

Report to the National Science Board
on the
National Science Foundation's
Merit Review Process
Fiscal Year 2010



May 2011

TABLE OF CONTENTS

I.	<u>Executive Summary</u>	4
II.	<u>Introduction</u>	5
III.	<u>American Recovery and Reinvestment Act</u>	6
IV.	<u>Proposal and Award Data</u>	7
	A. Proposals, Awards, and Funding Rates	7
	B. Types of Awards	9
	C. Awards By Sector/Institution	10
	D. Time to Decision (Proposal Dwell Time)	11
	E. Data on Research Grants	12
	E1. Research Grant Proposal, Award, & Funding Rate Trends	12
	E2. Research Grant Size and Duration	13
	E3. Number of Investigators Per Research Grant	14
	E4. Number of Research Grants Per PI	16
	E5. Number of People Supported on Research Grants	16
	E6. Average Number of Months of Salary for Single & Multiple PI Research Grants	17
	E7. Investigator Submission and Funding Rates	18
	E8. Early and Later Career PIs	19
	E9. Small Grants for Exploratory Research (SGER), Early-concept Grants for Exploratory Research (EAGER), and Grants for Rapid Response Research (RAPID)	20
V.	<u>Merit Review Process</u>	21
	A. Merit Review Criteria	21
	B. Transformative Research	22
	C. Description of Merit Review Process	24
	D. Program Officer Award/Decline Recommendation	26
	E. Review Information to Proposer and Appeal Process	26
	F. Methods of External Review	27
	G. Data on Reviewers	31
	H. Reviewer Proposal Ratings and Impact of Budget Constraints	32
	I. Program Officer Characteristics and Workload	34

APPENDICES

Appendix 1:	Proposals, Awards, and Funding Rates by Directorate or Office	36
Appendix 2:	Preliminary Proposals	38
Appendix 3:	Proposals, Awards, and Funding Rates by PI Race and Ethnicity	39
Appendix 4:	Funding Rates of New PIs and Prior PIs by Directorate	40
Appendix 5:	Median and Average Award Amounts for Research Grants by Directorate or Office	41
Appendix 6:	Average Number of Months of Salary Support for Single- and Multi-PI Research Grants by Directorate or Office	42
Appendix 7:	Number of People Involved in NSF Activities	43
Appendix 8:	Average Number of Research Proposals per PI before Receiving One Award by Directorate/Office	44
Appendix 9:	EPSCoR: Jurisdictions, Proposal, Award, and Funding Data	45
Appendix 10:	Small Grants for Exploratory Research (SGER), Early-concept Grants for Exploratory Research (EAGER) and Grants for Rapid Response Research (RAPID)	50
Appendix 11:	Oversight and Advisory Mechanisms	53
Appendix 12:	Requests for Formal Reconsideration of Declined Proposals	54
Appendix 13:	Average Number of Reviews Per Proposal, by Method and Directorate or Office	55
Appendix 14:	Methods of NSF Proposal Review	56
Appendix 15:	Methods of NSF Proposal Review by Directorate of Office	56
Appendix 16:	Distribution of Average Reviewer Ratings	57
Appendix 17:	Accomplishment-Based Renewals and Creativity Extensions	57
Appendix 18:	Accomplishment-Based Renewals by Directorate	58
Appendix 19:	National Science Foundation Organization Chart	59
Appendix 20:	Terms and Acronyms	60

FY 2010 Report on the NSF Merit Review Process

I. Executive Summary

This Annual report to the National Science Board (NSB) includes data and other information relative to the National Science Foundation (NSF or the Foundation) Merit Review Process for fiscal year (FY) 2010.

In FY 2010, NSF received a total of 55,542 proposals. This is an increase of about 23% from the number of proposals received in FY 2009, and an increase of over 74% from the number of proposals received in FY 2001.

The Foundation made 12,996 awards in 2010, resulting in a 23% funding rate. This is a substantial decrease in funding rate from the 32% that occurred as a consequence of ARRA funding in 2009. Although the number of awards made in 2010 was higher than in 2008 (pre-ARRA funding), the funding rate was actually lower due to the significant increase in number of proposals. As indicated by data in **Appendix 1**, the average funding rate varies by NSF directorate. Although not included in this report, there is an even greater variation of funding rate by program.

The Foundation exceeded its “time to decision” goal of informing at least 70% of Principal Investigators (PIs) of funding decisions within six months of receipt of their proposals. In FY 2010 75% of all proposals were processed within six months.

