SSTI Editorial

FY08 Budget Request: Research Up; Economic Development Down

When one looks beyond the first few pages of many sections of the agencies’ fiscal year 2008 budget request summaries, the mental concept of a television rerun appears. As SSTI staff pored through the budget this week, several found ourselves saying, “Didn’t we read the same thing last year?”

In many cases, we did. And why not? Congress failed to consider most of the president’s budget proposals for FY 2007 when the same political party ruled the executive and legislative branches, so why not float the ideas again when power is split? Could they fare any worse than FY07 when so few budget priorities have emerged?
Now some will say hold on. That could be a little too harsh an assessment of what’s going on in FY07. There are a few highlights this budget go-around:

- Research spending appears to be growing this year in the National Science Foundation, the Department of Energy’s Office of Science, and the National Institute of Standards & Technology. The president asked for that in the American Competitiveness Initiative, and Congress may deliver much of the first year’s request.
- It may be a year without a final budget, but it also appears it will be a year without a Santa Claus. Most congressional earmarks have been stripped from the FY07 Continuing Resolution that passed the House and is working its way across the Senate Floor – a journey it must complete before the current funding patch falls off Feb. 15.
- The Administration’s attempts to eliminate or significantly cut most federal support for economic development and TBED programs will be thwarted by Congress again as programs may receive FY06 funding levels for year without much debate.

Which brings us back to the old rerun analogy when we look at the FY08 budget request. NSF, DOE, NIST all would receive increases. Eliminating congressional earmarks from the request is a trick every Administration will use each year in presenting its budget request – maybe this time it will stick.

But the most tired element of the story being retold once again in the FY08 budget request is the idea that the public sector – more specifically, the federal government – does not have much of a role in supporting those elements of an innovation system that occur outside a university research center or federal laboratory. Once again, nearly every federal program that supports state, local and regional TBED strategies, community development and traditional economic development is on the chopping block. The agency summaries below document the continuing attempt to disengage the federal government from its important role as a collaborative TBED partner with states and communities across the country.

The U.S. remains the most innovative country in the world overall when measured on a national level, but innovation does not occur evenly within America. Some regions enjoy above-average rates of technology entrepreneurship, equity capital availability and economic success while others do not. The systems to nurture innovation in some areas of the country may need minor public investments or encouragement to work better. Other regional innovation systems may need major investments or reinvestments as their economic drivers adjust to a global economy.

Increased levels of investment in research, science and engineering such as those outlined in the Administration’s FY08 budget request are important, but so, too, is investing in the programs and initiatives that increase the likelihood of commercial success for the businesses and technology entrepreneurs throughout the country that will commercialize the results of federal research investments.

Just as the federal government is retooling its R&D investments, it is time to rethink the direction and shape of the rest of its innovation investments. Some of the programs mentioned below may be based on outdated approaches to supporting state and regional growth. It may be time for change. That is very likely given that very few federal programs currently provide funding for the kinds of initiatives incorporated into the successful TBED strategies adopted across the country by state and communities working to transform their local economies into global innovation leaders.

Change may be needed, but not by lowering the amount of federal funding invested in regional economic growth as is suggested in the FY08 budget request. Rather, change must come in how the federal government works with its state and local partners toward strengthening regional TBED strategies. That may require fewer pots of federal money with more flexibility for state and local decision makers but they need to be larger pots, not smaller ones.

What remains to be seen is how - and if - Congress responds to the Administration's FY08 request.

**Note on Fiscal Year Comparisons:** Knowing the amounts of FY08 funding requested for each program or research area is helpful, but knowing how it compares to previous budget levels is more useful. Unfortunately,
with the FY07 budget not resolved (see note above), the federal agencies seemed to have as much trouble figuring out how what to compare the FY08 figures to as we did. You'll see below that some agencies used the FY06 appropriations level; some used the Administration's FY07 request. Others used the current FY07 Continuing Resolution, while a final group used the new Continuing Resolution that passed the House last week. We apologize for the confusion that is likely to result. In our summaries, we try to point out the differences.

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Special Initiative: The American Competitiveness Initiative
In fiscal year 2008, President Bush proposes $11.42 billion total to support the American Competitiveness Initiative (ACI) across the National Science Foundation (NSF), Department of Energy’s Office of Science (DOE SC), and the Department of Commerce’s National Institute of Standards and Technology laboratories (NIST). This reflects an overall funding increase of $764 million, or 7.2 percent, above his proposed 2007 ACI Research Budget of $10.66 billion.

As a centerpiece of ACI, the president plans to double, over 10 years, investment in innovation-enabling research across the three federal agencies:

- NSF is the primary source of support for academic research in the physical sciences, funding basic research in areas such as nanotechnology, advanced networking and information technology, physics, chemistry, materials science, mathematics, and engineering. It also is well regarded for funding nearly all of its research through a competitive, peer-reviewed process. The increase in NSF funding would support more researchers, students, postdoctoral fellows and technicians contributing to the innovation enterprise.
- DOE SC supports grants and infrastructure for basic research related to economically significant innovations, including nanotechnology, biotechnology, high-end computing and advanced networking, and energy technologies. The 2008 budget increases funding for both research and cutting-edge facilities in these critical mission areas, such as an expansion in the number of nanoscale science and bio-energy research centers, expanded supercomputing facilities and related research, and design or construction activities for world-leading next-generation materials research facilities.
- NIST invests in technological innovation through research and standards development. These investments are designed to improve nanotechnology manufacturing capabilities; expand NIST’s neutron investigation facility to aid in characterizing novel materials in high-growth research fields; construct new, top-performance laboratories at NIST’s Boulder, Colo., facility; and increase understanding of quantum information science that has the potential to dramatically improve computer processing speeds and enable more secure communications.

ACI is in its second year, after being introduced during the president's 2006 State of the Union Address (see the Feb. 13, 2006 issue of the Digest). The total 10-year impact is projected to be $86.4 billion.

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Special Initiative: Climate Change
In this year’s State of the Union Address, President Bush announced that his FY 2008 budget request would contain funding to support research to eliminate the projected growth of automobile carbon dioxide emission within 10 years. The key agency in the president’s effort is the Climate Change Science Program (CCSP), which would receive $1.54 billion under the proposed FY08 budget. While stating the area was a priority in the address, the current request is approximately $109 million less than the FY07 request (6.5 percent decrease). Most of the decrease is explained by the White House Office of Science and Technology Policy as being a result of NASA no longer considering its Ground Network and Research Range a part of CCSP.

CCSP coordinates the climate change research of 13 departments and agencies, and provides technical summaries of research for policymakers. Agencies that would receive CCSP funding under the FY08 budget...
include:

- National Aeronautics and Space Administration - $871 million
- National Science Foundation - $208 million
- NOAA (Commerce) - $174 million
- Energy - $130 million
- Agriculture - $59 million
- National Institutes of Health - $50 million
- US Geological Survey (Interior) - $27 million
- Environmental Protection Agency - $18 million
- Smithsonian - $6 million
- Transportation - $1 million
- US Agency for International Development – to be determined (FY07 - $14 million)

In addition, the Climate Change Technology Program (CCTP) would continue to complement CCSP programs by implementing its 2006 Strategic Plan, which identifies priorities for climate technology research. CCTP coordinates R&D programs at several agencies, but its FY08 portfolio has not yet been released.

Department of Agriculture

The Administration request of $89 billion for the U.S. Department of Agriculture (USDA) budget is predicated on passage of the Administration’s version of the 2007 Farm Bill proposals. As designed, the Administration's 2007 farm bill proposals would spend approximately $10 billion less than the 2002 farm bill spent over the past five years, according to the USDA press release.

Approximately three-fourths of annual USDA budget outlays are for mandatory spending programs such as nutrition assistance, conservation, export promotion and farm commodity programs. The remaining balance of nearly $22 billion is for discretionary spending, which includes all USDA research and TBED-related programs.

The FY08 budget request includes $341 million for the USDA portion of the multi-agency Food and Agricultural Defense Initiative (FADI), an increase of $164 million or 93 percent above the levels in the FY07 Continuing Resolution passed by the House last week. All FY08 comparisons below are with the CR.

The largest line-item FADI increases within the USDA are for Enhanced Surveillance for Pest Detection/Animal Health Monitoring ($119 million; 37 percent increase) and research within the Agricultural Research Service ($87 million; 156 percent increase).

USDA’s FY08 spending of $82 million would support research for prevention or preparation for a pandemic-level outbreak of highly pathogenic avian influenza.

