

U.S. HOUSE OF REPRESENTATIVES
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March 3, 2005

The Honorable Jim Nussle
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 108th Congress and Section 301(d) of the Congressional Budget Act of 1974, as amended, I am transmitting the Views and Estimates of the Committee on Science for Fiscal Year 2006.

Sincerely,



SHERWOOD BOEHLERT
Chairman

SB/dm
Enclosure

Cc: The Honorable Bart Gordon
The Honorable John M. Spratt, Jr.

**VIEWS AND ESTIMATES
COMMITTEE ON SCIENCE
FISCAL YEAR 2006**

BACKGROUND

As the House and Senate begin consideration of the President's Fiscal Year 2006 (FY06) budget request, there is no question that a great deal of debate will revolve around the budget deficit and its impact on the long-term economic health of the Nation. As these discussions move forward, the Science Committee urges Congress to recognize the importance and contributions of science and technology to productivity and economic growth – and consequently – fiscal security.

Indeed, nothing benefits federal revenues over the long-term as much as accelerated economic growth, and nothing fuels long-term growth more than science and technology. Further, the strength of the U.S. scientific enterprise has long been a crucial component of America's national security. Advancements in science and technology were critical to the nation's ability to triumph in the Cold War. (Indeed, Cold War-era investments in science and technology, especially those made in the wake of the Soviet launch of Sputnik, laid much of the foundation for the broad, successful scientific and engineering enterprise the U.S. boasts today.) New ideas, understandings and technologies spawned by research and development are just as essential to winning the war against terrorism.

As the President's Science Advisor Dr. John Marburger noted in testimony before the Science Committee, "This Administration understands that science and technology are major drivers of economic growth and important for securing the homeland and winning the war on terrorism." Department of Homeland Security (DHS) Undersecretary Charles McQueary echoed this sentiment at the same hearing, stating that "the nation's advantage in science and technology is key to securing the homeland."

SCIENCE COMMITTEE AGENDA

In the first session of the 109th Congress, the Science Committee's top objective will be to pass authorization legislation for the National Aeronautics and Space Administration (NASA). This legislation is needed to provide Congressional direction in the wake of the President's Space Exploration Vision. The Committee also intends to pass an Organic Act for the National Oceanic and Atmospheric Administration (NOAA), as well as other bills related to NOAA's operations, including one authorizing tsunami detection, warning, education and research programs. The Committee has already passed its portions of the comprehensive Energy Bill.

The Committee also will work to strengthen funding and activities at the National Science Foundation (NSF), the Department of Energy (DOE) Office of Science, and the National Institute of Standards and Technology (NIST). With respect to NSF, the Committee places particular priority on preserving the agency's critical role in supporting math and science education, especially at the K-12 level.

The Committee also will conduct ongoing oversight of some of the key programs it has helped put into place, including the work of the DHS Science and Technology (S&T) Directorate, and important interagency research and development (R&D) activities such as nanotechnology, climate change research, networking and information technology, and cybersecurity.

OVERALL R&D FUNDING

The President proposes to spend \$132.3 billion on R&D in FY06, about a 1 percent increase over FY05. The proposed R&D budget increases are heavily weighted toward development (a 2 percent increase), while applied research would remain flat, and basic research would decline by 1.2 percent.

The Committee believes the proposed funding for basic research is insufficient. Funding short-term development at the expense of longer-term basic and applied research is not advisable, and neglects those portions of R&D where government support is most crucial. The Committee also believes that the budget must fully consider appropriate balances between defense and non-defense R&D spending and between biomedical and non-biomedical spending. At \$71 and \$29 billion, respectively, the R&D budgets of DOD and the National Institutes of Health (NIH) account for more than 75 percent of the total R&D budget. Further, the increase for defense development (\$1.4 billion) amounts to almost twice the overall increase in R&D (\$733 million). While fully acknowledging the important contributions of defense and biomedical R&D, the Committee urges that similar attention be given to other important R&D agencies, such as NSF, DOE, and NIST.

The Committee notes R&D rated higher than all other investment categories in the Office of Management and Budget's (OMB) Program Assessment Rating Tool (PART) analysis. Further, the Committee notes that the agencies under its jurisdiction scored very well on the President's Executive Branch Management Scorecard, with DOE, NASA, and NSF among seven of the 26 federal agencies evaluated to receive three or more "green lights."

INTERAGENCY ACTIVITIES

Presidential Initiatives

The Administration's budget highlights five "multi-agency R&D priorities" and provides a precise budget breakdown for three of them—nanotechnology, climate change, and networking and information technology. The Committee strongly endorses these initiatives, and agrees that they deserve priority in funding, but is concerned that all three receive cuts in the budget request.

The Administration proposes a 2.5 percent decrease from the FY05 estimated level for the interagency program on nanotechnology. This decrease includes a drop of 7 percent at the five agencies under the Science Committee's jurisdiction that participate in the

program (NSF, DOE, NIST, NASA, and the Environmental Protection Agency (EPA)). The Committee believes that Congress should fund these activities, to the extent possible, at the levels called for by the *21st Century Nanotechnology Research and Development Act* (P.L. 108–153). The Committee endorses the new nanomanufacturing and nanometrology initiatives at NIST, but is concerned that the request may not support all the equipment needs of its nanoscience facility.

The Administration proposes spending \$1.9 billion for the interagency Climate Change Science Program, approximately the same level as in FY05. As part of that Program, the Committee continues to support the interagency Climate Change Research Initiative (CCRI), which focuses on shorter-term research to support improved public debate and decision-making. The Committee is concerned that the FY06 request cuts the CCRI by \$38 million, or 17 percent below the FY05 level. It is unclear why the CCRI activities were reduced when they are designed to provide information on the most pressing questions and uncertainties in climate research.

The Administration proposes a 4.5 percent decrease from the FY05 estimated level for the interagency program on Networking and Information Technology Research and Development (NITRD). This program includes important work on high-end computing and high-confidence software and systems, and the Committee believes that funding for work in this area should be raised, not lowered.

While cybersecurity R&D is not a formal Presidential initiative, significant effort is being put into programs in this area at a number of agencies. The budget request for cybersecurity is basically flat at NSF, NIST, and DHS, and well below the levels authorized in the *Cyber Security Research and Development Act* (P.L. 107-305). The Committee believes that increased funding for, and increased coordination of, cybersecurity R&D programs are needed.

