SSTI Weekly Digest

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Publisher's Note

Each year, SSTI dedicates an issue of the *SSTI Weekly Digest* to the Administration's federal budget request. The issue, not intended to be exhaustive, highlights selected S&T programs and economic development initiatives that we believe are of interest to our readers. While the issue may not be exhaustive, it is long, so we've opted to provide it as a pdf at: http://www.ssti.org/Digest/2009/fy10budget.pdf. The president's budget request and supporting documents can be found at: http://www.whitehouse.gov/omb/budget/.

R&D Flat, but Budget Reflects Obama Administration Priorities

The first budget request of the Obama Administration keeps R&D funding virtually flat, at $147.6 billion, rising only 0.4% over the enacted FY2009 levels. That conclusion is somewhat misleading however, given Congress only approved the FY09 budget two months ago and the massive Recovery Act a month earlier. Recovery Act funding will be spent over both FY09 and FY10, providing agencies more money for research and economic development than at any time previously. The White House Office of Science & Technology Policy (OSTP) estimates the federal government will spend $165.4 billion for R&D in FY09.

Despite level funding, the Administration refocuses much of the FY10 spending on what it perceives are national imperatives: fighting climate change, finding cures for cancer, making our economy more innovation-based and efficient, and tying education and training to 21st century skill development.

Research Budgets Shifting Among Agencies

The Administration also begins a shift toward earlier research. Compared to the enacted FY09 budget, federal support for basic research would grow 3.4% in FY10 with the Administration's request. In contrast, federal basic and applied research funding has declined in real terms for the past four years.

More of the shift in priorities is reflected at the agency level. Five agencies would see double-digit percentage growth in their FY10 research appropriations as a result of the Administration request. Profiles for most agencies follow but the percentage increases for the biggest gains by total research are below:

- 18.9% Education
- 15.8% NIST
- 13.7% Veterans Affairs
- 12.7% Health & Human Services, excluding NIH
- 10.0% NASA
- 9.4% National Science Foundation
- 6.7% Environmental Protection Agency
- 6.2% U.S. Geological Survey

Agencies for which the Administration requests total research budget reductions include:

- -2.4% Defense (military)
- -6.2% Agriculture
- -8.0% NOAA

All other major agencies would see gains of less than 3.0%.

STEM Education Responsibilities Also See Agency Shift

OSTP highlights the Administration's commitment to science, technology, engineering and mathematics education (STEM) through its support of more than 100 programs by FY10 funding of $3.7 billion. The figure does not include the additional $276 million included in the Recovery Act for STEM.

Some agencies will become more active in STEM support, including $124 million more (516% increase from enacted FY09 levels) for a new program within the Department of Energy. Other significant agency gains for STEM funding are in the National Science Foundation with $43 million of new funding for a total $1.1 billion (4.0% increase), the Department of Agriculture with $41 million for a total $88 million (87.2% increase) and the Department of Transportation with $15 million in new funding for a total of $174 million (9.4% increase).

Several agencies would see diminished funding for STEM, including the removal of all $10 million of STEM funding from the Department of Labor; $87 million cut from the Department of Education (10.2%

decrease); $14 million reduction from the Department of Commerce (28.0% decrease) and NASA losing $43 million (25.4% decrease).

After all of the shuffling, federal STEM support would experience a net increase of $98 million, or 2.7%, in FY10.

SSTI Editorial

The Difference a Year Makes for Federal Economic Development Policy

For nearly every budget issue SSTI has prepared during the first decade of the 21st century, our opening paragraphs read like obituaries. The previous administration was ideologically opposed to the government taking an active role to support economic development, even tech-based economic development, beyond increases for university and federally based research. Spending for federal programs that support regional community and economic growth were slashed repeatedly. The memories are fresh of having to fight for every dollar in Congress, and, watching appropriation levels slide. Earmarks grew as programs were forced to fend for themselves. Unless you've been in the TBED field for nearly a decade, those may be your only perceptions of the federal role for innovation.

States, counties, communities, universities, civic organizations and foundations stepped in to fill some of the holes left behind as the federal partner for supporting the nation's innovation system withered. But it couldn't be enough compared to the possibilities of establishing a true innovation-oriented partnership between industry, academia and at all levels of government.

We could wallow in the what-ifs, reflect on the resulting opportunities lost, or worry about the increasing economic pressures presented by other nations who didn't skip out on investing in innovation during the past few years – nations now seeing the results of those investments pay off as their standings in global innovation metrics rise. But there isn't time – or need.

Things are looking up. We have an important opportunity. And it isn't just because we are presented with a budget request that increases virtually every federal program focused on innovation, community-development and economic development. It is provided to us by the depth of the current economic downturn and the need to rethink our collective approaches to restoring economic vibrancy. We have an opportunity to build an effective partnership among all levels of government and all players in our innovation system to make things better. It will take more than federal money, however.

We must all be engaged in the process, starting with this budget, to ensure the reversal of fortune – the newfound federal funding for TBED versus the emptying state and local coffers – does not become overly prescriptive for the state, regional, university, nonprofit and for-profit efforts already promoting tech-based economic development. The nation needs to establish a new level of collaboration among all participants in building regional systems to support and expand opportunities for innovation.

Seize the Moment

The opportunity before us is a reason why SSTI decided several months ago to make that phrase the theme of this year's conference – Oct 21-23, 2009. We just need to take that opportunity and get it right. We hope you'll join your peers from across the country: http://www.ssticonference.org

Department of Agriculture (USDA)

The Administration FY10 USDA budget request is $134 billion, with $25.7 billion reserved for discretionary spending (6.6% increase above the FY09 estimated budget). The proposed FY10 budget includes increases for several programs related to rural economic growth and stable funding for USDA research services.

USDA's Rural Development division oversees the department's housing, utilities, business and community development efforts. As a result, Rural Development administers most of USDA's programs related to TBED and traditional economic development. The Administration's FY10 request includes $3.38 billion for Rural Development (14.4% increase). A number of Rural Development loan programs operate at little to no cost to the federal government and are funded in part through fees and loan interest. In these cases, the program's budget allocation might not reflect the funds available through that program.

Rural Development's Rural Business-Cooperative Service (RBS) provides assistance to business and industry through loan subsidies and grants. The service is currently implementing new programs designed to promote renewable energy and energy improvement projects. In the proposed budget the service would receive $621 million (20% increase). More than half of the service's budget is reserved for mandatory farm bill programs, which comprise much of the service's new energy-related spending. Proposed RBS mandatory spending is $364 million (52% increase). Most of this difference is due to an increase in funding for the Biorefinery Assistance Guaranteed Loan program. The mandatory funding for that program increased from $75 million in FY09 to $245 million in FY10 (227% increase). Another $17 million is provided in discretionary spending. The farm bill also provides $55 million for the Bioenergy for Advanced Biofuels program (no change).

Discretionary funding for RBS programs related to TBED includes:

- Rural Energy for America – A total of $130 million (113% increase) split evenly between guaranteed loans and grants to assist with the purchase of renewable energy systems and energy efficiency improvements. Mandatory funding represents $60 million of the total;
- Business and Industry Guarantee Loan program – $53 million (23.3% increase) to provide protection against loan losses so that lenders will extend credit to rural businesses;
- Rural Business Enterprise Grants – $39 million (no change) to finance the development of small and emerging rural businesses;
- Rural Business Opportunity Grants – $5 million (no change) to promote sustainable economic development in rural communities with exceptional needs through provision of training and technical assistance for business development, entrepreneurs, and economic development officials and to assist with economic development planning;
- Rural Microentrepreneur Assistance program – A total of $26 million (550% increase), with $14 million for guaranteed loans and $12 million for grants to microenterprise development organizations. Mandatory spending represents $4 million of the request;
- Value-Added Agricultural Product Market Development – $22 million (267% increase) to support planning activities and working capital for marketing value-added agricultural products and for farm-based renewable energy; and,
- Rural Cooperative Development Grants – $17 million (88.9% increase) to encourage small business development.

The FY10 budget eliminates the Rural Empowerment Zone and Enterprise Communities (EZ/EC) Grants program, which supports rural economic development through community infrastructure, utility and housing grant and loan programs. The program received $8 million in FY09, but was flagged as duplicating other Rural Development efforts.

Rural Development's Rural Utilities Service (RUS) would receive $668 million in FY10 (0.6% increase). RUS supports electricity, water and waste disposal services in rural areas and helps extend telecommunications and broadband networks to underserved regions. TBED-related programs within RUS include:

- Rural Development Broadband programs – $39 million for direct loans (144% increase) and $13 million for grants (no change) to expand high-speed digital networks; and,
- Distance Learning and Telemedicine program – $30 million (14.2% decrease) to assist rural communities that would otherwise be without access to learning and medical services over the Internet.