Tech-based and Traditional Economic Development

Economic development activities are supported through two USDA service agencies: the Rural Business-Cooperative Service and the Rural Utilities Service, both housed within Rural Development.

The bag is mixed for the TBED and economic development program in the two services: a few loan and guarantee programs would receive increases; all other programs would see level-funding, a reduction in spending, or elimination altogether in FY08 as a result of the Administration’s request.

On the growth side is:

- Business & Industry (B&I) loan guarantee program - $1 billion (46 percent increase) to provide protection against loan losses so that lenders are willing to extend credit to establish, expand, or modernize rural
businesses.

- **Renewable Energy/Energy Efficiency Guaranteed Loans and Grants** - $195 million (27 percent increase) for guarantees and $15 million (50 percent increase) for grants to pay up to 50 percent to purchase renewable energy systems or make energy improvements from alternative and renewable energy sources.

No new funding is requested for the Rural Economic Development Loans and the Rural Economic Development Grants programs. Instead the programs are to be financed from repayments from past loans and grants. As a result, spending in two alternate financing programs is expected to increase in FY08. With $33 million (43 percent increase), the loan program would provide zero-percent interest loans to electric and telephone utilities to re-lend for the purpose of financing job creation projects and sustainable economic development within rural areas. The utility is responsible for repaying the loan if the third party defaults.

The Rural Economic Development Grant program FY08 funding of $10 million (the program is expected to receive no funding in the FY07 Continuing Resolution) would support grants to electric and telephone utilities. The programs promote sustainable rural economic development and job creation projects by enabling the selected utilities to establish a revolving loan fund program for local economic development projects.

Other programs of note include:

- **Broadband & Internet Programs** - $300 million for direct loans (40.4 percent) which helps finance the installation of various modes of broadband transmission capacity in rural America; no funding is provided for grants ($9 million in FY07). The reduction is because “the funding is sufficient to meet expected demand” as a result of new regulations adopted this year. The budget document explains “the new regulations will ensure that program funds are focused on rural areas that are lacking existing providers, and that applicants meet high enough standards to ensure long term success.”
- **Distance Learning & Telemedicine Grants** - $25 million (level funding) to support the educational and health care needs of rural America through advanced telecommunications technologies.
- **Value-Added Producer Grants Program** - $15 million (25 percent decrease) to support planning activities and provide working capital for marketing value-added agricultural products and for farm-based renewable energy.

**Eliminated Programs**

No funding is requested for the Empowerment Zones & Enterprise Community (EZ/EC) Program, nor for a line item entitled “All Other Grants” that the USDA budget document says is estimated to receive $44 million in FY07. The document says two of the programs included in the category are the Rural Business Enterprise Grants (RBEG) and Rural Business Opportunity Grants (RBOG).

The RBEG program provides grants to public bodies, private nonprofit corporations, and federally-recognized Indian tribal groups to finance and facilitate development of small and emerging private business enterprises located in any area other than a city or town that has a population of greater than 50,000 inhabitants and the urbanized area contiguous and adjacent to such a city or town.

RBOGs provide grants to rural areas of "exceptional need" to pay costs of providing economic planning for rural communities, technical assistance for rural businesses, or training for rural entrepreneurs or economic development officials.

In explaining the Administration’s justification for eliminating the two programs, the USDA budget document states, “Both programs have benefited only a limited number of rural communities.” However, immediately preceding the comment, the document reads: “The reduction in performance from 2007 to 2008 is attributable to the elimination of the Rural Business Enterprise and Rural Business Opportunity grant programs.” The projected performance is 19,405 jobs that will not be saved or created in FY08 as a result eliminating the Rural Business-Cooperative Service programs.
So in effect, despite the total budget for the Rural Business-Cooperative Service increasing from $990 million in FY07 to $1.308 billion in the Administration’s FY08 budget request, the service’s performance is expected to decline by nearly 30 percent as a result of eliminating two programs that total 3.4 percent of the budget. Of all service programs, RBEGs and RBOGs are the two most likely to be utilized in a state or local TBED strategy.

**Research**

USDA research activities are coordinated by the four Research, Education and Economics agencies, which oversee the discovery, application and dissemination of information and technologies spanning the biological, physical and social sciences.

The *Agriculture Research Service (ARS)* is the principal in-house research agency for the USDA, conducting research regarding the U.S. food supply of agricultural products and providing producers with technologies to competitively supply these products. Most ARS activities occur within 100 USDA research facilities. The service would experience an overall reduction of $160 million, most of which is a result of a $124 million cut in the building and facilities line item. That line item includes only $16 million in new spending for planning and design of one new facility, a Biocontainment Laboratory and Consolidated Poultry Research Facility in Athens, Ga.

The research and information portion of the FY08 budget request for ARS is $1.022 billion (11.4 percent increase).

The *Cooperative State Research, Education, and Extension Service (CSREES)*, the federal partner with land-grant and non-land-grant colleges and universities in carrying out extramural research, higher education, and extension activities, would see a modest increase with the Administration’s request if congressional earmarks are not included a comparison to prior year funding levels. Excluding earmarks, the Administration actually has requested a modest $13 million increase for the service -- a total of $1.044 billion (1.4 percent increase).

The Administration’s budget request for CSREES continues to attempt to shift more of academic research from formula grants (such as the Smith-Level 3,890 Research and Extension, McIntire-Stennis and Hatch Act grant programs) toward competitive awards through the [National Research Initiative](#). For example in FY06, formula grants represented 75.2 percent of the total CSREES spending for traditional formula grants and NRI. NRI received the balance of 24.8 percent. In the FY08 request, the shares for those formula grant programs and NRI would be 67.3 percent and 32.7 percent, respectively.

Competition also increases in the proposed shift toward granting funds for multi-state research programs instead of to individual institutions. CSREES is proposing increasing the portion of the $165 million Hatch formula program that is awarded to multi-state research programs from 25 percent to 60 percent. In addition, 38 percent of this set-aside in the Hatch program will be awarded competitively. The $20 million McIntire-Stennis formula program is slated to become entirely funded through competition, with two-thirds of its funds dedicated to multi-state awards.

The *Economic Research Service (ERS)*, at $83 million (10.7 percent increase), provides economic and other social science research and analysis for public and private decisions on agriculture, food, natural resources and rural America.

The majority of the $28 million increase slated for the [National Agricultural Statistics Service](#) - $168 million (20 percent increase) would support the 2007 Census of Agriculture. The service also provides the official current statistics on agricultural production and indicators of the economic and environmental welfare of the farm sector.

**Department of Commerce**

The Administration's FY 2008 discretionary budget request for the Department of Commerce (DOC) is $6.55 billion, a decrease in discretionary spending of $76 million from the FY06 appropriation. The department’s full-time equivalent staff would increase by 4,700 people between FY06 and FY08.

Funding for every DOC program or office supporting state and local TBED and traditional economic development programs would be cut deeply or proposed for elimination.
The Economic Development Administration (EDA), the agency charged with promoting regional economic development in distressed communities, would receive $202.8 million. The FY06 appropriation was $280.4 million. The cut would be entirely absorbed in the amount of funds available for grants to communities. FY08 EDA grant funds would decrease by 32 percent over the FY06 appropriation. EDA administrative expenses and staff size, however, would increase by 10 percent and 9 percent, respectively.

In FY 2008, EDA would facilitate the streamlining of its application process into one comprehensive, simplified procedure under the Regional Development Account (RDA) that is easier and quicker for applicants to access. The focus of EDA’s programs and eligibility requirements would not change under the new procedure, the RDA would encompass most Economic Development Assistance programs, with the exception of planning grants and trade adjustment funding.

The Technology Administration (TA) would be shuttered, transmuting the office of Under Secretary to a single senior advisor in the Secretary’s policy office. The Budget Brief explains the demotion as follows:

“Technological innovation has evolved to a point where it plays a critical role in competitiveness across our entire economy rather than taking place in an isolated sector unto itself. In keeping with this evolution, the President’s FY 2008 Budget proposes to modernize the Department’s approach to technology policy by elevating technology policy activities to the Secretarial level. In place of a stand-alone Technology Administration, the budget proposes to appoint a senior advisor in the Department’s Office of Policy and Strategic Planning and to create a Department-wide Technology Council that will coordinate technology policy activities that are distributed across the Department.”

The TA budget request of $1.56 million to close the office is $4.4 million less than the FY06 appropriation.

