

## Obama Administration's priorities for research funding

### **National Science Foundation (NSF):**

The National Science Foundation (NSF) provided details this week of the agency's new priorities for the FY2010 budget. NSF received a one-time appropriation of \$3.0 billion from the American Recovery and Reinvestment Act (ARRA) of 2009, raising its overall FY2009 appropriation to \$9.49 billion. For FY10, the budget request by major funding accounts for NSF is as follows:

- Research and Related Activities \$5,733.24 million (10.6% over FY2009 Current Plan)
- Education and Human Resources \$857.76 million (1.5% over FY2009 Current Plan)
- Major Research Equipment and Facilities Construction \$117.29 (22.8% decrease from FY2009 Current Plan)

New from last week's announcement, NSF has provided details of the agency's new priorities and investments for the FY2010 budget.

Of note for Clemson University's priorities are the following initiatives:

**Potentially Transformative Research.** In FY2010, each research division will set aside a minimum of \$2 million (\$92 million Foundation-wide) to explore methodologies that help support transformative, risky but high-reward, research.

**New Faculty and Young Investigators.** (11.6% increase to \$203.80 million) NSF's Foundation-wide Faculty Early Career Development (CAREER) program supports junior faculty who integrate topnotch education with outstanding research. The five-year awards emphasize exploring new approaches and pursuing potentially transformative activities

**Graduate Research Fellowship.** (6% increase to \$122.0 million in FY2010) To launch the Presidential initiative of tripling the number of new fellowships awarded annually by FY2013, the Request supports 1,654 new Fellowships in FY2010.

**Climate Change Education Program.** (\$10.0 million each in FY2009 and FY2010) This new program will catalyze activity at the national level and help develop the next generation of environmentally engaged scientists and engineers.

**Office of Cyberinfrastructure.** (9.9% increase to \$219 million in FY2010) To support research, development, acquisition, and operation of advanced shared and connecting cyberinfrastructure (CI) that enables otherwise unrealizable advances in 21st century science and engineering research and education.

*A PDF of the full NSF FY2010 Budget Overview document is attached.*

### **National Oceanic and Atmospheric Administration (NOAA):**

For FY2010, the Administration has requested \$4.5 billion for NOAA, which represents an increase of \$110 million, or 2.5%, over level included in the FY2009 omnibus appropriations bill.

The FY2010 budget can be broken down into two accounts: \$3.206 billion for Operations, Research, & Facilities (ORF); and \$1.393 billion for Procurement, Acquisition, & Construction (PAC). These two accounts can be divided further into six project categories:

- Satellites - \$1.429 billion (21.3% increase)
- Fisheries - \$911.8 million (3.7% increase)

- Research & Climate - \$404.6 million (0.9% decrease)
- Oceans & Coasts - \$502.7 million (10.0% decrease)
- Weather - \$963.9 million (0.5% increase)
- Program Support - \$452.7 million (19.0% decrease)

The Satellites category, composed primarily of satellite acquisition projects, received both the largest FY2010 funding request and the largest increase of any FY2010 funding request over the FY2009 Omnibus Appropriation. In addition, NOAA requested \$20.6 million for its Competitive Grant Program, an increase of \$4.0 million from FY2009.

On a related note, in FY2009, NOAA also received \$830 million in appropriations from the ARRA. Congress approved the NOAA spending plan for the ARRA appropriations on May 7, 2009. The \$830 million will be divided into three groups: \$230 million for habitat restoration, navigations services, vessel maintenance, and environmental reviews/consultations; \$430 million for the construction and repair of NOAA facilities, ships, and equipment, and improvements for weather forecasting and satellite development; and \$170 million for climate modeling activities.

Below is a further breakdown of the \$404.6 million request for Office of Atmospheric Research (OAR):

- Climate Research: \$209.8 million
- Weather and Air Quality Research: \$63.9 million
- Ocean, Coastal, and Great Lakes Research: \$107.4 million
- Information Technology, Research and Development, and Science Education: \$13.1 million
- Procurement, Acquisition, and Construction: \$10.4 million

*A PDF of a NOAA FY2010 Budget Highlights document is attached.*

### **Department of Education (ED):**

A cornerstone of the Obama Administration higher education policy is its proposal to turn the Pell Grant Program into an entitlement program from its current status as a discretionary line item. The documents released today reaffirm this proposal and calls for the maximum award to be set at \$5,550 for the 2010-2011 academic year. In addition to turning the program into an entitlement, the budget calls for the maximum to increase yearly at the same rate as the consumer price index (CPI) plus one percentage point.