The Cooperative State Research, Education and Extension Service (CSREES), which will become the National Institute of Food and Agriculture (NIFA) on October 1, 2009, would receive $1.1 billion in FY10 discretionary funding (2.9% decrease). Research and Education Activities at CSREES would receive $623 million (10% less). Extension Activities, would receive $487 million (2.1% increase) and Integration Activities would receive $57 million (no change).

The budget almost doubles funding for Higher Education programs at CSREES from $43 million in FY09 to $84 million (95.3% increase). The higher education funding includes $3 million in Capacity Building Grants, $3 million in Hispanic-Serving Institution Education Grants, $17.5 million in Secondary Education, Two-Year Postsecondary, and Agriculture in the K-12 Classroom Grants, and $17.5 million in Higher Education Challenge Grants.

USDA's Agricultural Research Service (ARS) conducts internal research to develop new scientific knowledge, transfer technology to the private sector to solve technical agricultural problems of broad scope and high national priority and provide access to scientific data. The service's FY10 discretionary funding would be $1.15 billion (3% decrease). The proposed budget increases funding for product quality/ value added research to $113 million (12.6% increase), human nutrition to $92 million (16.5% increase) and environmental stewardship to $234 million (16.5% increase).

The USDA Economic Research Service (ERS) provides economic and other social science information and analysis on agriculture, food, the environment and rural development. The FY10 budget proposal would provide $82 million for the service(2.5% increase). The budget specifies that $1.8 million be used to support research on the economics and policies of reducing greenhouse gas emissions, including the economics of implementing markets for carbon offsets.

The National Agricultural Statistics Service (NASS) would receive $162 million (13.5% increase). The Census of Agriculture program, which provides comprehensive data on the agricultural economy on a five-year cycle, would receive $38 million (2.7% increase). The remaining $124 million would support agricultural estimates, including $1.85 million in new funding to establish a data series on key elements of bioenergy production and utilization.

The proposed budget eliminates the USDA Forestry Service's Economic Action Program (EAP), which received $5 million in the enacted FY09 budget. EAP provides technical and financial assistance to communities and groups to enhance rural economies through the utilization of forest and related natural resources. The budget cites a lack of targeting and duplication of other programs as the reason for termination.

Department of Commerce (DOC)

The Administration's FY10 DOC budget request is $13.8 billion, an increase of $4.5 billion from the FY09 budget (45% increase above FY09 enacted budget). More than 93% of the requested increase is for the Census Bureau to conduct the 2010 Decennial Census.

Increases are requested for every major DOC component, with the exception of the National Telecommunications and Information Administration (NTIA). No FY10 funding is requested for NTIA. NTIA, which funds public telecommunications facilities, planning, and construction, received $20 million in the FY09 budget and an additional $4.7 billion from the Recovery Act for the Broadband Technology Opportunities Program (BTOP) and $650 million for the Digital to Analog Converter Box Program. Recovery Act funding will support all NTIA activities in FY10.

The Economic Development Administration (EDA), charged with promoting regional economic development in communities with high unemployment and other economic problems, would receive $284 million in FY10 (4.1% increase). The $11.2 million increase is divided between $6.0 million for EDA programs and $5.2 million for EDA salaries and expenses.

The EDA request reallocates spending among the historical elements of EDA to allow for two new initiatives. Proposed individual spending allocations include:

- $50 million for a new **Regional Innovation Clusters Program**, to leverage regions' existing strengths for improving job creation and economic growth;
- $50 million for a new initiative to create a **national network of public-private business incubators** in economically distressed areas;
- $72.8 million for Public Works grants for planning and implementation funds to communities;
- $31.0 million for EDA's Planning program to create comprehensive economic development strategies;
- $16.5 million for the **Global Climate Change Mitigation Incentive Fund** to support projects affecting economic competitiveness through resource conservation and sustainability;
- $15.8 million for Trade Adjustment Assistance for manufacturing and production firms that have lost sales due to imports to become more competitive;
- $13.4 million for Technical Assistance to assist in making optimal decisions on local economic development issues; and,
- $1.5 million for preparing Research and Evaluation reports and best practices guides.

The budget plan calls for the National Institute of Standards and Technology (NIST), assigned to advance the fields of measurement science and standards and to provide mechanisms for technological assistance, to receive $846 million in FY10 (3.3% increase).

NIST's Industrial Technology Services are slated to receive $194.6 million in FY10 (11.2% increase). The Hollings Manufacturing Extension Partnership (MEP), would receive $124.7 million (11.5% increase). MEP assists U.S. manufacturers by providing access to technologies, resources, and expertise through its 59 centers spread across the U.S.

The Technology Innovation Program (TIP) would receive $69.9 million in FY10 (7.5% increase). TIP awarded its first funds in January 2009, to nine high-risk, high-award research grants to advance the field of monitoring and improving the nation's infrastructure.

Other NIST priorities identified in the FY10 budget include:

- $475.0 million (13.7% increase) for the activities at national measurement and standards laboratories;
- $116.9 million (32.0% increase) for the construction and renovation of research facilities;
- $11.0 million (no change) for training postdoctoral research associates; and,
- $9.6 million for the Baldrige National Quality Program (no change), which recognizes U.S. organizations for their achievements in performance and quality.

The budget request for the International Trade Administration (ITA) in FY10 is $440.3 million (4.7% increase). The ITA attempts to strengthen the competitiveness of industry in the U.S. by actions such as evaluating the needs of the national manufacturing and service industries, assisting with trade policy and negotiation initiatives, promoting exports in priority markets, analyzing the domestic business environment, and educating firms about trade laws.

The Bureau of Economic Analysis (BEA) within the Economic and Statistical Analysis Administration would receive $101.2 million in FY10 (16.2% increase). The BEA is responsible for providing a comprehensive picture of the U.S. economy though its statistical efforts. BEA activities include efforts under the Navigating the 21st Century Economy initiative to produce new and expanded GDP-related statistics to measure the role of innovation and energy-price pressures on economic growth.

The National Oceanic and Atmospheric Administration (NOAA) has a budget request for $4.48 billion in FY10 (2.5% increase). Nearly all of the increase is for procurement, acquisition and construction projects. Research activities are housed in the $3.09 billion Operations, Research & Facilities (ORF) line item (1.4% increase). Funding levels for the main ORF components, described briefly below, would decrease:

- National Ocean Service (NOS) – $463 million (14.1% decrease) for navigation, marine health, and coastal preservation programs;
- National Marine Fisheries Service (NMFS) – $891 million (17.0% decrease) for the management and conservation of living marine resources;
- Office of Oceanic and Atmospheric Research (OAR) – $394 million (1.2% decrease) for environmental research and technology involving weather, seasonal climate and marine services;
- National Weather Service (NWS) – $867 million (1.0% increase) for weather forecasts and flood warnings; and,
- National Environmental Satellite, Data, and Information Service (NESDIS) – $172 million (8.8% decrease) for orbiting satellite operation and data collection.

The U.S. Patent and Trademark Office (USPTO) is fully funded by fee collections from patents and trademark applications. The budget request anticipates USPTO would receive $1.93 billion, a $70 million decrease). However, USPTO would be given the authority to spend or reserve up to $100 million more if the application volume warrants the need.

The Minority Business Development Agency (MBDA) would receive $31.0 million (3.9% increase). The MBDA assists minority entrepreneurs wishing to grow their businesses in size, scale, and capacity.

Department of Defense (DOD)

The Administration's FY10 DOD budget request is $533.8 billion (4% increase above the FY09 enacted budget). The budget plan provides $75.5 billion in supplemental appropriations for FY09 as well as $130 billion for FY10 to support ongoing Overseas Contingency Operations (OCO), while increasing efforts in Afghanistan and drawing down troops from Iraq.

Research, Testing, Development and Evaluation (RTD&E) would receive $78.6 billion in FY10 (1.1% decrease). The request includes science and technology programs, development of weapons systems and supporting systems (including missile defense), and support of test and evaluation programs and necessary infrastructure.

