

House Drafts \$13.3 Billion Stimulus for R&D

AAAS R&D Funding Update on the 2009 Stimulus Appropriations Bill

(This analysis is an update on progress of the FY 2009 budget through Congress, and also an update of 2008 and 2009 appropriations. This analysis provides details on the House draft of the FY 2009 economic stimulus appropriations bill. This analysis will be revised continually as the House bill is amended, and after the Senate releases its own version. More tables and continually updated supplemental materials on R&D in the FY 2009 budget can be found on the AAAS R&D Web site at <http://www.aaas.org/spp/rd>.)

Highlights

- **AAAS estimates that the just-released House version of the 2009 stimulus appropriations bills contains \$13.3 billion in federal research and development (R&D) funding** out of a total \$550 billion in federal spending. **\$9.9 billion would go to the conduct of R&D and \$3.4 billion for R&D facilities and capital equipment.**

- **The National Science Foundation (NSF), the Department of Energy Office of Science (DOE OS), and the National Institute of Standards and Technology (NIST), the three agencies highlighted in the America COMPETES Act of 2007 and President Bush's American Competitiveness Initiative (ACI), would do extremely well in the stimulus appropriations bill. The National Institutes of Health (NIH) would receive \$3.9 billion in stimulus funding.**

R&D in the FY 2009 Stimulus Appropriations Bill

On January 15, the House Appropriations Committee released the draft text of the long-awaited and much-negotiated American Recovery and Reinvestment Bill of 2009, a supplemental appropriations bill forming the spending part of an \$825 billion economic stimulus package to deal with the current economic crisis. The \$550 billion spending bill, the result of negotiations between the new 111th Congress and the incoming Obama Administration, will be paired with another bill of \$275 billion in tax provisions to form what is hoped to be an enormous boost to a flagging economy. The draft bill will be debated, amended, and revised by the House and the Senate, with hopes of getting a final version of the bill to President Obama's desk by the middle of February.

The AAAS analysis of the draft stimulus appropriations bill estimates that the bill contains \$13.3 billion in federal research and development (R&D) funding, \$9.9 billion for the conduct of research and development (mostly research) and \$3.4 billion for R&D facilities and large research equipment, mostly for extramural projects. Adding in another \$2.5 billion in non-R&D but science and technology-related funding brings total science and technology-related funding in the stimulus to nearly \$16 billion. There is also additional money for higher education construction and other education spending of interest to academia.

The three agencies highlighted in the America COMPETES Act of 2007 and President Bush's American Competitiveness Initiative (ACI) would do extremely well in the stimulus appropriations bill. The National Science Foundation (NSF) would receive \$3.0 billion; the Department of Energy's Office of Science (DOE OS) would receive \$2.0 billion; and Commerce's National Institute of Standards and Technology (NIST) would receive \$520 million; nearly all of these supplementals are for R&D activities. The \$5.5 billion allocated to these three agencies would finally put all three budgets on track to

double over the next 7 to 10 years as envisioned in the ACI, America COMPETES, and Obama campaign promises.

The National Institutes of Health (NIH) would receive \$3.9 billion in the stimulus appropriations bill, divided roughly evenly between research and infrastructure (construction and maintenance of facilities). The stimulus funding would turn around a NIH budget that has been in decline since 2004. The Department of Energy's (DOE) energy programs would also be a winner with \$2.0 billion for R&D and related activities in renewable energy and energy conservation, with billions more for DOE in weatherization, loan guarantee, and clean energy demonstration funds. And the National Aeronautics and Space Administration (NASA) would receive \$600 million, mostly for R&D.

The stimulus appropriations bill is heavily weighted toward infrastructure in an attempt to spend money as quickly as possible in 'shovel-ready' projects. A full \$3.4 billion of the \$13.3 billion in R&D funding in the stimulus would go to R&D facilities and capital equipment, to pay for the repair, maintenance, and construction of scientific laboratories as well as large research equipment and instrumentation. Considering that R&D facilities funding totaled \$4.4 billion in FY 2008, half of which went to just one laboratory (the International Space Station), the \$3.4 billion supplemental will be an enormous boost in the federal government's spending on scientific facilities. \$2.3 billion would go to extramural, competitively selected R&D facilities projects, nearly entirely at universities, through programs in NIH, NSF, and NIST that received no federal money in FY 2008, while another \$400 million would go to NSF funding for major extramural construction projects selected through an existing process. In addition to \$709 million in funding for federal lab improvements at USDA and NIH, the DOE Office of Science will use a portion of its \$2.0 billion appropriation on construction, maintenance, and repair at its national labs. And other agencies such as the U.S. Geological Survey (USGS), NASA, the Centers for Disease Control and Prevention (CDC), NOAA, are set to receive stimulus funding for construction and maintenance, which while not technically R&D facilities funding will be used to renovate existing laboratories or construct new ones.

