



## Summary of Federal Environmental, Energy and Education Funding in the American Recovery and Reinvestment Act & 2009 Omnibus Bills

*Prepared by Heidi Fuchs, Program Assistant*

President Obama's economic stimulus plan, approved by Congress as the American Recovery and Reinvestment Act (ARRA), and the Omnibus Appropriations Act for FY 2009 are first steps in a transformation to a new green economy. Energy, environment and education are priorities because of their short- and long-term benefits.

NCSE has identified at least \$100 billion in funding for these priorities. This report shows the allocation of additional funding above the FY 2008 base by department and major independent agencies. There may be programs that we have failed to include.

Significant one-time additions through ARRA include:

- \$4.2B to make Department of Defense facilities more energy-efficient,
- 82% of the \$53.6B State Stabilization Fund that goes directly to states is to be used for education-related expenses,
- \$2.5B to the Department of Energy (DOE) for applied research, development, demonstration and deployment of energy efficiency and renewable energy technologies,
- \$1.25B to DOE for wind, solar, water power, hydrogen, vehicles, industrial and buildings technologies/activities,
- \$1.52B to DOE for competitive solicitation for a range of industrial carbon capture and energy efficiency improvement projects,
- \$4.5B to DOE for developing the smart electricity grid,
- \$6B to EPA for the Clean/Drinking Water State Revolving Funds,
- \$2.9B to NSF for Research & Research Related Activities, and
- \$30B to DOE for investments in applied research, loan guarantees and grants to develop new technologies in partnership with industry, and energy efficiency and conservation activities.

Many of these priorities are also emphasized in the FY 09 appropriations.

Agencies have until May 1 to submit "Agency Recovery Plans" for agency-wide ARRA implementation. Access [agency recovery sites](#), the [conference report](#) and its [summary](#). FY 09 appropriations summaries are found [here](#).

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## Department of Defense (DoD)

### ARRA

- \$200M for R&D programs
- \$300M to develop energy-efficient weapons technologies
- \$120M for the Energy Conservation Investment Program (ECIP)
- \$4.2B to make DoD facilities more energy-efficient

FY 09 DoD Appropriations legislation was passed in the fall of 2008.

## Department of Education (ED)

### ARRA

#### **State Stabilization Fund - \$53.6B directly to states**

- 82% for education-related expenses; 18% for other government services, including “modernization, renovation, or repair of public school facilities and institutions of higher education,” including those consistent with a recognized green building rating system

#### **College Affordability**

- *Pell Grants*: \$17B to close shortfall in program and boost grant amounts by \$500 to \$5350 in the first year
- *Tuition Tax Credits*: \$13.8B to boost tuition tax credit from \$1800 to \$2500

### FY 09

#### **College Affordability**

- *Student Financial Aid*: \$1.9B for federal supplemental educational opportunity grants, Perkins Loans, and the Leveraging Educational Assistance Partnerships programs

## Department of Energy (DOE)

### ARRA

**Office of Science - \$1.6B** for facilities renovation, basic research, and advanced scientific computing

- \$277M for Energy Frontier Research Centers, to be awarded on a competitive basis to universities and national laboratories. EFRCs will accelerate transformational basic science needed to develop plentiful and cost-effective alternative energy sources.
- \$90M for other core research, providing support for graduate students, postdocs, and Ph.D. scientists across the nation
- \$330M for operations & equipment at Office of Science major scientific user facilities, used annually by over 20,000 researchers

### **Energy Efficiency and Renewable Energy Research & Development**

- \$2.5B for applied research, development, demonstration and deployment of energy efficiency and renewable energy technologies
- \$800M for biomass projects
- \$400M for geothermal activities and projects
- \$50M for research to increase the efficiency of information and communications technology and to improve standards
- \$1.25B for wind, solar, water power, hydrogen, vehicles, industrial and buildings technologies/activities

### **Advanced Research Project Agency – Energy (ARPA-E)**

- \$400M to establish ARPA-E as authorized by the America COMPETES Act
  - directed to support novel early-stage energy research, development of technologies, research and development of manufacturing processes, and coordination for technology demonstration & facilitation of tech. transfer

