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Analysis of the President's FY 2016 Budget Request for Federal Research, Health and Education Programs

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Table of Contents

Executive Summary

President Obama released his FY 2016 budget request on February 2nd, a submission to Congress which contains many bipartisan ideas but also requires significant changes in top level spending caps to be realized.

The budget request presents a mostly positive agenda for research and education organizations, both by proposing increases for core funding agencies and by launching new initiatives and emphasis areas, such as an increase in the maximum Pell grant award and programs in the food-energy-water nexus, precision medicine and infectious diseases, agricultural research, and disaster resilience. Moreover, several of the biggest topics for investment and opportunity reflect areas of bipartisan support, such as cybersecurity and exascale computing, advanced manufacturing, and neuroscience. The President has also re-proposed a major new investment in public infrastructure, building on successful programs used in the economic stimulus legislation five years ago to enable states and local communities to derive new capital for major infrastructure needs. Initiatives such as this, an emphasis on expanded trade authority for the Asia-Pacific region, and proposed changes to higher education financing come in a year when Congress is expected to consider related legislation, increasing the likelihood that some of these proposals will be accepted.

In parallel, the request continues to place pressure on the performance of institutions through previous proposals to make substantial cuts to provider payments such as indirect medical education in favor of new policies associated with health care delivery, the request would squeeze defense basic research accounts in favor of more applied or translational initiatives, and the request continues to emphasize college access and completion as part of changes proposed for higher education.

In contrast to the last two years in which Congress and the President had adhered to overall defense and domestic discretionary spending levels, the FY 2016 budget request is being presented to a Congress which has not yet decided how to account for budgetary caps agreed to in a bipartisan 2011 budget deal. The existing caps, along with sequester levels, would disallow substantial new funding as proposed by the President above FY 2015 levels. Reflecting a tone set by the President in his most recent State of the Union speech, the Obama Administration's budget request reflects funding thresholds that assume sequestration is largely offset by changes in tax policy and other savings requiring congressional approval. These changes requested by the White House are meant to alleviate overall budget pressures and foster an environment for new legislation by Congress to increase the existing spending limits. While the Congress may disagree with several of his proposed savings, the debate over the overall spending levels is expected to occur early in 2016 and will have significant implications on how many of the proposed increases Congress can provide for individual agencies, accounts, or programs in the annual appropriations process.

Regardless, the annual budget request reflects months of planning and negotiations by the White House and provides a telling window into forthcoming plans and priorities. The proposed increases for research, education, and infrastructure reflect areas of emphasis for the remaining two years of the Obama Administration and benchmarks for which congressional champions will advocate throughout the appropriations process.

Department of Commerce

National Oceanic and Atmospheric Administration

The President's FY 2016 budget request includes approximately $5.982 billion for the National Oceanic and Atmospheric Administration (NOAA), which is an increase of approximately $541.6 million or 10.0 percent over the FY 2015 enacted level.

- Full details of the FY 2016 NOAA budget request are still pending and are expected to be available in the next few weeks.
- The Obama Administration continues to prioritize support for NOAA's weather and climate satellites, with the National Environmental Satellite Service proposed to receive a 7.0 percent increase. Other offices would also see significant boosts.

New and Signature Initiatives

The budget request includes funds for NOAA to help communities adapt to and prepare for environmental changes and make informed decisions. The request includes $50 million for a new coastal resilience program at NOAA titled the **Regional Coastal Resilience Grants.** This program would award competitive grants to states, localities, tribes, and other partners to "help reduce the risks that a changing climate poses to coastal ecosystems and communities."[1] Additionally, the request would support an expanded ocean acidification research program at $30 million to improve understanding of the impact of increased carbon dioxide on ocean chemistry and resources.

The budget request would also provide NOAA with funds to improve the agency's "environmental intelligence" capabilities. The agency would receive $2 billion to fund the next generation of weather and environmental satellites, including funds for the **Polar Follow-On** satellite; these increased funds would allow the satellite to be launched on time and help prevent future weather data gaps.

Source: The Department of Commerce's FY 2016 Budget in Brief is can be viewed at: http://www.osec.doc.gov/bmi/budget/FY16BIB/EntireDocument-WebVersionWithCharts.pdf.

[1] http://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/fact_sheets/building-a-clean-energy-economy-improving-energy-security-and-taking-action-on-climate-change.pdf, "Middle Class Economics: Building a Clean Energy Economy, Improving Energy Security, and Taking Action on Climate Change," Office of Management and Budget, 2015.

National Institute of Standards and Technology

The President's FY 2016 budget request includes $1.12 billion for the National Institute of Standards and Technology (NIST), which is an increase of 29.6 percent over the FY 2015 enacted level.

- The NIST budget request reflects the Administration's latest efforts to bolster high-level priorities, including manufacturing, materials, technology transfer, resiliency, and cybersecurity. The Administration has increasingly relied on NIST to coordinate and lead multi-agency priorities like the National Network for Manufacturing Innovation (NNMI) over the last several years.
- NIST's extramural advanced manufacturing activities emerge as winners in the request, with NNMI receiving $143.6 million for two new Department of Commerce-led centers.
- Congress will continue supporting NIST priorities like manufacturing and disaster resilience. However, Congress will likely not fund the new NNMI centers, which are responsible for a large share of NIST's proposed increase in FY 2016.

New and Signature Initiatives

The President's request includes $143.6 million for **NNMI**. The funding would support two new Department of Commerce-led institutes for five years as well as coordination efforts for existing centers. The Administration proposes transitioning the program from discretionary to mandatory appropriations beginning in FY 2017. NNMI would receive a one-time mandatory appropriation of $1.93 billion to last until FY 2024 to complete the 45 center network under this proposal, which Congress is unlikely to fund.

Proposed Reductions and Terminations

Despite overall increases for the agency, the request would decrease funding aimed at external grants and contracts with universities and industry by $12.7 million through its core laboratory program, the **Scientific and Technical Research and Services (STRS)** account.

Ongoing Areas of Interest

The **Advanced Manufacturing Technology Consortia (AMTech)** would continue its development beyond pilot programs from FY 2015 with nearly level funding. The **Hollings Manufacturing Extension Partnership (MEP)**, which helps manufacturers streamline manufacturing techniques and increase efficiency through training resources and specific project assistance, would receive an 8.5 percent increase over FY 2015. This funding would support MEP Center recompetitions currently underway and expand MEP's technology and supply chain efforts for smaller manufacturers.

NIST would receive an additional $4 million to support **technology transfer** activities. Specifically, NIST would implement cross-agency plans to support tech transfer across the federal government, including information sharing mechanisms and coordinating federal laboratory commercialization efforts.

Other areas of support include efforts related to the **Materials Genome Initiative, disaster resilience, advanced communications, photonics,** and **cyber physical systems for smart cities.**

Sources: The NIST's FY 2016 budget request can be viewed at: http://www.osec.doc.gov/bmi/budget/FY16BIB/EntireDocument-WebVersionWithCharts.pdf.

National Institutes of Standards and Technology

*(In thousands)**

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
NIST, total	863,900	1,119,661	255,761 (29.6%)
Industrial Technology Services	174,595	299,602	125,007 (71.6%)
National Network for Manufacturing Innovation (NNMI)	N/A	143,602	N/A
Hollings Manufacturing Extension Partnership (MEP)	130,000†	141,000	11,000 (8.5%)
Advanced Manufacturing Technology Consortia (AMTech)	14,987	15,000	13 (0.09%)

*Funding amounts reflect discretionary funding levels.
†This number reflects what Congress provided the MEP program in the final FY 2015 appropriations legislation. Due to prior unobligated funds, the program has around $150 million in funding from last year.

Economic Development Administration

The President's fiscal year (FY) 2016 budget request includes $273 million for the Economic Development Administration (EDA), $23 million or 9.2 percent above the FY 2015 enacted level.

- EDA remains a priority for the Obama Administration as the only federal agency focused exclusively on economic development. The proposed budget for EDA specifically highlights initiatives that promote regional economic development strategies designed to encourage innovation and entrepreneurship at the local level.
- EDA's FY 2016 budget request continues to prioritize support for distressed communities through increased investments in "soft infrastructure" capabilities, such as strategic planning and network building initiatives, while lowering the agency's overall emphasis on major public works projects.
- Congress is generally supportive of the local economic development assistance grants offered by EDA, especially in the absence of congressional earmarks that traditionally supported infrastructure projects and business development services; however, in years past, Congress has been slow to embrace new EDA initiatives at funding levels suggested by the Administration.

New and Signature Initiatives

The President's FY 2016 budget request for EDA would focus on leveraging support for communities as they develop their own regional economic development strategies. The Obama Administration's budget seeks to establish EDA as the federal government's main resource when it comes to public planning in order to provide support to local communities as they seek to formulate public-private partnerships and increase overall economic competitiveness.

In keeping with this goal to promote regional economic strategies, the FY 2016 budget request would make robust investments in Partnership Planning programs that support long-term community planning and Economic Assistance programs that would support regional and industry competitiveness by providing technical assistance and promoting investments in innovation infrastructure such as proof of concept centers, business incubators, and research and development commercialization programs.

Another signature investment reflected in the FY 2016 request is the $25 million that would be provided for the Regional Innovation Strategies Program, which is consistent with the President's FY 2015 request for the program and $15 million above the FY 2015 enacted level. The funding would be used to continue implementing inter-agency challenge competitions that are aimed at strengthening regional innovation clusters and the development of science and research parks. This program has also funded the i6 Challenge competition which supports the creation of proof of concept and commercialization centers. The most recent i6 competition was announced in September 2014 along with the other Regional Innovation Strategies initiatives.

Proposed Reductions and Terminations

As with the President's FY 2015 budget request, Public Works would once again receive the largest reduction of EDA's outreach programs.

Source: The Department of Commerce's FY 2016 budget materials can be viewed at: *http://www.osec.doc.gov/bmi/budget/FY16BIB/EntireDocument-WebVersionWithCharts.pdf*.

Economic Development Administration

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
EDA, total	**250,000**	**273,000**	**23,000 (9.2%)**
Economic Development Assistance Programs	**213,000**	**227,500**	**14,500 (6.8%)**
Public Works	99,000	85,000	14,000 (14.1%)
Economic Adjustment Assistance Program	45,000	53,000	8,000 (17.8%)
Partnership Planning	30,000	39,500	9,500 (31.7%)
Technical Assistance Program	11,000	12,000	1,000 (9.1%)
Research and Evaluation	1,500	3,000	1,500 (100.0%)
Regional Innovation Strategies	10,000	25,000	15,000 (150.0%)
Salaries and Expenses	**37,000**	**45,528**	**8,528 (23.1%)**

Department of Defense

The President's FY 2016 budget request would provide $69.78 billion for Research, Development, Test, and Evaluation (RDTE) programs at the Department of Defense, including $12.27 billion for Science and Technology (S&T) accounts. These amounts would represent increases of 9.6 percent and 0.7 percent from the FY 2015 enacted levels, respectively.

- President Obama's base budget request for the Department of Defense (DOD) is approximately $35 billion above the budget cap established by the *Budget Control Act*, setting up a debate with Congress over the appropriate level of total discretionary spending for FY 2016.
- Similar to FY 2015, the President would reduce DOD basic research (6.1) accounts to offset increases in applied research (6.2) and advanced technology development (6.3) in an effort to speed the transition of new technologies to current and future battlefields.
- The fate of defense science and technology (6.1-6.3) programs for FY 2016 overall is dependent on whether the President and Congress can reach a deal to offset some or all of sequestration. Many Members of Congress appreciate the value of DOD S&T, but early-stage research would likely be at risk to protect operations and readiness accounts should another round of sequestration take effect.

New and Signature Initiatives

Citing an improved economy and declining federal deficit, the President proposes a base FY 2016 defense budget of **$534.3 billion** that is almost $35 billion in excess of the statutorily mandated cap. The President proposes an additional **$50.9 billion in Overseas Contingency Operations (OCO)** funding for ongoing military operations in Afghanistan, Iraq, and other areas. With a proposed increase of 9.6 percent from the current level, Department of Defense (DOD) Research, Development, Test, and Evaluation (RDTE) programs stand to be a winner should President Obama and Congress reach a deal to reverse scheduled budget sequestration.

The President's budget request for FY 2016 highlights the new **Defense Innovation Initiative** being overseen by Deputy Secretary of Defense Robert Work. The Initiative is designed to spur advancements in science and innovation needed to create game-changing defense technologies for the long-term (i.e. 2025-2035 timeframe). Starting in FY 2016, funding decisions for DOD basic research programs will be made in accordance with DOD's **Long-range Research and Development Program Plan**, which seeks to identify breakthrough technologies in key areas for DOD and is a core element of the Defense Innovation Initiative.

In contrast to the proposed increases for DOD basic research programs for the majority of his Administration, the President's FY 2016 budget request would **prioritize applied research, advanced technology development, and prototyping** (6.2-6.4) accounts in an effort to push new technologies through the development pipeline. The President's request illustrates increasing pressure to show return on defense research dollars at a time when the military is stretched by numerous conflicts and hotspots across the globe. It remains to be seen whether Congress will accept the proposed reductions to basic research for FY 2016 after reversing a similar proposal for the last fiscal year. President Obama proposes a **reduction of over 8 percent for DOD basic research programs** in FY 2016. Incoming

Secretary of Defense Ashton Carter is both a champion of basic research and an experienced weapons buyer from his previous DOD positions as Under Secretary for Acquisition, Technology, and Logistics and as Deputy Secretary of Defense. Upon confirmation, he will have considerable sway with Congress and within the Administration as DOD tries to strike a balance between future capabilities and current needs.

Although few details are provided, the President's FY 2016 budget request for DOD would support a new **Aerospace Innovation Initiative (AII)** recently announced by Under Secretary Frank Kendall. The President's request states that AII is "intended to reduce lead time and technological risk for the next generation tactical air capability by advancing key enabling technologies for future systems operation in denied and contested environments."[2] AII is indicative of a broader DOD interest in using advanced modeling and simulation to improve planning for new weapons platforms and to reduce delays on the back end of the development and production process as well as to train the current and future defense technical workforces. Under Secretary Kendall indicated that the Defense Advanced Research Projects Agency (DARPA) will have a role in AII.

Proposed Reductions and Terminations

While President Obama proposes to increase total defense spending, his FY 2016 budget request outlines numerous programmatic and policy changes to better allocate defense dollars. Further, many of the President's proposed reductions and terminations for FY 2016 have appeared in previous budget requests but have been rejected by Congress. Among these proposals are: **curtailing certain big-ticket weapons systems**, including retiring the A-10; **changes to the military benefit system** to limit personnel costs that are among the fastest increasing parts of the DOD budget; and **another Base Realignment and Closure (BRAC)** commission to reduce DOD's facilities footprint. BRAC remains politically unpopular and will again be met with stiff resistance on Capitol Hill. While Congress has rejected the President's previous requests for another round of BRAC, the FY 2016 budget request states that "the need to reduce unneeded facilities is so critical" that the President will "pursue alternative options to reduce this wasteful spending" if necessary.

The proposed reduction to **Defense Health Research and Development** reflected in the chart below is due to the President's omission of congressionally-added medical research funding included in the final FY 2015 Defense Appropriations Bill. It is standard practice for the President not to request the funding, which supports research into a variety of diseases and conditions affecting servicemembers, veterans, and their families, before it is restored by the congressional appropriations committees.