The Committee also endorses the two other multi-agency R&D initiatives, which relate to combating terrorism (discussed in the next section) and to hydrogen (discussed in the section on the Department of Energy).

RECOMMENDATIONS FOR AGENCIES

FULL COMMITTEE

Department of Homeland Security (DHS)

The Committee wrote the portion of the Homeland Security Act that created the DHS S&T Directorate, and has exercised close oversight of DHS R&D programs since the Department's inception. The Committee is pleased that the Administration has requested a 23 percent increase in funding for this directorate.

A significant part of the increase (\$127 million) reflects the transfer of R&D programs currently located elsewhere in DHS (primarily at the Transportation Security

Administration) into the S&T Directorate. The Committee is supportive of this consolidation, and looks forward to the increased coordination of R&D that it expects to result from it.

The remainder of the increase is spread among several new initiatives, the largest of which is the formation of a \$227 million Domestic Nuclear Detection Office (DNDO).

The Committee remains concerned about the balance between short- and long-term research programs at DHS. The requested funding for university programs and for research on emerging threats is flat. The Committee is concerned that if DHS does not make and maintain investments in longer-term basic research, including research at universities, the next generation of homeland security technologies will not be available to counter the next generation of threats.

SUBCOMMITTEE ON ENERGY

Department of Energy (DOE)

The Committee has jurisdiction over DOE's non-military national laboratories, civilian energy research, development, and demonstration programs, and commercial application of energy technology activities.

Office of Science

The Committee believes that the Administration's FY06 request for DOE's Office of Science, which funds 40 percent of the Nation's physical science research, is inadequate. The budget proposes funding the Office at \$3.46 billion, a reduction of 3.8 percent. This is significantly less (25 percent) than the \$4.6 billion included in all three versions of the House-passed H.R.6, the *Energy Policy Act of 2003*. It also is well below (9 percent) the \$3.8 billion authorized in H.R. 610, the *Energy Research, Development, Demonstration, and Commercial Application Act of 2005*, which was passed by the Science Committee on February 10, 2005.

The proposal also does little to advance the goal of the President's Council of Advisors on Science and Technology (P-CAST), which recommended in a 2002 report that future Administration budget requests bring funding for the physical sciences into parity with that of the life sciences. DOE's Office of Science is the largest federal supporter of the civilian physical sciences, a critical component of the federal research portfolio that has been dwarfed by support for biomedical research in recent years.

The Committee is particularly concerned about relative balance between funding for user facilities and for academic research by the Office of Science. The Committee supports the proposed funding of operations for the newest user facilities such as the Spallation Neutron Source (+\$74 million) and the four new Nanoscale Science Research Centers (+\$43 million) at Oak Ridge, Sandia, Argonne, and Brookhaven National Laboratories.

The Committee is concerned, however, that such support could come at the expense of research grant funding, which is down by about 10 percent in this request.

But funding for the user facilities themselves is inadequate. Under the budget proposal, existing user facilities would be shut down for more weeks of the year because of lack of funds. These facilities are used by industrial and academic researchers as well as by researchers at the National Laboratories themselves. Taxpayers have already invested heavily in these facilities, and it is wasteful to allow them to sit idle for much of the year.

Budgetary constraints are also leading DOE to cut back on its plans to open future facilities. In November 2003, the Office of Science released a Facilities Plan, a prioritized list of 20 new facilities it hoped to open over the next 20 years. The Plan was well thought out and required difficult decisions, but its implementation is already being adversely affected by the budget. The FY06 budget proposal would cancel one project included in the Plan (at Fermilab) and would defer another (the Rare Isotope Accelerator). However, the Committee understands that an ambitious construction program in the face of a constrained budgetary environment may cause either the construction of the facilities to be prolonged – increasing their costs – or core research and existing user facilities' programs to be cut.

Finally, the ten-fold increase (from \$4.9 million to \$52 million) in funding proposed for the preliminary design and long-lead acquisition for ITER, the international fusion research project, seems premature for a project for which the site has not yet been chosen.

Energy Supply R&D

The Committee is concerned that R&D related to energy efficiency and alternative sources of energy is inadequate, especially during a time of high energy prices. Energy efficiency and renewable energy research would be reduced by 5.3 percent under the FY06 proposal.

The Committee continues to support the President's initiative calling for America to lead the world in the development of hydrogen-powered automobiles and the necessary fueling infrastructure to support them. The Committee remains concerned, however, that the proposed increases in hydrogen programs would come at the expense of much of the rest of the R&D funded by DOE's Energy Efficiency and Renewable Energy account, which includes programs for hybrid vehicles and advanced diesels that can lead to significant near-term reductions in oil consumption.

The Committee applauds the Administration's additional funding for nuclear energy research, but is concerned with the proposal to merge the Nuclear Energy Research Initiative (NERI) with the remaining programs of nuclear R&D. NERI, which funds innovative, peer-reviewed nuclear research at universities, has been the source of new ideas for improving the safety and performance of nuclear energy. These technologies may also enhance national security by reducing the danger of proliferation of nuclear materials.

The Committee continues to support the Clean Coal program with the requirements that are included in H.R. 610, but has concerns about the FutureGen project, which is to be funded with rescinded Clean Coal funds. While the Committee supports the goals of FutureGen and believes DOE should be investing more in studying carbon sequestration, the Administration's request for \$237 million for the transfer of funds to the FutureGen project may be premature, given that design and scope of the project have not been completed.

Also, the Committee is troubled by the cut of nearly 20 percent proposed for electricity transmission and distribution research, given that power disturbances are an important national security matter and are estimated to cost the U.S. up to \$80 billion a year.

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY AND STANDARDS

Environmental Protection Agency (EPA)

EPA's Office of Research and Development (ORD) is responsible for 80 percent of EPA's R&D activities, and it receives the majority of funds available in the agency's Science and Technology (S&T) account. ORD serves a unique role in environmental R&D: it conducts the basic and applied research that supports EPA's regulatory programs and investigates the next generation of environmental challenges. To meet these needs, ORD conducts intramural research at EPA's many laboratories, and it supports extramural research at colleges and universities through the Science to Achieve Results (STAR) grant program.