### **Fossil Energy Research and Development**

- \$1B for existing fossil energy research and development programs
- \$1.52B for competitive solicitation for a range of industrial carbon capture and energy efficiency improvement projects, including a small amount for innovative concepts for beneficial CO<sub>2</sub> reuse
- \$50M to further the development of carbon capture and storage technologies; competitive solicitation for site characterization activities in geologic formations
- \$20M for geologic sequestration training and research grants

### **Smart Grid**

- \$4.5B for activities related to developing the smart electricity grid
  - Likely to be focused on collaboration with industry and utilities – but may also provide new opportunities for academic researchers
- \$100M in worker training for the above area

**Other Programs:** \$30B for investments in applied research, loan guarantees and grants to develop new technologies in partnership with industry, and energy efficiency and conservation activities

## DOE (continued)

### FY 09

#### **Advanced Research Project Agency – Energy (ARPA-E)**

- \$15M to support novel early-stage energy research, development of technologies, research and development of manufacturing processes, and coordination for technology demonstration & facilitation of tech. transfer

#### **Energy Efficiency and Renewable Energy**

- *Solar Energy*: \$175M for research, development, and demonstration projects to make solar energy more affordable
- *Biofuels*: \$217M for grants to improve production of alternative fuels such as cellulosic ethanol and biodiesel
- *Vehicle Technology*: \$273M to collaborate with industry to improve fuel efficiency with better batteries and engines that burn clean fuel
- *Energy Efficient Buildings*: \$140M to research conservation technologies for buildings and industry to reduce energy demand
- *Industrial Technologies*: \$90M to help businesses improve energy efficiency
- *Water Power*: \$40M to research new ways of generating power from flowing water
- *Weatherization Grants*: \$200M for insulation and energy conservation measures to reduce utility bills for low-income families
- *Innovative Technology Loan Guarantees*: Extends loan guarantee authority for Innovative Technology, and includes \$18.5B in loans for energy efficiency and renewable energy technologies

#### **Office of Science - \$4.8B, \$755M greater than 2008, for basic scientific research to address long-term energy needs**

- *Advanced Energy Research*: \$765M, \$268M above 2008, for basic research to tackle major barriers to advancing energy generation and storage such as fusion energy and advanced batteries. This includes \$100 million for 20-30 Energy Frontier Research Centers to perform breakthrough energy research
- *New Tools and Facilities for Energy Research*: \$2.2B, \$389M above 2008, for labs and equipment necessary to perform the next generation of advanced energy research
- *Climate Change Research*: \$178M, \$41M above 2008, for climate change research including advanced computer modeling

**Environmental Cleanup**: \$6.5B, \$301M above 2008, to clean up contamination from 60 years of nuclear weapons manufacturing and cancelled projects for handling spent nuclear fuel. DOE has outstanding commitments to clean up 22 sites in 13 states.

## Department of the Interior (DOI)

### ARRA

- **Bureau of Reclamation:** \$1B to fund water reuse projects, construct rural water projects, promote water conservation, improve energy efficiency, address aging water infrastructure, and meet endangered species requirements through improvements such as fish screens and fish passage projects
- **National Park Service:** \$750M to preserve and protect national icons and historic landscapes, improve energy efficiency and renewable energy use at park units throughout the nation, and remediate abandoned mines sites on park units
- **U.S. Fish & Wildlife Service:** \$280M to improve energy efficiency and renewable use at refuges, resulting in the "greening" of facilities throughout the nation. Funding also will be used to restore wetlands, riparian habitat, endangered species habitat, and other important landscapes.
- **Bureau of Land Management:** \$320M to remediate abandoned mines, which will allow increased access to public lands. Funding will help expand BLM's capacity to authorize renewable energy development on public lands while ensuring environmental protection of these areas and restoration of native plants and animals, including sage grouse habitat. Funding is also included for Interior agencies to eliminate underbrush and other vegetation in fire-prone areas to reduce the threat and potential severity of fire.
- **U.S. Geological Survey:** \$140 million to restore and rehabilitate laboratories and research facilities and improve their energy efficiency and renewable use.

