

**National Science Foundation (NSF) Program Plan
American Recovery and Reinvestment Act of 2009
Updated May 2010**

Research and Related Activities (R&RA) Recovery Plan
CFDA Number: 47.082

Objectives

Program Purpose

The R&RA program's purposes are to preserve and create jobs and promote economic recovery, to provide investments needed to increase economic efficiency by spurring technological advances in science, and to invest in infrastructure that will provide long-term economic benefits. NSF's investments in the R&RA Program will strengthen fundamental science and engineering research and education, advance discovery and learning, and spur innovation. Funds will be managed and expended as quickly as possible, consistent with prudent management not only of NSF's Recovery Act funds but also of its regular appropriation. The \$2.5 billion provided to NSF for the Research and Related Activities Program will go directly into the hands of the nation's best and brightest researchers at the forefront of their careers, in all fields of science and engineering supported by the Foundation. It will also support deserving graduate students at the start of their careers, who are integral to the research being carried out in the nation's universities and research laboratories. The R&RA Program supports merit-based awards to researchers, educators, and students at approximately 1,900 U.S. colleges, universities, and other institutions throughout the United States. The components of the R&RA program are grants to institutions of higher education and other organizations for research and related activities; grants for facilities and infrastructure investments at institutions of higher education; grants for shared research instrumentation through the Major Research instrumentation (MRI) Program; and grants to provide much-needed repair and renovations that have been deferred for lack of funds in institutions of higher education and other organizations through the Academic Research Infrastructure Program. The Research and Related Activities Program represents about 83 percent of the \$3 billion in Recovery Act funds awarded to the National Science Foundation.

Public Benefits

NSF's investments in Research and Related Activities will directly benefit researchers, post-docs, and graduate and undergraduate students in institutions of higher education and other organizations throughout the Nation. NSF has many highly rated research proposals in hand to consider for funding with ARRA funds. These projects would otherwise have been declined for lack of funds. Because NSF plans to use the majority of the funds available for the R&RA program for proposals that will be reviewed and/or

awarded by the end of the fiscal year on September 30, 2009, funds will be awarded quickly in order to contribute to new job creation and reinvestment. For example, NSF will use ARRA funds to increase the number of Graduate Research Fellowships (GRF) and the number of CAREER (Faculty Early Career Development) program awards. CAREER supports the research and education activities of junior faculty and GRF supports graduate study leading to research-based master's or doctoral degrees and is intended for students who are in the early stages of their graduate study. NSF will also increase the number of awards in the Major Research Instrumentation (MRI) Program, which provides funds to purchase shared scientific and engineering instruments for research and training in institutions of higher education, museums and science centers, and non-profit organizations. The Academic Research Infrastructure Program will provide funds to purchase equipment or services to repair and renovate, or in exceptional cases, replace research facilities; assist research organizations, including those that have historically received limited Federal research and development funds, to improve their science and engineering research environments; and enable academic departments, disciplinary and cross-disciplinary units, or multi-organization consortia to renovate research facilities through the addition or augmentation of cyberinfrastructure.

Measures

Number of competitive R&RA awards. The target for FY 2009 was 4,000 and NSF met this goal by making 4,599 awards in FY 2009. By the second quarter of FY 2010, an additional 194 awards had been made, therefore, a total of 4,793 awards have been made with R&RA ARRA funds.

Number of competitive R&RA awards for Major Research Instrumentation Program-R² and Academic Research Infrastructure Program-R² Programs. These programs will make awards in FY 2010. The target is 500 new awards. 186 awards had been made by the second quarter of FY 2010.

Total number of investigators supported on competitive R&RA awards. The target for FY 2009 was 6,400. 6,762 investigators were supported in FY 2009 and 7,357 had been supported through the second quarter of FY 2010.