The National Institute of Standards and Technology (NIST), presently housed under TA, would receive $640.7 million and would directly report to the Secretary. Of the proposed increases for this agency, $47 million would go toward critical improvements to NIST’s internal research laboratories in Boulder, Colo., and the NIST Center for Neutron Research in Gaithersburg, Md. Another $22 million would be used to support research programs in nanotechnology, quantum information science, climate change measurements and standards, disaster-resilience of structures, and earthquake hazard reduction. Other components of NIST include:

- NIST Advanced Technology Program (ATP) - No funding is requested. The performance goal for ATP was discontinued due to the proposed phase-out of this program in FY07, the budget in brief notes. Confusing the matter somewhat, the House-approved Continuing Resolution for FY07 includes $80 million for ATP to support high-risk industrial research.
- NIST Hollings Manufacturing Extension Partnership (MEP) - $46.3 million. This program assists small manufacturing establishments in assimilating new technologies and manufacturing practices through government-industry partnerships and extension services. The FY07 Continuing Resolution provides $106 million.
- NIST Baldrige National Quality Program (BNQP) - $8.1 million. This management program focuses on instilling the principles of continuous quality improvement in U.S. business and educational, health care and nonprofit organizations.
- NIST Laboratories and Research Facilities - $484.1 million. This program focuses on providing the measurements, standards, verified data, and test methods necessary to support the development of new technologies and to promote the competitive standing of the U.S. in the global economy.

Funding for the Minority Business Development Agency (MBDA) would be $28.7 million in FY08, a decrease of $940,000 from the FY06 appropriation level. MBDA provides management and technical assistance to minority-owned businesses through the national network of Minority Business Development Centers and Native American Business Development Centers. Staffing levels are maintained at 115 full-time equivalent positions.
The National Oceanic and Atmospheric Administration (NOAA) would receive $3.82 billion in FY08 discretionary funding. NOAA components supporting significant research fall under the Operations, Research and Facilities line item, which would receive $2.7 billion. Funding levels for individual components include:

- **National Ocean Service** - $436.8 million to support coastal science and estuarine research reserves of national significance.
- **National Marine Fisheries Service** - $704.6 million for research in the variables affecting the abundance and variety of marine fisheries.
- **Oceanic and Atmospheric Research** - $358.4 million for research and technology development to improve NOAA weather services, seasonal climate outlooks and marine services.
- **National Weather Service** - $807.8 million for weather and flood warnings and forecasts.
- **National Environmental Satellite, Data and Information Service** - $157.8 million for operating and updating polar-orbiting and geostationary operational field satellites.

Consistent with recent years, the Administration proposes to fund the U.S. Patent and Trademark Office (USPTO) budget exclusively through offsetting fee collections. The request for USPTO is $1.9 billion. The agency promotes the research, development and application of new technologies by protecting inventors’ rights to their intellectual property through the issuance of patents. USPTO would use its FY08 spending authority to reduce application processing time and increase the quality of its products.

The Bureau of Economic Analysis (BEA) within the Economic and Statistical Analysis Administration would receive $85 million. This funding is intended to help BEA provide timely, relevant and accurate economic accounts data in an objective and cost-effective manner.

**Department of Defense**

The Administration’s FY 2008 budget request for the Department of Defense (DoD) totals $481.4 billion, an 11.3 percent increase over FY07. [Note: DoD’s FY07 appropriations bill was one of only two passed before the current fiscal year began. As a result, SSTI is able to provide comparisons between the FY08 request and the FY07 appropriations. Variance between FY08 request and FY07 appropriations is provided in parentheses.]

Science and technology in the department does not share the rapid rate of growth, though. As has been the case in every presidential budget proposal since FY02, the Administration’s FY08 request for DoD basic, applied and advanced technology development is less than the prior year appropriation. All stages of R&D are expecting cuts in this year’s budget: the request for basic research has fallen to $1.43 billion (8 percent decrease), applied research has been cut to $4.36 billion (18.6 percent decrease), and the request for advanced technology development has been reduced even more sharply to $4.99 billion (22.4 percent decrease).

The proposed reductions would affect all of the armed services and defense-wide R&D programs. Unlike last year, cutbacks in the Army, Navy and Air Force would not be offset by research, development, testing and evaluation (RDT&E) funding increases for offices and agencies outside of the branches of the military, such as DARPA or the Defense Logistics Agency. Most of these agencies would receive reductions or slight increases under the proposed budget. DoD agencies expecting RDT&E cuts this year include:

- **Defense Advance Research Projects Agency (DARPA)** - $3.09 billion (1 percent decrease) to manage and direct selected basic and applied research and development projects for DoD
- **Defense Information Systems Agency** - $366 billion (11.6 percent decrease) to plan, engineer, acquire, field, and support global net-centric solutions for DoD
- **Defense Logistics Agency** - $70.7 million (66 percent decrease) to provide worldwide logistics support for DoD
The FY08 funding for DoD departments is as follows:

**Army**

- 6.1 Basic Research - $306 million (16 percent decrease)
- 6.2 Applied Research - $686 million (43 percent decrease)
- 6.3 Advanced Technology Development - $736 million (42 percent decrease)

**Navy**

- 6.1 Basic Research - $467 million (5 percent decrease)
- 6.2 Applied Research - $677.5 million (14 percent decrease)
- 6.3 Advanced Technology Development - $522 million (32 percent decrease)

**Air Force**

- 6.1 Basic Research - $375 million (8 percent decrease)
- 6.2 Applied Research - $1.011 billion (12.5 percent decrease)
- 6.3 Advanced Technology Development - $577 million (44 percent decrease)

**Defense-wide**

- 6.1 Basic Research - $280 million (6 percent decrease)
- 6.2 Applied Research - $1.982 billion (9 percent decrease)
- 6.3 Advanced Technology Development - $3.152 billion (6 percent decrease)

DoD programs of interest to the TBED community include:

- **Defense Threat Reduction Agency (DTRA) Basic Research Initiative** - $5 million (49.8 percent decrease) to identify, conduct, and deliver science and technology that defend against weapons of mass destruction.
- **Defense Research Sciences** - $923.3 million (5.9 percent decrease) to fund university research, mostly by single investigators. Departmental breakdowns include $137.7 million for the Army (19 percent decrease), $374 million for the Navy (2.6 percent decrease), $259 million for the Air Force (8.1 percent decrease), and $152.6 million defense-wide (5.1 percent increase).
- **Government/Industry Cosponsorship of University Research (GICUR)** - No new funding is requested ($9.1 million decrease). GICUR fosters cooperative research by universities with industry or government laboratories.
- **Defense Experimental Program to Stimulate Competitive Research (EPSCoR)** - $5.88 million (38 percent decrease) to improve the capabilities of U.S. institutions of higher education to conduct research and to educate scientists and engineers in the areas important to national defense.
- **Dual Use Science & Technology Program** – No new funding is requested. The program is scheduled to be eliminated. The program received a nominal $986,000 in FY06 for close-out purposes.
- **University Research Initiatives** - $245.7 million (17.1 percent decrease) to enhance universities' capabilities to perform basic science and engineering research and related education in areas critical to national defense. Departmental breakdowns include $64.8 million for the Army (19.8 percent decrease), $76.6 million for the Navy (16.4 percent decrease), and $104.3 million for the Air Force (9.3 percent decrease).
- **Historically Black Colleges and Universities (HBSU) Science** - $15.15 million (20.1 percent decrease) to strengthen the defense research capacity of historically black institutions of higher education.
● **Defense-wide Technology Transfer** - $2.2 million (83 percent decrease) to transition R&D to weapons systems, and to assist in the commercialization of defense technologies.

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**Department of Education**

According to the U.S. Department of Education (ED), federal funding represents only 8.9 percent of America’s spending on elementary and secondary education during the 2006-07 school year. That share in FY 2008 would be $56 billion according to the Administration’s budget request for the agency.

As in previous requests, the Administration’s FY08 budget request strives to eliminate a large number of programs, replacing many with a consolidated, but smaller, block grant program. Many of the 44 programs slated for termination address specific fields of study or population groups (e.g., economics education, mentally ill). The largest program on the chopping block, at $770 million, is for Federal Supplemental Education Opportunity Grants, which provides need-based grant aid to eligible undergraduate students to help reduce financial barriers to postsecondary education.