For FY06, the budget request includes \$761 million for S&T at EPA, a 2 percent increase from FY05. Funding for the Office of Research and Development (ORD), the primary recipient of S&T funds, would decrease by 1 percent to \$569 million. The Committee is pleased with the overall requested funding levels and applauds the Administration for recognizing the importance of science at the Environmental Protection Agency.

The Committee supports the proposed continuation of the agency's building decontamination research (with \$19 million FY06) and the proposed continuation of the National Homeland Security Research Center. The budget request recognizes EPA's important homeland security contributions in buildings, water and food security.

But while the Committee strongly supports EPA's role in homeland security, it is concerned that security research could be funded at the expense of other areas of environmental research.

The FY06 proposal includes a 168 percent increase in S&T funding going to homeland security activities. The largest share of the increase (\$44 million) is proposed for a five-city pilot program called the Water Sentinel to develop a drinking water monitoring and surveillance system. Given the relatively flat S&T budget, the Committee is concerned that core environmental research activities will be reduced to fund such initiatives. The

\$44 million for a five-city pilot appears to be a very expensive undertaking. The Committee plans to look more closely at this and other homeland security proposals and their effect on ORD's core research.

The Committee also remains concerned with proposed cuts in the ecological research program and the pollution prevention research program (now called Sustainability Research), which are based on the FY05 PART reviews. At a hearing on the ecological research program last year, Administration officials did not provide a clear rationale for the cut. In FY06, ecological research would receive \$84 million, which is \$10 million (or 11 percent) less than FY05. This would be especially harmful because the program has already been reduced by \$32 million or 38 percent since FY04.

The Committee is pleased that the budget includes funding for the Science to Achieve Results (STAR) Fellowship program, which supports graduate student fellowships in environmental science. However, the Committee believes the program should be funded at \$10 million, the level restored by Congress in FY03, FY04, and FY05. It appears that EPA's budget proposal would fund STAR fellowships, along with three other fellowship programs, at \$8.3 million, with the result once again of cutting STAR fellowship funding.

The Committee also plans to examine the following proposed reductions: (1) an 80 percent reduction in the Superfund Innovative Technology Evaluation (SITE) program, which demonstrates innovative clean up technologies; (2) elimination of \$5 million for the Exploratory STAR Research Grants, which the Agency's Science Advisory Board has repeatedly recommended that EPA expand; and (3) a \$2.4 million reduction in mercury research that will eliminate EPA's investment in tracking how mercury moves through the environment.

The budget proposes a new funding approach between ORD and the other program offices, such as the air, water and waste offices. Approximately, \$20 million of ORD's funds are being transferred to the control of the other program offices, which will then contract with ORD on a fee-for-service basis for research. Although the Committee is not averse to the concept of fee-for-service research, it is not clear what problem this new approach is designed to fix. The Committee plans to look closely at this new approach.

Department of Commerce - Technology Administration

The bulk of the Technology Administration's funding goes to the National Institute of Standards and Technology (NIST), the nation's oldest federal laboratory, which has consistently provided high-quality research in a wide variety of fields, including industrial sciences, homeland security, nanotechnology, health care, building science, and computer security. The budget request includes \$426 million for the core NIST laboratory programs and facilities in FY06, an increase of about \$47 million or 12 percent. The Committee strongly supports this request, as it represents the necessary level of funding for NIST to fulfill all its mandates and missions.

The Committee supports the budget request of \$59 million for NIST's construction account, which includes funding to complete the upgrades at the Central Utility Plant at NIST's laboratory in Boulder, Colorado, continue building improvements in Boulder and Gaithersburg, Maryland, and establish a funding mechanism for regular maintenance at the Advanced Measurement Laboratory (AML) in Gaithersburg. The Committee is pleased that the construction of the AML in Gaithersburg is completed and the President's request includes funds to make this facility available to outside researchers. The Committee nevertheless remains concerned because the FY05 request for \$25 million in specialized equipment was not funded in the FY05 appropriation and must be provided in FY06 or the massive investment for the AML will not be fully utilized.

The Committee continues to support the Advanced Technology Program (ATP) and is disappointed that the Administration has again included no funds for the program in the budget request. In addition, the Committee is concerned that the proposed budget does not even fund the costs associated with closing the program. The closing of the program would require funds from the NIST laboratory budget because ATP currently spends about \$13 million at NIST's own labs. Funding would also be required to cover the cost of laying off the more than 200 ATP employees, about \$20 million. These costs would have to be absorbed by the NIST labs, eating into the proposed increases for the laboratory programs.

The Committee is disappointed that the Administration has requested only \$47 million for the Manufacturing Extension Partnership (MEP). This would cut the program by 56 percent from the \$107 million appropriated in FY05, leaving the national network of Centers with insufficient funding. MEP has demonstrated its effectiveness as the only program that offers direct technical assistance to small and medium-sized manufacturers to help them thrive in a globalized economy. The House has spoken overwhelmingly in favor of MEP, both through the FY05 appropriation and in the passage last year of H.R. 3598, the *Manufacturing Technology Competitiveness Act of 2004*.

Department of Commerce - National Technical Information Service (NTIS)

The Committee looks forward to working with the Administration to keep NTIS functioning as a self-sustaining entity.

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

NOAA's activities include providing weather forecasts and warnings, charting the seas for navigation, developing guidelines for the use and protection of ocean and coastal resources, and performing research to improve understanding of marine, coastal and atmospheric environments. The Committee has jurisdiction over four of NOAA's five line offices—the National Ocean Service, the Office of Atmospheric and Oceanic Research, the National Environmental Satellite Data and Information Service, and the National Weather Service.

The FY06 budget request for NOAA is \$3.6 billion, a decrease of \$300 million (8 percent) compared to the FY05 enacted level of \$3.9 billion. Most of the reduction is due to the elimination of earmarks, and the Committee supports the proposed overall level of funding for NOAA.

The Committee supports the request of \$964 million for satellite programs at NOAA. This request is a \$57 million (6 percent) increase over the FY05 enacted level of \$907 million. The increase is for the procurement, acquisition, and construction of the next generation of weather satellites, and it is in line with the long-term budget plans for these satellite systems. The Committee remains concerned about cost overruns and technical challenges that have delayed the launch date for the new polar satellite system. Last year, the Government Accountability Office (GAO) completed a report for the Committee on the costs and risks associated with NOAA's next-generation polar satellite program. The current projection for the cost of the next generation polar satellite system has risen from \$6.5 billion to \$8.1 billion, and GAO estimates it is likely to rise by another \$500 million before the system is complete. Additionally, the Committee recently learned that availability of one of the key sensors on the new polar satellite will be delayed by 16 months due to technical difficulties in developing the sensor.

