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Summary and Analysis of Final Agreement on H.R. 1, the American Recovery and Reinvestment Act

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Executive Summary

CONGRESS FINALIZES AMERICAN RECOVERY AND REINVESTMENT ACT

Late last evening, Congressional leaders put the finishing touches on the final agreement on H.R. 1, the American Recovery and Reinvestment Act, and this afternoon the House of Representatives passed the bill by a vote of 246 to 183. Efforts by the conferees to reduce the total cost of the bill ensure the continued support of three moderate Republicans in the Senate – Senator Susan Collins (R-ME), Senator Arlen Specter (R-PA), and Senator Olympia Snowe (R-ME) –and give the Democrats the votes needed to pass the bill. The Senate is expected to vote on the legislation later today or tomorrow so President Obama can sign the bill into law on Monday.

The final bill totals $789.5 billion and contains investments in public works infrastructure; assistance to State and local governments; tax relief and assistance for families and businesses; and investments to address long-term challenges on health care, energy, and climate change. This document provides details of the funding in the final bill of interest to the research and academic communities.

Significant funding is provided for research agencies in the final bill, demonstrating that Congress recognizes science and innovation as playing a role in both the near-term and long-term economic health of the nation. The final levels of support for education programs were more mixed; while additional funding for Pell Grants was maintained, funding for higher education infrastructure was reduced. However, opportunities for research facilities remain within the science agencies' funding.

Importantly, almost all the funds in the bill are available to expend between now and September 30, 2010; this provides critical flexibility to the agencies. However, as emergency spending, the additional amounts **do not** become part of agency base budgets for future years.

The research funding at science agencies includes:

- National Institutes of Health: $10.4 billion.
- National Science Foundation: $3 billion.
- Department of Energy (DOE) Office of Science: $1.6 billion. (In addition, there is $30 billion for various applied research programs at DOE.)
- NASA: $1 billion.
- National Oceanic and Atmospheric Administration: $830 million.
- National Institute of Standards and Technology: $580 million.
- U.S. Department of Agriculture: None.

Education: The final package includes $53.6 billion in State Fiscal Stabilization Funds for Governors to shore up state education budgets and for use in the modernization of educational facilities. In addition, the bill also includes a $500 increase to the maximum Pell Grant, funding for Federal Work Study, a new tuition tax credit, and grants for Teacher Quality Partnerships and data collection.

National Institutes of Health

The final bill provides $10.4 billion for the National Institutes of Health (NIH), to be spent by September 30, 2010.

Research
The bill provides $8.2 billion to the Office of the Director. Of this amount, $7.4 billion is designated for transfer to the Institutes and Centers as well as the Common Fund in proportion to the appropriations otherwise made to such accounts for FY 2009. The Office of the Director retains $800 million, within which priority shall be placed on short-term grants that focus on specific scientific challenges, new research that expands the scope of ongoing projects, and research on public and international health priorities.

Mechanisms Under Consideration
If NIH were to fund new research project grants (which are typically four or five year grants) with stimulus dollars, the concern is that the agency would not have the resources to continue these proposals beginning in the third year of the grant without adversely affecting the entire grant portfolio. Therefore, alternative approaches being considered include:

- Two-Year "Challenge Grants" to fund investigators to come up with new ways to attack seemingly intractable problems and/or jump-start a particular area of research;
- Supplementing or extending existing grants;
- Funding ancillary studies on existing grants;
- Bridge funding to prevent researchers from having to close their laboratories while waiting for their next application to be funded; and
- Funding some of the most meritorious applications that just missed the most recent cut-off.

Infrastructure
The legislation provides $1.3 billion to the National Center for Research Resources (NCRR), with $1 billion for competitive awards for the construction and renovation of extramural research facilities and $300 million for shared instrumentation and other capital equipment. The remaining $500 million is to be used for construction and renovation of NIH intramural buildings.

For the extramural construction and renovations funding, applicants do not have to provide assurances that sufficient funds will be available to meet the non-Federal share of the cost of constructing the facility. In addition, a statutory limit that the grant can't exceed 50 percent of the cost of construction is eliminated.