The FY08 education budget includes specialized funding toward several K-12 math and science programs:

- $182.1 million for the **Mathematics and Science Partnerships program**, which provides grants to states and localities to improve academic achievement in mathematics and science by developing teaching skills for elementary and secondary school teachers and introducing integrated teaching methods based on scientifically based research and technology into the curriculum;
- $125 million for the **Math Now for Elementary School Students** initiative, geared to prepare K-6 students for more rigorous math courses in middle and high school;
- $125 million for the **Math Now for Secondary School Students**, to support research-based math interventions in middle schools;
- National **Science and Mathematics Access to Retain Talent (SMART) Grants** awarded to Pell Grant eligible third- and fourth-year undergraduates majoring in physical, life or computer sciences, mathematics, technology, engineering, or a critical foreign language would be at a maximum $4,000. The total request for SMART grants in FY08 is $350 million.
- $122.2 million for the **Advanced Placement (AP) program**, which offers training and incentives for teachers to become qualified to teach rigorous core subject courses in high poverty schools; and,
- $25 million for the **Adjunct Teacher Corps** to create opportunities for qualified professionals from outside the K-12 educational system to teach secondary-school courses in the core academic subjects, with an emphasis on mathematics and the sciences. The goal is to have 30,000 members in the program by 2015.

ED’s FY08 budget also would provide $35 million for the **National Security Language Initiative**. This initiative is designed to expand foreign language education beginning in early childhood and continuing throughout formal schooling and into the workforce. Special emphasis is in critical need languages, such as Arabic, Chinese, Farsi, Hindi, Japanese, Korean, Russian and Urdu.

Other key budget issues include:

- The maximum **Pell grant** award size would increase to $4,600. The total FY08 request for Pell grants is $15.4 billion.
- **Academic Competitiveness Grants (ACG)** awarded to students eligible for Pell Grants who completed a rigorous high school curriculum would be $1,125 and $1,950 maximum a year, for first-year and second-year college students, respectively. The total FY08 request for the ACG grants is $830 million.
- **21st Century Learning Centers** - $981.2 million to provide resources for the states to award grants of at least $50,000 to school districts, community-based organizations, faith-based organizations, and other public or private entities for centers that primarily serve students attending high-poverty schools.
- **Career and Technical Education State Grants** - $600 million to support local programs that focus on
improving the academic achievement of career and technical education students.

- **Institute of Education Sciences (IES)** - $594.3 million. To fund programs of research, development and dissemination in areas where knowledge of learning and instruction is inadequate, IES would receive $162.5 million.

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**Department of Energy**

The **Department of Energy (DOE)** budget request for FY 2008 totals $24.3 billion, a 3 percent increase above the FY07 request. Key priorities in the budget are tied to President Bush’s **Advanced Energy Initiative, Hydrogen Fuel Initiative**, and **American Competitiveness Initiative**. The initiatives would affect most directly the department’s four energy offices, which together would receive a 20 percent boost in funding under the proposed budget and the Office of Science, which would receive a 7 percent increase. The Office of Fossil Energy and the Office of Nuclear Energy are expecting the biggest gains, at 33 percent and 38 percent, respectively. The Office of Energy Efficiency and Renewable Energy would receive a five percent increase, and the Office of Electricity Delivery and Energy Reliability would see its funding reduced by 8 percent. **Advanced Energy Initiative**

The FY08 request includes $2.7 billion for the second year of the **Advanced Energy Initiative (AEI)**, an initiative to promote the development of cleaner sources of electricity production. Areas of research targeted for increased support in FY08 include energy research and the commercialization of biomass, hydrogen, solar, cleaner coal and nuclear technologies. The new budget also requests $8.4 million to create an **Office of Loan Guarantees** to spur the commercial development of new clean energy technologies.

The **Office of Energy Efficiency and Renewable Energy (EERE)** would receive $1.24 billion under the proposed budget, and would dedicate $756 million to AEI-related projects. EERE conducts research, development and deployment activities to advance energy efficiency and clean power technologies and practices. EERE programs that would receive a boost under the new AEI-related funding include:

- **Hydrogen and Fuel Cell Technology** - $213 million to expand research on the production, storage, and delivery of hydrogen.
- **Biomass and Biorefinery Systems R&D** - $179 million to increase biomass R&D and additional support companies that intend to commercialize small biorefineries and validate new biomass conversion technologies.
- **Solar America Initiative** - $148 million to accelerate the commercialization of solar energy technologies, particularly for heating and lighting systems.
- **Wind Energy** - $40 million to increase wind energy use while scaling back on research into the viability of wind energy technologies.
- **Vehicle Technologies** - $176 million to increase funding for research into hybrid electric systems and vehicle technology integration.

EERE also would receive $86.5 million to develop technologies to make buildings more energy efficient, and to increase efforts to introduce these technologies to the market. No request has been made for Geothermal or Hydropower activities.

The **Office of Fossil Energy** would receive $427 million to develop clean coal technologies as part of AEI, 29 percent above the FY07 request. The FY07 budget proposes to cancel $149 million in prior-year balances for the **Clean Coal Technology** program. The budget request states these balances are no longer needed to complete active projects in the **Clean Coal Technology** program. Instead, $108 million would be transferred to the **FutureGen** program, and the **Clean Coal Power Initiative**, both of which conduct similar research to the original program. Clean coal requests include:

- **FutureGen** - $108 million to build the world’s first coal-fired power plant that produces electricity and
hydrogen with nearly zero emissions.

- **Clean Coal Power Initiative** - $73 million to initiate, by or before 2010, demonstration of advanced coal-based power generation technologies.
- **Coal Fuels and Power Systems R&D** - $246 million to continue other coal research such as carbon sequestration, advanced turbines, fuels, fuel cells and coal gasification. No new request for funding to support innovations for existing plants.

Office of Fossil Energy R&D overall would receive $567 million. Program Direction would receive relatively flat funding at $129 million. Fossil Energy Environment Restoration R&D would receive $9.5 million. As was the case with the FY07 request, the Administration seeks no funding for the following research areas that Congress continues to fund:

- **Advanced Metallurgical Research** – no new funding requested
- **Natural Gas Technologies R&D** – no new funding requested
- **Petroleum Oil Technology R&D** – no new funding requested
- **Plant and Capital Equipment** – no new funding requested

The **Office of Nuclear Energy** would receive $875 million under the proposed budget, $568 million of which would be used to support the **Advanced Fuel Cycle Initiative** and other activities related to the **Global Nuclear Energy Partnership** and AEI. **Office of Nuclear Energy** programs of interest include:

- **Nuclear Power 2010** - $114 million (110 percent increase) to develop the nuclear technologies, infrastructure and regulations.
- **Generation IV Nuclear Energy Systems Initiative** - $36 million to invest in advanced nuclear science and technologies through public-private partnerships.
- **Nuclear Hydrogen Initiative** - $23 million to demonstrate the economic, commercial-scale production of hydrogen using nuclear energy.
- **Global Nuclear Energy Partnership** - $395 million (63 percent increase) to fund the Advanced Fuel Cycle Partnership and to promote the use of nuclear power.

AEI funding also would be used to increase basic research into alternative energy under the **Office of Science**. The office would receive $685 million for a variety of R&D activities and program management. Targeted areas for research include:

- **ITER Fusion Project** - $160 million to contribute to the international project to demonstrate the feasibility of fusion energy production
- **Fusion Energy** (not including ITER) - $268 million
- **Solar** - $69 million
- **Biomass** - $113 million
- **Hydrogen** - $75 million

**Hydrogen Fuel Initiative**
The 2008 budget includes $309 million through the president’s **Hydrogen Fuel Initiative (HFI)** to develop practical technologies for powering automobiles with hydrogen power. DOE would be the main vehicle for the initiative, though nine agencies participate in hydrogen research coordinated by the **Interagency Working Group on Hydrogen and Fuel Cells** under the **National Science and Technology Council**. Several HFI-funded programs overlap with those of the AEI. HFI programs include:

- **Hydrogen and Fuel Cell Technology** - $213 million under the EERE Hydrogen research program
● Hydrogen from Coal - $13 million (47 percent decrease) through the Office of Fossil Energy
● Nuclear Hydrogen Initiative - $23 million through the Office of Nuclear Energy
● Hydrogen Basic Research - $60 million through the Office of Science

Non-DOE HFI funding in the FY08 budget is requested for the Department of Transportation's (DOT) Research and Innovative Technologies Administration and the National Highway Traffic Safety Administration. These DOT programs would receive $1 million to develop hydrogen standards and safety technologies.