Proposed FY10 funding for Defense S&T by line reflects decreases in all areas except one: defense-wide basic research. The full breakdown is as follows:

- **Army**
  - 6.1 Basic Research – $377 million (14% decrease)
  - 6.2 Applied Research – $781 million (35% decrease)
  - 6.3 Advanced Technology Development – $695 million (50% decrease)
- **Navy**
  - 6.1 Basic Research – $531 million (3% decrease)
  - 6.2 Applied Research – $594 million (23% decrease)
  - 6.3 Advanced Technology Development – $721 million (13% decrease)
- **Air Force**
  - 6.1 Basic Research – $466 million (0.4% decrease)
  - 6.2 Applied Research – $1.1 billion (8% decrease)
  - 6.3 Advanced Technology Development – $618 million (14% decrease)
- **Defense-wide**
  - 6.1 Basic Research – $424 million (13% increase)
  - 6.2 Applied Research – $1.8 billion (5% decrease)
  - 6.3 Advanced Technology Development – $3.6 billion (0.3% decrease)

DOD programs of interest to the TBED community include:

- Defense Advance Research Projects Agency (DARPA) – $3.2 billion (3% increase) to manage and direct selected basic and applied research and development projects for DOD;
- Defense Information Systems Agency – $297 billion (50% decrease), including $2.75 million OCO (1.1% increase) to plan, engineer, acquire, field, and support global net-centric solutions for DOD;
- Defense Logistics Agency – $98 million (50% decrease) to provide worldwide logistics support for DOD;
- Defense Threat Reduction Agency (DTRA) Basic Research Initiative – $48.5 million (117% increase) to identify, conduct, and deliver science and technology that defend against weapons of mass destruction;
- **Defense Research Sciences** – $1.1 billion (0.4% decrease) to fund university research, mostly by single investigators. Departmental breakdowns include $173 million for the Army (13% decrease), $414 million for the Navy (1% decrease), $321 million for the Air Force (2% increase), and $226 million defense-wide (12% increase);
- **Government/Industry Cosponsorship of University Research (GICUR)** – No new funding is requested ($4 million decrease). GICUR fosters cooperative research by universities with industry or government laboratories;
- **Defense Experimental Program to Stimulate Competitive Research (DEPSCoR)** – No new funding is requested ($15 million decrease). DEPSCR seeks 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;

- **University Research Initiatives** – $320 million (4.5% decrease) to enhance universities' capabilities to perform basic science and engineering research and related education in areas critical to national defense. Departmental breakdowns include $88 million for the Army (2% decrease), $99 million for the Navy (9% decrease), and $132 million for the Air Force (4% decrease); and,
- **Historically Black Colleges and Universities (HBSU) Science** – $15 million (63% decrease) to strengthen the defense research capacity of historically black institutions of higher education.

The Administration has recommended terminating the $4 billion **Multiple Kill Vehicle** program, a long-term R&D program designed to counter ballistic missile threats by using several "kill" vehicles launched from a single interceptor, or missile. Instead, the Administration would focus on proven, near-term missile defense programs, such as **the Terminal High Altitude Area Defense** and the **Aegis Ballistic Missile Defense** programs.

Other programs and activities slated for termination are: further production of the C-17 airlift aircraft ($91 million decrease); the Air Force Combat Search and Rescue (CSAR-X) Helicopter Program ($144 million decrease); the F-22 Raptor program after production of the planned 187 aircraft ($2.9 billion decrease); the Future Combat Systems (FCS) manned ground vehicles ($633 million decrease); the Joint Strike Fighter (JSF) Alternative Engine Program ($465 million decrease); the proposed new long-range bomber program; and the Transformational Satellite Program ($768 million decrease).

Department of Education

The Administration has requested $46.7 billion in discretionary funding for the Department of Education in FY10 (3% increase above the FY09 enacted budget). Several significant changes are proposed affecting higher education, including:

- **Converting Pell Grants to a mandatory program** to eliminate uncertainty and end the practice of "backfilling" billions of dollars in Pell shortfalls. The maximum Pell Award would rise to $5,550 in FY10 (for the 2010-11 academic year), with future increases linked to the Consumer Price Index, plus 1%. These changes would increase the investment in Pell Grants by an estimated $46.7 billion over the next 5 years;
- **Eliminating the Federal Family Education Loan (FFEL) program** and making all new loans through direct lending, which relies on low-cost and stable sources of capital and private-sector providers to efficiently process loans and repayments. This change would provide an estimated $21 billion over 5 years in savings, which would be reinvested in student aid through the expanded Pell Grant program;
- **Expanding and modernizing the Perkins Loan program** so that it would provide $6 billion a year in new loan volume–six times the current Perkins volume—for up to 2.6 million students at roughly 2,700 additional postsecondary education institutions. The Department would service Perkins Loans along with other federal loans, with estimated overall savings totaling $3.2 billion over 5 years; and,
- **Creating the Access and Completion Incentive Fund** – Canceling the $511 million in unobligated balances for Science and Mathematics Access to Retain Talent (SMART) Grants. These grants are awarded to third-year and fourth-year students pursuing a major in mathematics, science, or a foreign language deemed critical to national security. Remaining balances are sufficient to meet estimated demand in these programs through the 2010-2011 academic year, when the authorizing statute specifies the program will sunset.

The request is mixed for other higher education programs within the Department:

- **Historically Black College and University Capital Financing Program** – $178 million (192% increase) the Historically Black College and University (HBCU) Capital Financing Program provides HBCUs with access to capital financing for the repair, renovation, and construction of classrooms, libraries, laboratories, dormitories, instructional equipment, and research instrumentation. The authorizing statute allows the Department to enter into insurance agreements with a private for-profit Designated Bonding Authority. The bonding authority issues the loans and maintains an escrow account in which 5% of each institution's principal is deposited;
- **Strengthening Historically Black Colleges and Universities** – $250 million (23% decrease) funds support grants to help historically Black undergraduate institutions to improve and expand their capacity to serve students, and to strengthen management and fiscal operations;
- **Strengthening Predominantly Black Institutions** – $8 million (51% decrease) funds support grants to predominantly Black institutions to plan, develop, undertake, and implement programs to enhance the institution's capacity to serve more low- and middle-income Black American students, to expand higher education opportunities for students, and to strengthen the financial ability of the PBI to serve the academic needs of students;
- **Strengthening Asian American and Native American Pacific Islander-serving Institutions** – $3 million (62% decrease) funds support grants to help Asian American and Native American Pacific Islander-serving institutions to improve and expand their capacity to serve students, and to strengthen management and fiscal operations;
- **Strengthening Native American-serving Nontribal Institutions** – $3 million (40% decrease) funds support grants to help Native American-serving nontribal institutions to improve and expand their capacity to serve Native American students;
- **Developing Hispanic-serving Institutions** – $98 million (5% increase) funds support Hispanic-serving institutions to enable them to improve and expand their capacity to serve students;
- **Strengthening Tribally Controlled Colleges and Universities** – $24 million (55% decrease) funds support grants to American Indian tribally controlled colleges and universities with scarce resources to enable them to improve and expand their capacity to serve Indian students;
- **Strengthening Alaska Native and Native Hawaiian-serving Institutions** – $12 million (62.5% decrease) funds support Alaska Native and Native Hawaiian serving institutions to enable them to improve and expand their capacity to serve Alaska Native and Native Hawaiian students; and,
- **Developing Hispanic-serving Institution STEM and Articulation Programs** – Not funded in FY10 ($100 million decrease). Previously, the funds were used to increase the number of Hispanic and other low income students attaining degrees in the fields of science, technology, engineering and mathematics, and to develop model transfer and articulation agreements between two-year Hispanic-serving institutions and four-year institutions in such fields.

Proposed new programs and substantial funding increases include:

- **Title I School Improvement Grants** – $1.5 billion, an increase of $1 billion ($200% increase), to help build state and local capacity to identify and implement effective interventions to turn around low-performing schools;
- **Teacher Incentive Fund** – $517 million, an increase of $420 million (629% increase), to stimulate comprehensive state and local efforts to strengthen the educator workforce, in particular by providing financial rewards for principals, teachers, and other personnel who raise student achievement, close achievement gaps, and work in hard-to-staff schools;
- **Promise Neighborhoods Initiative** – $10 million for a new program to provide one-year planning grants to non-profit, community-based organizations to develop plans for comprehensive neighborhood programs that provide the necessary support for children and youth from preschool through college so that they may succeed in school and beyond;

- **High School Graduation Initiative** – $50 million for a new initiative to fund innovative and effective strategies designed to increase the high school graduation rate. Grantees will be required to track and report on student indicators found to be effective in identifying students at risk of dropping out;
- **Charter School Grants** – $260 million (25% increase) representing the first installment of the Administration's commitment to double funding for charter schools over four years to promote successful models of school reform;
- **The What Works and Innovation Fund** – $100 million, to be combined with the $650 million provided for this activity by the Recovery Act, to support competitive grants to Local Education Agencies (LEAs) and partnerships between nonprofit organizations and LEAs that have made significant gains in improving student achievement, or have demonstrated significant improvement in other areas, to expand or evaluate their work and serve as models of best practices; and,
- **Teach for America** – $15 million to support the implementation and expansion of Teach for America's program for recruiting, selecting, training, and supporting new teachers to serve in high-need schools and districts.