Proposals are externally reviewed by three methods: panel only, mail + panel, and mail only. In FY 2010, 59% were reviewed by panel only, 30% by mail + panel, and 7% by mail only. These percentages have remained fairly constant over the last several years. In addition, about 4% of proposals are not reviewed externally (these include, for example, proposals for travel, symposia, Early Concept Grants for Exploratory Research, and Grants for Rapid Response Research).

Because of space constraints, printed versions of this report include, in most cases, data for only eight years. However, one can access additional historical data through the electronic version of the report that is posted on the NSB website (<http://www.nsf.gov/nsb/>).

II. Introduction

The National Science Foundation Act of 1950 directs the Foundation "to initiate and support basic scientific research and programs to strengthen scientific research potential and science education programs at all levels."¹ NSF achieves its unique mission by making merit-based awards to researchers, educators, and students at approximately 1,900 U.S. colleges, universities and other institutions.

All proposals are evaluated using the two NSB-approved criteria: *intellectual merit* and *broader impacts*. As stated in the *NSF Grant Proposal Guide*², consideration is also given to how well the proposed activity 1) fosters the integration of research and education, and 2) broadens opportunities to include a diversity of participants, particularly from underrepresented groups. Additional criteria, as stated in the program announcement or solicitation, may be required to highlight the specific objectives of certain programs or activities. About 96% of NSF's proposals are evaluated by external reviewers as well as by NSF staff. The remaining proposals fall under special categories that are, by NSF policy, exempt from external review and may be internally reviewed only, such as Early-concept Grants for Exploratory Research (EAGERS) and Grants for Rapid Response Research (RAPIDs) (see section E9 and **Appendix 10**).

This *FY 2010 Report on the NSF Merit Review Process* responds to a National Science Board (NSB) policy endorsed in 1977 and amended in 1984, requesting that the NSF Director submit an annual report on the NSF merit review process. Section III provides information about ARRA, NSF policies and priorities in selecting proposals for ARRA support, and the distribution of ARRA award funding. Section IV of the report provides summary data about proposals, awards, and funding rates. Longitudinal data are given to provide a long-term perspective. In most cases, the data provided are for only eight years due to space constraints; however, additional historical data are available through the electronic version of the report that is posted on the NSB website (<http://www.nsf.gov/nsb/>).

¹ 42 CFR 16 §1862, available at http://www4.law.cornell.edu/uscode/html/uscode42/usc_sec_42_00001862----000-.html

² *NSF Grant Proposal Guide* (GPG) available at: http://www.nsf.gov/pubs/policydocs/pappguide/nsf08_1/gpg_index.jsp

III. American Recovery and Reinvestment Act

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA) into law. One of the principal purposes of the law is to “provide investments needed to increase economic efficiency by spurring technological advances in science and health.”³ ARRA supplemented NSF fiscal year 2009 allocation by \$3 billion.

NSF annually has highly rated proposals that it is unable to fund. For this reason, NSF used the majority of the \$2 billion available in Research and Related Activities for proposals that were already in house and reviewed prior to September 30, 2009. NSF included for consideration proposals declined on or after October 1, 2008. In those instances where a previously declined proposal was funded with the ARRA appropriation, the reversal of the decision to decline was based on both the high quality of the proposal and on the lack of available funding at the time the original decision was made. A total of 318 ARRA awards were made through reversals of previous declined proposals.

NSF set 30% as the funding rate goal for FY2009. In addition, NSF’s overall framework for ARRA investments emphasized the following:

- All grants issued with ARRA funds were standard grants with durations of up to five years. This approach allowed NSF to structure a sustainable portfolio.
- Funding of new Principal Investigators and funding of high-risk, high-return research were both top priorities.
- The Foundation issued solicitations for the Science Masters (214 proposals/21 awards), Research Infrastructure Improvement Program: Inter-Campus and Intra-Campus Cyber Connectivity (23 proposals/17 awards), Academic Research Infrastructure (393 proposals/136 awards), and Major Research Instrumentation Programs (1214 proposals/262 awards.) Awards for proposals submitted to these programs were made in FY 2010.

Table 1
NSF Spending Plan for the American Recovery and Reinvestment Act of 2009

Program/Activity	Funds Obligated as of 9/30/09	Funds Received	Funds Obligated as of 9/30/10
Research & Related Activities (R&RA)	\$2,063M (83%)	\$2,500M	\$2,500M
Education and Human Resources (EHR)	\$85M (85%)	\$100M	\$100M
Major Research Equipment and Facilities Construction Program	\$254M (64%)	\$400M	\$400M
Office of Inspector General	\$0.02M (<1%)	\$2M	\$0.07M
TOTAL	\$2,402M (80%)	\$3,002M	\$3,000.07M

Source: NSF FY2009 Agency Financial Report, FY2010 Obligation Actuals.