As noted above, the most damaging reductions for the DOD research enterprise will come if the President and Congress are unable to reach a deal to offset **sequestration** for FY 2016. If Congress does not agree to raise discretionary spending caps required by the *Budget Control Act*, they may choose to further cut science and technology accounts to protect operations, personnel, and readiness funding within existing spending limits.

[2] http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2016/FY2016_Budget_Request_Overview_Book.pdf, Department of Defense FY 2016 Budget Request to Congress, Department of Defense, 2015 (pg. 5-3).

Ongoing Areas of Interest

President Obama's FY 2016 budget request for DOD research and development programs reflects many similar priorities to his previous budgets. This is particularly true for defense science and technology programs, where DOD identifies **quantum information science, cognitive neuroscience, nanoscience, synthetic biology, autonomy, cybersecurity, robotics, and countering weapons of mass destruction** as among its top basic research priorities for FY 2016. These are all areas where DOD has already invested during the Obama Administration and represent the core interests of senior DOD research officials. DOD justifies the total proposed increase of 0.7 percent for DOD science and technology programs as necessary to combat emerging threats and maintain the military's technological supremacy, including in areas such as operational energy, robotics, and space access.

The President's FY 2016 budget request for DOD would also maintain the Department's role in advanced manufacturing through the **National Network for Manufacturing Innovation (NNMI)**. For FY 2016, the President proposes $137 million for DOD to sustain the five existing/in progress NNMI institutes plus a new sixth institute to be announced later this year. NNMI has proven popular with Congress and will see continued support depending on the overall budget situation.

President Obama continues to propose funding increases for **DARPA**, which would receive an additional $102 million in base funding for a total of $2.97 billion to support high-risk, high-reward research. Most of this increase would support applied research (up 9.7 percent) while DARPA's basic research would remain essentially flat at $390 million (down 0.8 percent). While DARPA enjoys bipartisan support, some Members of Congress continue to question the agency's ability to effectively execute such robust funding levels. Additionally, **the Defense Threat Reduction Agency (DTRA) Basic Research Initiative** would be funded at $38.4 million, an increase of 1.7 percent from the FY 2015 enacted level.

Source: The overview of DOD's FY 2016 budget request can be viewed at: http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2016/FY2016_Budget_Request_Overview_Book.pdf. Detailed budget documents for each of the service branches and defense-wide programs are available on the DOD comptroller's website and can be viewed at: http://comptroller.defense.gov/BudgetMaterials.aspx.

Department of Defense

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY2015
RDTE, total*	**63,684,160**	**69,784,963**	**6,100,803 (9.6%)**
S&T, Total	**12,184,111**	**12,266,321**	**82,210 (0.7%)**
6.1, Total	2,277,688	2,088,929	-188,759 (8.3%)
6.2, Total	4,602,807	4,713,175	110,368 (2.4%)
6.3, Total	5,303,616	5,464,217	160,601 (3.0%)

Army RDTE	**6,673,146**	**6,924,959**	**251,813 (3.8%)**
Army Basic	460,268	425,079	-35,189 (7.7%)
Army Applied	981,421	879,685	-101,736 (10.4%)
Army ATD	1,113,149	895,747	-217,402 (19.5%)
Navy RDTE	**15,954,604**	**17,885,916**	**1,931,312 (12.1%)**
Navy Basic	650,153	586,928	-63,225 (9.7%)
Navy Applied	869,912	864,570	-5,342 (0.6%)
Navy ATD	635,203	662,864	27,661 (4.4%)
Air Force RDTE	**23,630,474**	**26,473,669**	**2,843,195 (12.0%)**
Air Force Basic	551,008	485,253	-65,755 (11.9%)
Air Force Applied	1,100,790	1,217,342	116,552 (10.6%)
Air Force ATD	629,912	675,785	45,873 (7.3%)
DW RDTE	**17,217,225**	**18,329,861**	**1,112,636 (6.5%)**
DW Basic	616,259	591,669	-24,590 (4.0%)
DW Applied	1,650,684	1,751,578	100,894 (6.1%)
DW ATD	2,925,352	3,229,821	304,469 (10.4%)
Defense Health R&D	**1,730,536**	**980,101**	**-750,435 (43.4%)**

*Does not include Overseas Contingency Operations funding.

Department of Education

The President's FY 2016 budget request includes $70.7 billion for the Department of Education (ED), which is an increase of $3.6 billion or 5.4 percent above the FY 2015 enacted level.

- The FY 2016 budget request continues the Obama Administration's push to increase college access, completion, and outcomes by focusing on quality and affordability; an increase in the maximum Pell-grant award; expanding early childhood education across the U.S.; expanding science, technology, engineering, and mathematics (STEM) education across K-12; providing support for teacher development and training; and increasing support for the Investing in Innovation (i3) program.
- The FY 2016 budget request supports President Obama's proposal to make postsecondary education universal by providing qualified students with two free years of community college. This includes funding for states to waive tuition and fees in exchange for providing matching state funds. While the President's college ratings proposal remains a priority for the 2015-2016 academic year, there is no mention of the plan in the FY 2016 budget request.
- The ED budget request proposes several policy provisions that would need to be included in authorization legislation, either the *Higher Education Act* (HEA) or *the Elementary and Secondary Act* (ESEA), both of which Congress plans to address in this session. However, the Republican-led Congress is unlikely to reach consensus with the Administration on many of its priorities. Due to these anticipated obstacles, the Administration is expected to continue to use executive action to influence higher education reform.

New and Signature Initiatives

Teacher Preparation

The budget request includes $138.8 million for a new **Teacher and Principal Pathways program**, which would be formed by the consolidation of Transition to Teaching, Teacher Quality Partnership and School Leadership programs. The goal of the new program would be to bring more graduates into teacher and school leadership positions. The available grants would reward institutions of higher education that work closely with school districts to prepare teachers and school leaders. In keeping with the Administration's focus on Science, Technology, Engineering, and Math (STEM) priorities, $100 million of the $138.8 million would be allocated to support STEM teacher preparation programs. The budget request also provides a 33 percent increase for the **Math and Science Partnerships program** to leverage local resources and assets and encourage comprehensive STEM education reform.

College Access and Completion

The new **America's College Promise** initiative is the centerpiece of the Administration's FY 2016 efforts to increase access to higher education. This initiative is intended to encourage more students to obtain two-year degrees and eventually enter into the skilled-workforce pipeline. According to the budget request, this plan, which would offer two years of free community college to students who meet defined criteria, would cost $1.4 billion dollars for FY 2016 and up to $60 billion over the next 10 years.

The budget request also includes a dramatic increase of 233.3 percent over the FY 2015 enacted level for the **First in the World** program. This program would fund new and innovative projects to improve college completion and access, particularly those focused on low-income students.

The Administration continues to expand programs to support student loan borrowers. The FY 2016 budget request includes an expansion of the **Pay As You Earn (PAYE)** program, which caps monthly payments at 10 percent of discretionary income. To simplify borrowing, PAYE would become the only income-driven repayment plan for student borrowers who obtain their first loans after July 1, 2016. The Administration plans to use savings from this proposal to expand college access. Similar to last year's request, President Obama proposes restructuring Campus-based Aid Programs, including the **Supplemental Educational Opportunity Grants (SEOG)** and **Federal Work Study** programs, to better aid institutions that enroll and graduate significant numbers of Pell-eligible students. The request also proposes a new **Unsubsidized Perkins Loan program**, which would provide an increased volume of loans (from $1 billion to $8.5 billion) and result in savings to extend the indexing of Pell Grants to inflation beyond 2017. ED, rather than the institutions, would service these new Perkins Loans. The current Federal Perkins Loan Program is in its last year, and no new awards will be made after September 30, 2015. The budget request proposes a decrease of 39.3 percent from the FY 2015 enacted level as the program winds-down.

Innovation and Improvement
The Administration is doubling-down on its innovation and improvement programs. For example, the request includes a 163.2 percent increase for the **Promise Neighborhoods** program above the FY 2015 enacted level. Congress has provided level funding for Promise Neighborhoods for the past three years, despite the Administration's ambitious requests. The signature **i3** program would receive an increase of 150 percent above the FY 2015 appropriation. The request includes funding for the **Advanced Research Projects Agency for Education (ARPA-ED)** for innovative technological breakthroughs relating to teaching and learning. While ARPA-ED has been proposed in previous budget requests, Congress has never provided funding.

Support for Hispanic Serving Institutions (HSIs)
The FY 2016 budget request includes level funding for the **Developing HSIs program**, to expand educational quality and capacity, as well as fiscal stability. The request also provides a request for new awards under the **HSI STEM and Articulation program**, which seeks to expand opportunities for underrepresented groups in STEM fields.

Proposed Reductions and Terminations

Race to the Top (RttT)
In contrast to the FY 2015 request of $300 million for a new RttT competition, the FY 2016 request does not include any new funding or competitions for the once-signature program.

National Institute on Disability and Rehabilitation Research (NIDRR)
The President signed the *Workforce Innovation and Opportunity Act* (*WIOA*) into law in 2014. This law transfers NIDRR from ED to the Department of Health and Human Services (HHS). The program no longer receives funding from ED.

Ongoing Areas of Interest

Access for Low-Income and First Generation Students
The FY 2016 budget request includes increases and changes to the federal student aid programs, which advance the Administration's policy priorities of increasing access, completion, and outcomes. The request would fund the **Pell Grant** program at a maximum individual award level of $5,915, an increase of 2.4 percent from the FY 2015 maximum award level. This level of funding per student would be indexed to inflation until 2017, after which congressional approval would be required to extend inflationary increases. The budget request would include a small increase (2.4 percent) for **TRIO** programs to provide increased funding opportunities for existing grantees to implement and evaluate access and success strategies with the eventual goal of scaling-up best practices program-wide.

Title VI International Education and Foreign Language Studies
The FY 2016 budget proposal would provide a 5.5 percent increase for the Title VI programs. The increase is intended to help the United States meet national security needs by increasing expertise in foreign languages and international studies.

Institute of Education Sciences (IES)
The FY 2016 budget request would provide an increase of 17.8 percent above the FY 2015 enacted level for **IES**. This increase would allow the Institute to award over $60 million in additional grants in FY 2016 for research focused on early learning through postsecondary education, including research on adult education and issues relating to students with disabilities. The budget request also includes increased funding to support the **Research, Development, and Dissemination program,** which would create three new grant competitions focused on improving education practice; pathways to research; and low-cost, quick-turnaround, randomized control trials.

Source: ED's FY 2016 Blue Book can be viewed at:
http://www2.ed.gov/about/overview/budget/budget16/summary/16summary.pdf.

Department of Education

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
ED, Total	**67,135,576**	**70,747,119**	**3,611,543 (5.4%)**
Elementary and Secondary Education	23,280,503	26,027,895	2,747,392 (11.8%)
Title I Funding	14,409,802	15,409,802	1,000,000 (6.9%)
School Improvement Grants	505,756	555,756	50,000 (9.9)
Innovation and Improvement			
Teacher and Principal Pathways	70,660	138,762	68,102 (96.4%)
Investing in Innovation	120,000	300,000	180,000 (150.0%)
ARPA-ED	0	50,000	50,000 (100%)
School Leadership	16,368	0	-16,368 (100%)

Promise Neighborhoods	56,740	150,000	93,260 (164.4%)
Office of Special Education and Rehabilitative Services			
Special Education Grants to States	2,214,465	2,389,465	175,000 (7.9%)
National Institute on Disability and Rehabilitation Research**	103,970	0	-103,970 (-100%)
Student Financial Assistance			
Pell Grant*	5,775	5,915	140 (2.4%)
Perkins Loan Program†	1,010,300	613,000	-397,300 (-39.3)
SEOG	733,130	733,130	--
Work-Study	989,728	989,728	--
Higher Education			
America's College Promise	0	1,364,842	1,364,842 (100.0%)
Title III Aid for Institutional Development	429,762	429,762	--
Title V Aid for HSIs	100,231	100,231	--
Title VI International Education and Foreign Language Studies	72,164	76,164	4,000 (5.5%)
FIPSE	67,775	200,000	132,225 (195.1%)
First in the World	60,000	200,000	140,000 (233.3%)
TRIO Programs	839,752	859,752	20,000 (2.4%)
GEAR UP	301,639	301,639	--
GAANN	29,293	29,293	--
Data/HEA Program Evaluation	0	30,000	30,000 (100%)
College Opportunity and Graduation Bonus	0	647,000	647,000 (100%)
Institute of Education Sciences	573,935	675,883	101,948 (17.8%)
Research, Development and Dissemination	179,860	202,273	22,413 (12.5%)
Research in Special Education	54,000	54,000	--
Regional Education Laboratories	54,423	54,423	--
Statewide Longitudinal Data Systems	34,539	70,000	35,461 (102.7%)

* The Pell Grant amount listed is the maximum grant award.

† Perkins funding is outside of the overall discretionary funding for the Department of Education. The FY 2016 proposal would change the allocation formula and shift funds from university based oversight to ED based oversight.

Department of Energy

The President's FY 2016 budget request includes $29.9 billion for the Department of Energy (DOE), which is an increase of 9.2 percent over the FY 2015 enacted level.

- DOE continues to be the lead federal agency to meet the President's goal of transitioning to a low-carbon energy economy by developing low-cost, "all of the above" energy technologies that will produce new jobs, diversify energy resources, address climate change and end U.S. dependence on foreign oil.
- The President's budget request highlights the importance of DOE-funded basic research in the physical, chemical, biological, environmental, and computational sciences to advance energy and national security priorities.
- The President's budget request proposes increases to every major DOE program, with significant funding increases for the Office of Energy Efficiency and Renewable Energy (EERE), the Office of Science, and the Office of Electricity Delivery and Energy Reliability (OE). The Advanced Research Projects Agency-Energy (ARPA-E) would also be increased to accelerate the commercialization of new technologies.
- Congress has shown bipartisan support for federal investments in basic research programs and making the electricity grid more resilient to blackouts and cyber attacks. Congress is less likely to support new investments in EERE's applied technology programs because those R&D activities are seen are more appropriately funded by industry.
- DOE's proposed 9.2 percent increase above FY 2015 enacted levels may be difficult to achieve because it is a significant increase above last year and does not take into account sequester spending caps.

New and Signature Initiatives

President Obama proposes a FY 2016 budget for DOE that largely sustains and expands upon his signature initiatives from previous years and recognizes the nexus between energy production and water usage. The President also begins to incorporate an emphasis on energy infrastructure, noting the upcoming release of the Quadrennial Energy Review (QER), which focuses specifically on the production, transmission, and distribution of the nation's energy resources. For example, the President's budget request would increase the OE budget by a proposed 83.4 percent, of which $63 million would be for new State Energy Reliability and Assurance Grants to assist in securing the nation's electricity grid.

The President requests $5.3 billion for the DOE Office of Science, a proposed increase of 5.4 percent. The budget request would continue support for the Energy Innovation Hubs, including the Fuels from Sunlight Hub and the Batteries and Energy Storage Hub funded through DOE's Office of Science. The Energy Frontier Research Centers (EFRCs) and Bioenergy Research Centers would continue to be supported in FY 2016. Also within the Office of Science, the President requests continued funding for the computational materials sciences initiative, which received initial funding of $8 million for the current year.
The President also proposes to continue the exascale computing initiative funded through the DOE Office of Science ($208.6 million) and the National Nuclear Security Administration (NNSA) ($64 million). DOE is currently the lead agency on an emerging broader federal National Strategic Computing Initiative

(NSCI), which would position the nation to meet critical national security needs, fully leverage computing technology for economic competitiveness and scientific discovery, and position the U.S. for sustained technical leadership. In a departure from previous budget requests, the Administration proposes $10 million to continue DOE's Computational Graduate Fellowships.