Other key proposals in the 2010 budget include:

- **Mathematics and Science Partnerships Program** – $179 million (1% decrease) funds support State and local efforts to improve students' academic achievement in mathematics and science by promoting strong teaching skills for elementary and secondary school teachers. These efforts may include the integration of teaching methods based on scientifically based research and technology into the curriculum;
- **21st Century Community Learning Centers** – $1.131 billion (0.9% decrease) funds support formula grants to states, which award subgrants to local educational agencies (LEAs), community-based organizations, or other public or private entities to establish or expand centers that provide extended learning opportunities for students;
- **Federal Supplemental Educational Opportunity Grants**(SEOG) – $757 million (0.2% decrease) funds are awarded by formula to qualifying institutions, which use these funds to award grants to undergraduate students. While institutions have discretion in awarding these funds, they are required to give priority to Pell Grant recipients and other students with exceptional need. The federal share of these grants cannot exceed 75 percent of the total grant;
- **Institute of Education Sciences** (IES) – $689 million (11.6% increase) funds support programs of research, development and dissemination in areas where knowledge of learning and instruction are inadequate; and,
- Included in the budget for IES is $224 million (34% increase) for research, development, and dissemination. Funds support a diverse portfolio of directed research, evaluation studies, research and development centers, and dissemination activities that provide parents, teachers, and schools with scientifically based information on effective educational practice. Funds requested would be used to support a new research initiative on Reading for Understanding and to study, improve, and scale up promising educational innovations that focus on improving student learning and achievement.

Department of Energy (DOE)

The Administration has requested $26.4 billion for the FY10 DOE budget, (1.6% increase above the FY09 enacted budget). Research priorities for the department include launching eight new Energy Innovation Hubs to address basic energy issues, continuing support for the Energy Frontier Research Centers and funding cutting-edge applied research through the Advance Research Projects Agency – Energy (ARPA-E) program. The budget also increases funding for smart grid-related programs within the research divisions and introduces a new program within the Office of Energy Efficiency and Renewable Energy (EERE) to expand the clean energy workforce.

The DOE Office of Science request totals $4.94 billion (3.9% increase). The office supports basic research related to energy and DOE's contribution to several ongoing cross-departmental initiatives including the Climate Change Technology program, which would be funded at $635.7 million through the office, Networking and Information Technology Research and Development, funded at $447 million and the National Nanotechnology Initiative, funded at $326.5 million.

Funding requested for the Office of Sciences research programs includes:

- Basic Energy Sciences – $1.69 billion (7.2% increase) to support fundamental energy research, including $68 million to create two new Energy Innovation Hubs and $55 million to continue support for the Energy Frontier Research Centers;
- High Energy Physics – $819 million (2.9% increase) to support fundamental particle physics research;
- Biological and Environmental Research – $604 million (0.4% increase) to support research in genome-enabled biology, climate change and the molecular determinants of environmental sustainability;
- Nuclear Physics – $552 million (7.8% increase) to support experimental and theoretical research into the forms and complexities of nuclear matter;
- Fusion Energy Sciences – $421 million (4.6% increase) to support research needed to develop a fusion energy source; and,
- Advanced Scientific Computing – $409 million (10.9% increase) to support research on the computational and networking capabilities need to understand phenomena important to DOE.

The Office of Science also would receive $20.7 million (14.5% increase) for Workforce Development for Teachers and Scientists. The increase would help implement a new graduate fellowship program.

The proposed budget includes substantial increases for the Office of Electricity Delivery and Energy Reliability (OE). In FY10 the office would receive $208 million (51.8% increase). This increase follows a $4.5 billion investment in the office through the Recovery Act to support smart-grid initiatives. Much of the FY10 increase affects research and development activities within the office, which also would be reorganized to reflect shifting research priorities. OE research initiatives include:

- Smart Grid R&D – $67 million for a new program that would incorporate the current Renewable and Distributed Systems Integration program and part of the Energy Storage and Power Electronics program and would issue a solicitation to create a new Energy Innovation Hub to research smart grid materials;
- Cyber Security for Energy Delivery Systems – $50 million for a new program that would incorporate part of the Visualization and Controls program;
- Clean Energy Transmission and Reliability – $42 million for a new program that would incorporate part of the Visualization and Controls program and the High Temperature Superconductivity program; and,
- Energy Storage – $15 million for a new program that would incorporate part of the Energy Storage and Power Electronics program.

The FY10 budget would provide EERE with $2.3 billion (6.4% increase). A new program, RE-ENERGYSE (Regaining Our Energy Science and Engineering Edge), would receive $155 million to inspire students and workers to pursue careers in science, engineering and entrepreneurship related to clean energy. Other EERE research programs include:

- Vehicle Technologies – $333.3 million (22% increase) to support research on more efficient and less petroleum-dependent passenger and commercial vehicles;
- Solar Energy – $320 million (82.9% increase), to help reduce demand for fossil fuels through solar power, including $35 million to create a new Solar Electricity Innovation Hub;

- Building Technologies – $237 million (69.8% increase) to develop and promote the deployment of technologies to make new and existing buildings less energy intensive, including $35 million to launch an Energy Efficient Building Systems Design Hub;
- Biomass and Biorefinery Systems – $235 million (8.3% increase) to help develop biomass resources into biofuels, bioproducts and biopower;
- Industrial Technologies – $100 million (11.1% increase) to advance the development of transformational manufacturing technologies;
- Wind Energy – $75 million (36.4% increase) to accelerate the market penetration of wind power by developing more efficient and affordable technologies;
- Fuel Cell Technologies – $68.2 million (59.6% decrease) to refocus the efforts of the former Hydrogen Technology program on technology-neutral fuel systems;
- Geothermal Technology – $50 million (13.6% increase) to establish enhanced geothermal systems as a major contributor to baseload electricity generation; and,
- Federal Energy Management – $32.3 million (46.7% increase) to help implement cost-effective energy management across the federal government.

EERE's Weatherization Assistance, Training and Technical Assistance program would receive $301 million (41.7% decrease). This reduction, however, follows an $8.1 billion appropriation in the Recovery Act, including $951.4 million for R&D.

DOE's ARPA-E program would receive $10 million, after being seeded with $15 million through the Office of Science in the FY09 budget and receiving $400 million from the Recovery Act. ARPA-E is designed to help overcome long-term and high-risk technological barriers in the development of energy technologies.

Funding for R&D within the Office of Fossil Energy would decrease in the proposed FY10 budget. Fossil Energy Research and Development would receive $617 million (29.5% decrease). The FY10 budget request eliminates Petroleum-Oil Technologies research ($5 million decrease).

Most of the decrease in Fossil Energy R&D is linked to a decrease in funds for coal research. The FY10 budget provides $403.8 million for the coal research program (41.7% decrease). Actual R&D funding would remain at the same level, but the demonstration funds would be eliminated. The Clean Coal Power Initiative would receive no FY10 funding, but was allocated $800 million in the Recovery Act. Another measure removed from the FY10 budget to reinforce the new Administration's focus on clean and renewable fuels instead of fossil energy is the Oil and Gas R&D program. This program includes the Petroleum-Oil research program.

Other Fossil Energy research areas include:

- Carbon Sequestration – $179.9 million (20% increase) to support site selection and characterization, regulatory permits, community outreach, and injection for large-scale, geologic carbon storage tests under the Regional Partnership Program;
- Integrated Gasification Combined Cycle – $55 million (15.6% decrease) due to a delay in implementation of Phase IV of the Ion Transport Membrane (ITM) program;
- Fuel Cells – $54 million (6.9% decrease) to develop low-cost, highly efficient, fuel cell systems to generate electricity from domestic coal with near-zero atmospheric emissions of carbon and air pollutants in central station applications;
- Innovations for Existing Plants – $41 million (18% decrease) to develop carbon capture technologies for post-combustion applications;
- Natural Gas Technologies – $25 million (25% increase) to develop policy information and environmentally-friendly technologies for gas hydrates; and,
- Fuels – $15 million (40% decrease) to focus efforts on early engineering and design studies on hydrogen production modules for near-zero emission coal plants.

DOE's Office of Nuclear Energy would receive $403 million in FY10 for R&D (21.7% decrease). The office promotes nuclear power as a resource capable of meeting the nation's energy, environmental and national security needs by resolving technical and regulatory barriers through research, development and demonstration. Funding for the Nuclear Power 2010 program would end in FY10, with a final allocation of $20 million (88.7% decrease). Alternately, the FY10 budget includes $191 million for the Generation IV Nuclear Energy Systems program (6% increase), though funding for a partner program, the Nuclear Hydrogen Initiative, has been eliminated ($8 million decrease).