The \$9.9 billion in conduct of R&D (basic and applied research, plus development) will be a big boost to the fortunes of federal research in FY 2009. The \$9.9 billion is heavily weighted toward basic research, with some applied research funding but relatively little development funding. For a federal research portfolio that has been declining in real terms since FY 2004, **the stimulus bill would provide an immediate boost and would allow federal research funding to see a real increase for the first time five years.** Under the current CR and the few completed FY 2009 appropriations, the federal research portfolio stands at \$58.3 billion in FY 2009, up just 0.3 percent and thus short of inflation, but assuming enactment of the stimulus and final FY 2009 appropriations at CR levels the federal research portfolio could jump to \$63 billion or more in FY 2009, and could go even higher if final FY 2009 appropriations are above CR funding levels, enough for an increase well ahead of expected inflation.

The bill requires nearly all of the funding to be awarded within 120 days of when the President signs the bill into law, with staggered deadlines of 30 days for formula funds, 90 days for competitive grants, and 120 days for competitive grants in brand-new programs, with the intention of spending the funding as quickly as possible to provide immediate economic stimulus. Nearly all of the money is designated as FY 2009 money, with agencies allowed to obligate funds until the end of FY 2010, but there are numerous 'use it or lose it' provisions in the bill to ensure that the funds are awarded, obligated, and spent as quickly as possible.

But in a nod to concerns about possible waste and fraud in the enormous appropriations bill, there are extensive accountability and transparency mandates in the bill, including separate appropriations for agency inspectors general and the Government Accountability Office (GAO) to monitor stimulus spending, a set-aside within programs for oversight spending, and the establishment of a new Recovery Act Accountability and Transparency Board to monitor and oversee all spending. There will also be a recovery.gov web site to provide detailed public disclosure of how stimulus funds are allocated and spent.

In a highly unusual move, this stimulus appropriations bill, technically an emergency supplemental appropriations bill, appears before an FY 2009 omnibus appropriations bill to provide federal agencies with their final, regular FY 2009 budgets. 9 out of the 12 FY 2009 appropriations bills remain unfinished, meaning only the Departments of Defense (DOD), Homeland Security (DHS), and Veterans Affairs (VA) have their final FY 2009 budgets. All other federal agencies are temporarily operating at or below FY 2008 funding levels under a continuing resolution (CR) through March 6 until final FY 2009 appropriations are enacted. Most of the R&D funding agencies highlighted below, then, could receive supplemental FY 2009 appropriations even before regular FY 2009 appropriations, and the stimulus spending will be added on top of the CR spending levels and eventual final FY 2009 regular budgets.

Key R&D funding agency highlights of the bill include:

National Science Foundation (NSF) - \$3.0 billion (note: FY 2008 total budget \$6.0 billion). There would be \$2.5 billion for Research and Related Activities (R&RA), \$100 million for education and human resources (EHR) programs, and \$400 million for Major Research Equipment and Facilities Construction (MREFC). Within R&RA, \$2.0 billion would go to research grants distributed through NSF's regular peer review process, which is enough to dramatically raise success rates for grant competitions from 20 percent or below in recent years. \$300 million would go to the Major Research Instrumentation program (FY 08: \$94 million) of competitively awarded instrumentation grants for university researchers, and \$200 million would restart the Academic Research Infrastructure program, dormant since FY 1996 when it last received \$50 million, for competitively awarded laboratory construction grants, primarily for universities. The \$100 million EHR appropriation would provide \$60 million to the Noyce Teacher Scholarship Program (FY 08: \$11 million) and \$40 million to the Math and Science Partnerships program (FY 08: \$49 million). MREFC spending (FY 08: \$205 million) would accelerate the construction of major research facilities with unique capabilities at the cutting edge of science, selected in a competitive internal process managed by the National Science Board. The NSF budget in FY 2009 could be \$9 billion or higher, depending on final FY 2009 appropriations, well ahead of the \$7.3 billion authorized in the America COMPETES Act of 2007 and thus on a track to double over a decade.

National Institutes of Health (NIH) - \$3.9 billion (FY 08: \$29.5 billion). \$1.5 billion would be distributed proportionally among the NIH's institutes and centers (ICs) through the Office of the Director (OD) to fund intramural and extramural research, divided equally between FY 2009 and FY 2010 funding of \$750 million each year to enable NIH to award grants in FY 2009 and fund the second year of these grants in FY 2010. With NIH success rates running below 20 percent for grant competitions, the hope is for NIH to distribute these funds through regular, already scheduled grant review cycles without sacrificing quality. There would be \$500 million for intramural construction in the Buildings and Facilities account, and \$1.5 billion for competitively awarded extramural grants through a dormant National Center for Research Resources (NCRR) program that last received \$30 million in FY 2005, exclusively for the repair and modernization of existing academic research facilities, including instrumentation purchases. And \$400 million would be transferred from the Agency for Healthcare Research and Quality (AHRQ) for 'health care comparative effectiveness research.'

Department of Energy (DOE) Office of Science – There would be \$2.0 billion (FY 08: \$4.0 billion) for a mix of extramural basic research, DOE laboratory research, facilities upgrades and construction, and advanced scientific computing. Of the total, \$400 million would be carved out to start up the ARPA-E (Advanced Research Projects Agency - Energy), authorized in the America COMPETES Act of 2007 but never appropriated until now. The stimulus appropriation combined with the regular appropriation could leave DOE OS with a FY 2009 budget of \$6.0 billion or higher, well above the \$5.3 billion authorized for FY 2009 in the America COMPETES Act of 2007 and thus on a track to double over a decade.

