon these experiences, I believe that ARPA-E is needed to perform high-risk, high-reward research and development of advanced energy technologies based upon the successful organizational model of the Defense Advanced Research Projects Agency (DARPA). I concur with the majority Committee's Views and Estimates and recommend funding of ARPA-E at the authorized level of $300 million in FY 09.

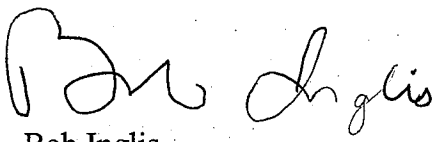
Roscoe G. Bartlett

Additional Views and Estimates (FY 2009)

I agree with the priorities expressed in these views and estimates, and concur with the statements of both the Majority and the Minority regarding our pressing need to increase investments in our nation's science initiatives. The American innovation and ingenuity has placed us a global leader in research and development, and if we are to remain there, our commitment to our scientists, engineers, researchers and students must not waver.

Over the past five years, the President's budget has steadfastly supported hydrogen research and development within the Department of Energy. I am disappointed to find that this year's budget reflects a departure from that trend, and strongly desire that our national commitment not falter in the development of hydrogen energy and transportation technologies. These efforts promise a great payoff for clean and abundant renewable energy, job creation, and climate benefits – payoffs that will be well worth our federal investment and support.

I support the Minority views that we need to ensure that ongoing basic and applied research at the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST), and the Office of Science at the Department of Energy (DOE), does not suffer from any future decreases. Beyond funding these vital science agencies, I see value in contributing resources to efforts to overcome current hurdles in moving breakthrough technologies from the laboratories to the marketplace. For this reason, I support the creation of an Advanced Research Projects Agency for Energy (ARPA-E).



Bob Inglis
Member of Congress