The Committee strongly supports NOAA's request for \$28 million for satellite data product processing and distribution, and \$26 million for satellite product development, readiness and application. The Committee is concerned about NOAA's current and future capability to utilize, manage, and store satellite and weather data critical for forecasting and research. These funding levels will ensure that the nation can take full advantage of the large investment in satellites through timely and useful satellite data products.

The Committee supports NOAA's request for \$9.5 million to expand the U.S. Tsunami Warning Network. The Committee held a hearing about the proposed expansion of the U.S. Tsunami Warning Network on January 26, 2005. This request, combined with \$14.5 million in supplemental funds in FY05, will allow NOAA to procure and deploy tsunami detection buoys in a system designed to provide continuous tsunami warning capability for both the Pacific and Atlantic coasts of the United States. However, the Committee is particularly concerned that the Administration has cut nearly in half from \$4.3 million to \$2.3 million the funding that goes to help educate communities about, and prepare them for tsunamis. Experts testified at the Committee's January hearing that while detection is important, it is unlikely to save lives unless local communities have plans in place, and the public is educated about how to react in the event of a tsunami.

SUBCOMMITTEE ON RESEARCH

National Science Foundation (NSF)

The National Science Foundation (NSF) is the primary source of federal funding for non-medical basic research conducted at colleges and universities. NSF funds basic research across nearly all disciplines of science and engineering, making NSF-supported research

integral to progress in national priority areas such as health care and national security, among others. In addition, NSF sponsors programs to improve K-12 and undergraduate education, and its fellowships and research assistantship programs support many graduate and post-doctoral students.

NSF continues to receive high marks from the Office of Management and Budget for the quality of its management and the excellence of its programs. Building on its performance in the FY05 budget, NSF was one of only seven agencies awarded three green lights on the Executive Branch Management Scorecard. In addition, eight NSF programs were examined using PART. All eight programs received ratings of “Effective” (the highest rating). NSF was the only agency in the Federal government to receive the highest rating on every program that underwent a PART evaluation.

The FY06 budget request for NSF is \$5.61 billion, an increase of 2.4 percent, or \$132 million over the FY05 level. However, because NSF received a 3.1 percent (\$180 million) cut in FY05, the overall request level for FY06 is approximately 1 percent below the FY04 level. In addition, the proposed increase includes money provided to foot the bill for ice breaking expenses currently paid by the U.S. Coast Guard, so the increase for NSF in reality comes to about 1.5 percent. Meanwhile, NSF has faced increasing proposal pressure in virtually every scientific field. The Foundation now funds only about 20 percent of the proposals it receives, down from the 33 percent level that had held for many years.

While recognizing that budget realities may not allow Congress to fund NSF at the level provided in the current authorization (the *National Science Foundation Authorization Act of 2002*, P.L. 107-368), the Committee believes that the proposed FY06 request is inadequate. Congress should provide as much funding as possible to strengthen support for core science and education programs, and priority areas such as information technology and nanoscale science and engineering research.

The Committee is especially disturbed by the proposed cuts in NSF’s Education and Human Resources (EHR) Directorate. Since 1950, NSF has been tasked with strengthening math and science education programs at all levels. Yet under the budget proposal, the overall investment in education at NSF would drop from \$841.4 million in FY05 to \$737 million in FY06 (down 12 percent). Much of the decrease would occur in the Elementary, Secondary, and Informal Education (ESIE) and Undergraduate Education accounts, which would drop from \$182 million to \$141 million, and from \$154 million to \$135 million, respectively.

NSF’s education programs are unique in their capacity to develop new and improved materials and assessments, create better teacher training techniques and move promising ideas from research to practice. The Committee fears that disinvestments in this area will deprive states, school districts and schools of the tools and ideas they need to achieve the goals of the *No Child Left Behind Act*. NSF’s EHR programs should receive at least level funding in FY06.

United States Fire Administration (USFA)

The U.S. Fire Administration (USFA), which is now part of DHS, was created in 1974 to aid localities in reducing the loss of life and property from fires and related emergencies. The budget request for USFA is \$52.6 million, well below its authorized level of \$64.8 million. The Committee also notes its support for USFA's National Fire Academy training center and its budget request of \$10 million.

From FY01 through FY03, USFA administered the (separately authorized) Assistance to Firefighters Grant Program, which is authorized by the Science Committee. This program provides direct assistance to local fire departments for training, purchase of equipment, and other purposes. The program is now run by the Office of Domestic Preparedness (ODP). The FY06 budget request includes \$500 million for the fire grant program at ODP. This is a \$150 million cut from FY05, and \$450 million less than authorized under legislation signed into law last November (P.L. 108-375). In addition, the Administration has requested no funds for the SAFER Program, which awards grants to fire departments for the purpose of hiring new firefighters. SAFER is authorized at \$1.061 billion in FY06 and received an appropriation of \$65 million in FY05. The Committee feels that both of these important programs should receive higher funding.

National Earthquake Hazards Reduction Program (NEHRP)

NEHRP is an interagency program that Congress created in 1977 and reauthorized last November (P.L. 108-360). It includes NSF, NIST, the Federal Emergency Management Agency (FEMA), and the U.S. Geological Survey (USGS), and aims to reduce the loss of life and property from earthquakes by improving emergency response, increasing understanding of earthquake risks, and improving earthquake engineering.

The President's overall FY05 request for NEHRP is about \$127 million, including \$54.0, \$51.3, \$20.6 and \$1.0 million, for NSF, USGS, FEMA, and NIST, respectively. The Committee believes that NEHRP should be funded at the levels in the *National Earthquake Hazards Reduction Program Reauthorization Act of 2004* (P.L. 108-360). The Committee is most concerned that the NEHRP budget request for NIST of only \$1 million will not be enough to enable NIST to carry out its new responsibilities as the lead agency for the program, a role previously performed by FEMA. The Committee believes that a minimum of \$3.5 million is needed for NIST's lead agency tasks. The Committee is pleased that the Advanced National Seismic System (ANSS) – a critical seismic monitoring program administered by USGS – would receive a significant increase to \$8.1 million, and urges funding for ANSS at or above this level.