The President resubmits his proposal to fund the Advanced Research Projects Agency-Energy (ARPA-E) at $325 million, which would represent a proposed increase of 16.1 percent. ARPA-E anticipates announcing seven to 10 new technology programs with the proposed budget request.

Reemphasizing his priorities of clean energy and addressing climate change, the President proposes a 42.3 percent increase to $2.7 billion for the EERE programs. Within EERE, the President proposes to double the Advanced Manufacturing program, requesting $404 million for FY 2016 to create two additional Clean Energy Manufacturing Innovation Institutes and support four existing institutes. The Administration also requests a 58.6 percent increase to $444 million for the Vehicle Technologies program to promote vehicle electrification and grid infrastructure, natural gas storage, and related activities.

The President's budget proposes a $1.2 billion (10.2 percent) increase for the National Nuclear Security Administration, which is responsible for maintaining the country's nuclear weapons stockpile and reducing the risk of nuclear terrorism. This increase is consistent with prior years and demonstrates this Administration's commitment to modernizing the nuclear stockpile.

Nuclear weapons activities would see an increase of $667 million (8.1 percent). Funding for science and research and development activities would be the same as last year's level. Funding increases are proposed to pay for replacing aging components in nuclear weapons and infrastructure investments at the national labs and production sites.

The President's budget also proposes an increase of $325 million (20.1 percent) for nonproliferation activities. Of this amount, an increase of $26 million is proposed for the nonproliferation research and development program. The increased funding would be used to develop new technologies for arms control verification, such as the detection of low-yield nuclear tests and remote monitoring of uranium and plutonium production.

Proposed Reductions and Terminations

The President's budget would reduce the Fusion Energy Sciences program by 10.2 percent to a request of $420 million for FY 2016. The President essentially freezes funding for the DOE Fossil Energy R&D budget, requesting $560 million for FY 2016. The President also proposes to eliminate $5 million for the Integrated University program within the Nuclear Energy program.

Ongoing Areas of Interest

The Administration continues to define crosscutting activities within DOE to better integrate its mission areas. The FY 2016 budget request incorporates the Energy-Water Nexus in the crosscutting initiatives portfolio. A total of $1.2 billion in the budget request is associated with these crosscutting programs:

- Energy-Water Nexus: $38.4 million
- Exascale Computing: $272.6 million
- Grid Modernization: $356.0 million
- Subsurface Technology and Engineering: $244.0 million
- Supercritical CO2: $43.6 million
- Cybersecurity: $306.3 million

Source: DOE's Budget in Brief for FY 2016 can be viewed at: http://energy.gov/sites/prod/files/2015/02/f19/FY2016BudgetInBrief.pdf.

Department of Energy

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
DOE, total	27,402,399	29,923,752	2,521,353 (9.2%)
Science	5,067,738	5,339,794	272,056 (5.4%)
Advanced Scientific Computing Research	541,000	620,994	79,994 (14.8%)
Basic Energy Sciences	1,733,200	1,849,300	116,100 (6.7%)
Biological and Environmental Research	592,000	612,400	20,400 (3.4%)
Fusion Energy Sciences	467,500	420,000	-47,500 (10.2%)
High Energy Physics	766,000	788,000	22,000 (2.9%)
Nuclear Physics	595,500	624,600	29,100 (4.9%)
Workforce Development for Teachers and Scientists	19,500	20,500	1,000 (5.1%)
Science Laboratories Infrastructure	79,600	113,600	34,000 (42.7%)
ARPA-E	279,982	325,000	45,018 (16.1%)
EERE	1,914,195	2,722,987	808,792 (42.3%)
Hydrogen and Fuel Cell Technologies	97,000	103,000	6,000 (6.2%)
Bioenergy Technologies	225,000	246,000	21,000 (9.3%)
Solar Energy Technologies	233,000	336,700	103,700 (44.5%)

Wind Energy Technologies	107,000	145,500	38,500 (36.0%)
Geothermal Technologies	55,000	96,000	41,000 (74.5%)
Water Power Technologies	61,000	67,000	6,000 (9.8%)
Vehicle Technologies	280,000	444,000	164,000 (58.6%)
Building Technologies	172,000	264,000	92,000 (53.5%)
Advanced Manufacturing Technologies	200,000	404,000	204,000 (102.0%)
Electricity Delivery and Energy Reliability	146,975	270,100	123,125 (83.8%)
Nuclear Energy	833,379	907,574	74,195 (8.9%)
Fossil Energy R&D	560,587	560,000	-587 (0.1%)
National Nuclear Security Administration	11,399,034	12,565,400	1,166,366 (10.2%)
Weapons Activities	8,180,359	8,846,948	666,589 (8.1%)
Defense Nuclear Non-proliferation	1,615,248	1,940,302	325,054 (20.1%)

Department of Health and Human Services

National Institutes of Health

The President's FY 2016 budget request includes $31.3 billion for the National Institutes of Health (NIH), which is a $1 billion (3.3 percent) increase over the FY 2015 enacted level.

- In a change from previous years, the budget request would provide an increase of more than 1 percent, demonstrating the Administration's continued support for the agency and its willingness to provide additional funding for new initiatives that otherwise would cut into the base budget.
- As previewed by the White House over the past few weeks, the NIH budget request would direct funding to multi-agency biomedical initiatives, including $200 million for precision medicine and $461 million for antimicrobial resistance, which are outlined in greater detail in the interagency chapter of this report. Most of the research priorities highlighted in the budget request are continued from last year, such as the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, Big Data to Knowledge, and Alzheimer's disease.
- If the bipartisan popularity of the 21st Century Cures Initiative among House Energy and Commerce Committee members is an indication, Congress is likely to express support for biomedical and drug development priorities outlined in the budget request. However, because the additional funding proposed for NIH is made possible by exceeding the budget caps, the Republican-led Congress will have a difficult time providing actual increases for NIH programs in the final FY 2016 budget.

New and Signature Initiatives

The President's FY 2016 budget request highlights new and continuing NIH initiatives.

Precision Medicine

NIH would spend $200 million in FY 2016 as part of this interagency initiative, which was unveiled by President Obama on January 30. The initiative focuses on using genomics to develop treatments tailored to the individual characteristics of each patient. NIH's piece would include $70 million to expand cancer genomics research at the National Cancer Institute (NCI), and another $130 million would launch a national research cohort of 1 million or more individuals to build a database of their genetic information. More details are in the interagency section of this report. Congress has expressed interest in some type of precision medicine effort, but has not yet put forth details.

Vaccine Development

This new emphasis in the budget request would increase by $51 million NIH's investment in developing new or improved vaccines, particularly for HIV/AIDS and influenza. The additional funding would seek to accelerate ongoing clinical trials for promising HIV vaccine candidates and to develop a universal flu vaccine with the aim of ending the need for annual flu shots. This funding is part of a proposed nearly $200 million increase for the National Institute of Allergy and Infectious Diseases (NIAID), which would work with the Biological Advanced Research and Development Authority (BARDA) on this effort.

Antimicrobial Resistance
Also part of the increase for NIAID is $100 million in additional funding to support the Administration's National Strategy to Combat Antibiotic Resistant Bacteria. This results in a total of $461 million NIH would spend in this area to support the development of rapid diagnostics, a national database of genome sequence data of all reported infections with antimicrobial-resistant microorganisms, a large-scale effort to characterize drug resistance, and a rapid-response clinical trial network to test new antibiotics on individuals with highly resistant strains. More details are in the interagency section of this report.

Pediatric Research
Through the Gabriella Miller Kids First Research Act approved by Congress last year, NIH received $12.6 million in FY 2015 for pediatric research in the NIH Common Fund, and the same level is included in the budget request for FY 2016. The division within the Office of the Director that oversees the Common Fund is beginning to solicit ideas from NIH institutes and centers to identify where strategic investment can have the largest impact in pediatric research. This funding would be part of a $20 million increase in FY 2016 for the Common Fund, which oversees trans-NIH activities such as high-risk, high-reward research and big data.

BRAIN Initiative
The budget request would provide $135 million for the BRAIN Initiative, which is a $70 million increase over FY 2015. Launched in 2013, the multi-agency initiative aims to develop new technologies to produce a clearer picture of the brain. The additional funding would support a 10-year NIH strategy released last year that includes specific goals, milestones, and deliverables to pursue new therapies for neurological and psychiatric conditions and diseases.

Alzheimer's Disease
The NIH budget request would provide an additional $51 million for Alzheimer's disease research to the National Institute on Aging (NIA) for a total of $638 million in FY 2016. The initiative focuses on basic neuroscience research, epidemiological studies to identify risk and protective genes, clinical studies to identify biomarkers, and testing of interventions to treat and prevent Alzheimer's disease. NIH's efforts are part of HHS's National Plan to Address Alzheimer's Disease, which aims to prevent and effectively treat the disease by 2025.

Big Data to Knowledge
In FY 2016, NIH would direct $102 million to the Big Data to Knowledge (BD2K) program to develop systems and expertise to enable the optimum use of big data in biomedical research. This would be a $20 million increase over FY 2015 to help facilitate data sharing among researchers through a Data Commons, develop faster and more accurate software, enhance training, and establish Centers of Excellence.

Ongoing Areas of Interest

NIH estimates it would devote $17.2 billion (55 percent of its total budget) to 35,447 competitive **Research Project Grants (RPGs)** in FY 2016, which would be 1,241 more than FY 2015. NIH also estimates it would support more than 10,000 new and competing RPGs, which would be an increase of more than 1,200 grants.

The National Center for Advancing Translational Sciences (NCATS) Congressional budget justification specifies that the **Clinical and Translational Science Awards (CTSA)** program within NCATS should receive at least $472.8 million, which is a $500,000 increase above the FY 2015 enacted level. Additionally, the budget request would direct $25.8 million to the **Cures Acceleration Network (CAN),** a $16 million increase for that program. As noted above, Congress has demonstrated an interest in accelerating drug development, which could result in more funding for CAN and its large grant awards that aim to address scientific and technical challenges that impede translational research.

The President's budget request would direct a total of $785 million to support training 15,735 scientists through the **Ruth L. Kirschstein National Research Service Awards** program. The budget also includes a 2 percent stipend increase for predoctoral and postdoctoral trainees in FY 2016.

The budget request includes $273.3 million for the **Institutional Development Award (IDeA) program**, which is the same level provided in FY 2015. This program is a priority for many Members of Congress from states where institutions are not typically as successful at acquiring NIH grants.

The budget request would retain the **salary cap for extramural grants at Executive Level II**, which is the same level as in FY 2015. The decrease from Executive Level I was first enacted in the FY 2012 budget.

Source: The HHS Budget in Brief can be viewed at: http://www.hhs.gov/budget/fy2016/fy-2016-budget-in-brief.pdf*; The NIH FY 2016 budget overview can be viewed at:* http://officeofbudget.od.nih.gov/pdfs/FY16/Overview%20(Volume%20I).pdf*; The NCATS FY 2016 Congressional budget justification can be viewed at:* http://www.ncats.nih.gov/files/NCATS-FY16-justification.pdf.

National Institutes of Health

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
NIH total	**30,311,349**	**31,311,349**	**1,000,000 (3.3%)**
National Cancer Institute (NCI)	4,953,028	5,098,479	145,451 (2.9%)
National Heart, Lung, and Blood Institute (NHLBI)	2,995,865	3,071,906	76,041 (2.5%)
National Institute of Dental and Craniofacial Research (NIDCR)	397,700	406,746	9,046 (2.3%)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)	1,899,140	1,938,133	38,993 (2.1%)
National Institute of Neurological Disorders and Stroke (NINDS)	1,604,607	1,660,375	55,768 (3.5%)
National Institute of Allergy and Infectious Diseases (NIAID)	4,417,558	4,614,779	197,221 (4.5%)
National Institute of General Medical Sciences (NIGMS)	2,372,301	2,433,780	61,479 (2.6%)

Institutional Development Award (IDeA)	273,325,000	273,325,000	--
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)	1,286,869	1,318,061	31,192 (2.4%)
National Eye Institute (NEI)	676,764	695,154	18,390 (2.7%)
National Institute of Environmental Health Sciences (NIEHS)	744,682	759,131	14,449 (1.9%)
National Institute on Aging (NIA)	1,197,523	1,267,078	69,555 (5.8%)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)	521,528	533,232	11,704 (2.2%)
National Institute on Deafness and Other Communications Disorders (NIDCD)	405,207	416,241	11,034 (2.7%)
National Institute of Mental Health (NIMH)	1,433,651	1,489,417	55,766 (3.9%)
National Institute on Drug Abuse (NIDA)	1,015,705	1,047,397	31,692 (3.1%)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)	447,153	459,833	12,680 (2.8%)
National Institute of Nursing Research (NINR)	140,852	144,515	3,663 (2.6%)
National Human Genome Research Institute (NHGRI)	498,677	515,491	16,814 (3.4%)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)	327,243	337,314	10,071 (3.1%)
National Institute on Minority Health and Health Disparities (NIMHD)	270,969	281,549	10,580 (3.9%)
National Center for Complementary and Integrative Health (NCCIH)	124,062	127,521	3,459 (2.8%)
National Center for Advancing Translational Sciences (NCATS)	632,710	660,131	27,421 (4.3%)
Cures Acceleration Network (CAN)	9,835	25,835	16,000 (162.7%)
John E. Fogarty International Center (FIC)	67,634	69,505	1,871 (2.8%)
National Library of Medicine (NLM)	337,324	394,090	56,766 (16.8%)
Office of the Director (OD)*	1,413,734	1,442,628	28,894 (2.0%)
Common Fund	545,639	565,639	20,000 (3.7%)
Building and Facilities	128,863	128,863	--

Other HHS Agencies and Priorities

The President's FY 2016 budget request would provide $78.36 billion in revised discretionary funding for the Department of Health and Human Services (HHS), a $2.86 billion increase above the FY 2015 level.

- The President's budget request would continue to fully support the implementation of the *Patient Protection and Affordable Care Act* (ACA) and increased access to coverage. However, Congressional Republicans are looking at developing alternatives to ACA, as well as a strategy should the Supreme Court rule this year that federal subsidies can only be used in state-run exchanges, of which there are currently only 14.
- On January 26, 2015 HHS announced goals and a timeline to move from reimbursing providers for volume to value by linking Medicare payments to alternative payment models. The President's budget request would build on these efforts by proposing that the Sustainable Growth Rate (SGR) be repealed and incentives be implemented to encourage physicians to participate in alternative payment models. This is in line with the bicameral/ bipartisan SGR efforts in the last Congress.
- The President's budget request would support using mandatory funding for a competitive graduate medical education (GME) grant program, similar to proposals in the FY 2015 budget request. Additionally, the budget continues to target indirect medical education (IME) payments for reductions.
- The budget request would continue the President's Now is the Time Initiative to improve access to mental and behavioral health services by increasing the investment in FY 2016.

New and Signature Initiatives

New Pilots and Demonstrations

The President's budget request would provide support for new pilots. For example, the Program for All-Inclusive Care for the Elderly (PACE) currently only supports adults over 55. A new, budget-neutral pilot in a limited number of states, would look at whether it can serve a younger population, qualifying low-income adults under age 55, without increasing costs.[3]

In addition, the President's budget request would establish a new Medicaid demonstration in conjunction with the Administration for Children and Families (ACF) focused on improving the health of children and youth in foster care. The demonstration would be aimed at reducing the reliance on psychotropic medications through evidence-based psychosocial interventions.