Number of *new* investigators supported on competitive R&RA awards. The target for FY 2009 was 2,400. 2,352 new investigators were supported in FY 2009 and an additional 215 had been supported through the second quarter of FY 2010 for a total of 2,567 new investigators supported with R&RA ARRA funds. Note: This is a subset of the total number of investigators. A *new* investigator is someone who has not served as the principal investigator or co-principal investigator on any award from NSF (with the exception of doctoral dissertation awards; graduate or postdoctoral fellowships; research planning grants; or conference, symposia, and workshop grants).

Schedule and Milestones

Expected completion date: September 30, 2010. By this time, NSF will have awarded all Research and Related Activities grants for research, facilities improvement, MRI-R², and ARI-R² with the Recovery Act funds.

Projects and Activities

NSF will support grants for science and engineering research, facilities and infrastructure improvements, major research instrumentation of up to \$6 million, and academic research infrastructure repair and renovation in institutions of higher education (graduate and undergraduate institutions, including two-year and community colleges) and other organizations such as non-profit institutions, museums, and consortia. For the most part, NSF will fund many highly-rated research proposals that are already in house but that would otherwise not be funded. Two new program solicitations have also been issued:

Major Research Instrumentation Program-R²

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf09561

Academic Research Infrastructure Program-R²

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503380&org=OIA

Review Process

NSF places high priority on its stewardship responsibilities and is cognizant of the responsibilities imposed through its receipt of \$2.5 billion in ARRA funding for the R&RA Program. The Foundation plans to fully use and, in places, enhance its comprehensive set of policies and procedures that currently guide program staff through business, financial, and award administration from pre-award through close-out. At the pre-award stage, NSF's world-standard merit review system selects the highest-quality scientific research and education proposals for funding. Its comprehensive set of fully documented policies and procedures guide NSF staff and awardees alike through the business, financial, and award requirements that govern pre-award through close-out. Warranted contract and grant specialists make awards to institutions with the business capacity requisite to manage federal resources and specifically exclude those institutions debarred from receipt of funds by Federal government agencies. The *Award and Administration Guide (AAG)* (Part II of the *NSF Proposal & Award Policies & Procedures Guide*) http://www.nsf.gov/publications/pub_summ.jsp?ods_key=papp sets forth NSF policies for the award and administration of grants and cooperative agreements that ensure compliance with federal regulations. The AAG governs the setting of award terms and conditions, grant administration, financial requirements, grantee standards, cost allowability, and grant administration and misconduct. NSF is including special terms and conditions for ARRA-funded awards as per OMB guidance. NSF's comprehensive Award Monitoring and Business Assistance Program (AMBAP) provides advanced post award oversight for the universe of NSF's high risk awards through a combination of desk reviews, site visits, and Federal Financial Report (FFR) transactional testing. Desk reviews and site visits provide oversight of critical policies and procedures that follow well-established protocols; they verify that financial information received provides

reasonable assurance that awards are likely to be administered in accordance with NSF's agreement provisions and other relevant administrative regulations. Transactions for low- and medium-risk awards are subject to verification through statistical sampling to ensure that funding is not used for expressly unallowable costs. NSF will leverage its current, comprehensive programs to ensure rigorous monitoring for Recovery Act funds. ARRA awards will carry additional weight in the annual risk assessment, ensuring that their coverage will be significant. Through this combined set of activities, on-site visits, desk review, and/or transactional testing, NSF will ensure that the entire high risk award universe receives post award review. We believe that the extraordinary measures NSF has taken to conceive and implement AMBAP are having a positive impact on awardee institutions and are mitigating the risk of potential misuse of funds. In designing this program, we have been very careful to complement, rather than supplant, the auditing responsibilities of the Office of the Inspector General (OIG). Should we, in the course of the Foundation's post-award oversight activities, find issues that rise to the level of audit or investigative scrutiny, we will refer them to NSF OIG.