SUBCOMMITTEE ON SPACE AND AERONAUTICS

National Aeronautics and Space Administration (NASA)

The budget request provides \$16.456 billion for NASA in FY06, an increase of 2.4 percent (excluding from the base the \$126 million in emergency supplemental funding provided to fix NASA facilities damaged from last year's hurricanes). While this year's 2.4 percent increase for NASA is larger than for most other science agencies, the Administration did not seek the 4.7 percent increase it had previously projected for FY06 in last year's budget request.

The Space Shuttle and International Space Station programs remain the centerpieces of NASA's human spaceflight program for the near term. About 40 percent of NASA's FY06 budget request is dedicated to these two programs.

The Committee is divided over the NASA budget request as of now even though there is broad support for the basic thrust of the Space Exploration Vision outlined by the President on January 14, 2004. Key questions include the relative priority of NASA funding as compared to that of other science agencies; the adequacy of funding for science and aeronautics within NASA; and the future of the NASA workforce.

NASA is still in the process of making fundamental implementation decisions related to carrying out the President's vision, and as a result numerous figures in the proposed FY06 budget are described by NASA as "placeholders." For example, NASA is still determining what research it will conduct on the Space Station; what the final configuration of the Space Station will look like; how many more Space Shuttle flights will be required to complete construction of the Space Station; what many of the specifications for the new Crew Exploration Vehicle (CEV) will be (including how many people it will carry, whether it will be reusable, and whether it will go to the Space Station); what launch vehicle to use for the CEV; what activities will take place when Americans return to the Moon; and what project will be used to test the nuclear propulsion technologies being developed under Project Prometheus.

Many questions also remain about the Space Shuttle, which has been grounded since the February 1, 2003 loss of the Columbia. The program's future and spending needs will be unclear at least until the Shuttle returns to flight, now scheduled for this May. The President's Vision is predicated on the Shuttle returning to flight and on Space Station construction being completed by 2010, enabling the Shuttle to be retired to free up funds for other activities.

The Administration also has not presented any plan for dealing with the Iran Nonproliferation Act (INA), which could bring the Space Station program to a virtual halt during FY06. Under U.S. rules, astronauts are not allowed to remain aboard the Space Station unless a crew rescue vehicle is available. The Russian Soyuz spacecraft is used for that purpose. But in April 2006, the agreement under which the Russians have provided the Soyuz vehicles will, in effect, expire. The INA prevents the U.S. from

making payments to the Russians for any further space services, including Soyuz vehicles, unless the President can certify that the Russians are not helping proliferate nuclear weapons to Iran. The Administration has indicated it is reviewing proposals to amend the INA to allow a new agreement with the Russians, but no such language has been forthcoming thus far, and it is unclear how Congress would react to such a proposal. Thus, the future use of the Space Station is in doubt.

NASA's proposed FY06 budget for its Science Directorate, which now includes both Space Science and Earth Science, is \$5.5 billion, slightly down from FY05, but several hundred million dollars below the level NASA projected last year for FY06. A number of previously planned missions would be either delayed or eliminated.

The Committee is troubled by the limited funding the budget provides for NASA's Aeronautics program. The budget cuts the program by nearly 6 percent, down to \$852 million for FY06. Aeronautics research has long been level funded, and it is especially disadvantaged as NASA's overhead costs of operating infrastructure fall disproportionately on this program.

Federal Aviation Administration (FAA)

The Committee continues to be disappointed with the tepid support for Federal Aviation Administration research and development activities. The budget request of \$256.2 million represents a slight decrease from FY05 enacted levels, and is significantly less than the \$352.2 million authorized by the *Vision 100 – Century of Aviation Reauthorization Act* (P.L. 108-176).

The FAA, together with other federal departments and agencies, is embarking on an extensive, long-term project, the Joint Planning and Development Office, to develop a next generation air traffic management system. The Committee believes this activity, coupled with ongoing research, demands greater investment.

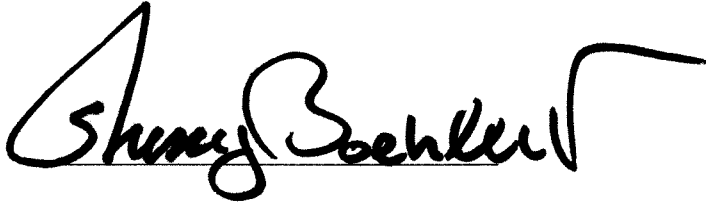
The FY06 request for the FAA's Office of the Associate Administrator for Commercial Space Transportation (AST) is \$11.8 million, which is below the \$12.3 million Congress authorized for FY06. The Committee, however, remains concerned that AST is continuing to develop burdensome and costly launch regulations that will undermine the competitiveness of the existing U.S. expendable launch industry. The Committee will also closely monitor AST's development of regulations for the space tourism industry that are consistent with legislation, the *Commercial Space Launch Amendments Act of 2004* (P.L. 108-492).

Department of Commerce—Office of Space Commercialization

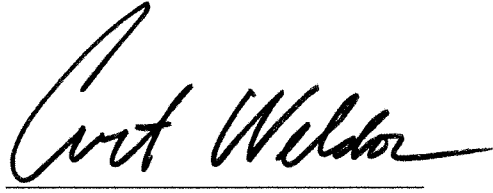
The Committee urges continued support for this Office. The Office has played a useful role in promoting the commercial space industry and in removing unnecessary impediments to its development. The Office needs to take a stronger role in legal and policy discussions within the government and be more aggressive in assisting U.S. commercial space providers in their efforts to conduct business with the government.