New Funding to Study Health Insurance

The budget request would provide $30 million out of the Public Health and Social Services Emergency Fund to support a new Effective Health Insurance Initiative. This project would be in

[3] http://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/investing.pdf, Fiscal Year 2016 Budget of the U.S. Government, Investing in America Future, OMB, 2015

collaboration with the Agency for Healthcare Research and Quality (AHRQ) and the Office of the Assistant Secretary for Planning and Evaluation at HHS. "The goal of this study is to produce rigorous evidence about how the structure of health insurance can be modernized in a way that improves outcomes while controlling costs."[4] "This initiative will enable HHS to plan and initiate the study using state-of-the-art evaluation methods to address critical research questions that cannot be directly addressed through other means. The study will inform the development of health care models that work better for families and providers."[5] The study would be implemented through external research contracts.

New Diversity Program at the Health Resources and Services Administration (HRSA)

The President's budget request would provide $14 million at HRSA for a new workforce program to increase diversity in healthcare professions. "This new program will fund activities that create a career pipeline for health professions students that lead directly to service in underserved communities."[6] However, the Administration would eliminate funding for the Health Careers Opportunity Program (HCOP) program, which also provides support to individuals from socio-economically disadvantaged backgrounds. According HRSA's budget justification, "in FY 2015, programmatic changes are underway to focus on activities that have a more direct impact on expanding the primary care workforce. In order to accomplish the goal of the program, the HCOP redesign will direct grantees to focus on specific entry points along a shorter educational pipeline that begins in the latter years of high school."[7] The budget request would increase funding for other programs to support increasing diversity among health professions including the Centers of Excellence (COE), which would receive $25 million in FY 2016, an increase of 15 percent above the FY 2015 level.

Now Is the Time Initiative

The budget request would continue activities, which are part of the President's *Now is the Time Initiative*, to support improved access for mental and behavioral health services. The budget request would provide $151 million to the Substance Abuse and Mental Health Services Administration (SAMHSA) in FY 2016 for *Now Is the Time*-related activities, a 30 percent increase above the FY 2015 level. Increased funding would be used to expand the SAMHSA-HRSA Behavioral Health Workforce Education and Training (BHWET) grant program to support more grants in FY 2016, support the Peer Professional Workforce Development program, and create a new initiative called the Science of Changing Social Norms. The Science of Changing Social Norms focuses on evidence and messaging to improve attitudes toward mental and behavioral health. It also aims to encourage people to seek help when needed as well as to make behavioral health a priority.

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[4] http://www.ahrq.gov/cpi/about/mission/budget/2016/cj2016.pdf, Department of Health and Human Services Fiscal Year 2016, Agency for Healthcare Research and Quality, Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (page 5)

[5] http://www.hhs.gov/budget/fy2016/fy2016-public-health-social-services-emergency-budget-justification.pdf, , Department of Health and Human Services Fiscal Year 2016, Public Health and Social Services Emergency Fund , Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (Page 13)

[6] http://www.hrsa.gov/about/budget/budgetjustification2016.pdf, Department of Health and Human Services Fiscal Year 2016, Health Resources and Services Administration, Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (Page 12)

[7] http://www.hrsa.gov/about/budget/budgetjustification2016.pdf, Department of Health and Human Services Fiscal Year 2016, Health Resources and Services Administration, Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (Page 94)

Moving From Fee-For-Service to Alternative Payment Models
The budget request would support HHS's recent announcement outlining goals and a timeline to move to alternative payment models. According to HHS, the goals include tying 30 percent of traditional, or fee-for-service, Medicare payments to quality or value through alternative payment models such as Accountable Care Organizations (ACOs) by the end of 2016, and tying 50 percent of payments to these models by the end of 2018. In addition, HHS wants to link 85 percent of all traditional Medicare payments to quality or value by 2016 and 90 percent by 2018 through programs such as Hospital Value Based Purchasing program. [8] One way the President's budget request proposes aligning incentives to achieve this goal is by supporting Congressional efforts to repeal the SGR and implement incentives to encourage physicians to participate in alternative payment models.

New Investments to Address Prescription Drug and Opioid Misuse
The Administration would provide $99 million in new funding to the Centers for Disease Control and Prevention (CDC), SAMHSA, and the Office of the National Coordinator for Health IT (ONC) to address prescription drug and opioid misuse. CDC would receive $54 million to support activities including increasing support to states for prescription drug monitoring, and scaling up activities focused on developing and tracking pain management and opioid prescription quality measures.

SAMHSA would receive $25 million, which is a $13 million increase for the Targeted Capacity Expansion program to support a Medication Assisted Treatment (MAT) for Prescription Drug and Opioid Addiction program. "This funding is part of a joint effort by SAMHSA and the Agency for Healthcare Research and Quality (AHRQ) to improve access to MAT services for treating opioid use disorders, with a focus on heroin and prescription opioids. SAMHSA will use this funding to provide grants to states to support opioid MAT efforts in high-risk communities, to educate, and to provide technical assistance." In addition, $12 million in new funding would be provided to SAMHSA to support a new program called Grants to Prevent Prescription Drug/Opioid Overdose Related Deaths. Through this program, funding would go to 10 states to reduce the number of deaths related to opioid overdoses. In addition, ONC would receive $5 million to support integration of prescription drug monitoring programs with health information technology.[9]

Proposed Reductions and Terminations

Indirect Medical Education (IME)
The budget request would once again recommend reducing payments for IME by 10 percent starting in 2016, which would cut $16.3 billion from the program over 10 years. A similar measure was included in the President's FY 2015 budget request. In addition, the FY 2016 budget request would provide the

[8] http://www.hhs.gov/news/press/2015pres/01/20150126a.html, Better, Smarter, Healthier: In historic announcement, HHS sets clear goals and timeline for shifting Medicare reimbursements from volume to value, Accessed February 2, 2015

[9] http://www.hhs.gov/budget/fy2016/fy-2016-budget-in-brief.pdf, Fiscal Year 2016 Budget in Brief Strengthening Health and Opportunity for All Americans, Department of Health and Human Services, 2016 (Page 5)

Secretary of HHS the authority to set standards for GME payments at teaching hospitals to encourage primary care training.

Reductions to Hospital Bad Debt
In previous years, the President's budget request has recommended reducing Medicare payments to hospitals for their Medicare bad debt, an issue that arises when Medicare beneficiaries who cannot pay their required cost sharing, which is a serious concern for teaching hospitals. The budget request would reduce payments for Medicare bad debt from 65 percent to 25 percent over three years.

Area Health Education Centers (AHECs)
The President's request would again eliminate funding for AHECs, leaving it to Congress to restore funding as it has done in previous years.

Ongoing Areas of Interest

Graduate Medical Education (GME)
The President's budget request would support using mandatory funding for a competitive GME grant program, similar to proposals contained in the FY 2015 budget. The budget would provide $400 million in mandatory funding ($5.3 billion over 10 years) for the Targeted Support for Graduate Medical Education program. According to the Administration, the program would continue the Teaching Health Center Graduate Medical Education program and make funding available to entities focusing on primary and preventative care including children's hospitals, community-based consortia of teaching hospitals, and other entities.

At the same time, the budget request would reduce funding under the Children's Hospital Graduate Medical Education (CHGME) program to $100 million, a $165 million decrease below the FY 2015 enacted level. In recent years, the President's budget request has trended toward reducing funding for CHGME, but Congress has restored it through the annual appropriations process.

Office of the National Coordinator for Health IT
The President's budget request would include $92 million, a 53 percent increase above the FY 2015 enacted level, for ONC. According to HHS, "the focus of ONC's FY 2016 budget request is advancing the interoperability of health information technology so that electronic health information can be collected, shared, and used by consumers, providers and others to advance care and health." [10] This funding includes $5 million under the Administration's Precision Medicine Initiative (discussed above) to support big data analysis, interoperability standards, and requirements that help support the secure exchange of data across systems.

[10] http://www.hhs.gov/budget/fy2016/fy2016-general-departmental-budget-justification.pdf, Department of Health and Human Services Fiscal Year 2016, General Departmental Management Office of Medicare Hearings and Appeals Office for Civil Rights National Coordinator for Health Information Technology Health Insurance Reform Implementation Fund Nonrecurring Expenses Fund Service and Supply Fund Retirement Pay & Medical Benefits for Commissioned Officers, Justification of Estimates for Appropriations Committees, Department of health and Human Services, February 2, 2015 (ONC Section, Page 8)

At the ONC Annual Meeting, which took place the same day the President's budget was released, Dr. Karen DeSalvo, the National Coordinator for Health IT, said that in 2014 ONC spent a majority of its time looking at how to unlock data. Following the release of the *Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap Version 1.0,* Dr. DeSalvo said focus in 2015 will be on executing the ideas of the Roadmap as well as ONC's new strategic plan.

Sources: Budget materials for the Department of Health and Human Services can be viewed at: http://www.hhs.gov/budget/

Department of Health and Human Services

(In millions)

	FY 2015 Enacted	FY 2016 Request*	Request vs. FY 2015
HHS, total	**75,505**	**78,362**	**2,857 (3.8%)**
Health Resources and Services Administration (HRSA)	10,330	10,375	45 (.4%)
Title VII	254	237	-17 (6.7%)
Title VIII	231	231	--
Substance Abuse and Mental Health Services Administration (SAMHSA)	3,621	3,666	45 (1.2%)
Mental Health Services	1,070	1,077	7 (.7%)
Substance Abuse Treatment	2,181	2,140	-41 (1.9%)
Substance Abuse Prevention	175	210	35 (20.0%)
Agency for Healthcare Research and Quality (AHRQ)	465	479	14 (3.0%)
Food and Drug Administration (FDA)	4,505	4,930	425 (9.4%)
Centers for Disease Control and Prevention (CDC)	7,045	7,142	97 (1.4%)
Chronic Disease prevention and Health Promotion	1,198	1,058	-140 (11.7%)
National Institute for Occupational Safety and Health (NIOSH)	628	606	-22 (3.5%)
Environmental Health	179	178	-1 (.6%)

Indian Health Service (IHS)	5,906	6,392	486 (8.2%)
Administration on Community Living (ACL)	1,956	2,123	167 (8.5%)
Administration for Children and Families (ACF)	17,791	19,825	2,034 (11.4%)
Office of the National Coordinator for Health IT (ONC)	60	92	32 (53.3%)

Department of Homeland Security

The President's FY 2016 budget request includes $41.2 billion for the Department of Homeland Security (DHS), which is an increase of 3.3 percent over the FY 2014 enacted level.[11]

- DHS continues to be a priority for the Administration to address border security, immigration, disaster resilience, and cybersecurity challenges.
- The Science and Technology (S&T) Directorate would receive another year of funding cuts; new S&T leadership has reorganized funding structures to focus on longer-term research goals.
- Congress is expected to block certain immigration plans proposed by the Administration. However, based on previous years' final appropriations, it can be expected that some in Congress will seek to restore cuts made to S&T accounts.

New and Signature Initiatives

The request would reorganize core Research, Development, and Innovation (RD&I) funding towards the **Apex Projects** program, which seeks to fund longer-term, big-picture research addressing various DHS needs. Areas of focus include cybersecurity and privacy, bio-defense, flood resilience, border security, and explosives.[12] While this program is not new, the request would provide $18 million for a new initiative under the Apex Program called **Apex Technology Engines**. This initiative would generate cross-cutting technologies to develop best practices, lessons learned, and dual-use research and technology capabilities across S&T divisions. In addition, it is expected to include collaboration with external scientific and academic communities "proactively monitoring trends for emerging capabilities and maintaining an in depth understanding of state-of-the-art techniques in specific capability areas."[13] This new effort is likely to optimize resources available to Apex projects. These changes were expected as the new Under Secretary for Science and Technology, Reginald Brothers, has indicated his desire to shift S&T towards longer-term, higher-impact research and away from its current near-term focus. The tension between investing in basic research to meet future DHS needs and altering current technologies has played a central role to DHS refining its R&D mission.

As proposed in the final FY 2015 CRomnibus appropriations bill, the General Services Administration received $35 million to plan and design a **Civilian Cyber Campus** in the Washington, D.C. area. DHS and the Federal Bureau of Investigation (FBI) will lead this effort. The campus will house civilian cyber operations to improve cyber information sharing and response activities between various federal civilian agencies and the private sector. The campus will also house workforce training activities.

Proposed Reductions and Terminations

The **Science and Technology Directorate (S&T)** would receive a 36.2 percent reduction compared to the FY 2014 level. However, a majority of this reduction is due to lack of funding for the National Bio-Agro-

[11] Congress is currently finalizing FY 2015 appropriations legislation for DHS, so there is no FY 2015 enacted number yet.
[12] http://www.dhs.gov/sites/default/files/publications/FY_2016_DHS_Budget_in_Brief.pdf, Department of Homeland Security FY 2016 Budget in Brief, Department of Homeland Security, 2015 (p. 113).
[13] Ibid, (p. 107).

Defense Facility (NBAF). The request assumes that Congress will fund the $300 million facility in the final FY 2015 DHS appropriations legislation, which Congress is currently considering. The RD&I account would decrease by 5.8 percent compared to FY 2014. Similar to last year's budget proposal, the **University Programs Office**, which funds Centers of Excellence (COE), would decrease by 22 percent compared to FY 2014. The request would "fully fund the highest priority COEs"[14] to support current COEs as well as fund stand up efforts for new COEs.

Ongoing Areas of Interest

As part of the Administration's **Climate Resilience Initiative**, the Federal Emergency Management Agency's (FEMA) **Pre-Disaster Mitigation Grant Program** would receive $200 million for hazard mitigation planning and projects, which is an increase of $175 million over FY 2014. In addition, $400 million would be provided for flood mapping and risk analysis.

Source: DHS's FY 2016 Budget in Brief can be viewed at: http://www.dhs.gov/sites/default/files/publications/FY_2016_DHS_Budget_in_Brief.pdf.

Department of Homeland Security

(In thousands) †*

	FY 2014 Enacted	FY 2015 House‡	FY 2016 Request	Request vs. FY 2014 Enacted
DHS	**39,893,071**	**39,700,000§**	**41,193,714**	**1,300,643 (3.3%)**
Science and Technology Directorate	**1,220,212**	**1,103,908**	**778,988**	**-441,224 (36.2%)**
University Programs	39,724	39,724	31,000	-8,724 (22.0%)

*Funding amounts reflect net discretionary funding levels.
† Does not include rescissions or Disaster Relief Fund Major Disasters Cap Adjustment.
‡This is an estimate based on H.R. 240, Department of Homeland Security Appropriations Act, 2015
§Congress is currently finalizing FY 2015 appropriations legislation for DHS, so there is no FY 2015 enacted number yet.

[14] http://www.dhs.gov/sites/default/files/publications/DHS_FY2016_Congressional_Budget_Justification.pdf, Department of Homeland Security FY 2016 Budget Request Congressional Budget Justification, Department of Homeland Security, 2015 (p. 3698).

Department of State/USAID

The President's FY 2016 budget request includes $50.3 billion for programs through the Department of State and the United States Agency for International Development (USAID), which would be an increase of 5.9 percent above the FY 2015 enacted level. This amount includes Overseas Contingency Operations (OCO) funding for ongoing operations in Afghanistan and Iraq and to combat the Islamic State.