American Competitiveness Initiative
The 2008 request would contribute $4.4 billion to the Office of Science. The Office of Science is the main vehicle for DOE participation in the American Competitiveness Initiative. This year’s budget request would increase the funding for fusion energy science research by 34 percent, while proposing moderate increases for other areas. The request includes:

● Basic Energy Sciences - $1.5 billion
● Advanced Scientific Computing Research - $340 million
● Biological and Environmental Research - $532 million
● High Energy Physics - $782 million
● Nuclear Physics - $471 million
● Fusion Energy Sciences - $428 million
● Science Laboratories Infrastructure - $79 million
● Workforce Development for Teachers and Scientists - $11 million

Department of Health and Human Services
The lion’s share of the $697.3 billion FY 2008 budget request for the Department of Health and Human Services (HHS) is allocated towards Medicare (55.4 percent) and Medicaid (29.0 percent) spending. Discretionary programs, such as the Food and Drug Administration, Centers of Disease Control and Prevention and the National Institutes of Health (NIH), represent only 9.9 percent of the total HHS budget.

Within the Administration for Children and Families, the Administration proposes elimination of four programs related to community and economic development. The largest, Community Services Block Grants ($630 million in FY06), “is unable to demonstrate long-term outcomes,” according to the HHS FY08 budget summary. Community Economic Development, Job Opportunities for Low-Income Individuals, and Rural Community Facilities share a $40 million line item that is zeroed out.

The FY08 budget request for the Agency for Healthcare Research and Quality (AHRQ) is $330 million. AHRQ priorities in FY08 are the Personalized Health Care Initiative and the Value-Driven Health Care Initiative. Both work to move innovations more quickly into the care delivery system and more efficiently through greater personalization of healthcare provision.

National Institutes of Health
The total NIH FY08 request is $28.86 billion, which the agency anticipates will allow them to award 10,188 new research grants throughout its 27 institutes and centers. About 84 percent of funds appropriated to NIH will be distributed outside of the organization, supporting more than 300,000 scientists and research personnel around the country.

There is some difference of opinion regarding how the NIH budget request compares with FY07 figures. The HHS budget summary reports the FY08 request is $232 million higher than FY07. A budgetary analysis performed by the Association of American Medical Colleges argues the FY08 request will result in a cut of almost $500 million (2 percent) in NIH appropriations.
Comparing FY07 and FY08 requests for the 27 individual institutes and centers reveals only minor adjustments with the exception of the National Institute of Allergy & Infectious Diseases (NIAID), which would receive a $198 million bump-up.

The Office of the Secretary would receive an increase of $33 million to coordinate cross-cutting research projects.

Highlighted NIH priorities in FY08 include:

- **Biodefense** - $1.7 billion, which will be focused on research efforts involving vaccine delivery and efficacy, developing therapeutics for high priority viral pathogens, and evaluating microbe-host interactions;
- **Global Fund Contribution** - $300 million will come from the National Institute of Allergy and Infectious Diseases to combat HIV/AIDS, tuberculosis, and malaria around the world;
- **Roadmap for Biomedical Research** - $486 million, consisting of three main areas: New Pathways to Discovery, Research Teams of the Future, and Re-engineering the Clinical Research Enterprise;
- **New Investigators** - $31 million for a new Pathway to Independence program that will provide increased support (175 new awards estimated) for investigators engaging in interdisciplinary research; and,
- **New Clinical and Translational Science Award** - $20 million for academic health centers to capitalize on Roadmap initiatives by advancing information technology, integrating research networks, and stimulating the development of computer-assisted outcome measurement.

The FY08 NIH SBIR/STTR budget for research grants is estimated to total $603 million.

Department of Homeland Security

The Administration’s FY 2008 budget request for the Department of Homeland Security (DHS) totals $46.4 billion in funding, an increase of 8 percent over the FY 2007 request. The key priority of this year’s request is a $13 billion initiative for border security and immigration enforcement.

The FY08 request provides $799 million for the Science and Technology Directorate, which oversees the department’s research, development, testing and evaluation activities. Last year, the directorate saw its funding request drop by 33 percent, as the Domestic Nuclear Detection Office spun off as a separate DHS office. Even after the reorganization, the FY08 budget cuts an additional $200 million from the directorate’s FY07 request of $1.002 billion.

Two Science and Technology programs, however, are expecting new and increased funding in FY08:

- **Science and Technology Office of Innovation** - $21.9 million (new) for this newly formed office, which funds the development of leap-ahead technologies for domestic security; and,
- **Acceleration of Next-Generation Research and Development program** - $47.4 million increase (total funding not available at press time) to fund multiple research, development and operations program areas.

Other DHS Science and Technologies programs of interest include:

- **Homeland Security Advanced Research Projects Agency** (HSARPA) engages industry, academia, government, and other sectors in innovative research and development, rapid prototyping, and technology transfer to meet operational needs; and,
- **Office of Research and Development** executes the intramural programs in research, development, testing, and evaluation; supports university and fellowship programs; and provides the nation with an enduring research and development capability dedicated to homeland security.
The proposed budget also would increase funding for the Domestic Nuclear Detection Office (DNDO), which is cooperating with the departments of State, Energy, Defense, and Justice to implement a comprehensive interagency system to detect, report, and respond to nuclear threats. The request includes $562 million for the program, which conducts R&D through the DNDO Office of Transformational Research and Development aimed at enhancing the ability to identify nuclear and radiological materials.

The Association of American Universities reports that the FY08 budget includes a $38.7 million request for the department’s University Programs, 20 percent less than the FY07 amount. This funding would be used to support existing DHS Centers of Excellence and establish four new centers for domestic security research at U.S. universities. The new centers include:

- National Center for Explosives Detection, Mitigation, and Response;
- National Center for Border Security and Immigration;
- National Center for Maritime Domain awareness & Island and Remote/Extreme Environment – Security and Natural Disasters; and,
- National Center for Gulf Coast Natural Disaster & Infrastructure Security.

AAU also reports that several of the seven existing centers may be consolidated.

Department of Housing and Urban Development

The Administration’s FY 2008 budget request for the Department of Housing and Urban Development (HUD) is $36.15 billion (31 percent decrease from the FY06 appropriation level – mostly due to a FY06 supplemental one-time funding for disaster relief). The department’s major priority for FY08 will be increasing home ownership.

The office of Policy Development and Research (PD&R) would receive $65 million this year. It would be split between $40 million for the Research and Technology studies and testing and $25 million for University Programs, which provide funds to minority-specialized colleges and universities to form partnerships for revitalization activities with their surrounding communities.

Community Development Block Grants

The Community Development Block Grant (CDBG) Fund would experience a $1.14 billion cut between the FY06 appropriation and the FY08 request. The formula grants component would shoulder the largest share of the decrease. Due to the department’s belief that the current funding mechanism has both inefficient and inequitable components, Congress will be asked to authorize a new formula for dispersing CDBG funds this year.

The goal of the recalculation is to adapt the program to current demographic trends in order to better assist the needs of the country’s urban cities and counties. Additionally, $200 million in Competitive Challenge Grants will be awarded as “bonus grants” to communities with a plan to target and leverage funds to the most distressed areas within the community.

Program Terminations

Within the CDBG account, the $50 million Youthbuild programs would be eliminated and $356 million for the Economic Development Special projects and Neighborhood Initiative Demonstration would be rescinded.

Also, in keeping with FY07 proposals, several other HUD economic development programs would receive no funding in FY08, including the Brownfields Redevelopment Initiative, Rural Housing and Economic Development, Section 108 Loan Guarantees, Community Development Loan Guarantees, and Renewal Communities, Urban Empowerment Zones and Enterprise Communities.
Department of the Interior
The Administration’s FY 2008 request of $10.705 billion for the Department of the Interior (DOI) represents a decrease of 2.3 percent from the FY06 appropriation. The FY08 figure is 1.7 percent above the president’s FY07 request.

In preparation for the National Parks Centennial, the park service will receive the largest budget in its history with $2.1 billion. Indian Affairs, wildfire preparedness, landowner stewardship, rural water, and National Park Service construction bear the majority of the department’s cuts.

Research activities within DOI are distributed among many offices and are relatively modest in spending, compared to other agencies discussed in this week’s Digest. Highlights include:

**US Geological Survey** - $975 million (1.2 percent above FY 06 appropriation). Included in the request is an additional $3 million for USGS to begin implementation of the oceans research priorities plan and implementation strategy by conducting observations, research, sea floor mapping and forecast modules. Work on the **Ocean Research Priorities Plan and Implementation Strategy** will lead to decision-support tools to help policymakers anticipate and prepare for coastal ecosystem and community responses to extreme weather events, natural disasters, and human influences.

The request for USGS **biological research** is $181.1 million, a 1.4 percent increase above the FY06 appropriation. The mammalian population ecology and habitat program and the contaminants studies would experience cuts, offset by an increase for the **Healthy Lands Initiative**.