Committee on Science – FY 2006 Views and Estimates

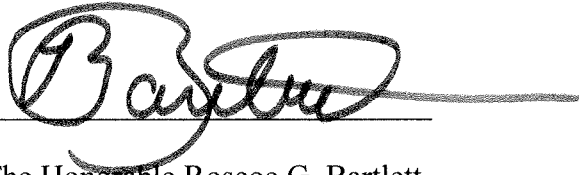
Member Signatures



The Honorable Sherwood L. Boehlert, *Chairman*



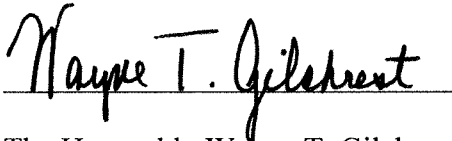
The Honorable Curt Weldon




The Honorable Roscoe G. Bartlett



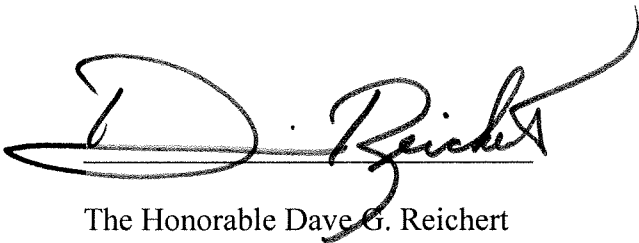
The Honorable Gil Gutknecht



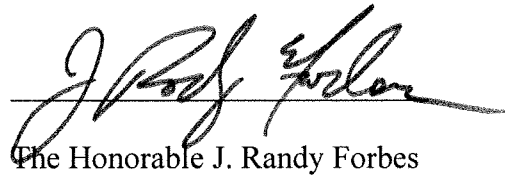
The Honorable Wayne T. Gilchrest



The Honorable Timothy V. Johnson



The Honorable Dave G. Reichert



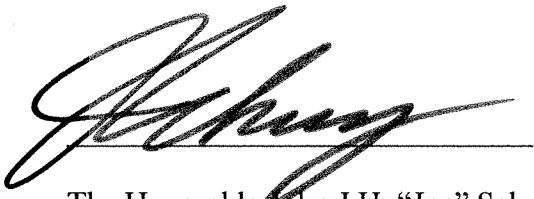
The Honorable J. Randy Forbes



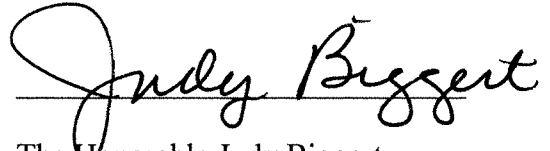
The Honorable Jo Bonner



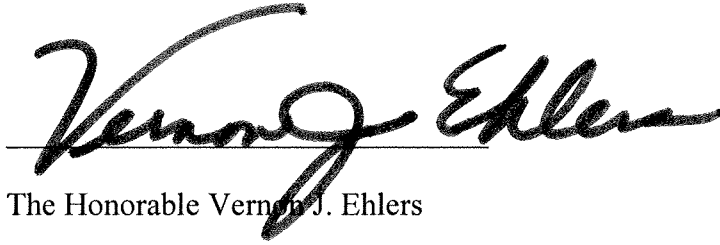
The Honorable Bob Inglis

A handwritten signature in cursive script, appearing to read "Joe Schwarz", written over a horizontal line.

The Honorable John J.H. "Joe" Schwarz

A handwritten signature in cursive script, appearing to read "Judy Biggert", written over a horizontal line.

The Honorable Judy Biggert

A handwritten signature in cursive script, appearing to read "Vernon J. Ehlers", written over a horizontal line.

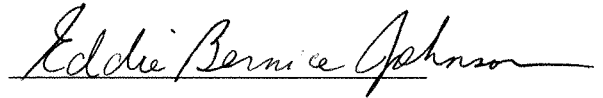
The Honorable Vernon J. Ehlers

Committee on Science – FY 2006 Views and Estimates

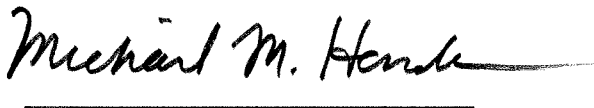
Member Signatures



The Honorable Bart Gordon, *Ranking Member*



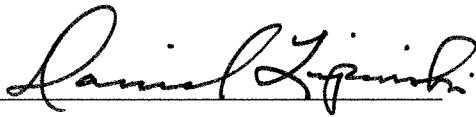
The Honorable Eddie Bernice Johnson



The Honorable Michael M. Honda



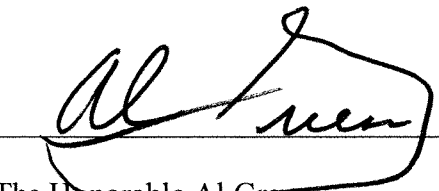
The Honorable Lincoln Davis



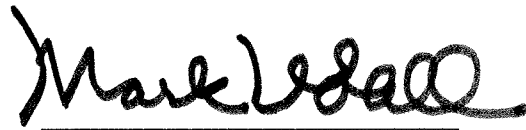
The Honorable Daniel Lipinski



The Honorable Brian Baird



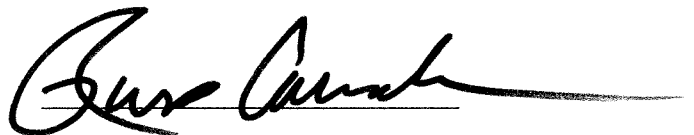
The Honorable Al Green



The Honorable Mark Udall



The Honorable Brad Miller



The Honorable Russ Carnahan



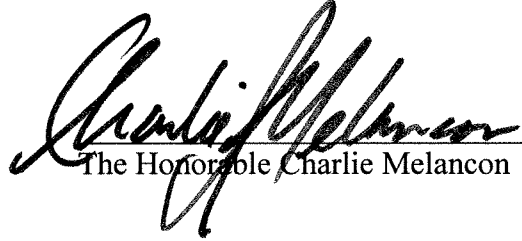
The Honorable Jim Matheson



The Honorable Jim Costa



The Honorable David Wu



The Honorable Charlie Melancon

Congress of the United States
House of Representatives
Washington, DC 20515-4304

Supplemental Views of
Congressman Ralph M. Hall
On the Need to Support the President's Vision for Space Exploration

I am concerned that the Committee's Views and Estimates are not more supportive of President Bush's Vision for Space Exploration. The Committee will attempt to write a NASA authorizing bill this year, and I am hopeful that we will embrace the goals of the President's Vision and help NASA in their efforts to restructure the agency toward those goals.