The documents released today also reconfirm the Administration's desire to end the Federal Family Education Loan Program (FFELP). The Administration proposes to originate all new federal student loans after July 1, 2010, through the Direct Loan (DL) program. In order to ensure that the Department has the capability to handle the new loan volume, the budget calls for the Department's student aid administration budget to increase by \$27 million to \$870 million in FY2010.

While the Pell and student loan proposals have received the most attention from the community and the press, the Administration has proposed a set of changes to the current Perkins Loan Program. While the Administration has called for the size of the program to be increased to \$6 billion, until today, many of the details about the Administration's proposal were less clear.

The Department is proposing changes to the delivery mechanism of the program, moving away from the institution-based "revolving funds" model and to the same system that institutions currently use for Pell Grants and Direct Loans. The Perkins loans would be serviced by private companies that currently service the direct loans and FFEL loans acquired by the Department.

The distribution formula would be altered as well. It appears that the new proposal could include a number of new conditions that institutions must meet. The appendix states that the Administration "intends for this new formula to encourage colleges to control costs and offer need-based aid to prevent excessive indebtedness. It may also reward schools that enroll and graduate students from low- and

middle-income families.” Furthermore, institutions would have the ability to determine student eligibility and the borrowers would continue to receive an interest of five percent, while the in-school subsidy would be eliminated. Institutions would be required to calculate and return to the federal government the federal share of the current revolving funds.

The budget also calls for a new mandatory five-year, \$2.5-billion college access and completion fund. Funds would go primarily to states to improve graduation rates among high need students. States would be given the flexibility to fund and support programs.

With respect to other student aid programs, the Administration proposes to fund the Supplemental Education Opportunity Grant (SEOG) program at \$757 million in FY2010, slightly below the current level. The budget also calls for the work-study program to be funded at \$981 million, compared to the \$1.18 billion in FY2009. The program, however, received \$200 million in the American Recovery and Reinvestment Act (ARRA) earlier this year.

### **National Endowment for the Humanities (NEH):**

The Obama budget seeks \$171.3 million for the NEH, which represents an increase of \$16.3 million over the FY2009 appropriated levels. This sum includes \$10 million to run the National Capital Arts and Cultural Affairs, currently administered by U. S. Commission of Fine Arts.

Additional information about the NEH budget request is available at the following URL:  
<http://www.neh.gov/news/archive/20090507.html>.

*A PDF of NEH FY2010 highlights is attached.*

### **DOE:**

The Administration's FY2010 DOE budget request reiterates the President's pledge to double the federal investment in basic research at the DOE over ten years. The DOE Office of Science budget increases nearly 4% with a FY2010 request of \$4.941 billion. Within the Office of Science budget, the Basic Energy Sciences (BES) division request is \$1.685 billion, a 7.2% increase.

*The Department's budget proposes a new cross-agency program, Energy Innovation Hubs, to be funded at \$280 million. DOE hopes to fund eight multi-disciplinary Innovation Hubs, under initial five-year grants with a projected total of \$35 million in grants the first year, to conduct research and development in the following areas: Solar Electricity, Fuels from Sunlight, Batteries and Energy Storage, Carbon Capture and Storage, Grid Materials, Devices, and Systems, Energy Efficient Building Systems Design, Extreme Materials, and Modeling and Simulation. Universities will be eligible to lead a Hub, which would be multi-partner (Universities, National Labs, and Industry) endeavors.*

The DOE budget request states that the agency will continue to support the current 46 Energy Frontier Research Centers (EFRCs), but does not call for a new EFRC solicitation. The agency will also continue to fund the Advanced Research Projects Agency – Energy (ARPA-E) with a budget request of \$10 million for administrative purposes. The Administration's budget assumes that ARPA-E will support research grants with the \$400 million received in ARRA funding.