Cost and Performance Plan

The National Science Foundation will report Recovery Act performance information on its website (www.nsf.gov/recovery) and through the Research Spending and Results (RS&R) offering in Research.gov (<http://www.research.gov/rgov/anonymous.portal>). The NSF Recovery Act website features information and press releases about recent awards and information about new programs such as the Academic Research Infrastructure -- Recovery and Reinvestment (ARI-R²) and the Major Research Instrumentation--Recovery and Reinvestment (MRI-R²). The RS&R mechanism in Research.gov provides near real-time data that is updated based on recipient report submissions. Information available in RS&R includes awardee or award information (full text search); funds obligated to date; project director or principal investigator, including co-project director and co-principal investigator; award date; awardee location; primary location of performance; and performance Congressional district.

Within NSF, all Directorates and Offices have developed plans to meet the Foundation's priorities for Recovery Act funding. Those priorities are to support new principal investigators, high-risk/high-return research, and research that is directly related to larger Administration priorities including clean energy and climate change. NSF will also support a large number of awards under the CAREER program for junior faculty and the IGERT (Integrative Graduate Education and Research Traineeship) program. NSF will ensure that the durations of awards cover two to five years in order to structure a sustainable portfolio. Through self-monitoring of its Recovery Act award portfolio, the Foundation will take advantage of opportunities to make course corrections and changes in procedures in order to fully meet its priorities under the legislation.

Energy Efficiency Spending Plans: NSF will encourage relevant ARRA award recipients to consider sustainability, energy efficiency, and environmental impact when undertaking major renovations, repairs, and alterations. NSF will point to the energy

efficiency and green building requirements (in statute and executive order) for Federal infrastructure as a possible model for the recipient's infrastructure investments.

Program Plan Award Types: Competitive Grant Program

Recipient Applicant Type

Other Public Institutions/Organizations

Other Private Institution/Organizations

Beneficiary Type: U.S. citizen

National Science Foundation: R&RA Account
ARRA Obligations and Outlays as of March 31, 2010

(Dollars in Millions)

	FY10 Target	Total, FY 2009	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	Mar 2010	Apr 2010	May 2010	Jun 2010	Jul 2010	Aug 2010	Sept 2010
Activities														
Projected Obligations (Submitted Nov 2009)	\$2,500	\$2,063	\$2,063	<i>\$2,063</i>	<i>\$2,280</i>	<i>\$2,280</i>	<i>\$2,280</i>	<i>\$2,280</i>	<i>\$2,500</i>	<i>\$2,500</i>	<i>\$2,500</i>	<i>\$2,500</i>	<i>\$2,500</i>	<i>\$2,500</i>
Actual Obligations through March & Revised Projections (as of April 2010)	\$2,500	\$2,063	\$2,063	\$2,063	\$2,087	\$2,113	\$2,152	\$2,198	\$2,198	\$2,198	\$2,198	\$2,429	\$2,479	\$2,500
Projected Outlays (Submitted Nov 2009)	\$1,155	\$27	<i>\$231</i>	<i>\$319</i>	<i>\$403</i>	<i>\$481</i>	<i>\$563</i>	<i>\$650</i>	<i>\$735</i>	<i>\$823</i>	<i>\$929</i>	<i>\$1,039</i>	<i>\$1,062</i>	<i>\$1,155</i>
Actual Outlays through March ¹ & Revised Projections (as of April 2010)	\$1,002	\$27	\$41	\$91	\$104	\$134	\$213	\$216	\$259	\$310	\$371	\$517	\$720	\$1,002
<i>Delta</i>														
Obligations	-	-	-	-	(\$193)	(\$167)	(\$129)	(\$82)	(\$302)	(\$302)	(\$302)	(\$71)	(\$21)	-
Outlays	(\$153)	-	(\$190)	(\$228)	(\$299)	(\$347)	(\$350)	(\$434)	(\$476)	(\$513)	(\$558)	(\$522)	(\$342)	(\$153)

Italicized data indicate projections.

Totals may not add due to rounding.

¹Actual Outlays for October through March are subject to change up to 40 days from the end of the second quarter (March 31).