³ Pub.L. 111-5, available at:

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_public_laws&docid=f:publ005.111

IV. Proposals and Awards

A. Proposals, Awards, and Funding Rates

Table 2 shows the change in the number of proposals, number of awards, and funding rates through time. Note that a proposal is included in a given year based on whether the action (award or decline) was taken that year, not whether the proposal was received in that year. NSF received 55,542 proposals in FY 2010 resulting in 12,996 awards (12,547 funded from the 2010 Omnibus and 449 funded from the 2009 ARRA appropriation). In 2010 the funding rate was 23%. **Appendix 1** provides proposal, award, and funding rate data by NSF directorate and office.

Table 2
NSF Proposal, Award, and Funding Rate Trends

	2006	2007	2008	2009	2009 Omnibus	2009 ARRA	2010 Total	2010 Omnibus	2010 ARRA
Proposals	42,352	44,577	44,428	45,181	-	-	55,542	-	-
Awards	10,425	11,463	11,149	14,595	9,975	4,620	12,996	12,547	449
Funding Rate	25%	26%	25%	32%	-	-	23%	-	-

Source: NSF Enterprise Information System 10/01/10.

In addition to the full proposals in Table 2, in FY 2009 NSF also received 2,883 preliminary proposals, which are required for some NSF programs. See **Appendix 2** for additional data and information on preliminary proposals.

Table 3 provides data on proposal, award, and funding rates by PI characteristics (gender, minority status, new and prior PI status).

Table 3
**Competitively Reviewed Proposals, Awards and Funding Rates
By PI Characteristics**

		2003	2004	2005	2006	2007	2008	2009	2010
All PIs	Proposals	40,075	43,851	41,722	42,352	44,577	44,428	45,181	55,542
	Awards	10,844	10,380	9,757	10,425	11,463	11,149	14,595	12,996
	<i>Omnibus</i>							9,975	12,547
	<i>ARRA</i>							4,620	449
	Funding Rate	27%	24%	23%	25%	26%	25%	32%	23%
Female PIs	Proposals	7,335	8,427	8,266	8,510	9,197	9,431	9,727	11,903
	Awards	2,090	2,118	2,107	2,233	2,493	2,556	3,297	2,982
	<i>Omnibus</i>							2,247	2,887
	<i>ARRA</i>							1,050	95
	Funding Rate	28%	25%	25%	26%	27%	27%	34%	25%

		2003	2004	2005	2006	2007	2008	2009	2010
Male PIs	Proposals	31,238	33,300	31,456	31,482	32,650	32,074	32,091	38,695
	Awards	8,495	7,923	7,305	7,765	8,451	7,986	10,437	9,080
	<i>Omnibus</i>							7,169	8,760
	<i>ARRA</i>							3,268	320
	Funding Rate	27%	24%	23%	25%	26%	25%	33%	23%
Minority PIs	Proposals	2,141	2,551	2,468	2,608	2,798	2,762	2,945	3,613
	Awards	569	597	569	638	713	670	889	812
	<i>Omnibus</i>							649	790
	<i>ARRA</i>							240	22
	Funding Rate	27%	23%	23%	24%	25%	24%	30%	22%
New PIs <i>Former</i> <i>Definition</i> *	Proposals	17,584	19,052	17,660	18,061	18,971	18,989	19,044	24,116
	Awards	3,390	3,256	3,001	3,240	3,660	3,622	4,706	4,024
	<i>Omnibus</i>							2,967	3,868
	<i>ARRA</i>							1,739	156
	Funding Rate	19%	17%	17%	18%	19%	19%	25%	17%
New PIs <i>Revised</i> <i>Definition</i> *	Proposals	15,555	16,723	15,467	15,877	16,445	16,483	16,840	21,545
	Awards	2,952	2,881	2,687	2,842	3,151	3,132	4,174	3,620
	<i>Omnibus</i>							2,613	3,487
	<i>ARRA</i>							1,561	133
	Funding Rate	19%	17%	17%	18%	19%	19%	25%	17%
Prior PIs <i>Former</i> <i>Definition</i> *	Proposals	22,511	24,799	24,062	24,294	25,606	25,439	26,137	31,426
	Awards	7,478	7,124	6,756	7,185	7,803	7,527	9,889	8,972
	<i>Omnibus</i>							7,008	8,679
	<i>ARRA</i>							2,881	293
	Funding Rate	33%	29%	28%	30%	30%	30%	38%	29%
Prior PIs <i>Revised</i> <i>Definition</i> *	Proposals	24,190	26,765	26,130	26,172	27,660	27,424	28,341	33,997
	Awards	7,769	7,373	7,070	7,475	8,202	7,892	10,421	9,376
	<i>Omnibus</i>							7,362	9,060
	<i>ARRA</i>							3,059	316
	Funding Rate	32%	28%	27%	29%	30%	29%	37%	28%
PIs with Disabilities	Proposals	494	525	454	434	448	448	470	545
	Awards	124	121	95	107	104	109	149	108
	<i>Omnibus</i>							105	105
	<i>ARRA</i>							44	3
	Funding Rate	25%	23%	21%	25%	23%	24%	32%	20%