**Land remote-sensing and geologic research** would experience a 58 percent reduction over the FY06 appropriation. Most of the reduction is the result of eliminating the $68.9 million Cooperative Topographic Mapping item. In addition, the Priority Ecosystem Science Program would experience a $2 million cut. A $2.6 million reduction to geologic resource assessments in the **Minerals Research program** is proposed, which will result in a 2008 Minerals Research program of $29.9 million.

**Miscellaneous DOI Research**
Many other DOI research activities also experience cuts, such as the **Joint Fire Science Program** within the **Wildlife Fire Management** unit of the Fish & Wildlife Service. The program will shift from conducting new research to implementing research deliverables.

Research within the **Minerals Management Service** experiences decreases of $1 million in Environmental Studies, and $1 million for methane hydrates research. Also within MMS, phase out of the **Oil Spill Research Program** begins in the FY08 request, decreasing the budget by $500,000 from the FY06 appropriation of $6.9 million.

Invasive species research within the **Bureau of Reclamation** would receive a 9.5 percent cut to $530,000. Research within the Bureau of Indian Affairs would be cut 51.5 percent to $99,000.

Department of Labor
The Administration’s FY 2008 request for the Department of Labor (DOL) is $10.6 billion in discretionary budget authority, a decrease of $900 million (7.83 percent less) compared to the FY06 appropriation level of $11.5 billion. Compared to the FY06 budget overview, the agency’s payroll would increase by 679 full-time equivalent positions, however.

More than half of the agency's total discretionary budget, $5.6 billion is requested for the **Employment and Training Administration (ETA)**. The ETA's mission is to contribute to the more efficient functioning of the U.S. labor market by providing high quality job training, employment services, labor market information and temporary wage replacement. For a second straight year, the budget continues funding for the **Community-Based Job Training Grants** initiative at $150 million in an effort to strengthen the links between community and technical colleges and
local labor markets, and employers. Building on the High Growth Job Training Initiative, the Community-Based Job Training Grants seeks to prepare workers to take advantage of new and increasing job opportunities in high growth industries and sectors of the U.S. economy.

Similar to the FY07 budget request, the Administration's FY08 budget proposes to consolidate four DOL programs and state grants for basic employment services into a $3.41 billion Career Advancement Accounts (CAAs). This is the third year that the Administration has tried to create a unified grant program by consolidating the WIA Adult, Dislocated Worker and Youth programs and Employment Service state grants. The FY08 consolidated program would be at least $481.8 million under the comparable FY07 total for the programs reported in the DOL Budget in Brief.

Information on any future funding for the Workforce Innovation in Regional Economic Development (WIRED) program was not available at press time.

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Department of Transportation

The Administration's FY 2008 budget request for the Department of Transportation (DOT) is $67 billion. This funding would be distributed across the department's five key strategic objectives - improving safety (30.4%), reducing congestion (54.6%), increasing global transportation connectivity (2.1%), protecting the environment (9.8%) and supporting national security (1.4%) - with the balance of 1.7 percent going toward organizational excellence.

As with most other federal agencies, with notable exceptions such as the National Science Foundation and National Institutes of Health, research and TBED programs constitute a very small percentage of DOT's annual budget. For example, more than one-third of the DOT budget request is dedicated to highway and bridge construction and maintenance.

Among budget highlights for the scientific and engineering community is a $175 million request for a 21st century satellite navigation system to replace older air traffic control equipment.

The FY08 request for all research, engineering and development at the Federal Aviation Administration is $140 million, including $91.3 million for continued research on aviation safety issues. The remaining research funding is for reduced congestion and environmental issues.

The FY08 budget request for the Research and Innovative Technology Administration (RITA) includes $12 million for R&D. RITA supports transportation research that cuts across all modes of transportation and promotes innovative transportation technologies, such as hydrogen fuels and remote sensing. In addition, RITA supports the Volpe Center, University Transportation Centers and the Transportation Safety Institute, which conduct research on a reimbursable and fee-for-service basis to other federal agencies and DOT administrations.

Under the Federal Highway Administration (FHWA), $410 million is requested for R&D, including an obligation limitation of $429.8 million. FHWA serves, in part, to identify ways to reduce the number of injuries and fatalities on roadways by demonstrating the application of innovative technologies in highway safety.

The National Highway Traffic Safety Administration budget request includes $65.7 million for research activities focused on improving vehicle crashworthiness and crash avoidance.

The FY08 budget request for the Federal Transit Administration consolidates the research and university transportation programs into a single account that would be receive $61 million in FY08. The request is $13 million less than the FY06 appropriation and $4 million less than the FY07 Continuing Resolution passed by the House earlier this month. The FY08 request includes:

- $40.4 million for National Research and Technology Programs to develop solutions that improve public transportation. Within this program, $2 million is targeted for increased deployment of new low-emission technology, particularly hybrid electric buses, by a greater number of the nation's transit
agencies.

- $9.3 million for the Transit Cooperative Research Program;
- $4.3 million for the National Transit Institute training programs; and,
- $7 million for the University Transportation Research Program. This figure is $1 million less than the FY07 level.

Funding for Research and Special Programs under the Pipeline and Hazardous Materials Safety Administration would be reflected in four accounts: Hazardous Materials Safety, Pipeline Safety, Emergency Preparedness Grants, and Administrative Expenses. The total for the four accounts in FY07 would be $148 million.

The Federal Railroad Administration budget request for R&D is $32 million. FRA support research efforts in various areas of rail systems safety and transportation and research development facilities.

Lastly, $3.9 million in FY08 funding is requested for the Minority Business Resource Center program. Federal subsidy and administrative expenses of $900,000 would support an $18 million short-term loan guarantee program to assist small, disadvantaged and women-owned transportation-related businesses. In addition, $3 million would fund the Minority Business Outreach program, which includes a clearinghouse for national dissemination of information on transportation-related projects and grants to minority educational institutions.

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Department of the Treasury

There are only four programs in the Treasury Department that SSTI monitors for the tech-based economic development community. Most of them are slated for termination or phase-out in FY 2008.

Treasury requests $24.4 million for the Community Development Financial Institutions Fund (CDFI) Program (21 percent decrease from FY06 appropriation) and $4.12 million to administer the New Market Tax Credits Program (NMTC), a 3.2 percent decrease. The NMTC Program provides credit against federal income taxes to taxpayers making qualified equity investments in designated Community Development Entities in order to attract private capital investments in low-income communities.

Both the Bank Enterprise Award (BEA) and CDFI Native Initiatives, including the Native American CDFI Assistance (NACA) Program are slated for elimination in the budget. The programs received $13.4 million and $5.8 million in FY06, respectively.

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Environmental Protection Agency

For the Environmental Protection Agency (EPA), the Administration has requested $7.2 billion for FY 2008, a 1 percent decrease from the FY07 request. Under the new budget, Science and Technology activities would receive $754.5 million (4.3 percent decrease). Within S&T, research activities would decrease 2.4 percent to $478.5 million. A few science and technology programs are expected to receive small budget increases this year, however, including Clean Air Research (3 percent increase), Environmental Enforcement Forensics (15 percent increase), and Climate Protection (4 percent increase).

Science and Technology programs include:

- Air Toxics and Quality - $93 million
- Climate Protection Program - $13 million
- Enforcement Forensics - $15 million
- Homeland Security - $67 million
- Indoor Air - $1 million
- IT, Data Management and Security - $3.5 million
- **Pesticides Licensing** - $6 million
- **Drinking Water Programs** - $3.5 million
- **Research** - $478.5 million
  - **Clean Air** - $98 million
  - **Clean Water** - $105 million
  - **Human Health and Ecosystems** - $217.5 million
  - **Land Protection** - $11 million
  - **Sustainability** - $22.5 million
  - **Pesticides and Toxics** - $25 million

Specific research projects funded by the budget request include:

- **Computational Toxicology Research** - $15 million to apply mathematical and computational tools to advance the science needed to protect human health and natural ecosystems from pollutants;
- **Human Health and Ecosystems Research** - $145 million (10 percent decrease) to enhance current risk assessment, management strategies and guidance to better consider risk determination needs for children; and,
- **Environmental Technology Verification** – No funding is requested (none requested in FY07) to support this voluntary, market-based verification program for commercial-ready technologies.

In keeping with the president’s climate change agenda in this year’s budget, climate change programs at EPA would receive $118 million. Some of these programs are:

- **Methane to Markets** - $4.4 million to assess the feasibility of methane recovery and use projects;
- **Asia-Pacific Partnership** - $5 million to cooperate with Pacific Rim countries in developing energy and environmental strategies; and,
- **Energy Star** - $44 million to support the voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions.