Department of Health and Human Services (HHS)

The $828.3 billion FY10 HHS budget request reflects a $51.6 billion increase (6.6% increase above the FY09 enacted budget). Mandatory spending for Medicare and Medicaid comprise the majority of the HHS budget – discretionary spending only accounts for about 9.5% of the entire HHS request.

National Institutes of Health

The FY10 request for National Institutes of Health (NIH) is $31.0 billion (1.4% increase). NIH also received $10.4 billion from the Recovery Act.

All Institutes within NIH would see an increase as a result of the Administration's request. The National Cancer Institute (NCI) would receive the greatest budget growth of the Institutes, rising $181 million (3.6% increase) to $5.15 billion. This increase coincides with FY10 being the first year of an eight-year Administration promise to double cancer research by FY2017. Across the NIH, more than $6 billion is requested in FY10 for cancer-related activities.

The National Institute of Environmental Health Sciences (NIEHS) would receive $663 million (3.2% increase), the second largest percentage increase. Within the $21 million increase is a new $9 million program to support nanotechnology safety research.

The remaining 18 Institutes would see increases ranging between 1% and 2%.

No additional funding was requested for the Director's Bridge Award Program because of the funds received for the program through the Recovery Act. In the FY10 budget request, the Office of the Director (OD) of the NIH will decrease by $64 million to $1.18 billion (5.1% decrease).

The NIH Common Fund, designed to perform strategic collaborative research across the Institutes, would receive $549 million (1.5% increase).

If the FY10 request were provided in full, the NIH estimates 38,042 research grants would be funded next fiscal year, including 9,849 new/competing awards.

Other discretionary programs within the HHS include:

The budget request includes $10.1 billion (0.2% decrease) for the Centers for Disease Control and Prevention (CDC). The Food and Drug Administration (FDA) would receive $3.18 billion (19.1% increase).

There is no federal budget request for the Agency for Healthcare Research and Quality (AHRQ) in the proposed FY10 budget because AHRQ received $700 million in funds from the Recovery Act. The FY10 budget request states AHRQ would spend $314 million for research on the cost and quality of health care, including $50 million for comparative effectiveness research through its Effective Health Care Program and $45 million for health IT investments.

Department of Homeland Security (DHS)

The Administration's FY10 DHS request totals $42.7 billion (6.6% increase above the FY09 enacted budget). The department's request seeks to strengthen border security and immigration services and includes a targeted investment to increase security of public and private sector cyber infrastructure.

DHS is bolstering its science and technology portfolio in FY10 to develop new techniques and technologies to expand the department's law enforcement capabilities. The Administration's budget includes $968.4 million (4% increase) for the Science and Technology Directorate, which oversees the department's research, development, testing and evaluation activities.

Several **Science and Technology** programs would receive increased appropriations in FY10, including:

- Border and Maritime – $40 million (21% increase) to improve border security technology. A $5 million increase is proposed to fund a new basic research effort to develop foundations for technologies for advanced detection, identification, apprehension, and enforcement capabilities along borders;
- Chemical and Biological – $207 million (3.5% increase) to increase preparedness and surveillance;
- Explosives – $121 million (26% increase) to prevent and mitigate the effects of non-nuclear explosions. Increased funding is proposed to develop high-throughput screening technology for cargo screening;
- Human Factors – $15 million (20% increase) to apply the social and behavioral sciences to improve emergency response. A $2.6 million increase is requested to fund programs that would provide biometrics and hostile-intent detection technologies; and,
- **Transition** – $45 million (55% increase) An additional $12 million is proposed to develop and design technologies to address capability gaps identified by federal, state, local and Tribal First Responders in the First Responder Capstone Integrated Product Teams.

Science and Technology programs slated for decreased funding in the FY10 request include:

- Infrastructure and Geophysical – $45 million (41% decrease) to protect critical infrastructure and assets; and,
- University Programs – $46 million (8% decrease) to conduct research and analyses and provide education and training programs to support DHS priorities and to support existing DHS Centers of Excellence.

The **Science and Technology Office of Innovation** would receive $44 million in FY10 (11% increase) to fund homeland security research and development that could lead to significant technology breakthroughs that would greatly enhance DHS operations.

The request includes $366 million (32% decrease) for the **Office of Transformational Research and Development** (R&D) aimed at enhancing the ability to identify nuclear and radiological materials..

Department of Housing and Urban Development (HUD)

The Administration's discretionary budget proposal for HUD is $46.3 billion in FY10, an increase of $4.5 billion (10.8% increase above the FY09 enacted budget). HUD received $13.6 billion from the Recovery Act.

The Community Development Block Grants (CDBG) program for community and economic development activities would receive $4.45 billion, an increase of $550 million (14.1% increase). HUD is planning to update its CDBG funding formula, which has not been substantially altered in 30 years.

Three new initiatives have been requested as a set-aside from the larger CDBG program for FY10: $150 million for the **Sustainable Communities Initiative** to integrate transportation, housing, and land use into broader regional development plans; $25 million for the **Rural Innovation Fund** (replacing the Rural Economic Development and Housing Initiative) to improve housing conditions in rural communities; and a $25 million **University Community Fund** to promote revitalization in neighborhoods surrounding universities, with a concentration on energy conservation, homeownership, and economic development activities.

No new appropriation is requested for the Empowerment Zone (EZ) and Renewal Community (RC) programs in FY10. Additionally, the Administration proposes the elimination of the Brownfields Economic Development Initiative (BEDI) ($10 million decrease), as the budget request states other larger programs can address this need and local governments have access to other sources of funding that can accomplish brownfield remediation, such as the fully funded CDBG.

To complement Recovery Act funds for improving the energy efficiency of buildings, a new $100 million **Energy Innovation Fund** is requested for FY10 to assist energy retrofits and new construction in residential units. The budget also requests $2.4 million for the creation of the HUD **Office of Sustainable Housing and Communities**, which would be formed in partnership with the Department of Energy, Department of Transportation, and the Environmental Protection Agency (EPA) to provide technical and policy support for integrated energy, green building and transportation programs.

Grouped by initiatives to "transform" HUD, the FY10 budget requests $50 million for the Office of Policy Development and Research (PD&R) (56% increase). However, $44 million of this request would go to conduct housing surveys. HUD also seeks the authority to set-aside 1% of its total budget for an agency-wide Transformation Initiative. The Transformation Initiative has four components: developing a continuous funding stream for research and evaluation, executing research demonstrations based on best-practice case studies, providing technical assistance to administer and integrate its programs, and updating its IT infrastructure across the Department.

Department of the Interior (DOI)

The Administration's FY10 DOI request is $12 billion (8% increase above the FY09 enacted budget). Much of the growth is in preparation for the National Parks Centennial in 2016. With a $3.1 billion request (7% increase), the National Park Service would receive the largest budget in its history.

R&D activities within DOI are distributed among several offices and are relatively modest in spending, compared to other research-oriented agencies. Highlights include:

DOI's share of the Clean Energy Future Initiatives would receive $50.1 million in new funding and the DOI Climate Impact Initiatives would receive an additional $133 million to spur renewable energy projects on federal lands, assess alternative energy resources and measure their environmental impact.

The US Geological Survey (USGS) would receive $1.1 billion (5% increase), including $4.2 million for Arctic ecosystem studies, $2 million to staff the Biology Cooperative Research Units and $727,000 to study the impact of energy development on the landscape.

USGS would receive $22 million from the Climate Impact Initiative to generate more focused and timely scientific information on climate change. Additionally USGS is developing a methodology to assess

carbon sequestration and would conduct a national assessment that would include both geological and biological forms of carbon sequestration.

The Minerals Management Service budget request is $347 million (12% increase). Of that increase, $24 million would develop a more effective renewable energy leasing program on the Outer Continental Shelf as part of the Clean Energy Future Initiative.

The Bureau of Land Management (BLM) requested budget is $1.2 billion (1% decrease). However, $16.1 million of the new funding would be for permitting and leasing renewable energy. Additional resources would be used for developing transmission facilities, including planning and environmental assessments. The BLM would use $11 million of the increase to establish four renewable Energy Coordination offices to increase permitting processing capacity and accelerate the delivery of the renewable energy.

Department of Justice (DOJ)

The President's FY 2010 DOJ budget proposal totals $26.7 billion (3.8% increase above the FY09 enacted level) to support its traditional missions, while strengthening national security efforts.