Some of the questions that the Committee raised in the Views and Estimates are good, and I expect that they will be answered in the course of normal Committee proceedings and dialog between Congress and the Executive branch. Indeed, I expect to raise some questions about the phase down of cellular science activities at the bioreactor lab. But, this concern does not color my overall view of the President's Vision to restructure NASA towards manned space flight to the Moon, Mars, and beyond. I am excited about NASA's future, and I don't share the Committee's pessimism over the space program as it is expressed in this document.

I look forward to working with Chairman Boehlert, Ranking Member Gordon and all of the Committee Members on the NASA authorization bill. I certainly support and admire Chairman Boehlert's leadership, and while we may not agree on all aspects of NASA's future, I am sure that we agree that space exploration is vital to our economy and national security.

Sincerely,



Ralph M. Hall
Member of Congress

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Washington, DC 20515

Supplemental Views of
Ralph M. Hall, Ken Calvert, Sheila Jackson Lee, Al Green, Charlie Melancon, Jim Matheson

On the Need for Continuation of
DOE Oil and Natural Gas Research and Development Programs

We are concerned that the Committee's Views and Estimates do not properly address provisions in the Administration's budget request to terminate the oil and natural gas research and development programs at the Department of Energy. We respectfully submit that as domestic oil and natural gas production is declining precipitously, the Administration appears to be missing the opportunity to substantially increase domestic oil and gas production through the deployment of the products of DOE research and development.

While we agree with the thrust of the Administration's program to develop hydrogen-powered vehicles and the infrastructure to support them, we believe it is premature to curtail oil and gas research programs that provide the means to support future successful exploration and production activities – in essence the energy bridge to the hydrogen economy. In fact the hydrogen program in its infancy could be highly dependent on natural gas, at least until non-fossil hydrogen sources are developed.

Today, the composition of the domestic oil and gas industry is substantially different than it was even a few years ago. The major multinational integrated oil and gas companies have largely ceased exploration and production activities in Lower 48 states, except for their offshore programs. The primary beneficiaries of DOE research, independent oil and gas producers, now account for about 85 percent of U.S. natural gas and more than 68 percent of oil production. The composition of the independent sector differs substantially from the major multinational oil companies. Among other things, they do not have access to the in-house technology development capabilities of the multinationals, nor do they have the resources necessary to conduct internal R&D programs. They typically operate in more mature basins where technology plays a pivotal role in getting the harder-to-get oil and gas out of the ground. These 7,000 producers have an average of only 12 employees, yet they drill 85 percent of the wells.

Virtually all of these DOE programs are targeted toward the exploration and production needs of the independents. The survival of these companies, and the production of an increasing portion of the nation's remaining oil and natural gas resources will depend on technologies not yet in existence – technologies that will be developed through government-industry partnerships and deployed by the industry to produce oil and gas to offset our dependence on foreign sources.

These programs have already provided oil and gas producers with the technologies to achieve major increases in production quickly. For example, mid-1980s DOE contributions to developing the technologies for producing natural gas from coalbed methane enabled natural gas production, which now totals more than 2 trillion cubic per

year. Natural gas from coalbed methane accounts for about 10 percent of total domestic production. DOE Fossil Energy Fracture R&D programs provided the industry the tools to begin development of natural gas tight sands reservoirs. Today tight sands production is about 17 percent of total domestic production. As a result of these technologies, developed in part by DOE, large fields like the Barnett Shale in Texas have the potential to produce as much as 20 trillion cubic of gas – an amount almost equal to one year's domestic consumption.

These programs have proven their worth. They can help reduce oil and gas prices and increase the resource base. We join with other Committees to urge our colleagues to restore and enhance the funding of these programs so that they may continue to provide the benefits of dependable domestic oil and gas production for years to come.

Ralph M. Hall

Ken Calvert

Al Green

Sheldon Whitehouse

Ch. Schumer

Jim Manchin

ADDITIONAL VIEWS

FROM: BOB INGLIS
DATE: 03/03/2005

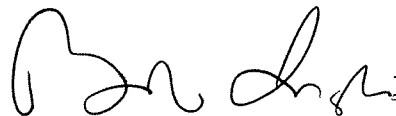
I largely agree with the Views and Estimates presented by the Science Committee, but I would like to say a few words about the Advanced Technology Program (ATP) and Manufacturing Extension Partnership (MEP). When I was on the Budget Committee, we fought hard against what is known as “corporate welfare.” Many people attack ATP and MEP as the worst offenders and examples of the saying, “if you offer something for free, a line will form.”

However, the government can and should support certain types of research and development, if (1) the market faces barriers to adoption, and (2) the national interest overrides the market’s timing. Hydrogen is an excellent example of this. We need to reduce our dependence on foreign oil. The costs and technological barriers of a hydrogen economy slow the rate of adoption. Therefore, it is in our national interest to fund the research and development.

My concern with ATP is that it is difficult to demonstrate the national interest. ATP funds research that companies would otherwise not do; that is the point. But if the companies don’t think the R&D is important enough to invest in without government assistance, why should we foot the bill? I recognize that this is a complicated issue, but I have strong reservations about this program.

MEP is harder to criticize because it impacts individuals in a way that endears it to many people. My own district has several success stories. However, the government helping small manufacturing firms to be more efficient cuts both ways. It champions the little guy, but sounds an awful lot like a handout aimed at specific types of businesses.

In speaking with the folks who run that program, I’m encouraged to see that they have structured it so that it is not a handout; rather, it is an aid to position the companies to make their own wise investments in technology. From that standpoint, I do not believe it is “corporate welfare.” I am looking forward to learning more about how the program practically works. I hope to find that this program operates in line with NIST’s high standards of quality and efficiency.



Bob Inglis

Congress of the United States

Washington, DC 20515

COMMITTEE ON SCIENCE U.S. HOUSE OF REPRESENTATIVES *Additional Views and Budget Estimates*

We concur with the Majority budget views and estimates that there are insufficient amounts of funding in the Administration's R&D budget and stand in unison with the Science Committee's position that more robust funding of science and technology is needed for FY06. In addition to the support expressed in the Majority budget views and estimates for FutureGen and greater DOE investment in carbon sequestration, we would ask the Budget committee to look favorably on the Administration's request to transfer \$257 million in prior Clean Coal funds to the FutureGen project.