Comparative Effectiveness Research
The legislation also provides $1.1 billion for comparative effectiveness research and recommends that the money be spread among three entities: the Agency for Healthcare Research and Quality (AHRQ) would receive $700 million, of which $400 million would be transferred to the National Institutes of Health (NIH); and the Office of the Secretary at the Department of Health and Human Services (HHS) would receive $400 million, which is made available for the Secretary to allocate at his discretion. It is highly likely that much of this HHS money will be transferred to NIH to perform additional comparative effectiveness studies.

National Science Foundation

The final bill provides $3 billion for the programs at the National Science Foundation (NSF). (For reference, the FY 2008 NSF budget was $6.03 billion.)

Research
The final bill provides $2 billion for the NSF research directorates and offices. NSF is directed to use this funding to support all research divisions and to support advancements in supercomputing technology. In addition to the specific programs called out in the bill (see below), mechanisms likely to be used by the NSF to expend the funds include:

- increasing success rates in ongoing and planned competitions;
- funding highly-rated but recently declined grants;
- providing supplements to existing grants for instrumentation, additional graduate students and post-doctoral fellows, and related projects; and
- supporting already planned infrastructure projects.

NSF has indicated that funding CAREER awards or other proposals from early investigators is likely to be a priority.

Major Research Instrumentation (MRI) Program
The final bill provides $300 million for the Major Research Instrumentation program. For reference, proposals were due on January 22 to the current MRI competition, which originally had approximately $115 million to allocate. It is not clear whether NSF will direct the full $300 million to providing additional funding for this round of proposals or will distribute it between this competition and next year's proposals.

Research Facilities Modernization Program
The final bill provides $200 million to restart an old NSF program to repair and renovate science and engineering research facilities at institutions of higher education and other research institutions. To implement this provision, NSF will have to prepare and issue a new solicitation. The size and uses of the potential awards under this program are not yet known (in the 1990's, awards were capped at $2 million and new construction was not supported).

Education and Human Resources
The final bill provides $100 million for three education programs. There are funds for two existing programs: the Robert Noyce Teacher Scholarship program ($60 million) and the Math and Science Partnerships program ($25 million). There is also $15 million to establish a new program to facilitate the creation or improvement of Professional Science Master’s degree programs.

Major Research Equipment and Facilities Construction Projects
The final bill provides $400 million for Major Research Equipment and Facilities Construction Projects.

How Fast to Spend the Funding
While the House version of the stimulus would have required NSF to spend the research funding within 120 days, the final bill only requires NSF to provide Congress with a spending plan detailing its intended allocation of the funds within 60 days of the bill being signed. In addition, the deadline for spending the funds is September 30, 2010. This will provide NSF with significant flexibility in expending the funding. However, given the official policy goal of the bill—stimulating the economy—there will still be pressure on the agency to spend at least some of the funds sooner rather than later, and to spend the money on activities that can be connected to jobs (i.e. infrastructure projects).

NSF Inspector General
In addition to the above funds, the final bill includes $2 million over the next four years for the NSF Office of Inspector General for oversight and audit of the funds provided to NSF in this legislation.

Department of Energy

The final economic stimulus package includes funding for the Department of Energy (DOE) Office of Science and a significant investment in the development of clean, renewable energy sources for America.

DOE Office of Science
A total of $1.6 billion is provided for the Office of Science, which is essentially the same as the House bill. There is no specific directive on the expenditure of these funds for research or on laboratory or scientific infrastructure. The final bill does not include $100 million for advanced scientific computing as proposed by the House.

The final bill also includes $400 million in a separate account to establish the Advanced Research Projects Agency – Energy (ARPA-E) authorized in the America COMPETES Act (P.L. 110-069). The House had approved these funds; the Senate had not.

DOE Energy Programs
Responding to the call of President Obama, the stimulus package includes a significant investment to develop new, clean, renewable energy sources to reduce the nation's dependence on foreign oil. The final bill includes approximately $30 billion for investments in applied research, loan guarantees and grants to develop new technologies in partnership with industry, and energy efficiency and conservation activities.