Approximately 90% of the total resources are dedicated to national security programs and DOJ's traditional missions in law enforcement and litigation, while the remaining 10% funds state and local assistance programs.

Research related funding in the DOJ budget includes:

- $151 million for the DNA Initiative. This program provides capacity building grants, training, and technical assistance to state and local governments, and supports innovative research on DNA analysis and use of forensic evidence;
- $48 million is proposed for the National Institute of Justice, which serves as the research and development agency for DOJ;
- $317 million (11.7% decrease) for the Office of Juvenile Justice and Delinquency Prevention reflects $82 million reduction in the Juvenile Justice Part E Discretionary Grants;
- $3 million (59.5% increase) is proposed for the National Institute of Justice for research and evaluation of **violence against women** and related issues addressed by grant programs of the Office on Violence Against Women; and,
- $1 million for analysis and research on **violence against Indian women**. This program supports comprehensive research on violence against Native American women.

Finally, $35 million is proposed for Paul Coverdell Forensic Science Improvement Grants. The Coverdell program awards grants to states and units of local government to improve the quality and timeliness of forensic science and medical examiner services, including those provided by state and local laboratories.

Department of Labor (DOL)

The Administration's FY10 request for DOL is $13.3 billion in discretionary budget authority, an increase of $376 million from FY09 (2.9% increase above the FY09 enacted budget). Additionally, DOL has a non-discretionary request of $74.0 billion for the upcoming fiscal year, the majority of which would be used for unemployment insurance and federal workers compensation.

These amounts are separate from the $4.8 billion in discretionary funds DOL received in the Recovery Act, which included $500 million for worker training grants that will be directed towards employment in the energy efficiency and renewable energy fields.

The FY10 budget request continues to support job training and placement in green industries. A proposed $50 million initiative, the Green Jobs Innovation Fund, would award 25 to 60 competitive grants for green industry sector training for 8,300 people and would complement similarly directed funding from the stimulus bill. In the descriptions of various other existing DOL programs, including separate initiatives for underserved populations, seniors, youth, veterans, as well as women, the development of skills in the renewable energy and energy efficiency fields is consistently mentioned.

For training and employment services under the Employment and Training Administration (ETA), the Administration has requested $3.8 billion in FY10 (5.7% increase). Included under the ETA are the following services:

- **Dislocated Worker Employment and Training Activities** would receive $1.41 billion (5.5% increase) to assist those affected by mass layoffs and other forms of job displacement;
- **Youth Activities** would receive $924 million (no change). The program is designed for 14 to 21 years olds facing barriers to employment. The training focus would be on home retrofitting and learning aspects of energy efficiency and renewable energy infrastructure;
- **Adult Employment and Training Activities** would receive $862 million (no change). The program offers though the nation's One-Stop Career Centers;
- The **Career Pathways Innovation Fund**, formerly the Community-Based Job Training Grants (CBJTG) program, requested $135 million (8% increase) for grants to community colleges for those pursuing careers in high-demand and emerging industries;
- YouthBuild, would receive $114 million (63.5% increase) to assist out-of-school young adults ages 16 to 24 with construction skills training, have requested $114 million in FY10 (63.5% increase), with an emphasis on industry-recognized green construction techniques; and,
- The new **Workforce Data Quality Initiative** would receive $15 million to provide competitive grants to support longitudinal data systems that integrate education and workforce data.

The Office of Job Corps would receive $1.7 billion (1% increase) to assist 16 to 24 year olds with vocational training at 122 centers in 48 states, has requested $1.70 billion in FY10 (1.0%increase).

The U.S. Bureau of Labor Statistics (BLS) would receive $612 million (2.4% increase). The BLS concentrates its statistical activities in labor force, price and cost of living, compensation and working conditions, and productivity and technology trends.

Department of Transportation (DOT)

The total FY10 DOT request is $73.3 billion, reflecting a $1.8 billion increase (2.5% increase above the FY09 enacted budget). While all major DOT components received either flat or increased funding, the $1 billion and nearly $500 million increases requested, respectively, for the Federal Railroad Administration (FRA) and the Federal Aviation Administration (FAA), represent 83% of the requested growth.

DOT's request is distributed across the department's five key strategic objectives, which are to:

- Reduce congestion for all Americans (58.2%)
- Improve safety (25.3%)
- Protect the environment (10.1%)
- Increase global transportation connectivity (2%)
- Support national security, preparedness and response (1.3%)

The balance would go toward organizational excellence, according to the DOT Budget in Brief.

Among budget highlights, $865 million is requested for the Next Generation Air Transportation System initiative**,** a long-term effort to improve the safety, efficiency, and capacity of the air traffic control system. The 2010 budget provides funds to replace the existing ground-based radar surveillance system with a more accurate satellite-based surveillance system, develop more efficient routes through the airspace, and improve aviation weather information.

FRA would receive $2.7 billion (50.4% increase). The $1 billion increase is for **High-Speed Rail** and is part of a five-year, $5 billion high-speed rail state grant program. Building on the $8 billion down payment in the American Recovery and Reinvestment Act of 2009, the Administration's proposal is intended to mark a new federal commitment to give the traveling public a practical and environmentally sustainable alternative to flying or driving. Directed by the states, this investment is designed to lead to the creation of several high-speed rail corridors across the country linking regional population centers.

The FRA budget request for R&D is $34 million (no change) to support research efforts in the areas of rail systems safety, track and structures, train occupant protection, human factors in train operations, rolling stock and components, track and train interaction, train control, grade crossings, hazardous materials, and transportation and research development facilities and test equipment.

FAA would receive $16.0 billion (3.1% increase). The request for FAA research, engineering and development is $180 million (5% increase). Funding will support efforts to improve aviation safety, aviation efficiency, and to reduce the impacts of aviation on the environment.

The FY10 budget request of $13.2 million for the Research and Innovative Technology Administration (RITA) (2.3% increase) would be used to coordinate, facilitate, and review the Department's research, development and technology programs and activities. For other DOT agencies, RITA also would undertake more than $400 million in transportation-related research, education, and technology development on a reimbursable or allocation basis for other agencies.

Under the Federal Highway Administration, $429.8 million is requested for the implementation or execution of programs for transportation research. The budget allocation is part of the Highway Trust Fund.

For the Office of the Secretary, $10.2 million (59% decrease) is requested for **Transportation Planning, Research and Development** to fund analyses of costs/benefits of transportation infrastructure investments; congestion pricing; safe mobility; and passenger demand for air travel.

The National Highway Traffic Safety Administration budget request includes $130 million (2% increase) for Vehicle Safety Research. Funds would be used to reduce highway fatalities, prevent injuries, and significantly reduce their associated economic toll for: research into promulgation and enforcement of federal motor vehicle safety standards; research involving biomechanics, crash avoidance and mitigation technologies; and vehicle safety such as fuel efficiency and alternative fuels.

The FY10 budget request for the Federal Transit Administration includes $67.6 million (1% increase) for Research and University Research Centers, to be distributed across four programs:

- $45.7 million for the National Research and Technology Program
- $10 million for the Transit Cooperative Research Program
- $4.3 million for the National Transit Institute training programs
- $7 million for the University Transportation Research Program

Finally, $4 million in FY10 funding is requested for **Minority Business programs.** The funding includes $600,000 in administrative expenses and $300,000 in subsidies that would support an $18 million short-term loan guarantee program to assist small, disadvantaged and women-owned transportation-related businesses. An additional $3.1 million would fund the Minority Business Outreach program, which includes a clearinghouse for national dissemination of information on transportation-related projects.

Department of Treasury

The Administration's FY10 Department of Treasury budget request totals $15.8 billion (11.1% increase above the FY09 enacted budget); $13.4 billion is for discretionary funding. Only one program is focused toward the interests of many in the TBED community.

Appropriations would more than double for Community Development Financial Institutions (CDFI), a merit-based grant program that helps local financial institutions offer small business, consumer and home loans in communities and populations that lack access to affordable credit. The CDFI Fund would rise to $243.6 million (128% increase). This includes $80 million for the Capital Magnet Fund, a new program that would increase financing for the development, preservation, rehabilitation, and purchase of affordable housing or economic development projects (such as day care centers, workforce development centers, and health care clinics) in low-income communities.

Other CDFI activities include:

- CDFI program – $113.6 million (90.1% increase) to expand the availability of credit, investment capital and financial services in distressed urban and rural communities;
- Bank Enterprise Award program – $22 million (no change) to support FDIC-insured financial institutions around the country that are dedicated to financing and supporting community and economic development activities;
- Native Initiatives – $10 million (17.6% increase) to provide direct monetary awards and training aimed at increasing the number and capacity of CDFIs serving Native Communities; and,
- New Markets Tax Credit program – $4.2 million ($3,000 increase) to support a program for taxpayers to receive a credit against federal income taxes for making qualified equity investments in designated Community Development Entities.