- The President's FY 2016 budget request for the Department of State and USAID reflects the heightened importance that President Obama and Secretary of State John Kerry place on diplomacy and development as key tools of foreign policy.
- The President's FY 2016 budget request proposes to sustain focus on existing Administration priorities such as global health, combating global climate change, and enhancing global food security. Further, the President's FY 2016 international affairs request focuses on implementation of ongoing initiatives rather than proposing numerous new programs.
- USAID and State programs continue to receive support from many in Congress and are expected to be sustained during FY 2016.

New and Signature Initiatives

Reflecting the influence of departing USAID Administrator Rajiv Shah, President Obama proposes to amplify the use of science and innovation to enhance global development in his FY 2016 budget request. The President's request recommends continued funding for USAID's **U.S. Global Development Lab (USGDL)** to drive breakthrough solutions to extreme poverty. USGDL was created by Administrator Shah to serve as an umbrella for USAID science and technology programs, including Grand Challenges for Development, Development Innovation Ventures, and the Higher Education Solutions Network (HESN). USGDL programs will support many of the crosscutting USAID priorities discussed below. The President's request does not state whether USAID will compete another round of HESN in FY 2016.

President Obama continues to highlight education and science as strong tools for outreach to foreign partners. To that end, the President's FY 2016 budget request would provide $623.1 million for **Educational and Cultural Exchange (ECE)** programs through the Department of State. If approved, the figure would represent an increase of 5.6 percent above the enacted level. Within this amount, the President proposes to fund the **Fulbright Program**, the Department of State's signature educational exchange program, at the current level of $236 million.

Building on the existing Young African Leaders and Young Southeast Asian Leaders Initiatives, the President proposes a new **Young Leaders in the Americas Initiative**. Like the two existing programs, the Young Leaders in the Americas Initiative would engage public, private, and civil society leaders from a priority region for the Administration (Central and South America). Also within ECE, the President's FY 2016 budget request proposes a new **Exchanges Rapid Response (ERR)** program to support new public diplomacy activities in countries experiencing rapid political or social transition. It is unclear whether Congress will provide funding for the program in FY 2016.

In addition to a continued focus on a foreign policy rebalance to the Asia-Pacific, the President's FY 2016 request builds on the U.S. - African Leaders Summit hosted by the White House in August 2014 to propose and expand programs for the continent. In addition to ongoing initiatives such as the Power Africa Initiative, the President's FY 2016 budget request includes funding for two new initiatives announced at the Summit, the **African Peacekeeping Rapid Response Partnership** and **the Security Governance Initiative**. Africa is expected to be a continued focus for the Administration going forward.

Ongoing Areas of Interest

President Obama's FY 2016 budget request for international affairs continues support for many of the initiatives started earlier in his Administration, including Feed the Future, the Global Health Initiative, and programs to combat climate change and promote clean energy technologies in the developing world. Other areas of interest in the President's FY 2016 budget request for international affairs include encouraging civic participation, promoting opportunity for women and girls, and opening new markets in the developing world.

The President's request would fund **Global Health Programs (GHP)** at a total of $8.2 billion, a reduction of just over 3 percent from the current level. The President emphasizes that USAID and the Department of State should continue to focus on three priorities from FY 2015: Ending Preventable Child and Maternal Deaths (which would be funded at over $2 billion); Creating an AIDS-free Generation (which would be funded at $5.76 billion); and Protecting Communities from Infectious Diseases (which would be funded at $327.5 million).

The President's budget request also maintains global food security as a continued priority for FY 2016. The President proposes $900 million for the **Feed the Future program** through the Development Assistance title of his international affairs budget request. Finally, President Obama and Secretary Kerry continue to emphasize programs to support climate change mitigation and adaptation in the developing world.

Source: The President's FY 2016 budget request for the Department of State and USAID can be viewed at: http://www.state.gov/s/d/rm/c6112.htm.

International Affairs

*(In thousands)**

	FY 2015 Enacted†	FY 2016 Request	Request vs. FY 2015
State and USAID, Total	**47,480,036**	**50,277,768**	**2,797,732 (5.9%)**
Diplomatic Engagement and Related Accounts	15,666,330	17,385,723	1,719,393 (11.0%)
Educational and Cultural Exchange Programs	589,900	623,079	33,179 (5.6%)
USAID, Operating Funds (Total)	1,216,300	1,425,000	208,700 (17.2%)

	FY 2015 Enacted†	FY 2016 Request	Request vs. FY 2015
Development Assistance	2,507,001	2,999,694	492,693 (19.7%)
Global Health Programs, Total	8,453,950	8,181,000	-272,950 (3.2%)

*Includes OCO funding levels for consistency in reporting.
† The FY 2015 enacted amounts do not include FY 2015 Ebola response funding.

Environmental Protection Agency

The President's FY 2016 budget request includes $8.6 billion for the Environmental Protection Agency (EPA), which represents an increase of $451.8 million or 5.6 percent above the FY 2015 enacted level.

- Implementation of the President's 2013 Climate Action Plan remains the Administration's top priority for EPA with a focus on air quality, climate change impacts, clean energy solutions, green infrastructure, and most notably, emissions reductions.
- The request would consolidate the Science to Achieve Results (STAR) and Greater Research Opportunities (GRO) fellowship programs. This has been proposed in previous budget requests; however, to date, Congress has not approved these requested consolidations.
- Senate Majority Leader Mitch McConnell (R-KY) has indicated his top priority is to rollback EPA's proposed regulations to cut carbon and greenhouse gas emissions, ultimately thwarting implementation of the President's Clean Power Plan. Reining in EPA's efforts to implement the Climate Action Plan and regulate emissions was a major theme in the 2015 midterm elections, and continues to be a hot button issue on Capitol Hill.

New and Signature Initiatives

The President's Climate Action Plan remains a signature initiative for the EPA. The budget request provides $239 million to cut carbon and greenhouse gas (GHG) emissions. The **Air, Climate, and Energy (ACE)** research program would receive $100.3 million for FY 2016, to specifically focus on "air pollution, climate change, and biofuels."

A central component of the Administration's Climate Action Plan is the **Clean Power Plan** to reduce carbon pollution for the Nation's power sector.

As part of the Administration's efforts to strengthen K-12 STEM education, EPA would receive $4 million to invest in **environmental education grants**.[15]

Proposed Reductions and Terminations

Consistent with past efforts by the Administration to streamline and consolidate graduate fellowship programs within STEM fields, the FY 2016 EPA budget request proposes the consolidation of both the **STAR** and **GRO** fellowship programs. This proposal is part of the Administration's reorganization of all STEM education programs to increase the results and outcomes of federal investments in STEM fellowships, K-12 instructors, and undergraduate education, training, and fellowships.

With respect to reductions and terminations, the request excludes funding to support Water Quality Research and Support grants. The FY 2016 request also includes a proposed $3.1 million decrease in Sustainable and Healthy Communities for ecosystem services research.

[15] http://www.whitehouse.gov/sites/default/files/microsites/ostp/stem_fact_sheet_2016_budget_0.pdf, "Investing in America's Future: Preparing Students with STEM Skills: Science, Technology, Engineering, and Mathematics (STEM) in the 2016 Budget," Office of Science and Technology Policy, 2015.

Ongoing Areas of Interest

As in previous years, EPA's budget request revolves around signature themes. For FY 2016, the Agency themes include:

1. Addressing Climate Change and Improving Air Quality
2. Protecting America's Waters
3. Cleaning up Communities and Advancing Sustainable Development
4. Ensuring the Safety of Chemicals and Preventing Pollution
5. Protecting Human Health and the Environment by Enforcing Laws and Assuring Compliance

Source: EPA's FY 2016 Budget in Brief can be viewed at:
http://www2.epa.gov/sites/production/files/2015-02/documents/fy_2016_bib_combined_v4_0.pdf.

Environmental Protection Agency
(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015 Enacted
EPA, total	**8,139,887**	**8,591,718**	**451,831 (5.6%)**
Science and Technology	734,648	769,088	34,440 (4.7%)
Environmental Programs and Management (EPM)	2,613,679	2,841,718	228,039 (8.7%)

Institute of Museum and Library Services

President Obama's FY 2016 budget request includes $237.4 million for the Institute of Museum and Library Services (IMLS). This would provide an increase of $9.6 million, or 4.2 percent, above the FY 2015 enacted level.

- IMLS's FY 2016 budget request would primarily focus on enhancing digital content and services at libraries and museums; providing professional education support for librarians and museum professionals; and encouraging makerspaces in small and rural institutions across the country.

New and Signature Initiatives

President Obama's FY 2016 budget request would provide $9.6 million over the agency's FY 2015 enacted level, of which $8.8 million would support the expansion and further development of a national digital platform through leadership grants to libraries and museums. The grants would support state and regional hubs that help libraries and museums provide better access to their resources through enhanced digital content and services. These services would help museums and libraries share their material resources electronically with other institutions and the public.

The FY 2016 budget request would also continue the Obama Administration's promotion of the "maker movement" by holding a national competition to support the establishment of makerspaces at rural and small libraries and museums across the country. Additionally, the agency would invest in the creation of new standards for skill-based professional development of librarians and curators. After the standards are created, IMLS plans to support grantees that propose innovative training modules.

Ongoing Areas of Interest

The FY 2016 budget request would continue the Sparks! Ignition grant program. This program, which began in 2013, provides small grants for high-risk, innovative projects that expand and test new library, archive, and museum practices. The program has been popular at IMLS because it allows program officers the opportunity to fund small grants directly through the submission of short white papers.

Source: IMLS's FY 2016 budget request can be viewed at: http://www.imls.gov/assets/1/AssetManager/FY16_CJ.pdf.

Institute of Museum and Library Services

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
IMLS, total	**227,860**	**237,428**	**9,568 (4.2%)**
Library Services	180,909	186,563	5,654 (3.1%)
National Leadership Grants: Libraries	12,200	17,500	5,300 (43.4%)
Museum Services	28,724	33,597	4,873 (16.9%)

Museums for America	20,200	21,457	1,257 (6.22%)
National Leadership Grants: Museums	7,600	11,168	3,568 (46.9%)

National Aeronautics and Space Administration

The President's FY 2016 budget request includes $18.529 billion for the National Aeronautics and Space Administration (NASA), which is an increase of $519 million or 2.9 percent above the FY 2015 enacted level.

- In contrast to previous years, NASA overall would see an increase under the FY 2016 budget request. However, NASA's overall mission priorities would remain consistent with prior years and **Earth Science**, **Space Technology** and **Commercial Crew Development** would see substantial increases.
- The Science Mission Directorate overall would receive a small increase, but individual divisions would experience very different trajectories. In addition to Earth Science, Astrophysics would receive an increase. Planetary Science is again targeted for substantial cuts while Heliophysics would see a small decrease.
- NASA top-line priorities are largely supported by Congress; however, significant adjustments are expected to more closely reflect congressional priorities in Exploration Systems Development, Planetary Science, and Education.

New and Signature Initiatives

The budget request proposes no major new initiatives but continues to emphasize priority areas and missions from the FY 2015 budget request, such as the **Asteroid Redirect Mission**. For FY 2016, the request would provide funding for mission formulation and relevant technology investments such as advancing solar electric propulsion and capture systems for an asteroid mission designed to robotically rendezvous with an asteroid and bring it back to a nearby LaGrange point for future human exploration.

Also similar to last year's priorities, the budget request proposes a 21.6 percent increase for **Space Technology** to develop advanced technologies in areas such as communications, sensors, robotics, materials, and propulsion. The increase largely reflects planned ramps for current missions under development. Within Space Technology Research and Development, NASA plans to continue to emphasize "foundational engineering science." NASA also plans to start an In-Space Manufacturing and Resource Utilization Institute within the Exploration Mission Directorate to, "nurture capabilities and technologies that enable in-space systems development and allow space explorers to replenish resources… Key ideas [to be] explored under the Institute include in situ resource utilization, automated in-space manufacturing and assembly, closed loop biological systems, and digital designs for materials, structures, and systems."[16]

In addition, the Obama Administration would, once again, dramatically increase funding for the development of the **Commercial Crew** program (up 54.5 percent) to develop commercial vehicles capable of transporting humans to low-Earth orbit.

[16] http://www.nasa.gov/sites/default/files/files/NASA_FY_2016_Budget_Estimates.pdf, FY 2016 President's Budget Request, National Aeronautics and Space Administration, 2015 (pg. TECH-21).

In a departure from the FY 2015 budget request and a return to the prioritization of earlier budget requests, **Earth Science** missions and research would increase 9.9 percent from the FY 2015 enacted level. The budget request would support a new Sustainable Land Imaging Initiative, which would include development of Landsat 9 as well as technology investments. The budget request would also fund continued formulation and development of decadal missions PACE, NISAR, GRACE-2, and ICESat-2. In contrast to the FY 2015 budget request, funding is requested for the OCO-3 instrument. Earth Science Applied Sciences would also start new initiatives on food security and freshwater availability and begin efforts related to disaster response connecting to larger Obama Administration prioritization of these areas.

Proposed Reductions and Terminations

Consistent with its FY 2015 request, the Obama Administration would again cut funding, although less severely than in the past, for **Planetary Science** (down 5.3 percent). For the first time, the budget request formally includes Europa as a new mission in formulation, proposing $30 million. However, this is far below the $100 million Congress provided for Europa mission planning in FY 2015. The request also includes $228 million to continue formulation and development of the Mars 2020 mission. **Planetary Science Research** would increase 8.0 percent above FY 2015, largely reflecting proposed increased funding for Near Earth Objects Observation.

Aeronautics (down 12.2 percent) would continue to focus on new strategic thrust areas developed in the 2013 Aeronautics Research Strategic Vision. The new strategic thrusts are: safe, efficient growth in global operations; innovation in commercial supersonic aircraft; ultra-efficient commercial transports; transition to low-carbon propulsion; real-time, system-wide safety assurance; and assured autonomy for aviation transformation.[17] The proposed funding level would return Aeronautics to close to its FY 2014 level, largely reversing the $85 million increase provided in the FY 2015 CROmnibus. Funding increases would be provided to support research on low carbon propulsion and fundamental hypersonics research.

As in past budget requests, Education and Public Outreach accounts would be decreased in both the Science Mission Directorate and the Education Account. Within the Science Mission Directorate, $20 million would be provided for Science Mission Directorate education projects, which is a $22 million decrease from what Congress recommended in the FY 2015 CROmnibus. **Education** itself would be significantly decreased, with the largest proposed decrease (25.3 percent) of any account from FY 2015 enacted levels. Additionally, the budget request includes significant reductions for **Space Grant** (down 40.0 percent) and **EPSCoR** (down 50.0 percent), both of which are identical proposals to President Obama's FY 2013, FY 2014, and FY 2015 recommendations.

Ongoing Areas of Interest

The budget request would largely continue the Obama Administration's signature Science Mission Directorate missions, although with slight changes from FY 2015 based on previously determined

[17] http://www.aeronautics.nasa.gov/pdf/armd_strategic_vision_2013.pdf, Aeronautics Research Strategic Vision, NASA, 2013 (pg. 3).

mission schedules. The **James Webb Space Telescope** would decrease 3.9 percent while continuing to support a launch by 2018.

In contrast to the FY 2015 budget request, **Astrophysics** would receive a slight increase (3.7 percent), reversing last years proposed substantial decrease. Funding would be provided for SOFIA, which was proposed to be canceled in the FY 2015 request, with future assessments of the mission expected in 2015. The budget request would continue the current rate of **Explorer** missions and would also fund pre-formulation and technology development for WFIRST, the top priority mission of the 2010 Astronomy and Astrophysics Decadal Survey.