Other EPA programs of interest include:

- **Pollution Prevention Grants** - $6 million to help state programs assist businesses and industries to identify better environmental strategies and solutions for complying with federal and state regulations;
- **State and Local Air Quality Management Grants** - $185 million;
- **Diesel Emission Reduction Grant Program** - $35 million (30 percent decrease) to support cleaner fuels and diesel retrofits, rebuilds and replacements;
- **Renewable Fuels Standard program** - $8 million to develop and operate the market-based credit trading system and to provide analysis of renewable fuel policy impacts;
- **Domestic Stratospheric Ozone Protection Program** - $9.8 million to support cost-effective projects to eliminate the production and consumption of ozone depleting substances;
- **Drinking Water State Revolving Fund** - $842 million to provide state with federal capitalization to set up an infrastructure funding account to assist public water systems;
- **Regional Science and Technology** - $3.5 million to support geographically targeted research activities;
- ** Fellowships** - $8.4 million to support fellowships, including the Science to Achieve Results (STAR) program and the Greater Research Opportunity (GRO) graduate and undergraduate fellowships;
- **Small Business Ombudsman** - $3.3 million to provide a gateway to EPA for small businesses; and,
- **Small Minority Business Assistance** - $2.5 million to provide technical assistance to small to ensure that small, disadvantaged, women-owned, Historically Underutilized Business, and Service-Disabled Veteran-Owned Small Businesses have access to EPA programs.
The Administration’s FY 2008 budget request for NASA totals $17.309 billion (3.9 percent increase from the FY06 appropriation) and is distributed across six directorates and offices.

- **Science** - $5.516 billion (5.18 percent increase from FY06 appropriation) to conduct scientific exploration that is enabled by access to space or near-space in pursuit of a science plan with four broad goals or themes: earth science; planetary science; heliophysics; and, astrophysics.
- **Exploration Systems** - $3.924 billion (28.6 percent increase) to pursue the president’s goal of returning humans to the moon, landing on Mars and venturing beyond.
- **Aeronautics Research** - $554 million (38 percent reduction) to expand the boundaries of aeronautical knowledge.
- **Cross-Agency Support** - $489.2 million (8.3 percent reduction) to support education programs, advanced business systems, innovative partnerships and shared capability assets.
- **Space Operations** - $6.792 billion (1.7 percent reduction) to provide and support space exploration services through the Space Shuttle and International Space Station.
- **Inspector General** - $34.6 million (8.1 percent increase) to prevent and detect crime, fraud, waste, abuse and mismanagement within the agency.

**Cross-Agency Support Programs**

NASA’s Education programs support a variety of science, technology, engineering and mathematics initiatives, with the goal of preparing a future NASA workforce. Examples include Higher Education programs (which includes EPSCoR); Space Grants; Minority Undergraduate Research and Education Project; and the NASA E-Education Project. The F08 request would provide $153.7 million to the theme, a cut of 5.4 percent from the FY06 appropriation level. According to the NASA budget summary, the cut is a redirection of funds “to address higher priority NASA mission requirements.”

The Innovative Partnerships Program (IPP) leverages technology and capabilities for NASA through joint partnerships with industry, academia, other government agencies and national laboratories. IPP includes NASA’s SBIR/STTR programs, the IPP Seed Fund, Innovation Incubator, technology transfer and intellectual property management, and new partnership opportunities. With a $198.1 million FY08 budget request, IPP’s funding would decline 7.8 percent from the FY06 appropriation level. Selected FY08 program funding requests include:

- NASA SBIR - $127.1 million
- NASA STTR - $15.3 million
- Technology Transfer Partnerships - $33.3 million
- Centennial Challenges - $4 million

**Science Directorate**

The FY08 request would provide $428.5 million for the Earth Science Research Program, which provides competitively awarded grants for basic research and modeling efforts to improve the capability to: document the global distribution environmental parameters related to the Earth’s atmosphere, hydrosphere, biosphere, cryosphere and land surface; understand the processes that drive and connect them; and, improve predictive capabilities for the future evolution of the Earth system, including climate, weather, and natural hazards.

With a $23.5 million FY08 budget, the Earth Science Education and Outreach Program would seek to make the discoveries and knowledge generated from NASA’s Earth-observing satellites and scientific research (including applied science) accessible to students, teachers and the public. The office supports fellowships, new investigators, and science, technology, engineering and mathematics activities.

The Heliophysics Research Program, with FY08 funding of $206.1 million, would undertake scientific
investigations utilizing operational space-based and suborbital platforms (surface, balloon, aircraft and rocket).

The Planetary Science Research Program develops theoretical tools and laboratory data needed to analyze flight data, makes possible new and better instruments to fly on future missions, and analyzes the data returned. The program would receive $370.5 million in FY08.

Aeronautics Research Directorate
The Directorate conducts cutting-edge research that produces concepts, tools and technologies that enable the design of vehicles that fly safely through any atmosphere at any speed. The FY08 budget request for the Directorate is $554 million. Significant reductions are planned in the three core research areas of aeronautics safety (50 percent cut from FY06 appropriation), airspace systems (44 percent cut), and fundamental aeronautics (50 percent cut), while an $88.4 million fourth theme, aeronautics testing, is added.

National Science Foundation
The Administration’s FY 2008 National Science Foundation (NSF) budget request of $6.43 billion represents an increase of nearly $409 million (6.8 percent) above the FY07 request. The large increase is distributed across many research and related activities:

- Mathematical and Physical Sciences - $103 million increase
- Engineering - $55 million
- Geosciences - $47 million
- Computer and Information Science and Engineering - $47 million
- Education and Human Resources Directorate (increases to several programs) - $34 million
- Integrative Activities - $32 million
- Office of Polar Programs - $27 million
- Biological Sciences - $25 million
- Office of Cyberinfrastructure - $18 million
- Social, Behavioral and Economic Sciences - $8 million
- Office of International Science and Engineering - $4 million
- Major research equipment and facilities construction - $4 million
- Agency Operations and Award Management - $4 million

FY08 budget requests for selected initiatives crossing several NSF directorates include:

- Networking and Information Technology Research and Development (NITRD) - $993.7 million would be spread throughout every NSF directorate to support initiatives such as high-end computing infrastructure development, optimization research, cyber security, human-computer interaction, and large-scale networking.
- National Nanotechnology Initiative (NNI) - $389.9 million. NSF is the lead for this multi-agency initiative. Total FY08 NNI funding across the 11 agencies involved is $1.45 billion.
- Climate Change Science Program (CCSP) - $208.3 million towards basic research, comprehensive observations, integrative modeling, and development of products for decision makers on the subject of climate change. The entire project engages 13 U.S. agencies across the federal government.
- International Polar Year - $58.7 million for to celebrate the 50th anniversary of the International Geophysical Year 1957-58, in which “unparalleled exploration of the Earth and space led to discoveries in many fields of science that have changed the way we view polar regions and their global significance.” The funding request is the second of a two-year program to support U.S. polar research and education activities.
- Cyber-enabled Discovery and Innovation - $52 million for a new initiative to explore concepts at the intersection of computational and physical or biological fields. The initiative is expected to grow by $50 million per year for five years and is expected to have an impact on the ability to stimulate research requiring petascale computational power.
NSF Center Programs

Funding for NSF’s centers programs, supported by many state tech-based economic development initiatives as well as NSF, are the principal means by which the NSF fosters interdisciplinary research. The FY08 budget request for these centers is $268.07 million.

- **Science and Technology Centers** - $66.2 million (1.9 percent decrease from the FY07 request) to support partnerships involving academia, industry, government laboratories, and other public and private organizations to explore research problems that require interdisciplinary expertise, to create technology transfer opportunities and to provide education and training for students and researchers.

- **Materials Research Science & Engineering Centers** - $59.2 million (6.3 percent increase) for grants to support multi-year interdisciplinary materials research in academic institutions across the country.

- **Engineering Research Centers (ERCs)** - $52.9 million within the Engineering Directorate (15.8 percent decrease) for partnerships involving academe, industry and NSF for development of next-generation advances in complex engineered systems important for the nation’s future. Four centers of the 19 existing centers will graduate from the program this year, no longer receiving NSF support.

- **Nanoscale Science and Engineering Centers** - $42.4 million across several directorates (13.4 percent increase) for multidisciplinary research to advance the development of ultra-small technology in electronics, materials, medicine, environmental science and other fields. There are 16 of these centers, and four of them, concentrating on nanomanufacturing, will establish the National Nanomanufacturing Network in FY07.