NIST - \$520 million (FY 08: \$737 million). There would be \$100 million for NIST laboratory research (FY 08: \$441 million), \$70 million for the Technology Innovation Program (formerly the ATP), \$30 million for the Manufacturing Extension Partnership, and \$300 million for a competitively awarded extramural construction grants program that was congressionally initiated a few years ago but only received \$30 million for one year and was able to make only three awards out of 90 applications. The

stimulus appropriation combined with the regular appropriation could leave NIST with a FY 2009 budget of \$1.3 billion or higher, well above the \$882 million authorized for FY 2009 in the America COMPETES Act of 2007 and thus on a track to double over a decade.

Department of Energy (DOE) energy programs – The bill would provide \$2.0 billion for energy efficiency and renewable research, development, demonstration, and deployment projects, of which \$800 million is set aside for biomass (FY 08: \$198 million) and \$400 million for geothermal energy (FY 08: \$20 million).

NASA - \$600 million (FY 08: \$17.1 billion). There would be \$400 million for the Science portfolio of earth science, planetary science, heliophysics, and astrophysics, of which \$250 million would be dedicated solely to accelerate the development and launch of key earth science climate research missions highlighted in a 2007 National Academies Decadal Study as being critical to future U.S. climate research and requiring extra funds to stay on track; \$150 million for aeronautics research; and \$50 million to reimburse NASA for construction and repair costs associated with 2008 natural disasters.

Department of Defense (DOD) – There would be \$350 million for energy-related R&D at DOD, which already has its final FY 2009 budget, to be divided equally between the three services and the Defense Agencies.

HHS BARDA – There would be \$430 million for advanced biodefense countermeasures R&D for (FY 08: \$102 million) in the new Biomedical Advanced Research and Development Authority (BARDA) for federal government efforts to research, develop, and test potential countermeasures for the Strategic National Stockpile.

Other R&D funding agencies receiving funding in the draft stimulus bill include: the U.S. Department of Agriculture's (USDA) Agricultural Research Service (ARS), \$209 million for deferred maintenance work at USDA laboratories; the National Oceanic and Atmospheric Administration (NOAA) in Commerce, \$400 million for (non-R&D) habitat and fisheries restoration projects, and \$600 million for (non-R&D) acquisition and development of NOAA satellites and sensors, although some of these satellites will eventually be used for climate research and climate modeling; the U.S. Geological Survey (USGS) in Interior, \$200 million for repair and restoration of science facilities and laboratory equipment for USGS' nationwide network of federal laboratories; the Centers for Disease Control and Prevention (CDC) in HHS, \$462 million to modernize aging laboratory facilities at CDC headquarters in Atlanta; the Agency for Healthcare Research and Quality (AHRQ), \$1.1 billion for health care comparative effectiveness research divided between a \$400 million transfer to NIH (already included in NIH totals above), a \$400 million transfer to the Office of the HHS Secretary, and \$300 million for AHRQ to spend directly; and the Office of the HHS Secretary, \$420 million in mostly non-R&D funding to respond to possible pandemic flu.

For academic research institutions, there are numerous education provisions in the stimulus bill of interest. Among the largest: Pell Grants would receive \$17.1 billion to increase the maximum Pell Grant by \$500, fully fund Pell Grants, and erase past shortfalls; and higher education institutions would receive \$6.0 billion to be distributed by formula for modernization, renovation, and repair projects.

Next Steps and Possible Impacts

The House of Representatives expects to debate and vote on its version of the bill shortly after the inauguration; the Senate is scheduled to draft its own version of the bill shortly and then debate and vote on it. Congressional leaders hope to have a compromise final version of the stimulus bill to the President's desk by mid-February, but many uncertainties remain as to the timing.

For the science and engineering community, the draft stimulus appropriations bill is a welcome acknowledgement that scientific research, often regarded as long-term and future-oriented, has a role to play in short-term economic recovery as well. Although the bill is heavily tilted toward construction projects and other short-term spending ideas, there is still ample support for research grants and other R&D

funding mechanisms that tend to spend more slowly and whose impacts may not be evident for years to come. And for a community still waiting for a resolution of FY 2009 appropriations for most R&D funding agencies, stimulus appropriations will provide a welcome infusion of new funds. But there is still a long road ahead toward getting a stimulus appropriations bill signed into law, with many possible changes. And the true FY 2009 budget situation will only be apparent after regular FY 2009 appropriations are also decided.

(This analysis will be updated shortly with charts, tables, and more information as the House bill is amended, and after the Senate releases its own version.)

(More materials on R&D in the FY 2009 budget, historical data and charts, and more information on *AAAS Report XXXIII: Research and Development FY 2009*, can be found on the AAAS R&D Web site at <http://www.aaas.org/spp/rd>.)

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