Heliophysics (down 1.7 percent) would receive largely static funding based on planned mission pathways. The request would largely support ongoing activities, including development of Solar Probe Plus for launch in 2018 and ICON for launch in 2017. Formulation would also continue for newly selected **Explorer** mission GOLD. NASA also plans increased funding for **Explorer** missions in notional out-year budget estimates, which if realized would support an increased launch cadence as recommended by the 2013 Heliophysics Decadal Survey.

In addition to the large increases proposed for Commercial Crew development, **Exploration** would receive funding to keep development of the Orion Crew Vehicle and the Space Launch System on track. Support would also continue for the Human Research program, which would increase 12.3 percent from its FY 2014 level.

Source: NASA's FY 2016 budget materials can be viewed at: http://www.nasa.gov/news/budget/.

National Aeronautics and Space Administration

(In Millions)

	FY 2014 Actual	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
NASA, total	**17,646.5**	**18,010.2**	**18,529.1**	**518.9 (2.9%)**
Science	**5,148.2**	**5,244.7**	**5,288.6**	**43.9 (0.8%)**
Earth Science	1,824.9	1,772.5*	1,947.3	174.8 (9.9%)
Earth Science Research	1,824.9	TBD	485.3	N/A
Earth Systematic Missions	837.2	TBD	895.2	N/A
Earth System Pathfinder	257.4	TBD	267.7	N/A
Venture Class Missions	163.1	TBD	185.2	N/A
Planetary Science	1,345.7	1,437.8*	1,361.2	-76.6 (5.3%)
Planetary Science Research	221.8	255.8*	276.3	20.5 (8%)
Discovery	297.4	255.0*	156.1	-98.9 (38.8%)
New Frontiers	231.6	286.0*	259.0	-27.0 (9.4%)
Mars Exploration	288.0	305.0*	411.9	106.9 (35.0%)
Outer Planets	152.4	181.0*	116.2	-64.8 (35.8%)

Jupiter Europa	80.0	100.0	30.0	-70.0 (70.0%)
Astrophysics	678.3	684.0*	709.1	25,100 (3.7%)
Astrophysics Research	145.2	TBD	187.7	N/A
Cosmic Origins	224.2	TBD	199.3	N/A
Physics of the Cosmos	112.6	TBD	107.6	N/A
Exoplanet Exploration	106.7	TBD	64.2	N/A
Astrophysics Explorer	89.6	TBD	150.3	N/A
SMD-Wide STEM Activities	0.9	42.0	20.0	-22.0 (52.4%)
James Webb Space Telescope	658.2	645.4	620.0	-25.4 (3.9%)
Heliophysics	641.0	662.2*	651.0	-11.2 (1.7%)
Heliophysics Research	185.1	TBD	158.5	N/A
Living with a Star	212.5	TBD	343.0	N/A
Heliophysics Explorer	100.2	TBD	98.9	N/A
Aeronautics	**566.0**	**651.0**	**571.4**	**-79.6 (12.2%)**
Space Technology	**576.0**	**596.0**	**724.8**	**128.8 (21.6%)**
Exploration	**4,113.2**	**4,356.7**	**4,505.9**	**149.2 (3.4%)**
Exploration Systems Development	3,115.2	3,245.3	2,862.9	-382.4 (11.8%)
Commercial Spaceflight	696.0	805.0	1,243.8	438.8 (54.5%)
Exploration Research and Development	302.0	306.4	399.2	92.8 (30.3%)
Space Operations	3,774.0	3,827.8	4,003.7	175.9 (4.6%)
Education	**116.6**	**119.0**	**88.9**	**-30.1 (25.3%)**
Aerospace Research & Career Dev.	58.0	58.0	33.0	-25.0 (43.1%)
Space Grant	40.0	40.0	24.0	-16.0 (40.0%)
EPSCoR	18.0	18.0	9.0	-9.0 (50.0%)
STEM Education & Accountability	58.6	61.0*	55.9	-5.1 (8.4%)
Cross Agency Support	**2,793.0**	**2,758.9**	**2,843.1**	**84.2 (3.1%)**
Construction and Environmental Compliance and Restoration	**522.0**	**419.1**	**465.3**	**46.2 (11.0%)**
Office of Inspector General	**37.5**	**37.0**	**37.4**	**0.4 (1.1%)**

*Funding as indicated in FY 2015 CROmnibus report language. All other FY 2015 levels were included in the FY 2015 CROmnibus text itself and are also included in NASA's budget request.

National Endowment for the Arts & National Endowment for the Humanities

The President's FY 2016 budget request includes $147.9 million for both the National Endowment for the Humanities (NEH) and the National Endowment for the Arts (NEA). These requested funding levels are $1.9 million, or 1.3 percent, above the FY 2015 enacted levels.

- While the NEH request increased 1.3 percent overall, the request demonstrates a significant shift in NEH programmatic priorities to support the new initiative titled, "**The Common Good: The Humanities in the Public Square**." As more resources are requested for the Common Good initiative, the NEH "**Bridging Cultures: Understanding the U.S. and the World**" initiative would be phased out. Additionally, many other longstanding NEH programs would see modest cuts in their requested budgets for FY 2016.
- NEA program divisions and offices would receive small funding increases in comparison to their FY 2015 amounts.

New and Signature Initiatives

National Endowment for the Humanities

The FY 2016 budget request would provide $5.5 million for a new initiative, **The Common Good: The Humanities in the Public Square**. This agency-wide initiative seeks "to demonstrate the critical role the humanities can play in our nation's public life."[18] This new initiative was introduced by NEH Chairman William "Bro" Adams in January 2015. Initial programs and activities planned for The Common Good include:

- Continued and expanded activities through the **Standing Together: The Humanities and the Experience of War** initiative launched last year, which supports humanities projects focusing on the experience of war and military service.
- The launch of the new **Public Scholar Program** to encourage engagement in humanities research and writing for the broader public.
- The creation of the **Humanities Open Book** program through a partnership with the Andrew W. Mellon Foundation to make out-of-print humanities books available for free.
- The creation of the **Our Common Heritage** program, which will support community efforts to digitize cultural heritage materials.

The budget request would also provide funding for NEH to continue to support additional projects and programs in the humanities, including those that bring the humanities to Americans in rural areas, urban neighborhoods, and suburban communities; research and scholarship; preservation and access of humanities resources; and humanities teaching and learning. Additionally, NEH's partnership with the National Science Foundation on projects that document endangered languages would continue to receive support in the FY 2016 request.

[18] http://www.neh.gov/files/neh_request_fy2016.pdf, "Appropriations Request for Fiscal Year 2016," National Endowment for the Humanities, 2015.

National Endowment for the Arts

The Endowment's core grant programs, including **Our Town**, **Poetry Out Loud**, **The Big Read,** and **Shakespeare in American Communities,** comprise 80 percent of the FY 2016 budget request. Through these initiatives, NEA makes direct grants, as well as grants to state and regional partners.

NEA also continues to work on partnering closely with other federal agencies including the Department of Defense, U.S. Department of Agriculture, Department of Health and Human Services, Department of Housing and Urban Development, National Endowment for the Humanities, and the National Science Foundation.

Sources: NEH's FY 2016 budget request details can be viewed at: http://www.neh.gov/files/neh_request_fy2016.pdf. NEA's FY 2016 budget request details can be viewed at: http://arts.gov/sites/default/files/nea-fy16-appropriations-request.pdf.

National Endowment for the Humanities & National Endowment for the Arts

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
NEH, total	**146,021**	**147,942**	**1,921 (1.3%)**
Special Initiative: The Common Good	0	5,500	5,500 (100%)
Bridging Cultures	3,500	0	-3,500 (100%)
Digital Humanities	4,400	4,480	80 (1.8%)
Education Programs	13,265	13,040	-225(1.7%)
Federal/State Partnerships	42,528	43,040	512 (1.2%)
Preservation and Access	15,460	15,200	-260 (1.7%)
Public Programs	13,684	13,454	-230 (1.7%)
Research Programs	14,784	14,536	-248 (1.7%)
Challenge Grants	8,500	8,500	--
NEA, total	**146,021**	**147,949**	**1,928 (1.3%)**
Direct Endowment Grants	69,980	71,020	1,040 (1.5%)
State and Regional Partnerships	46,653	47,346	693 (1.5%)

National Science Foundation

The President's FY 2016 budget request includes $7.724 billion for the National Science Foundation (NSF), which is an increase of $379.3 million or 5.2 percent over the FY 2015 enacted level.

- Fundamental research along with strategic investments in Administration priority areas such as neuroscience, resilience, clean energy and sustainability, and advanced manufacturing remain priorities for NSF.
- New initiatives including "Innovations at the Nexus of Food, Energy, and Waters Systems (INFEWS)" and "Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science (NSF INCLUDES)" build on the outcomes of previous NSF investments to address urgent needs in national priority areas.
- While Congress remains supportive of the basic research supported by NSF, Congress is expected to challenge proposed funding increases for the Geosciences (GEO) and Social, Behavioral and Economics (SBE) Directorates. Additionally, concerns remain over issues of transparency and oversight.

New and Signature Initiatives

The President's budget request for NSF for FY 2016 continues to support cross-disciplinary research through NSF-wide activities and initiatives. The new and signature initiatives outlined below build on Administration priorities, linking fundamental research to societal needs.

Understanding the Brain (UtB)
The Understanding the Brain (UtB) initiative includes NSF supported cognitive science and neuroscience research as well as activities specifically focused on the Administration's Brain Research through Advancing Innovation and Neurotechnologies (BRAIN) initiative. UtB would be supported at $143.9 million in FY 2016, 35.2 percent above similar activities supported in FY 2015. Within this amount, $72 million would support the BRAIN Initiative. Priorities for UtB include the "development of innovative technologies, tools and instrumentation, computational infrastructure, theory, and models to understand the brain; increased understanding of relationships between neuronal activity, cognitive processes, and behavior; exploration of links between environment, behavior, and brain function; and training for the next generation of neuroscientists and neuroengineers."

Risk and Resilience
The Risk and Resilience initiative would be supported at $58 million in FY 2016, which is 190 percent above similar activities supported in FY 2015. The program aims to improve predictability and risk assessment and increase resilience to extreme events to ensure minimal impact on quality of life, society, and the economy. This initiative includes current investments in the Directorate for Engineering (ENG), such as "Critical Resilient Interdependent Infrastructure Systems and Processes" as well as new programs such as "Prediction of and Resilience against Extreme Events," led by the Directorate for Geosciences (GEO).

Innovations at the Nexus of Food, Energy, and Waters Systems (INFEWS)
The new INFEWS initiative would be supported at $75.0 million for FY 2016. INFEWS is an NSF-wide interdisciplinary initiative that aims to understand, design, and model the interconnected food, energy, and water systems. INFEWS builds on previous NSF investments such as the Science, Engineering, and Education for Sustainability (SEES) initiative, and includes all areas of science and engineering to address the relevant natural, social, and human-built factors. NSF expects to create a new INFEWS program as well as issue individual dear colleague letters in priority topic areas and emphasize the food-energy-water-theme in other NSF-wide programs. INFEWS will also be a priority research theme for the FY 2016 NSF Research Traineeship (NRT) competition.

Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science (NSF INCLUDES)
NSF INCLUDES is a new initiative for FY 2016 that would be supported at $15 million. NSF INCLUDES is planned to be a six year activity through FY 2020 and would support NSF-wide activities as well as domain specific efforts to increase the participation of underrepresented groups in science, technology, engineering, and mathematics (STEM) fields. Efforts for FY 2016 will include the development of a new concept to focus collaborative action as well as the launch of two new pilot models for inclusion in professional and social networks and empowering youth through engagement in STEM. NSF INCLUDES builds on previous NSF investments of around $800 million in broadening participation.

Additional Priorities
The FY 2016 budget request also includes the following priorities and highlights:

- Synthetic Biology - $60 million to support the design and construction of new biological components as well as the redesign of existing biological systems.
- Urban Science - $7.5 million to support research and development for critical infrastructure and applications that address urban issues such as sustainability.
- U.S. Activities in the Antarctic - $18.5 million to increase operational efficiency.

Ongoing Areas of Interest

Clean Energy / Sustainability
The FY 2016 budget request includes $377.2 million, a 2 percent increase above FY 2015 levels, to support fundamental research and education on clean energy technologies including solar, wind, wave, and geothermal as well as alternative fuels (chemical and biofuels). Under the clean energy technology program, NSF also supports research into the collection, conversion, storage, and distribution of energy sources. The budget would also support the NSF-wide SEES initiative at $80.5 million for FY 2016, 42.1 percent below the FY 2015 level. This continued reduction of funding for SEES is in-line with original plans to complete the program by FY 2017. Successful outcomes of SEES projects have contributed to the development of the INFEWS and Risk and Resilience programs outlined above.

Advanced Manufacturing
NSF supports advanced manufacturing through its Cyber-Enabled Materials, Manufacturing, and Smart Systems (CEMMSS) program. In FY 2016, CEMMS would be funded at $257.0 million, an increase of 11 percent over FY 2015 levels. The CEMMS program supports research into materials, advanced manufacturing, robotics, and cyber-physical systems, and contributes to interagency priorities including the Materials Genome Initiative (MGI), the Advanced Manufacturing Partnership (AMP), and the

National Robotics Initiative (NRI). Within CEMMS, Advanced Manufacturing funding is proposed at $176.6 million, a 7.2 percent increase over FY 2015 funding. For FY 2016, NSF plans to build towards a cyber-manufacturing program and plans to support research in biomanufacturing as well as continuing ongoing efforts,

Cyberinfrastructure Framework for 21st Century Science, Engineering, and Education (CIF21)
The budget request includes $143.1 million to support the CIF21 initiative, 10.9 percent above FY 2015. CIF21 is intended to provide the advanced cyberinfrastructure and new computational capabilities that the NSF community needs to accelerate scientific discovery and innovation. Through CIF21, NSF will continue to support the BIG DATA solicitation, which would be broadened to address issues related to sustainability and long-term data management.

Innovation Corps (I-Corps™)
The Administration continues to support the NSF I-Corps program and would include $30 million in FY 2016, 14.4 percent above FY 2015 funding. Funding would support up to 20 I-Corps™ nodes and up to 220 I-Corps™ sites.

NSF Research Traineeship (NRT)
The NRT program would receive $62.0 million in its third year of operation, a slight increase of 0.7 percent above FY 2015 levels. The NRT program continues to identify priority research themes in areas of national need. For FY 2016, NSF plans to add UtB and INFEWS as priority areas to the existing emphasis on computation- and data-enabled science and engineering. NRT aims to support innovative approaches to graduate education in these areas as well as other areas of national need and emerging scientific priority.

Research at the Interface of Biological, Mathematical, and Physical Sciences (BioMaPS)
BioMaPS would receive $32.8 million, 12.1 percent above FY 2015 levels. BioMaPS is a collaboration between the Biological Sciences, Engineering, and Mathematical and Physical Sciences Directorates with the goal of advancing science at the interface of these disciplines.

Secure and Trustworthy Cyberspace (SaTC)
The SaTC program would be supported at $124.3 million in FY 2016, a slight increase of 1.2 percent above FY 2015. SaTC aims to lay the foundations of cybersecurity research for years to come and aligns with the four thrusts outlined in the *Trustworthy Cyberspace: Strategic Plan for the Federal Cybersecurity Research and Development Program.*[19] NSF plans to add a new Transition to Education mechanism in FY 2016 to support transition of research results to relevant curricula.