Source: NSF Enterprise Information System 10/01/10.

* In FY 2009, in conjunction with NSF's implementation of the ARRA, NSF revised its definition of a new PI. The revised definition is "A new PI is an individual who has not served as the PI or co-PI on any award from NSF (with the exception of doctoral dissertation awards, graduate or postdoctoral fellowships, research planning grants, or conferences, symposia and workshop grants.)" Previously, a new PI was considered to be any individual who had not previously been a PI on any NSF award. Historical data shown for the revised definition is based on the NSF Enterprise Information System, as of October 2, 2009.

Gender and minority status is based on self-reported information in proposals, with about 89% of PIs providing gender information and 88% providing minority status information. Minority status includes American Indian, Alaska Native, Black, Hispanic, and Pacific Islander and excludes Asian and White-Not of Hispanic Origin. **Appendix 3** provides proposal, award, and funding rate information by PI race and ethnicity. **Appendix 4** provides funding rate information by new PI and prior PI status by directorate

B. Types of Awards

NSF uses three kinds of funding mechanisms: grants, cooperative agreements, and contracts. Most of NSF's projects support or stimulate scientific and engineering research and education, and are funded using grants or cooperative agreements. A grant is the primary funding mechanism used by NSF. A grant can be funded as either a standard award (in which funding for the full duration of the project, generally 1-5 years, is awarded in a single fiscal year) or a continuing award (in which funding of a multi-year project is usually provided in annual increments). For continuing grants, the initial funding increment is accompanied by a statement of intent to continue funding the project in yearly increments (called "continuing grant increments" or CGIs)⁴ until the project is completed. The continued funding is subject to NSF's judgment of satisfactory progress, availability of funds, and receipt and approval of required annual reports. Cooperative agreements are used when the project requires substantial agency involvement during the project performance period (e.g., research centers, multi-user facilities). Contracts are used to acquire products, services and studies (e.g., program evaluations) required primarily for NSF or other government use.

As shown below in **Table 4**, in FY 2010, NSF devoted 37% of its total budget to new standard grants and 13% to new continuing grants. The use of standard and continuing grants allows NSF flexibility in balancing current and future obligations, and managing funding rates. Note: ARRA awards were made as standard grants.

Table 4
Percentage of NSF Awards by Funding Mechanism

CATEGORY	2003	2004	2005	2006	2007	2008	2009	2010
Standard Grants	25%	25%	23%	25%	26%	28%	44%	37%
New Continuing	16%	14%	14%	13%	14%	13%	8%	13%
CGIs and Supplements	26%	28%	29%	28%	26%	26%	18%	18%
Cooperative Agreements	25%	24%	24%	23%	22%	23%	21%	23%
Other *	9%	9%	10%	11%	11%	11%	9%	9%

Source: NSF Enterprise Information System 12/22/10. Percentages may not sum to 100 due to rounding.

⁴ While the original award is a competitive action, the Continuing Grant Increment (CGI) is a non-competitive grant. Continued incremental funding is based on NSF review of annual project reports and additional oversight mechanisms established by specific programs.

* Other includes contracts, fellowships, interagency agreements, and IPA agreements.

C. Awards by Sector/Institution

In FY 2010, NSF awarded approximately 77% of its budget to academic institutions, 13% to non-profit and other organizations, 5% to for-profit businesses, and 5% to Federal agencies and laboratories⁵. This overall distribution of funds by type of organization has remained fairly constant over the past five years as shown in **Table 5**.