Since President Bush announced the FutureGen Initiative in February 2003, the project has received \$27 million in funding to date (\$9 million in FY04 and \$18 million in FY05), and continues to move along steadily. In June 2003, ten of the largest coal-fueled utilities and coal companies expressed their interest in providing at least \$200 million in private sector cost-share for the FutureGen Initiative. Most recently, in February 2005, the DOE invited the members of the Alliance to form a public-private partnership, which will lead the project and provide opportunities for State, technology vendor, scientific, and stakeholder involvement. Clearly, the FutureGen Initiative has formed a strong government-industry partnership that is financially committed and strongly supports the President's clean coal technology project.

In addition to private funding sources, the FutureGen Initiative must secure congressional approval of the Administration's request. As a signal to Congress that he is committed to building the first near-zero emission coal-fueled hydrogen and electricity plant, the President again requested \$18 million for the FutureGen Initiative in his FY06 budget proposal. Furthermore, the President proposed to defer unused Clean Coal Technology Program funds for FutureGen until FY07. It is important to note that this action has **zero-net budget impact for FY06**. Thus, the DOE and the industrial consortium can continue to move forward with their project plan, which involves detailed planning, design, and site selection, without a financial strain on the government.


Each year, this Committee agrees that more R&D funding for science and technology is needed to develop and deploy more efficient, cleaner technologies in the marketplace that satisfy America's need for more electricity and a cleaner environment for years to come. In order to reduce our dependence on foreign oil, we must act now to develop and advance clean coal technologies, such as the FutureGen Initiative, as America has the ability to accomplish this project.

Congress has the opportunity to work in collaboration with the President, the Department of Energy, coal producing states, labor unions, environmental groups, the mining industry, coal-fueled utilities and companies, and international countries to

mining industry, coal-fueled utilities and companies, and international countries to combine new and tested techniques of emissions management with carbon sequestration to economically produce zero emissions energy. By providing significant funding, we allow the DOE to continue with structuring the industrial partnership, engineering design, and site selection for FutureGen enabling the project to succeed.

Again, we are pleased the Science Committee Majority views expressed support for advancing and studying carbon sequestration because FutureGen seeks to combine carbon sequestration and hydrogen production to create the world's cleanest coal-fired power plant. The plant will serve as a living prototype of new carbon sequestration technologies and produce both electricity and hydrogen.

At a time when we must advance toward a more secure energy future, the use of coal will help ensure America's energy security by developing technologies that utilize a plentiful domestic resource. FutureGen is a vital piece of the efforts to start producing more of our energy needs here at home. We firmly support efforts to develop clean coal technology and will continue to support the President's budget request to build and operate the world's first near-zero emission coal-fueled hydrogen and electricity plant, and urge the Budget Committee to do the same by transferring \$257 million of funds to the FutureGen project.

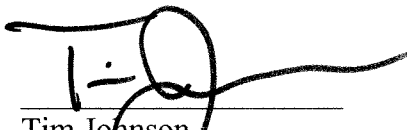


Jerry F. Costello
Member of Congress

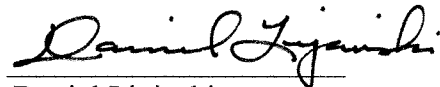
Sincerely,



Judy Biggert
Member of Congress



Tim Johnson
Member of Congress



Daniel Lipinski
Member of Congress

Additional Views and Estimates for Fiscal Year 2006
Committee on Science
A Balanced Oversight for the President's Budget Request for NASA

As the Budget Committee prepares to report the FY06 Budget Resolution, we would like to offer our additional views in relation to the Views and Estimates submitted by the Science Committee. We support and admire Chairman Boehlert's leadership, but respectfully take another view on some aspects of NASA's future. We look forward to working with Chairman Boehlert, Ranking Member Gordon and all of the Committee Members to address these differences through the procedures of the Committee.

During the first session of the 109th Congress, the Subcommittee on Space and Aeronautics of the House Science Committee has as its top objective to pass an authorization for the National Aeronautics and Space Administration (NASA). The legislation is necessary to provide Congressional direction and oversight for the President's Space Exploration Vision, which includes the shuttle return to flight, completion of the International Space Station, missions to the Moon and Mars; aeronautics; earth and space sciences; and other important initiatives for the agency.

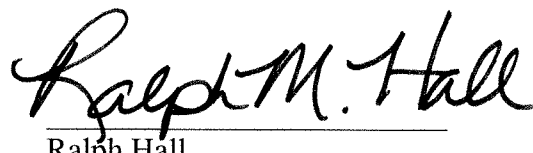
We fully support the President's budget request for NASA of \$16.456 billion for FY06, a 2.4% increase over FY05. This funding level is necessary to keep our Nation as the global leader in the areas of space exploration, in space and earth science, and in aerospace competitiveness. We appreciate the severity of the current fiscal environment, but believe that a relatively small investment can yield a significant return to the American people, both technologically and economically.

In addition to an authorization for NASA, the Committee plans to conduct its oversight by examining such areas as the impact of the Iran Nonproliferation Act on maintenance of the International Space Station, financial management issues within NASA, the role of aeronautics to our Nation's competitiveness, the range and direction of NASA's science programs and their relationship to the new Vision program, examination of NASA's infrastructure and NASA centers' roles and missions, and the efforts of NASA to involve, facilitate or foster commercial entrepreneurs as they contribute to America's use of space.

The Committee is looking forward to offering the agency guidance as they move forward to achieve the goals laid out in the President's proposal. We enthusiastically encourage you to support full funding for NASA as the Committee drafts the FY06 Budget Resolution.



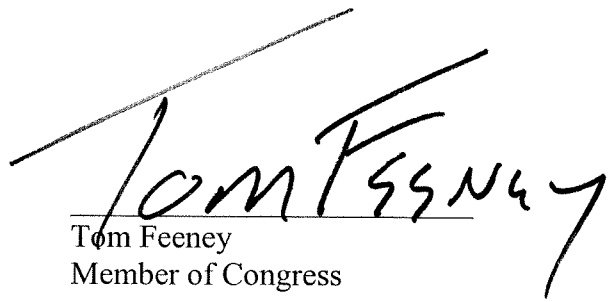
Ken Calvert
Member of Congress



Ralph Hall
Member of Congress



Lamar Smith
Member of Congress



Tom Feeney
Member of Congress



Michael McCaul
Member of Congress