Science, Technology, Engineering, and Mathematics (STEM) Education
NSF's STEM education priorities, led by the Directorate for Education and Human Resources (EHR) remain focused on graduate and undergraduate education. The President's budget request would include $134.6 million for the Improving Undergraduate STEM Education (IUSE) umbrella, a 28 percent increase over FY 2015. Additionally, the Research Experiences for Undergraduates (REU) would be supported at $78 million. IUSE is an NSF-wide effort to improve undergraduate STEM education that includes individual programs in EHR and individual research directorates. FY 2016 increases are planned

[19] http://www.whitehouse.gov/sites/default/files/microsites/ostp/fed_cybersecurity_rd_strategic_plan_2011.pdf

to support emphasis on scaling evidence-based instructional practices. EHR Core Research (ECR) remains a top priority for NSF and would be supported at $103.8 million in FY 2016, an increase of 47 percent. In contrast to previous budget requests, Advancing Informal STEM Learning (AISL) is proposed for a 9.1 percent increase rather than a funding reduction. Discovery Research K-12 is also proposed for a 9.7 percent increase.

Source: The full NSF FY 2016 Budget Request can be viewed at: http://www.nsf.gov/about/budget/fy2016/toc.jsp.

National Science Foundation

(In thousands)

	FY 2015 Estimate	FY 2016 Request	FY 2016 Request vs. FY 2014
NSF, total	**7,344,210**	**7,723,550**	**379,340 (5.2%)**
Research and Related Activities	**5,933,650**	**6,186,300**	**252,660 (4.3%)**
Biological Sciences	731,030	747,920	16,890 (2.3%)
Computer and Information Science and Engineering	921,730	954,410	32,680 (3.5%)
Engineering	892,310	949,220	56,910 (6.4%)
Geosciences	1,304,390	1,365,410	61,020 (4.7%)
Mathematical and Physical Sciences	1,336,720	1,366,230	29,510 (2.2%)
Social, Behavioral, and Economic Sciences	272,200	291,460	19,260 (7.1%)
International and Integrative Activities	473,860	510,170	36,310 (7.7%)
US Arctic Research Commission	1,410	1,480	70 (5.0%)
Education and Human Resources	**866,000**	**962,570**	**96,570 (11.2%)**
Major Research Equipment and Facilities Construction	**200,760**	**200,310**	**-450 (0.2%)**
Agency Operation and Award Management	**325,000**	**354,840**	**29,840 (9.2%)**
National Science Board	**4,370**	**4,370**	**--**
Office of Inspector General	**14,430**	**15,160**	**730 (5.1%)**

U.S. Department of Agriculture

The President's FY 2016 budget request would provide $25 billion in discretionary funding for the U.S. Department of Agriculture (USDA), which is an increase of about $0.8 billion (3.3 percent) above the FY 2015 enacted level. Within this discretionary request, significantly large increases are proposed for the Agricultural Research Service (ARS) and the National Institute of Food and Agriculture (NIFA).

- The mission of USDA continues to align well with the Administration's priorities, especially in the areas of nutrition, climate, and rural development. These goals would be accomplished in part by supporting the Special Supplemental Nutrition Program for Woman, Infants, and Children (WIC) and other child nutrition programs, doubling funding for broadband internet access to rural residents, and enabling landscape and watershed restoration efforts. Furthermore, the President's FY 2016 budget request would make strategic investments in USDA's research portfolio to strengthen key activities in biomanufacturing, pollinator health, antimicrobial resistance, and plant and animal breeding, among other areas.
- In the FY 2016 budget request, the Administration touts the importance of science and technology to the advancement of agriculture. NIFA's primary competitive extramural research program, the Agriculture and Food Research Initiative (AFRI), would receive a more aggressive funding increase than has been proposed in recent years. Specifically, the President's budget request for AFRI is $450 million, which would be an increase of 38.5 percent over the FY 2015 requested and enacted level of $325 million. ARS, USDA's intramural research arm, would also receive a significant boost in funding under the Administration's proposed budget, including $205.9 million for the modernization of buildings and facilities identified in USDA's April 2012 Capital Investment Strategy.
- It is not expected that the President's request will pass Congress in its current form, and USDA appropriations in general have not kept pace with the Administration's requests in previous years due to overall budget constraints. However, Congress continues to voice bipartisan support for USDA research programs, demonstrated by both House and Senate approval of the President's FY 2015 funding request for AFRI last year. Furthermore, passage of the 2014 Farm Bill temporarily resolved some of the more controversial issues surrounding the USDA budget, and this year, the focus will be on overseeing the implementation of the Farm Bill.

New and Signature Initiatives

Under the President's FY 2016 proposal, NIFA would receive a total discretionary budget of about $1.5 billion, a 16.4 percent increase over the FY 2015 level. Additionally, the request proposes about $1.4 billion in discretionary spending for ARS, representing an 18.8 percent increase above FY 2015 appropriations.

Agriculture and Food Research Initiative (AFRI)
In addition to proposing an increase in the AFRI budget to $450 million, the President's budget request highlights AFRI activities in climate variability and change, water resources, food security, childhood obesity prevention, food safety, sustainable bioenergy production, education and literacy, and fundamental science. The request also includes language supportive of AFRI's Foundational and Challenge Area Programs, as well as efforts to leverage interagency collaborations.

Innovation Institutes
In a slight change from the Innovation Institutes proposed last year, the FY 2016 budget request would provide a total of $80 million to create two new, multidisciplinary Innovation Institutes. The Institutes are intended to be established through public-private partnerships that would leverage federal funding to address specific, emerging challenges related to agricultural research. One institute would focus on advanced biomanufacturing and a second would focus on development of nanocellulosics.

Competitive Capacity Awards Program
The President's budget request would provide $20 million for the creation of a new capacity program to competitively fund 1862 and 1890 land-grant universities. The Competitive Capacity Award Program would be a component of the Hatch, Evans-Allen, Smith-Lever 3(b) and 3(c), and 1890 Extension programs and would offer multistate grants to address research, infrastructure, and training coordination and needs. The proposed program would focus primarily on plant and animal breeding advances in FY 2016.

Proposed Reductions and Terminations

Within NIFA, reductions were proposed within Animal Health and Disease Research, Pest Management/Crop Protection Activities, Higher Education Programs, and Science, Technology, Engineering, and Math (STEM) Programs. A reduction of about $2 million would be made to the ARS Human Nutrition program.

Continuing a proposal from last year, six STEM programs, including the Higher Education Challenge Grants and the Graduate and Postgraduate Fellowship Grants, would be consolidated into the Department of Education and the National Science Foundation as part of a government-wide effort to streamline and minimize duplication among STEM programs.

In an attempt to build on reforms included in the 2014 Farm Bill, the FY 2016 budget request proposes modifications to the structure of the crop insurance program, which would result in estimated savings of $16 billion over 10 years.

The budget request would also change how wildfire suppression is funded by treating the associated expenses as natural disaster costs outside of the overall discretionary spending caps.

Ongoing Areas of Interest

The budget request for USDA is organized around five strategic program goals: helping rural communities become self-sustaining and economically healthy; ensuring forest, land, and water resources are conserved, restored, and protected from climate change; promoting agricultural production and biotechnology exports to improve food security; ensuring the nation's children have access to safe and nutritious food; and creating a 21st Century USDA that is productive, efficient, and adaptable.

The President's continued support for USDA's Research, Education, and Economics (REE) mission area signals the acknowledgement that USDA REE activities are critical to the advancement of a number of the Administration's broader priorities. For example, ARS would receive $17 million for antimicrobial

resistance activities, $19 million to address climate change-associated risks to agriculture, and additional funding to understand and improve pollinator health.

As in last year's request, the FY 2016 budget request would provide $10 million to establish a Hispanic-Serving Agricultural Colleges and Universities Endowment Fund to increase participation of Hispanic students in agricultural sciences.

Mandatory spending on Farm Bill programs of interest were restored with passage of the 2014 Farm Bill. The FY 2016 budget request specifies that the Organic Agriculture Research and Education Initiative would receive $20 million, the Beginning Farmer and Rancher Development Program would receive $20 million, the Specialty Crop Research Initiative would receive $55 million, and the Biomass Research and Development Program would receive $3 million.

The budget request also sustains formula funding under the Smith-Lever Act 3(b) and 3(c) and Hatch Act grants at current funding levels.

Source: USDA's FY 2016 budget materials can be viewed at:
http://www.obpa.usda.gov/budsum/fy16budsum.pdf.

U.S. Department of Agriculture

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
USDA, Research, Education, Economics	**2,889,000**	**3,360,000**	**471,000 (16.3%)**
Agricultural Research Service (ARS)*	1,177,000	1,398,000	221,000 (18.8%)
National Institute of Food and Agriculture (NIFA)*	1,295,000	1,508,000	213,000 (16.4%)
AFRI	325,000	450,000	125,000 (38.5%)
Hatch Act	244,000	244,000	--
Hispanic Serving Institutions Education Grants	9,200	9,200	--
Higher Education Programs	38,000	35,000	-3,000 (7.9%)
Smith-Lever Act 3(b) and 3(c)	300,000	300,000	--
Food Safety and Inspection Service (USDA)*	1,016,000	1,012,000	-4,000 (0.4%)

*Total represents discretionary programs only.

U.S. Geological Survey

The President's FY 2016 budget request includes $1.2 billion for the U.S. Geological Survey (USGS), which is an increase of $149.8 million or 10.5 percent over the FY 2015 enacted level.

- The frequency of natural disasters and utilizing land resources for carbon sink innovation has highlighted the importance of USGS's research mission. The President's request would provide increases for most of the major accounts, although **Earthquake Hazards** would experience a 2.6 percent decrease.
- As part of the Survey's efforts to tackle water challenges, the request provides $31.0 million for monitoring and response to drought, increased access of information through a new Open Water Data Initiative, and development of watershed adaptive management tools. The President's budget would include $222.9 million for **Water Resources** and consolidate the mission into four programs: Groundwater and Streamflow Information; National Water Quality; Water Availability and Use Science; and Water Resources Research Act. The *Water Resources Research Act* program would be maintained at the FY 2015 enacted level of $6.5 million.
- The **Natural Hazards Account**, favored by both Republicans and Democrats, would enjoy an $11.2 million increase overall. This would include proposed funding for earthquake early warning and volcanic monitoring in addition to other activities.
- The FY 2016 request proposes $77.6 million that would provide support for the Landsat satellite program, sustaining the data stream, and outlining a long-term Sustainable Land Imaging Program for the next twenty years.

Note: At the time of writing, the USGS Green Book had yet to be released to the public.

New and Signature Initiatives

For the fourth year in a row, the request seeks $19.5 million to continue funding an interagency effort with the Department of Energy (DOE) and the Environmental Protection Agency (EPA) on hydraulic fracturing research and development.

Outside of USGS, but within the larger Department of Interior (DOI), the budget request proposes a new coastal resilience program which would be modeled on the Hurricane Sandy Competitive Grant Program, focusing on "healthy ecosystems to deliver valuable ecosystem services, including flood attenuation and storm risk reduction, to nearby communities."[20]

Ongoing Areas of Interest

[20] http://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/fact_sheets/building-a-clean-energy-economy-improving-energy-security-and-taking-action-on-climate-change.pdf, "Middle Class Economics: Building a Clean Energy Economy, Improving Energy Security, and Taking Action on Climate Change," Office of Science and Technology Policy, 2015.

For FY 2016, the President's budget request for USGS includes the following highlights:

1. Meeting Water Challenges in the 21st Century
2. Powering Our Future and Supporting Sustainable Energy and Mineral Development
3. Responding to Natural Hazards
4. Building a Landscape-Level Understanding of Our Resources
5. Foundations for Land Management
6. Supporting Community Resilience in the Face of a Changing Climate

Source: USGS's FY 2016 Budget Overview can be viewed at:
http://www.doi.gov/budget/appropriations/2016/highlights/upload/BH051.pdf.

U.S. Geological Survey
(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2016
USGS, total	**1,081,978**	**1,195,886**	**113,908 (10.5%)**
Natural Hazards	**135,186**	**146,353**	**11,167 (8.3%)**
Earthquake Hazards	59,503	57,952	**-1,551 (2.6%)**
Global Seismographic Network	4,853	9,799	4,946 (101.9%)
Ecosystems	**157,041**	**176,299**	**19,258 (12.3%)**
Climate and Land Use Change	**135,975**	**191,828**	**55,853 (41.1%)**
Energy, Minerals, and Environmental Health	**92,271**	**103,302**	**11,031 (12.0%)**
Water Resources	**211,267**	**222,878**	**11,611 (5.5%)**
Water Resources Research Act	6,500	6,500	--
Core Science Systems	**107,228**	**126,967**	**19,739 (18.4%)**
Facilities	**100,421**	**114,327**	**13,906 (13.9%)**

Corporation for National and Community Service

The President's FY 2016 budget request includes $1.18 billion for the Corporation for National and Community Service (CNCS), which is approximately 12 percent above the FY 2015 enacted level.

The Corporation continues to be a priority for the Administration. Through service, volunteerism, and civic participation, the CNCS budget request would support the President's mission to bolster middle class economics and encourage citizens to solve community problems. CNCS focus areas include economic opportunity, education, environmental stewardship, disaster services, healthy futures, and veterans and military families.

The FY 2016 budget request would increase funding for the AmeriCorps program to support over 90,000 AmeriCorps members, including retired Americans and disconnected youth. Retired Americans would have the opportunity to continue to apply their skills and experiences through AmeriCorps with the goal of expanding individual opportunity and stability to live independently and ultimately further economic independence and healthy living. Similarly, summer programs for disconnected youth would provide opportunities to explore career paths, develop skills, and earn an educational award to contribute to postsecondary education, while giving back to communities.

The Social Innovation Fund (SIF) would continue to be a signature initiative, supporting communities through innovative solutions in three areas: economic opportunity, youth development, and healthy futures. Through the budget request 20 percent of SIF funds would be allocated to Pay for Success projects. Additionally, the budget request would support further oversight and accountability at CNCS by refining the Enterprise Risk Management (ERM) program and improving the efficiency and effectiveness of CNCS systems for grantees and institutions.

Source: The CNCS FY 2016 Congressional Budget Justification can be viewed at: http://www.nationalservice.gov/sites/default/files/page/CNCS_FY_2016_Budget_Congressional_Budget_Justification.pdf*; a quick reference budget chart can be viewed at:* *http://www.nationalservice.gov/sites/default/files/page/CNCS_Budget_Chart_for_FY_2016.pdf*.

Corporation for National and Community Service

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
CNCS, total	**1,054,954**	**1,184,461**	**129,507 (12.3%)**
Social Innovation Fund	70,000	70,000	--
AmeriCorps State and National	335,430	425,105	89,675 (26.7%)
AmeriCorps VISTA	92,364	96,885	4,521 (4.9%)
AmeriCorps NCCC	30,000	30,500	500 (1.7%)

Interagency Initiatives and Priorities

Advanced Manufacturing

The President's budget request for FY 2016 would provide $2.4 billion for advanced manufacturing research and development across the federal agencies. The President continues to support the National Network for Manufacturing Innovation (NNMI) with funding proposed for seven additional institutes to build on the nine institutes that are underway.