Environmental Protection Agency (EPA)

The Administration's FY10 EPA budget request totals $10.5 billion in FY10 (38% increase above the FY09 enacted budget). Science and Technology activities, including R&D activities, would receive $842 million (6.6% increase). Science and Technology programs include:

- Air Toxics and Quality – $122 million (16% increase)
- Climate Protection Program – $19 million (12% increase)
- **Enforcement** – $16 million (7% increase)
- Homeland Security – $71 million (11% increase)
- Indoor Air – $1 million (3% increase)
- **IT, Data Management and Security** – $4 million (3% increase)
- Pesticide Licensing – $6 million (5% increase)
- Research – $525 million (5% increase)
    - Clean Air – $104 million (6% increase)
    - Clean Water – $110 million (4% increase)
    - **Congressional Priorities** – no funding included ($5 million reduction)

- Human Health and Ecosystems – $245 million (7% increase)
- Land Protection – $14 million (4% increase)
- Sustainability – $24 million (14% increase)
- **Toxic Research and Prevention** – $28 million (3% increase)

Climate Protection programs listed under Environmental Program and Management would receive $112 million (19% increase) and include the following selected activities:

- $51 million for EPA's Energy Star Program;
- $17 million for a Greenhouse Gas Reporting Registry, a first step in controlling greenhouse gasses; and,
- $4.5 million for Methane to Markets to assess the feasibility of methane recovery and use projects.

Local Government Climate Change Grants are slated for elimination ($10 million decrease). The program, which was first funded last year, duplicates more substantial greenhouse gas emission reduction programs across the federal government, according to budget documents.

The FY10 budget request includes $3.9 billion for Clean Water programs (155% increase). For the Clean Water State Revolving Fund, the Administration requests $3.4 billion (100% increase). For the Drinking Water State Revolving Fund, the Administration requests $1.5 billion (81% increase). These programs provide grants to states to capitalize their own revolving funds, which finance wastewater and drinking water treatment systems.

The FY10 budget request includes a new $475 million inter-agency initiative to address regional issues that affect the Great Lakes, such as invasive species, non-point source pollution, and contained sediment.

The Administration is requesting a new appropriation of $5 million to provide analytical support for proposed greenhouse gas cap and trade programs, including offset verification. Other key air investments include:

- $21 million for Renewable Fuels Standards, a proposal to increase EPA's Ann Arbor Laboratory capability to assess impacts of higher percentage biofuels blends and evaluate new vehicle and engine designs that handle those blends; and,
- $3 million for Air Toxics to support the purchase of monitoring equipment and improvement of necessary monitoring equipment.

The Administration is seeking several increases for environmental research projects. These include a $3 million increase for **Greening of Water Infrastructure Research**, a $5 million increase for **Biofuels Research**, a $5 million increase for **Integrated Risk Information System**, and a $4.5 million increase for Computational Toxicology Research.

Other EPA programs of interest include:

- **State and Local Air Quality Management Grants** – $226.5 million (1.1% increase);
- **Diesel Emissions Reduction Grant Program** – $60 million (no change);
- Fellowships – $10.9 million (13% increase) to support fellowships, including the Science to Achieve Results (STAR) program; and,
- Pollution Prevention Grants – $5 million (no change) to help state programs assist businesses and industries to identify better environmental strategies and solutions for complying with federal and state regulations.

NASA

The Administration's FY10 NASA budget request totals $18.7 billion (5.1% increase above the FY09 enacted budget). Funding is distributed amongst seven directorates and offices including:

- **Space Operations** – $6.17 billion (7% increase) to support the Space Shuttle, International Space Station (ISS) and Space and Flight Support systems. After FY10 the budgeted amount for the Shuttle program will be directed to Exploration, contingent upon recommendations of the human spaceflight review;
- **Science** – $4.47 billion (0.5% decrease) to support earth science, planetary science, astrophysics and heliophysics;
- **Exploration** – $3.96 billion (13% increase) to pursue the goal of delivering humans and cargo to the ISS, the Moon and other destinations in the solar system. Additional funding is contingent upon the findings of the independent review of human spaceflight;
- **Cross-Agency Support**– $3.4 billion (3% increase) for Center and Agency Management and Operations as well as directed funds like the Innovative Partnerships Program, SBIR and STTR;
- **Aeronautics** - $507 million (1% increase) to foster expansion of aeronautical expertise including military and domestic air travel systems and design;
- **Education** – $126 million (25.5% decrease) dedicated to improving science, technology, engineering and mathematics (STEM) at all education levels; and,
- **Inspector General** – $36 million (10% increase) to prevent and detect crime, fraud, waste, abuse and mismanagement within the agency.

The Administration has ordered an independent review of human spaceflight, to be chaired by Norman Augustine (a former CEO of Lockheed). The panel is set to review all aspects of spaceflight including the Constellation program, long-range goals, international or privatized spaceflight partnerships for the ISS and extending the life of the ISS beyond 2016. Following the review, the Administration will provide an updated funding request commensurate with the panel's findings.

Science Directorate

The FY10 request would provide $397.5 million for the Earth Science Research Program, which provides competitively awarded grants for basic research and modeling efforts to improve understanding of the earth's climate, atmosphere and system at large. With increased funding from budget allocations and the ARRA, the Soil Moisture Active and Passive mission and the ICESat-II, which tracks ice changes at the poles, have moved ahead of schedule.

Aeronautics

The **Integrated Systems Research Program** would begin in FY10 with funding of $64.2 million. This program would initially focus on development of new vehicle concepts and technologies aimed at reducing fuel-burn, noise and emissions.

Cross-Agency Support
The Innovative Partnerships Program (IPP), which would receive $184.8 million (15% increase), 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 the request, IPP expects to achieve 105 instances of technology infusion into NASA in FY10. Selected program funding requests include:

- NASA SBIR – $124.1 million
- NASA STTR – $14.1 million
- Partnership Development (formerly Technology Transfer Partnerships) – $23.8 million
- Future Centennial Challenges – $4 million

Partnership Development includes Intellectual Property Management, Technology Transfer and new innovative partnerships
NASA is proposing to establish an **Innovative Technology Project** program based on internal findings as well as the National Research Council Review that "NASA does not currently have a robust way to solicit or identify low-maturity ideas which are potentially high reward but risky because of their immaturity." This project would identify and competitively select such programs and develop the high-potential opportunities. It would be managed jointly by the IPP and the Office of the Chief Engineer. The program would issue regular calls for small amounts, $50,000 for three to six months of study with the option of follow-up or extended funding of $250,000 to $2 million for six months to two years. The core funding proposed in FY10 is $2.8 million but could be increased by up to $20 million from the Mission Directorate's program technology projects. Additionally NASA anticipates requesting increased funding for the new initiative until it reaches $6.8 million in FY11 (143% increase).
http://www.nasa.gov/news/budget/index.html

Education
In FY10 NASA is reorganizing the Education Mission Directorate into three programs: Higher Education STEM Education, K-12 STEM Education and Informal STEM Education. All programs would continue to work in conjunction with other federal agencies to inspire students to consider STEM careers and promote scientific acumen in the public at large.

National Science Foundation (NSF)
In the FY10 budget request, the Administration seeks $7.05 billion for NSF (8.5% increase above the FY09 enacted budget). Just over 81% of the request would be directed to research and related activities. These amounts are separate from the $3 billion NSF received in the Recovery Act.

In FY10, each research division in the NSF would be asked to set aside a minimum of $2 million ($92 million total) for high-risk, high-reward transformational research.

The NSF request for Major Research Equipment and Facilities Construction is $117.3 million, a decrease of $34.7 million (down 22.8%).

The FY10 budget contains requests for some initiatives crossing several NSF directorates including:

- Networking and Information Technology R&D Program – $1.1 billion (10.6% increase) to coordinate networking and IT investments across agencies, especially in the areas of high-end computing research, human computer interaction, and large-scale networking projects;
- National Nanotechnology Initiative – $423 million (6.5% increase) to lead research in nanotechnology. The Environmental, Health, and Safety area requested a $2 million increase to support decision analysis research;
- Climate Change Science Program – $299.9 million (36.6% increase) towards basic research, comprehensive observations, integrative modeling, and development of products for decision makers on the topic of climate change. This multi-agency activity is coordinated through the National Science and Technology Council;
- Faculty Career Development Program – $203.8 million (11.6% increase) to support junior faculty integrating education and research;
- **Climate Research Program** – a new focus of the NSF with $197.3 million in proposed funding. This push builds upon the Climate Change Science Program and other NSF efforts for additional multidisciplinary research on climate research and modeling;
- Cyber-Enabled Discovery and Innovation Initiative – $102.6 million (44.7% increase) to support the intersection of computational concepts, models, algorithms, and tools with multidisciplinary science and engineering research; and,
- **Science and Engineering Beyond Moore's Law** – $46.7 million (198% increase) to push transformation research in computing power, and create partnerships with the private sector and the national laboratories to advance the field.