Universities and research institutions will be interested in the applied R&D funding in the bill, opportunities to train the energy workforce, and potential partnerships with industry to develop the new generation of renewable energy technologies.

DOE Energy Efficiency and Renewable Energy R&D
The final bill includes $2.5 billion for applied research, development, demonstration and deployment of energy efficiency and renewable energy technologies. Within this amount, $800 million is for biomass projects and $400 million is for geothermal activities and projects. Also

within the available funds is an allocation of $50 million for DOE for research to increase the efficiency of information and communications technology and to improve standards.

DOE Fossil Energy R&D
The final bill includes $1 billion for Fossil Energy R&D programs. An additional $1.52 billion is approved for a competitive solicitation for a range of industrial carbon capture and energy efficiency improvement projects, including a small amount for innovative concepts for beneficial CO2 reuse. To further the development of carbon capture and storage technologies, DOE will also receive $50 million for a competitive solicitation for site characterization activities in geologic formations; and $20 million for geologic sequestration training and research grants.

Smart Grid
The final bill provides $4.5 billion for activities related to developing the smart electricity grid. Congress agrees to devote $100 million of these funds for worker training. This funding is a major new investment of federal funding that is likely to be focused on collaboration with industry and utilities, but which may also provide new opportunities for academic researchers.

Aid to Industry
Stimulus funding is also devoted to assist industry to develop advanced energy technologies, including $6 billion for the cost of guaranteed loans for innovative renewable technologies and transmission technologies and $2 billion for Advanced Battery Manufacturing Grants.

Transportation-related Grants
The final bill provides $400 million for transportation electrification grants to help develop electric vehicle technologies, and $300 million for Alternative Fuel Vehicles Pilot Grants.

Energy Efficiency and Conservation
Congress also approves $3.2 billion to fund a new Energy Efficiency and Conservation Block Grant (EECBG) program that will go to State, local, and tribal governments for energy efficiency and conservation projects. Congress set aside $400 million of this funding for competitive grants.

Education

State Fiscal Stabilization Fund
The final bill provides $53.6 billion for the State Fiscal Stabilization Fund (SFSF), which allows Governors to apply for funds to restore state support for elementary, secondary and postsecondary public education. While $6 billion specifically for higher education infrastructure was included in a separate account in the House version of the legislation, the final bill does not include such a line item. Instead, modernization and improvement projects for institutions of higher education is an allowable use for a portion of the SFSF funds.

Within the SFSF, $48.2 billion is distributed to the States by formula. These funds must first be used to restore state support for State education budgets to levels provided in FY 2008 or FY 2009. The bill directs public institutions of higher education to use the funds to "mitigate the need to raise tuition and fees for in-State students" and prohibits all institutions from using the

funds to increase endowments. After allocating the funds to restore state education budgets, the States can use the remainder to provide subgrants to public and private institutions of higher education for modernization, renovation, or repair of facilities. Funds cannot be used for new construction; maintenance costs; stadiums or athletic facilities; the purchase or maintenance of vehicles; or for facilities used for "sectarian instruction or religious worship."

Also within the SFSF, $5 billion is reserved for competitive State Incentive Grants and Innovation Grants awarded by the Secretary of Education. The State Incentive Grants are grants to states that have made significant progress in addressing key areas such as equity in teacher distribution and establishing a longitudinal study. Fifty percent of these funds can be used for subgrants for modernization projects. The Innovation Grants will be awarded to school districts and state educational agencies that have made achievement gains in the key areas.

States receiving the funds must agree to maintain support for education at least at the levels of FY 2006 and address key areas, including complying with provisions set forth by No Child Left Behind, achieving equity in teacher distribution, and establishing a longitudinal data system as described by the America COMPETES Act. A provision allowing the Secretary to waive the requirements related to maintenance of effort is also included. In addition, any state receiving SFSF is required to submit a yearly report to the Secretary of Education regarding the use of the funds, how the funds were distributed, the number of jobs saved or created, tax increases diverted, the State's progress in reducing inequities in the distribution of highly qualified teachers, tuition and fee increases for in-State students during the period of receiving these funds, the extent to which public institutions of higher education maintained, increased, or decreased enrollment of in-State students.