In addition, the budget request launches a new K-20+ science and engineering education initiative, RE-ENERGYSE (Regaining our ENERGY Science and Engineering Edge), with a \$115 million budget request. Of note for higher education, the initiative would provide funding for graduate research fellowships, training grants to universities to establish multidisciplinary clean energy education programs, and grants for expanded energy-related research opportunities for undergraduates. The Office of Science's Workforce Development for Teachers and Scientists program would complement the RE-ENERGYSE initiative, with a request \$20.6 million, an increase of 52%.

With respect to other DOE programs, the budget request includes the following funding levels:

- Office of Science Total: \$4.941 billion (3.9% increase over FY09 budget)
- High Energy Physics: \$819 million (2.9 % increase)
- Nuclear Physics: \$552 million (7.8 % increase)
- Biological and Environ Research: \$604 million (0.4 % increase)
- Basic Energy Sciences: \$1.685 billion (7.2 % increase)
- Advanced Scientific Computing: \$409 million (10.9 % increase)
- Fusion Energy Science: \$421 million (4.6 % increase)
- Science Lab Infrastructure: \$133 million (8.1 % decrease)
- Workforce and Development: \$20.6 million (52.2 % increase)

*A PDF of DOE FY2010 budget highlights is attached.*

### **National Institutes of Health (NIH):**

The President's FY2010 budget request includes \$30.76 billion for NIH from the Labor-HHS-Education appropriations bill. This represents a \$442-million (1.46%) increase over the FY2009 regularly appropriated level (The budget request also includes \$79 million from the Interior appropriations bill specifically for Superfund research) and follows up on the \$10 billion infusion for the agency in the ARRA.

The NIH budget request includes funding for strategic priorities such as cancer research, autism research, nanotechnology safety research, and a new effort in bioethics.

The FY2010 request provides \$6 billion for cancer research across the agency, an increase of \$268 million (5%) over estimated FY2009 levels. This is the first of an eight-year plan to double cancer research funding.

The NIH portion of a Department-wide (Health and Human Services) initiative on autism research is by far the largest: NIH's share, per the budget request, would be \$141 million (an increase of \$19 million, or 16 percent, over estimated FY2009 levels), with the Centers for Disease Control and Prevention and the Health Services Administration providing an additional \$70 million.

Under the FY2010 budget proposal, the National Institute of Environmental Health Sciences would receive an additional \$9 million for a new initiative in nanotechnology-related environment, health and safety research.

The Administration request also outlines \$5 million from the Office of the Director to launch a new effort in bioethics. This commitment to bioethics research and training would be funded in coordination with the various Institutes and Centers and is proposed as an important undertaking to maintain and enhance public trust and confidence as NIH-funded research explores new frontiers in science, bioinformatics and biomedical and behavioral medicine.

*A PDF of NIH FY2010 budget highlights is attached.*

### **Department of Agriculture (USDA):**

The first Obama USDA budget would fund research and education activities at the agency at \$622.9 million, a decrease of approximately \$68.2 million, primarily as a result of reductions in "special grants." Extension activities would see an increase of nearly \$13 million to \$487.0 million while integrated activities as a whole would be level-funded at \$56.9 million.

The budget calls for significant increases for Institution Challenge Grants and the Secondary/2-year Postsecondary program and would create a new "Improved Rural Quality of Life Grants" program.

## **Department of Defense (DOD):**

The Administration seeks to continue its overall commitment to basic and applied research in the defense budget as well, although it does not call for increases across the board. The numbers included in the analysis below represents comparisons between the FY2010 *budget request* and the FY2009 *budget request*, and *not* a comparison between the FY2010 request and the *FY2009 final appropriation*:

Overall basic research ("6.1") would see an increase of \$99.6 million (6%) over the FY2009 request while the budget proposes to virtually level fund all applied research programs ("6.2") with a proposed cut of \$1.7 million.

- Army

Army basic research programs would see a slight decrease of \$2 million (0.6%) below the FY2009 request while the Army 6.2 programs would see an increase of approximately 8%, or \$58 million.