### FY 09

- **Bureau of Reclamation:** \$1.1B for dams, canals, water treatment and conservation, and rural water projects
  - *Title XVI, Water Reclamation and Reuse Program:* \$39M, \$15M above 2008, to develop/expand the use of recycled water to increase water supplies; will preserve overdrawn river/groundwater supplies, protect the environment, and improve security/reliability of water supplies
- **National Park Service:** \$2.5B, \$135M above 2008, to continue 10-year initiative to upgrade parks before 100<sup>th</sup> anniversary of NPS in 2016
- **National Wildlife Refuge System:** \$463M to reverse dramatic loss of staffing on National Wildlife Refuges
- **U.S. Geological Survey:** \$68M for priority climate change research; \$3M for carbon sequestration research

## Environmental Protection Agency (EPA)

### ARRA

#### **Clean/Drinking Water State Revolving Funds**

- \$4B for assistance to help communities with water quality and wastewater infrastructure needs
- \$2B for drinking water infrastructure needs; a portion of funding will be dedicated to green infrastructure, water and energy efficiency, and environmentally innovative projects

#### **Hazardous Waste/Toxic Site Cleanup**

- \$100M for competitive grants to evaluate and clean up brownfields
- \$600M for Superfund hazardous waste cleanup

#### **Diesel Emissions Reductions**

- \$300M for grants and loans to help regional, state, and local agencies; tribal agencies; and nonprofit organizations with projects that reduce diesel emissions

#### **Superfund Hazardous Waste Cleanup**

- \$600M for cleanup of hazardous sites

#### **Leaking Underground Storage Tanks**

- \$200M for cleanup of petroleum leaks from underground storage tanks

### FY 09

#### **Clean/Drinking Water State Revolving Funds**

- \$1.5B for low-interest loans to help local communities to improve drinking water & wastewater systems
  - \$689M for Clean Water State Revolving Fund to ensure compliance with Clean Water Act
  - \$829M for Drinking Water State Revolving Fund to improve drinking water systems
  - \$145M in STAG grants for water infrastructure

#### **Clean Air**

- \$224M, \$7.2M above 2008, for grants to states to implement the Clean Air Act
- \$60M, \$11M above 2008, for grants to reduce emissions from diesel engines

**Energy Star** - \$50M to rate appliance energy efficiency

**\$10M in new grants to help local communities cut GHG emissions**

## National Aeronautics and Space Administration (NASA)

### ARRA

- *Science*: \$400M to accelerate the development of the Tier 1 set of Earth Science climate research missions recommended by the National Academies Decadal Survey (earth science, planetary science, heliophysics, and astrophysics research); and to increase the agency's supercomputing capabilities
- *Aeronautics*: \$150M to undertake systems-level research, development and demonstration activities related to aviation safety, environmental impact mitigation, and the Next Generation Air Transportation System (NextGen)

### FY 09

- *Science*: \$400M to accelerate the development of the Tier 1 set of Earth Science climate research missions recommended by the National Academies Decadal Survey (earth science, planetary science, heliophysics, and astrophysics research); and to increase the agency's supercomputing capabilities
- *Aeronautics*: \$150M to undertake systems-level research, development and demonstration activities related to: aviation safety, environmental impact mitigation, and the Next Generation Air Transportation System (NextGen)
- *Global Climate Change Research*: \$1.3B, including \$150M to fund Earth science missions and measure climate change as recommended by NAS

## National Institute of Environmental Health Sciences (NIEHS/NIH)

### ARRA

- NIH received an additional \$10 Billion in ARRA, largely due to the efforts of Senator Arlen Specter (R-PA). The money will be available through several grant opportunities as well as through a lump sum (\$7.2 billion) that will be divided among the various Institutes
- The National Institutes of Environmental Health Sciences (NIEHS) is estimated to receive approximately \$168M

### FY 09

- NIEHS \$ 662.82 M, \$20.82 M above FY 08
- NIEHS Superfund Research \$ 49.629 M, no increase above FY 2008