- **Science of Learning Centers** - $27 million across several directorates (level funding) to continue support for multidisciplinary, multi-institutional centers to advanced understanding of learning and its societal implications.

- **Centers for Analysis and Synthesis** - $11.5 million (77.4 percent increase) to continue development of new tools and standards for management of biological information and to support data analysis capabilities across the biological sciences. The Plant Science Cyberinfrastructure Collaborative will be established in FY08 to drive synergy among biologists, computer and information scientists, mathematicians, engineers and others.

- **Chemical Bonding Centers** - $9 million (200 percent increase) is designed to support long-term "big questions" in basic chemical research. Phase I awards support preliminary proposals, and Phase II awards fund full-scale center implementation. In FY08, Phase I awardees from FY05 will compete for Phase II funding.

**Engineering Directorate**

The FY08 budget request for the Directorate for Engineering is $683.3 million (8.7 percent increase), which represents 42 percent of the total federal support for university-based, fundamental engineering research. Highlights, in addition to the ERCs described above, include:

- **SBIR/STTR programs** - $116.4 million (6.9 percent increase) to support innovation research conducted by small technology firms.

- **Office of Emerging Frontiers in Research and Innovation (EFRI)** - $25 million (level funding) to help NSF focus on emerging areas in a timely manner. EFRI recommends, prioritizes, and funds interdisciplinary initiatives at the emerging frontier of engineering research and education.

- **Industry/University Cooperative Research Centers (I/UCRCs)** - $7.28 million (7 percent increase) to further develop long-term partnerships among industry, academe and government and to allow the 47 existing centers to compete for supplements for fundamental research that will enhance their capabilities.

- **Grant Opportunities for Academic Liaison with Industry (GOALI)** - $4.7 million (6.8 percent increase) to enable partnerships between industry and academe where there is a common intellectual and educational agenda.

**Integrated Activities**
The Experimental Program to Stimulate Competitive Research (EPSCoR) was shifted from the Education and Human Resources (EHR) Directorate to Integrated Activities. The EPSCoR budget is proposed to be $107 million for FY08 (7 percent increase) to promote the development of eligible states’ science and technology resources through partnerships involving a state’s universities, industry, government and the federal R&D enterprise.

The Partnerships for Innovation program budget would receive $9.19 million, level funding with the FY07 request, which was a cut of $20,000 from the FY06 appropriation.

Education and Human Resources Directorate
The FY08 budget request for the EHR Directorate is $750.6 million. Highlights include:

- **Graduate Research Fellowships** - $97.5 million (10.1 percent increase from FY07) to support the most promising graduate science, mathematics and engineering students in the U.S. for a broad range of disciplinary and interdisciplinary careers. This allocation will increase the number of fellowships by 200.
- **Informal Science Education** - $66 million (level funding) to promote public interest understanding and engagement in science and technology through voluntary self-directed and lifelong learning opportunities for children and adults.
- **Advanced Technological Education** - $51.6 million (11 percent increase) to improve technician education in science- and engineering-related fields that drive the nation’s economy, particularly at two-year colleges and secondary schools.
- **Graduate Teaching Fellows in K-12 Education** - $47 million (level funding) to enable graduate students in NSF-supported Science, Technology, Engineering and Math (STEM) disciplines to acquire skills that will prepare them for professional and scientific careers. A total of 915 fellows will be supported by this program in FY08.
- **Math and Science Partnership** - $46 million (level funding) to improve student outcomes in math and science for all students in grades K-12 through partnerships with higher education. Of that amount, $30 million would go towards funding new awards at educational institutions.
- **Course, Curriculum & Laboratory Improvement** - $37.5 million (an increase of 10.3 percent) to support the development of new learning materials, faculty expertise, and assessment and evaluation.
- **Center of Research Excellence in Science and Technology (CREST)** - $29.5 million (18.1 percent increase) to fund centers with the goal of strengthening research and education in minority-serving institutions and increase matriculation in STEM disciplines.
- **STEM Talent Expansion Program** - $27.9 million (an increase of 12.1 percent) to increase the number of U.S. citizens and permanent residents receiving associate or baccalaureate degrees in established or emerging STEM fields.
- **Integrative Graduate Education and Research Training** - $25 million (no change) to prepare U.S. doctoral students for advancing knowledge in emerging areas of research and to pursue successful careers in academia, industry or the public sector.
- **Robert Joyce Scholarship Program** - $10 million (level funding) to encourage talented STEM undergraduate students and postgraduate professionals to become K-12 mathematics and science teachers.

Biological Sciences Directorate
The FY08 budget request for the Biological Science Directorate is $633 million, compared to $607.85 in FY07 (a 4.1 percent increase). The Directorate’s Emerging Frontiers division would have $99.2 million in allocations (level funding) with approval of the Administration's request. The division contains funds to be contributed towards the creation of two new research centers, $5 million for the Plant Science Cyberinfrastructure Collaborative and $3 million for Center for Research on the Environmental and Health Safety of Nanotechnology.

Regional Commissions and Authorities
Four federally established regional commissions and authorities dedicated to improving the economic opportunities within specific geographic regions are included in the Administration’s FY 2008 budget request. No
funding is requested for the Northern Great Plains Regional Authority, which was created in the 2002 Farm Bill.

The Appalachian Regional Commission, Delta Regional Authority and Denali Commission are dependent on annual appropriations. The Tennessee Valley Authority (TVA), the oldest and largest of the five authorities, generates its budget primarily through power generation revenues. TVA still requires the government to approve or set its annual spending level.

- **Appalachian Regional Commission** - $65 million to assist the 13-state, 410-county Appalachian Region in achieving socioeconomic parity with the nation. The commission has increasingly focused its community investments toward TBED priorities. In 2008, for example, ARC will continue a challenge grant program to award communities that develop innovative and entrepreneurial approaches to economic development, or that implement regional or multi-jurisdictional strategies.

- **Delta Regional Authority** - $6 million to assist an eight-state, 240-county region around the Mississippi Delta in obtaining transportation and basic public infrastructure, skill training, and opportunities for economic development.

- **Denali Commission** - $1.8 million to provide infrastructure development, job training and other economic development services in rural Alaska. The commission received more than $120 million in FY06.

- **Tennessee Valley Authority** - $8.9 billion to assist the TVA, a government-owned corporation established in 1933 for the unified development of a river basin comprised of parts of seven states. The agency finances its program primarily from proceeds available from current power operations and borrowings against future power revenues. TVA operates a series of 49 dams and 47 reservoirs to reduce the risk of flooding, enable year-round navigation, supply affordable and reliable electricity, improve water quality and supply, provide recreational opportunities, and stimulate economic growth. An additional $553 million would be applied toward TVA's outstanding debt balance.

**Small Business Administration**

The Administration's proposal sets overall spending for FY 2008 at $814 million for the Small Business Administration (SBA), including $464 million in new budget authority, $329 million in carryover funds for disaster loans, and $21 million in reimbursable revenues.

Funding levels for selected technical assistance programs include:

- **Small Business Development Centers (SBDC)** - $87 million to provide 50 percent or less of the operating funds of the 63 Lead SBDCs and their satellite organizations that make up a network of more than 1,100 service locations around the country. SBDCs provide management assistance to current and prospective small business owners.

- **Women's Business Centers (WBC)** - $12 million to support a national network of nearly 100 resource centers located throughout the U.S. to promote the growth of women-owned businesses. This is accomplished through programs that address business training and technical assistance and provide access to credit and capital, federal contracts, and international trade opportunities.

- **Service Corps of Retired Executives (SCORE)** - $5 million to support 390 chapter offices to provide entrepreneurs with free, confidential face-to-face and e-mail business counseling services.

- **National Women's Business Council** - $743,000 to support a bi-partisan federal advisory council created to serve as an independent source of advice and policy recommendations to the president, Congress and SBA on economic issues of importance to women business owners.

- **Veteran's Outreach** - $743,000 to provide entrepreneurial development services such as business training, counseling and mentoring to eligible veterans owning or considering starting a small business.

- **New Markets Venture Capital (NMVC) Program** - $23,000 to support the selection of privately owned and managed for-profit entities that foster new business growth and job creation in low-income areas through equity investing and hands-on technical assistance.
The president's proposal requests continuation of the **Microloan Program** on a "zero-subsidy basis" and seeks no funding for the **Microloan Technical Assistance**. The **Program for Investment in Micro-entrepreneurs (PRIME)** has also been eliminated, according to a press release by the U.S Senate Committee on Small Business & Entrepreneurship.

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