- Navy

Basic research programs would see a slight increase of \$3 million (0.6%) over this year's request while the Administration proposes to reduce the 6.2 programs by approximately \$39.3 million (6.2%) below the FY2009 request.

- Air Force

The budget request seeks a \$13.8-million (3.1%) increase for basic research while also calling for a \$50.1-million (4.8%) increase for applied research funded by the Air force.

- Defense-wide Research Funding

The Administration budget request proposes to reduce defense-wide basic research programs by \$85 million (25.1%) below the current year's request. It also calls for a decrease of applied research programs of \$67.8 million (3.6%) below the FY2009 requested levels. On the other hand, the budget includes an increase of \$21 million for the National Defense Education Program.

- Multi-Service Programs

Defense Research Sciences seem to fare generally well in the President's budget, with Army slated for a cut of 2.2% while Navy (1.6%), Air Force (3.6%) and Defense-wide (15.6%) would all see increases compared to the FY2009 request.

University Research Initiatives are also targeted for increases in general over the FY09 request, with the Administration seeking an increase of 14.9% for Army and 5% for the Air Force, while calling for a 4.1% decrease below the FY2009 request for the Navy.

*A PDF of DOD's FY2010 budget is attached.*

## **NIST:**

- Hollings Manufacturing Extension Partnership (MEP) Program

The budget for NIST seeks \$124.7 million for the MEP program, an increase of \$13.7 million, or 12.4%. The \$124.7 million requested for MEP in FY2010 is designed to expand technology and business resources to help strengthen manufacturers' competitiveness in the global market, as well as support activities concerning energy efficient manufacturing practices.

- Technology Innovation Program (TIP)

TIP is slated to receive \$69.9 million in the proposed budget, an increase of \$4.9 million, or 7.5 %. The program will continue its focus on supporting development of cutting-edge technologies to address societal challenges. TIP support for collaborative high-risk, high-reward technology development projects aims to attract a critical mass of talent in industry, academia, and government to address important national challenges that can be addressed through advances in technology.

### **National Telecommunications and Information Administration (NTIA)—Department of Commerce**

- Broadband Technology Opportunities Program (BTOP)

Using funds from the ARRA, the Administration expects to award more than \$1 billion in grants for broadband deployment in FY2009 and approximately \$3.5 billion in FY2010. Rules for applying for those funds are expected to be available in June 2009. The four primary areas of focus for BTOP grants include:

- BTOP Infrastructure Grants—The BTOP funds would support, among other things, competitive grants for broadband deployment in un-served and underserved areas, and for strategic community institutions. Not less than one award is expected to be made in each state, and entities receiving grants must complete their projects within two years following an award and demonstrate that they can deliver programmatic results in the most efficient and expeditious manner practicable. In making awards, NTIA will consider proposals that increase affordability of and subscribership to broadband service, provide the greatest speed possible to the greatest population of users, enhance service for health care delivery, education, and children, and do not result in unjust enrichment.
- Public Computer Center Grants—These grants are designed to expand public computer center capacity at institutions such as community colleges and public libraries and the first awards will be made this year.
- Sustainable Broadband Adoption Grants—Competitive grants will be awarded to fund innovative programs that encourage sustainable adoption of broadband service.
- Broadband Inventory Mapping—Federal assistance will be provided in the form of competitive grants to develop and implement statewide initiatives to identify and track the availability and adoption of broadband services within each state. A single eligible entity will be designated by the state to receive a grant under this program.

### **GENERAL COMMENTS REGARDING SCIENCE AND RESEARCH:**

Since taking office, the Administration has sought to emphasize its commitment to scientific research. At a speech at the National Academy of Sciences in late April, Obama pledged to make the biggest commitment to research in the nation's history and to commit at least three percent of the gross domestic product (GDP) to research and development. The documents released today shed more light on that promise.

The White House Office of Science and Technology Policy (OSTP) has posted documents related to investments in science and research, including those addressing cross-agency priorities, at the following web address: <http://www.ostp.gov/galleries/budget/FY2010RD.pdf>. At a briefing on May 7th, the

Administration reaffirmed its commitment to double the budget of NSF, Department of Energy (DOE) Office of Science, and the National Institute of Standards and Technology (NIST) by FY2016.