Student Aid

The final bill includes $15.6 billion for the Pell Grant program and $200 million for the Federal Work Study program. The funds provided for Pell will increase the maximum by $500. When combined with the mandatory funds included for the 2009-2010 academic year, the maximum grant will be $5,350. Funds will also be used to pay down the Pell shortfall. $60 million is included for student aid administration. Funding for the Perkins Capital Contributions loan program is not included in the final bill.

Furthermore, for 2009 and 2010, the bill will provide qualified taxpayers with a new "American Opportunity" tax credit of up to $2,500 of the cost of tuition and related expenses paid during the taxable year. Taxpayers will receive a tax credit based on 100 percent of the first $2,000 of tuition and related expenses (including books) paid during the taxable year and 25 percent of the next $2,000 of tuition and related expenses paid during the taxable year. Forty percent of the credit would be refundable.

Teacher Quality Enhancement Grants

The final bill also includes $100 million for Teacher Quality Enhancement Grants which are intended to fund programs that change the ways teachers are recruited, prepared, licensed, and supported. The goal of these grants is to support efforts to reduce shortages of qualified teachers in high-need school districts. These competitive grants support partnerships among teacher

preparation programs and schools of arts and sciences at institutions of higher education, high-need local education agencies, high-need schools, and community partners.

Institute of Education Sciences
The final bill includes $250 million for the Institute of Education Sciences, for the development of statewide data systems.

National Aeronautics and Space Administration

The final package includes a total of $1 billion for the National Aeronautics and Space Administration (NASA). Of this, $400 million is dedicated to Science to accelerate the development of the tier 1 set of Earth science climate research missions recommended by the National Academies Decadal Survey and to increase NASA's supercomputing capabilities.

Additionally, the legislation includes $150 million for aeronautics for system-level research, development and demonstration activities related to aviation safety, environmental impact mitigation and the Next Generation Air Transportation System (NextGen).

Finally, the bill includes $400 million for exploration and $50 million for cross agency support primarily for NASA facilities damaged from hurricanes and other natural disasters in 2008.

The bill directs NASA to submit a plan for spending the allocated funds to Congress within 60 days.

National Oceanic and Atmospheric Administration

The final stimulus bill includes $830 million for National Oceanic and Atmospheric Administration (NOAA) (not including an additional $6 million for the Office of Inspector General). Within this amount is $230 million for NOAA operations, research and facilities "to address a backlog of research, restoration, navigation, conservation and management activities," and $600 million in the procurement, acquisition and construction account for construction and repair of NOAA facilities, ships and equipment, to improve weather forecasting and to support satellite development. This construction funding includes $170 million for climate modeling and to establish climate data records.

National Institute of Standards and Technology

The final bill provides $580 million for the National Institute of Standards and Technology (NIST). Of this amount, $180 million is for the grant program established in 2008 that provides competitive awards for construction of research science buildings at colleges, universities, and other research organizations. This funding is to be split between competitions held in FY 2008 and FY 2009. There is also $220 million for NIST research programs, which may be used for intramural research, competitive grants, research fellowships, and equipment and supplies. The remainder of the funds are for repair and construction of facilities of NIST's intramural laboratories ($180 million). No funding was provided for the Manufacturing Extension Partnership or the Technology Innovation Program.

In addition to these funds, the legislation instructs the Department of Health and Human Services to transfer $20 million to NIST for standards and interoperability activities associated with health information technology. The bill includes an authorization for NIST to establish an extramural grant program for universities for Centers for Health Care Information Enterprise Integration (see the health IT section of this document), but it also instructs NIST to carry out intramural programs on health IT standards and testing. It is not clear if the $20 million will be used for the intramural or extramural NIST programs.