Existing NNMI Institutes:

- Department of Defense:
  - America Makes (*Location: Youngstown, OH; Launched: 8/16/2012*)
  - Digital Manufacturing & Design Innovation Institute (*Location: Chicago, IL; Launched: 2/25/2014)*
  - Lightweight Innovations for Tomorrow (*Location: Detroit, MI; Launched: 2/25/2014*)
- Department of Energy:
  - PowerAmerica (*Location: Raleigh, NC*; *Launched: 1/15/2014*)
  - Institute for Advanced Composites Manufacturing Innovation (*Location: Knoxville, TN*; *Launched: 1/9/2015*)

Yet-To-Be Awarded NNMI Institutes:

- Department of Defense:
  - Integrated Photonics Institute
  - Flexible Hybrid Electronics
  - *One additional un-disclosed topic Institute is planned for the Department of Defense in addition to the 8 known at this time*
- Department of Energy:
  - Smart Manufacturing (*Notice of intent posted 12/11/14*)

For the seven new Institutes, $350 million of additional discretionary funding would be made available to support new centers supported through the Department of Commerce (DOC), the U.S. Department of Agriculture (USDA), the Department of Defense (DOD), and the Department of Energy (DOE). The President's budget request also proposes $1.9 billion in mandatory spending to fund a total of 45 institutes over the next 10 years.

Additional research and development (R&D) priorities to support advanced manufacturing as highlighted in the FY 2016 President's budget request include:

- Basic research supported by the DOE Office of Science, National Science Foundation (NSF), and the National Institute of Standards and Technologies (NIST).
- Specific advanced manufacturing initiatives at the DOE Advanced Manufacturing Office, NSF, DOD, DOE, and DOC.
- Health care R&D at the National Institutes of Health (NIH) to support research in areas such as Alzheimer's, cancer, other diseases, the BRAIN initiative, and antibiotic-resistance research.
- The President's proposed Precision Medicine Initiative, which would be supported at $215 million at NIH, the Food and Drug Administration (FDA), and the Office of the National

Coordinator for Health Information Technology (ONC), to accelerate the ability for prevention, diagnosis, and treatment tailored for individual patients.

- Agricultural R&D would be supported at $350 million through the USDA Agriculture and Food Research Initiative (AFRI) to support a public-private manufacturing institute in biobased manufacturing. USDA in-house research would support current and new programs in climate change resilience and vulnerability, agriculture sustainability, transformational genetics, antimicrobial resistance, and pollinator health. USDA laboratories would receive $206 million in infrastructure investment to fund laboratory construction and renovation.
- A new $10 billion public-private Scale-Up Manufacturing Investment Fund to be administered by the Small Business Administration (SBA) would support the commercialization of U.S.-made advanced manufacturing technologies.

Source: White House FY 2016 Budget Request: Middle Class Economics: Investing in American Innovation can be viewed at:
http://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/fact_sheets/investing-in-american-innovation.pdf.

Antimicrobial Resistance

The President's FY 2016 budget would provide approximately $1.2 billion for multiple agencies to combat, detect, and prevent illness and death related to antibiotic-resistant bacteria, an increase of more than $550 million above the FY 2015 enacted level. The multi-agency budget request would advance the Administration's ongoing antimicrobial resistance initiatives centered on improving antibiotic stewardship; strengthening antibiotic resistance risk assessment, surveillance, and reporting capabilities; and promoting research innovation.

In September 2014, the White House coordinated the release of a President's Council of Advisors on Science and Technology (PCAST) report to the President, *Combating Antibiotic Resistance,*[21] with the National Strategy on Combating Antibiotic-Resistant Bacteria[22] and the Presidential Executive Order,[23] which established the Task Force for Combating Antibiotic-Resistant Bacteria (Task Force) and emphasized the urgency and significance of addressing this growing issue. Additionally, each of the reports and the Executive Order, as well as the budget request, recognize the importance of a "One Health" approach to reducing antimicrobial resistance, encouraging collaboration among all healthcare providers, veterinary professionals, biomedical researchers, environmental health investigators, food-animal producers, and others.

Though it is unclear whether funding streams for antimicrobial resistance are new or reprioritization of existing funding, federal agencies and departments would allocate significant investments to contribute to the national effort. The **Department of Health and Human Services (HHS)** would receive nearly $1 billion, including more than $461 million for the **National Institutes of Health (NIH)**, a $100 million increase from FY 2015. This funding would support the development of a national database of genomic sequence data on human infections with antibiotic-resistant microorganisms; basic research, surveillance, and epidemiology; the launch of large-scale effort to understand drug resistance; and the expansion of the Antibiotic Resistance Leadership Group to create a rapid response clinical trial network.

The **Biomedical Advanced Research and Development Authority (BARDA)** would receive $192 million, $108 million more than FY 2015, to develop nine new, broad-spectrum antibiotics in partnership with industry. Additionally, BARDA, together with NIH, would allocate at least $20 million for a competition to develop a transformative, affordable diagnostic at the point of patient care. The agencies are currently designing the competition and anticipate announcing a prize or prizes by the end of FY 2016.

Other agencies through HHS would also contribute resources to combating antibiotic-resistant bacteria, including the **Centers for Disease Control and Prevention (CDC)**, which would allocate more than $280 million for research and development, stewardship, antibiotic use and resistance monitoring, as well as outbreak surveillance. CDC would also expand and connect existing monitoring systems, including the National Healthcare Safety Network (NHSN), the Emerging Infectious Disease Program (EIP), and the National Animal Health Monitoring System (NAHMS), among others, for surveillance purposes. Complementing CDC's effort to coordinate communication among healthcare providers, veterinary

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[21] http://www.whitehouse.gov/sites/default/files/microsites/ostp/PCAST/pcast_carb_report_sept2014.pdf, Combating Antibiotic Resistance, President's Council of Advisors on Science and Technology, 2014.
[22] http://www.whitehouse.gov/sites/default/files/docs/carb_national_strategy.pdf, National Strategy for Combating Antibiotic-Resistant Bacteria, The White House, 2014.
[23] http://www.whitehouse.gov/the-press-office/2014/09/18/executive-order-combating-antibiotic-resistant-bacteria, Executive Order – Combating Antibiotic-Resistant Bacteria, The White House, 2014.

professionals, and others, the **Agency for Healthcare Research and Quality (AHRQ)** would invest $10 million to create and improve stewardship programs to reduce the inappropriate use of antibiotics. In addition, the **Food and Drug Administration (FDA)** would allocate $47 million to promote antibiotic stewardship in animal agriculture, in addition to supporting the evaluation of new antibacterial drugs for human treatments and rapid response clinical trials.

As previously emphasized through the Administration's efforts in 2014, the **U.S. Department of Agriculture (USDA)** is a vital stakeholder in the antibiotic resistance initiatives. The use of antibiotics in animal agriculture greatly affects human health and widespread response to antimicrobial resistance prevention and detection. USDA would receive $77 million for antibiotic research and surveillance.

The **Departments of Veterans Affairs (VA) and Defense (DOD)** would receive $85 million and $75 million, respectively. This funding would support addressing antibiotic resistance in healthcare settings, including enhancement of the VA Antimicrobial Stewardship Program, which fosters responsible use of antibiotics and communication among healthcare providers on antibiotic-resistant microorganisms.

Per the President's Executive Order, Combating Antibiotic Resistant Bacteria, the Task Force is required to submit a Five-Year National Action Plan to the President by February 15, 2015. The Task Force was directed to outline specific implementation actions, including goals and milestones for progress, and to address the implementation of the PCAST recommendations. The Action Plan will likely highlight opportunities for stakeholder collaboration and engagement.

Sources:
The White House Fact Sheet: President's 2016 Budget Proposes Historic Investment to Combat Antibiotic-Resistant Bacteria to Protect Public Health is can be viewed at: http://www.whitehouse.gov/the-press-office/2015/01/27/fact-sheet-president-s-2016-budget-proposes-historic-investment-combat-a.
The HHS Budget in Brief can be viewed at: http://www.hhs.gov/budget/fy2016/fy-2016-budget-in-brief.pdf.
The CDC Congressional Justification is can be viewed at: http://www.cdc.gov/fmo/topic/Budget%20Information/index.html.
The NIH Budget Overview is can be viewed at: http://officeofbudget.od.nih.gov/pdfs/FY16/Overview%20(Volume%20I).pdf.

National Nanotechnology Initiative

The President's FY 2016 budget request would provide $1.5 billion for the National Nanotechnology Initiative (NNI), which is the same as the FY 2015 enacted level. NNI is a multi-agency initiative launched in 2001 that coordinates research and development on materials, devices, and systems in the size range of one to 100 nanometers. Participating agencies support fundamental nanoscience, nanotechnology innovation, technology transfer, and nanomanufacturing through individual investigator awards, multi-disciplinary centers of excellence, education and training programs, and the development of new infrastructure and standards.

For FY 2016, changes to NNI are anticipated based on the October 2014, President's Council of Advisors on Science and Technology (PCAST) report: *Fifth Assessment of the National Nanotechnology Initiative (NNI)*. The report states that the NNI has entered its second era referred to as NNI 2.0. Further, given 13 years of previous U.S. government investment of over $20 billion in fundamental nano science, the PCAST recommends that the nanotechnology community shift towards commercialization to enable "the Nation to reap the benefits of this investment."[24] PCAST recommends the commercialization transition occur through the use of Grand Challenges and Prizes to address an issue of significant societal impact. Grand challenges are a broad authority granted to departments and agencies to conduct prize competitions to spur innovation, solve tough problems, and advance their core missions.[25] Some illustrative examples of the NNI 2.0 Grand Challenges provided in the PCAST report include Nano-enabled Desalination of Seawater to Solve the Emerging Water Crisis, Reducing Greenhouse Emissions with Nano-enabled Solid-State Refrigeration, Creating a New Forefront of Manufacturing through Nano 3D Printing, and Development of a Nanoscale Therapeutic for at Least One Major Cancer Type by 2030. In addition, at least one Grand Challenge should contain program elements aimed at manufacturing challenges specific to that focus area.

The transition to commercialization through Grand Challenges will require continuing to support vital discovery and exploratory research across the government, academia, and industry to continue the pipeline of discoveries for future commercialization. Finally, the FY 2016 request notes that NNI agencies and the National Nanotechnology Coordination Office (NNCO) will work with the business community, state and local governments, and the private sector to explore new approaches and leverage existing programs to foster broader commercialization of nanotechnology-enabled products.

Additional information on NNI investments proposed in the FY 2016 budget request is expected in the NNI supplement to the budget request, which is generally produced several weeks after the budget request is released. When finalized, the supplement will be available at http://nano.gov/.

Source: The White House Office of Science and Technology Policy's budget request fact sheet can be viewed at: http://www.whitehouse.gov/sites/default/files/microsites/ostp/rdbudgetchapter2016.pdf. *Additional details will be available in the "NNI Supplement to the President's 2016 Budget" can be viewed at: http://nano.gov.*

[24] http://www.whitehouse.gov/blog/2014/10/10/nanotechnologies-support-national-progress
[25] http://www.whitehouse.gov/sites/default/files/microsites/ostp/competes_prizesreport_fy13_final.pdf

Neuroscience

The President's budget request for FY 2016 proposes over $300 million for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, originally introduced in 2014 at a level of $100 million. At the inception, three agencies took the lead in funding new opportunities to develop technologies to better study the brain and manipulate its function. Since then, several other agencies have committed to aligning some efforts with the Administration's priorities for the Initiative, including the Intelligence Advanced Research Projects Activity (IARPA), the Food and Drug Administration (FDA), and the Department of Energy (DOE). However, all of these are in a more limited capacity compared to the agencies below.

The budget request includes the following proposed investments:

- **National Institutes of Health (NIH):** NIH intends to invest $135 million to continue expanding its portfolio of research that enables the development of tools for mapping the circuitry of the brain and further elucidating the relationship between cognition and behavior. This represents a doubling compared to NIH's investment of $65 million in FY 2015. The details for the NIH direction within the BRAIN Initiative are guided by the long-term scientific plan, "BRAIN 2025: A Scientific Vision," which was released in June 2014. The funding level proposed in the President's budget request would keep NIH on target for its efforts to eventually ramp up to $500 million per year.
- **Defense Advanced Research Projects Agency (DARPA):** DARPA is expected to invest roughly $100 million to develop new sets of tools for imaging and analysis of neurons and synapses within the brain, new neurotechnology-based capabilities, as well as improving point-of-care diagnosis and treatment for wounded warriors. This would be a roughly $20 million increase over FY 2015. Last year DARPA created a new division, the Biological Technologies Office (BTO), to consolidate the biological research which was scattered across the agency under one umbrella. There are now eight different programs under BTO that align with BRAIN Initiative priorities.
- **National Science Foundation (NSF):** Through its newly renamed program, "Understanding the Brain (UtB)," the NSF intends to invest $144 million in FY 2016. NSF would contribute half of that, $72 million, to align with the Administration's BRAIN Initiative priorities, a substantial increase over last year's investment of $48 million in the initiative's activities. UtB, previously titled "Cognitive Science and Neuroscience" is identified in the FY 2016 budget request from NSF as one of four cross-agency initiatives of significance. This is a multi-year effort to continue their support for enabling understanding of the complex structures and activities within the brain.

Additionally, given the high toll inflicted by those suffering from Alzheimer's disease as well as those caring for them in terms of lost productivity and financial cost, NIH will continue to expand its investment in treating this disease. NIH intends to commit an additional $51 million in FY 2016, for a total estimated investment in Alzheimer's disease research of $638 million.

Source: The NIH FY 2016 Budget Request can be viewed at: http://officeofbudget.od.nih.gov/pdfs/FY16/Overview%20(Volume%20I).pdf; The "Brain 2025: A Scientific Vision" can be viewed at: http://www.braininitiative.nih.gov/2025/BRAIN2025.pdf; NSF's "Understanding the Brain" can be viewed at: http://www.nsf.gov/about/budget/fy2016/pdf/42_fy2016.pdf.

Precision Medicine Initiative

The President's budget request includes $215 million for the Precision Medicine Initiative. Precision medicine is an evolving field that uses an individual's genetic and biologic information to develop and deliver the right therapies to the right patient at the right times. It has the potential to transform healthcare cost and delivery by providing highly tailored care which should increase the success of therapies for disease as well as create better ways to sustain health and wellness. Although this field has been evolving for more than two decades and the National Institutes of Health (NIH) has been making strategic investments in this space for some time, the Administration hopes a big investment can help accelerate discovery in this field and thus the accessibility of new cures.

The immediate priority for the initiative will be focused on addressing cancer through translational research. The National Cancer Institute (NCI), therefore, would receive $70 million to help facilitate a more robust pipeline of research identifying molecular signatures in cancer and developing new therapies. However, as this field advances, there will be efforts through this initiative to address many different diseases and conditions beyond cancer, such as metabolic disorders and cardiovascular disease.

The remaining $145 million would support the Big Data element of this initiative and go to various agencies within the Department of Health and Human Services (HHS). The NIH would receive $130 million to launch a database with the goal of creating a national, longitudinal cohort of a million volunteers that share their electronic medical records, genomic data, and other biological information of interest. The Food and Drug Administration (FDA) would receive $10 million to help support a new regulatory structure for the database intended to help stimulate further innovation with the data and protect individuals' information. The Office of the National Coordinator for Health Information Technology (ONC) would receive $5 million to help establish and implement interoperability standards to promote secure data sharing across systems so the genetic information could be used by researchers and physicians.

Additionally, building on the success of the Human Genome Project and the current model for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, the President is seeking to leverage new opportunities through public-private partnerships in this space to develop the necessary infrastructure and frameworks.

Source: The White House fact sheet on the Precision Medicine Initiative can be viewed at: http://www.whitehouse.gov/the-press-office/2015/01/30/fact-sheet-president-obama-s-precision-medicine-initiative.

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