NSF Centers Programs

Funding for NSF's Centers Programs, supported by many tech-based economic development initiatives as well as the NSF, fosters interdisciplinary research. The FY10 budget request for these centers is $305.0 million (11.2% increase).

- Material Research Science & Engineering Centers (MRSEC) – $66.0 million (3.6% decrease) to support multi-year multidisciplinary material research at academic institutions, with 27 to be supported in FY10;
- Engineering Research Centers (ERC) – $63.2 million (18.0% increase) for partnerships involving academia, industry, and the NSF for the development of next-generation engineered systems. Three new centers are to be added in FY10, bringing the total to 16;
- Science and Technology Centers (STC) – $57.9 million (6.2% decrease) to support partnerships involving academia, industry, government laboratories, and other public and private organizations to explore research problems that require interdisciplinary expertise. Up to five new STCs are intended to be funded in FY10, bringing the total to 17;
- Nanoscale Science and Engineering Centers – $45.2 million (no change) for multidisciplinary research to advance the development of nanoscale technologies in electronics, medicine, materials, environmental science and other fields. Same as last year, 19 of these centers are to be funded;
- Science of Learning Centers (SLC) – $25.8 million (106.4% increase) for multidisciplinary, multi-institutional centers to advance the understanding of learning and its societal implications;
- Centers for Chemical Innovation (CCI) – $24.0 million (54.8% increase) to support research on strategic, transformative "big questions" in basic chemical research; and,
- **Centers for Analysis and Synthesis** – $23.0 million (32.1% increase) to develop new tools and standards for management of biological information and meta-information, in addition to supporting data analysis capabilities across the biological sciences.

Engineering Directorate
The FY10 budget request for the Engineering Directorate is $764.5 million (10.3% increase), which represents about 45% of the total federal support for university-based, fundamental engineering research. Highlights include:

- SBIR/STTR programs – $135.5 million (11.2% increase) to support innovation research conducted by small technology firms;
- Office of Emerging Frontiers in Research and Innovation (EFRI) – $29.0 million (9.6% increase) to recommend, prioritize, and fund interdisciplinary initiatives at the emerging frontier of engineering research and education;
- Partnerships for Innovation (PFI) – $9.2 million (no change) to support partnerships among academe, the private sector, and state/local/ federal government that will explore new approaches to support and sustain innovation;
- Industry/University Cooperative Research Centers (I/UCRC) - $7.9 million (10.6% increase) to further develop long-term partnerships between industry, academe, and government. Funded primarily by industry, eight additional centers will be supported in FY10; and,
- Grant Opportunities for Academic Liaison with Industry (GOALI) – $6.4 million (12.4% increase) to enable partnerships between industry and academe where there is a common intellectual and educational agenda.

Integrated Activates
The FY10 proposed budget for the Experimental Program to Stimulate Competitive Research (EPSCoR) is $147.1 million (10.6% increase). EPSCoR promotes the development of eligible states' science and technology resources through partnerships involving a state's universities, industry, government and the federal R&D enterprise.

Education and Human Resources Directorate
The budget request for the EHR Directorate is $857.8 million (1.5% increase). Highlights include:

- Graduate Research Fellowships – $122.0 million (6.0% increase) to support graduate students in the science, mathematics, and engineering disciplines. The funding would support 1,654 new fellowships in FY10, with the goal of tripling the number of new fellowships awarded annually by FY13;
- Discovery Research K-12 – $108.5 million (no change) to enable significant advances in pre-K through 12 student and teacher learning of the STEM disciplines through the development, implementation, and study of resources, models, and technologies;
- Integrative Graduate Education and Research Training (IGERT) – $68.9 million (9% increase) to prepare doctoral students to integrate education and research;
- Advanced Technological Education (ATE) – $64.0 million (24% increase) to support partnerships between two-year colleges and employers to improve the education of science and engineering technicians, with the goal of reaching $100 million for this program in FY13;
- The Math and Science Partnership (MSP) – $58.2 million (4.6% decrease) to improve student outcomes in math and science for students in grades K-12 by forming partnerships between teachers and their colleagues in higher education;
- Robert Noyce Teacher Scholarship Program – $55.0 million (no change) to encourage talented STEM undergraduate students and postgraduate professionals to become K-12 mathematics and science teachers;
- STEM Talent Expansion Program (STEP) – 32.5 million (10.4% increase) to increase the number of U.S. citizens and permanent residents receiving associate or baccalaureate degrees in established or emerging STEM fields. The increase will allow two additional centers to be established in FY10;

- Center of Research Excellence in Science and Technology (CREST) – $30.5 million (no change) to fund centers with the goal of strengthening research and education in minority-serving institutions and increasing matriculation in STEM disciplines; and,
- **Climate Change Education Program** – $10 million (no change) to increase public understanding and engagement of climate change issues, prepare a climate science professional workforce and influence STEM education policy.

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 2010 budget request.

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 authorities, generates its budget primarily through power generation revenues. TVA still requires the government to approve its annual spending level.

Appalachian Regional Commission – $76 million (1% increase) 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, including energy efficiency.

Delta Regional Authority – $13 million (no change) to assist an eight-state, 252-county region around the Mississippi Delta in obtaining transportation and basic public infrastructure, skill training, and opportunities for economic development.

Denali Commission – $12 million (85% decrease) to provide infrastructure development, job training and other economic development services in rural Alaska. The commission received $79 million in FY09 and more than $93 million in FY08, mostly through earmarks to several agencies' budgets. Budget proposals for the Department of Health and Human Services, Health Resources and Services Administration cut $20 million specifically dedicated for construction of health facilities in Alaska; the Department of Transportation cut $6 million for transportation infrastructure; and, the Department of Labor cut $3 million for job training.

Tennessee Valley Authority – $13.68 billion (1% decrease) to the 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 borrowing 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.

Small Business Administration (SBA)

The Administration's SBA discretionary spending request is $779 million (27% above the FY09 enacted budget). It includes $11.69 million for improved oversight and administration of the $89 billion portfolio of disaster and business loans and loan guarantees. An additional $80 million is requested for the cost of making new 7(a) loan guarantees, SBA's largest loan program. The budget request also includes $10 million for SBA office relocation expenses.

Funding requested for two larger technical assistance programs is:

- Small Business Development Centers (SBDC) – $97 million (12% decrease) to provide 50% or less of the operating funds of the 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; and,
- Women's Business Centers (WBC) – $13 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.

New language included in the budget request says, "the Administration may provide financial assistance in the form of grants or cooperative agreements to educational institutions, nonprofit organizations, Federal, State, and local departments and agencies … for the purpose of providing management or technical assistance and other services to small businesses." Additional language states the "2010 Budget includes a new initiative that would allow SBA to provide technical assistance through traditional or new grant partners." No details or funding levels regarding the new initiative are discernable in the budget documents.

About SSTI

The State Science and Technology Institute (SSTI) is a national nonprofit organization that leads, supports and strengthens efforts to improve state and regional economies through science, technology and innovation. SSTI publishes a free, weekly e-newsletter highlighting news, statistics and features of importance to the state, regional and university technology-based economic development community.www.ssti.org

Membership

SSTI works on behalf of its members to build networks and advance economic competitiveness by improving technology-based economic development (TBED) policies and practices. SSTI is pleased to offer many benefit packages for state members, affiliates and supporters Membership includes subscription to SSTI's Funding Supplement, which profiles new federal and foundation sources for R&D and economic development funding each week: www.ssti.org/benefits.htm

Conference

The premiere professional development experience for the community of organizations promoting innovation and entrepreneurship keeps getting better! SSTI is holding its 13th Annual Conference: Seize the Moment - Tech-based economic development for the next economy in Overland Park, Kansas on October 21-23, 2009. Sponsorship and exhibitor opportunities are available. Join us! www.ssticonference.org/

Excellence in TBED Awards

Each year, SSTI recognizes initiatives that greatly impact state and regional economies through a national competition showcasing effective and innovative approaches to building tech-based economies. Applications are being accepted until June 16, 2009. Instructions, podcasts and profiles of past winners are available on the website www.ssti.org/Awards/index.html

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