## National Institute of Standards and Technology (NIST)

### ARRA

- *Science and Technology Research and Services*: \$220M for NIST laboratory research, measurements, and other services supporting economic growth and U.S. innovation through funding of such items as competitive grants, research fellowships, and advanced measurement equipment and supplies
- *Construction of Research Facilities*: \$360M to address NIST's backlog of maintenance and renovation projects and for construction of new facilities and laboratories, including \$180M for a competitive construction grant program for funding research science buildings outside of NIST
- *Transfer funds from DOE*: \$10M to help develop a comprehensive framework for a nationwide, fully interoperable smart grid for the U.S. electric power system

### FY 09

- \$819M, \$63.1M above 2008
- **Technology Innovation Program (TIP)**: \$65M to fund high-risk, high-reward research into areas of critical national need done by U.S. businesses, colleges and universities, and national labs

## National Oceanic and Atmospheric Administration (NOAA)

### ARRA

- \$230M slated for habitat restoration, navigation projects, and vessel maintenance
- \$430M for construction and repair of NOAA facilities, ships and equipment, improvements for weather forecasting and satellite development
- \$170M to be used for climate modeling activities, including supercomputing procurement and research into climate change

### FY 09

- \$4.4B total, \$468.7M more than 2008, to increase ocean, weather, and climate research activities and for satellite acquisitions
- \$394M to improve computer models, install climate sensors on satellites, and improve accessibility of climate data

## National Science Foundation (NSF)

Stimulus money will only fund a few new solicitations and no continuing awards; most new and continuing awards will be funded through FY 09 regular appropriations.

Exceptions are:

- early/new investigator awards
- CAREER awards - funded for full five years
- Graduate Research Fellowships and other similar scholarship programs – tripled
- academic research infrastructure (for outfitting and renovating research space, not new construction)
- Major Research Instrumentation (\$300M through ARRA).

Supplemental funding of existing awards through ARRA possibly, but discouraged. Stimulus funding will be "sequestered from any other funds," be separately accounted for, and be subject to detailed quarterly status reports. See attached statement by NSF.

NSF has also proposed to bring in more faculty rotating program officers and Intergovernment Personnel Act (IPA) appointees to administer these funds. The agency may take on the rotator and IPA salaries, which could free up faculty positions at universities to enable them to hire new faculty and postdocs, even with current hiring freezes.

### ARRA

#### **Research & Research Related – \$2.9B**

- *Research Grants*: \$2B
  - Funds to be shared among disciplines and being used to boost success rate of proposals already submitted
- *Construction/Academic Facilities Modernization*: \$200M
  - This funding restarts an old NSF program to repair/renovate science & engineering facilities at institutions of higher education and other research institutions
  - New solicitation expected
- *Major Research Instrumentation (MRI)*: \$300M
  - Existing RFA - Proposals were due 1/22/09 for current competition, which originally had approximately \$115M to allocate. Cost sharing requirements will still apply
- *Major Research Equipment & Facilities Construction*: \$400M to build major research facilities that perform cutting edge science

#### **Education & Human Resources - \$100M**

- *Noyce Teacher Scholarship Program*: \$60M – more proposals than usual will be funded for competition that closed 2/24/09
- *Math and Science Programs*: \$25M
- *Professional Science Masters Programs*: \$15M – authorized in 2007 by America COMPETES

## NSF (continued)

### FY 09

**Overall - \$6.49B**, a \$393M or 5.9% increase over 2008

**Research & Research Related – \$339M in additional funding** (7% over 2008 level of \$4.84B)

- Bill language: “provide for a balanced program across all science disciplines”
- \$230M to research impacts of human activities on climate and to study carbon cycles, land use, and impacts on ecosystems

**Education & Human Resources - \$120M increase** (16.5% over FY 08)

- \$10M for climate change education

## U.S. Department of Agriculture (USDA)

### ARRA

- *Natural Resources Conservation Service*: \$340M for watershed and flood prevention operations and watershed rehabilitation
- *Forest Service*: \$1.15B for capital improvements and maintenance (\$650M) and wildlands fire management (\$500M)

### FY 09

- *Rural Development*: \$2.79B for USDA programs important to rural communities including rural housing, water projects, community facilities and economic development efforts
- *Agricultural Research*: \$1.1B for the Agricultural Research Service and \$1.2B for the Cooperative State Research, Education, and Extension Service
- *Natural Resources Conservation Service*: \$968M to improve service in the field and increase conservation efforts