United States Geological Survey

Surveys, Investigations, and Research
The bill provides $140 million for equipment replacement and upgrades, including stream gages, and seismic and volcano monitoring systems; national map activities; repair, construction and restoration of facilities; and other deferred maintenance and improvement projects. The amount is less than the proposed House amount of $200 million and more than the Senate's proposed $135 million. It is unknown at this time how USGS will distribute these funds.

Department of Labor

Workforce Development and Training
Within the Department of Labor, $2.95 billion is provided for formula grants to the States for training and employment services. To facilitate increased training of individuals for high-demand occupations, the bill provides the authority for local workforce investment boards to contract with institutions of higher education and other eligible training providers.

The bill also includes $750 million for a program of competitive grants for worker training and placement in high growth and emerging industry sectors. Within the amount provided, $500 million is designated for projects that prepare workers for careers in energy efficiency and renewable energy. Priority for the funds should also be provided for training in health care, wireless and broadband deployment, advanced manufacturing and other high demand industry sectors identified by local workforce areas.

Health Information Technology Research and Education Programs

The final bill authorizes, but does not fund, research and education programs related to health information technology (IT) and health care information enterprise integration.

Research
The National Institute of Standards and Technology (NIST), in consultation with NSF, is authorized to establish a grants program to institutions of higher education to establish Centers for Health Care Information Enterprise Integration. The centers would conduct research on the systems challenges to healthcare delivery and support the development and use of health IT and other complementary fields. The centers would promote multidisciplinary collaborations, technology transfer activities, and education and training of researchers and other professionals. Research areas would include: human-computer interfaces; software that improves

interoperability; software dependability; measurement of the impact of information technologies on the quality and productivity of health care; health IT security and integrity; health information enterprise management; and health IT to reduce medical errors. There are no specific funding levels for this program provided in the legislation. However, the Department of Health and Human Services is directed to transfer $20 million to NIST for work in health IT; it is not clear if those funds will be used for NIST's intramural or extramural activities in this area.

Education
The Department of Health and Human Services, in consultation with NSF, is authorized to establish a grant program to institutions of higher education to establish or expand medical health informatics education programs, including certification and undergraduate and master's degree programs for both health care and information technology students to ensure the rapid and effective utilization and development of health IT in the U.S. Activities that may be supported by the grants include: curricula development and revision; student recruitment and retention; equipment purchases; and bridge programs between community colleges and universities. Preference is to be given to grants for existing education and training programs and programs designed to be completed in less than six months. Again, no funding is explicitly provided for this program by the legislation.

Other Provisions

U.S. Department of Agriculture
There is no funding in the final bill for USDA's Agriculture and Food Research Initiative (AFRI). The Senate bill had recommended $50 million.

The final bill provides $176 million for the Agricultural Research Service (ARS) to address critical deferred maintenance of aging laboratory and research infrastructure. The House bill included $209 million for this purpose; the Senate did not provide funding for the program.

Department of Defense Energy Research and Demonstration Projects
The final bill provides $300 million for research, development, test and evaluation projects, including pilot projects, demonstrations and energy efficient manufacturing enhancements. Funds are for improvements in energy generation and efficiency, transmission, regulation, storage, and for use on military installations and within operational forces, to include research and development of energy from fuel cells, wind, solar, and other renewable energy sources to include biofuels and bioenergy. The funds are split equally between the Army, Navy, Air Force, and Defense-Wide Research, Development, Test and Evaluation accounts.

Environmental Protection Agency
The final stimulus bill includes a total of $7.22 billion for the Environmental Protection Agency (EPA), which will be used primarily for state infrastructure projects and cleanup activities. The legislation provides $6.4 billion for State and Tribal Assistance Grants, $600 million for the Superfund Remedial program and $200 million for the Leaking Underground Storage Tank Trust Fund Account.

E-Verify Program
The House e-Verify provision was dropped, so participation in e-Verify **will not** be required for entities that receive funding from this legislation.

Department of Homeland Security Science and Technology
No funding is provided.