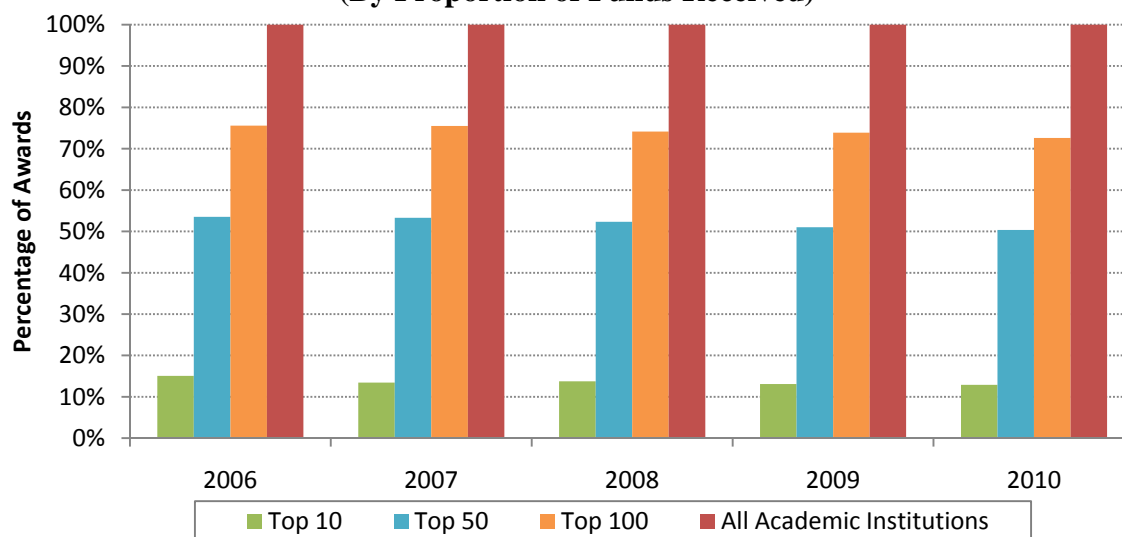
Table 5
Distribution of Funds by Type of Organization

Sector/Institution	2003	2004	2005	2006	2007	2008	2009	2010
Academic Institutions	76%	76%	76%	76%	76%	76%	76%	77%
Non-Profit and Other Organizations	15%	15%	15%	15%	15%	13%	13%	11%
For-Profit	7%	7%	7%	7%	7%	8%	6%	6%
Federal Agencies and Laboratories	2%	2%	2%	2%	3%	3%	4%	5%

Source: NSF FY 2010 Agency Financial Report. Percentages may not sum to 100 due to rounding.

For **Figure 1**, academic institutions are categorized according to the proportion of NSF funding received (i.e., those receiving the largest proportion of NSF funding – the top 10, 50, and 100 academic institutions).

Figure 1
Percentage of Awards to Academic Institutions
(By Proportion of Funds Received)



Source: NSF Enterprise Information System 10/01/10.

The Foundation tracks funding rates for different types of academic institutions. For FY 2010, the average funding rate was 26% for the top 100 (classified according to the amount of FY 2010 funding received) Ph.D.-granting institutions. In comparison, the rate was 17% for Ph.D.-granting institutions that are not in the top 100 NSF-funded

⁵ Numbers do not total to 100% due to rounding.

category. The funding rates for two- and four-year institutions were both 22% in FY 2010. For minority-serving institutions, the FY 2010 funding rate was 18%.

The Foundation also promotes geographic diversity of the participants in its programs. For example, the mission of the Experimental Program to Stimulate Competitive Research (EPSCoR) is to assist the NSF in its statutory function “to strengthen research and education in science and engineering throughout the United States and to avoid undue concentration of such research and education.”⁶ The EPSCoR program was designed for those jurisdictions that have historically received lesser amounts of NSF Research and Development (R&D) funding. In FY 2010, 27 states, the Commonwealth of Puerto Rico and the U.S. Virgin Islands were eligible to participate in the program. **Appendix 9** has data on proposals, awards, and funding rates for the EPSCoR jurisdictions.

NSF made numerous outreach presentations to diverse institutions across the country in an effort to help increase their participation and success in NSF programs:

- Two Regional Grants Conferences were held in FY 2010. These conferences were organized by the NSF Policy Office, and hosted by Jackson State University and Case Western Reserve University, respectively.
- 9 “NSF Days” organized by the Office of Legislative and Public Affairs, were held throughout the year in Arizona, California, Florida, Georgia, Idaho, Iowa, Missouri, Ohio, Tennessee.

Representatives from most of NSF’s directorates and offices attended each of these conferences. They held separate focus sessions for faculty on program opportunities in specific disciplines in addition to providing general information about proposal preparation and the merit review process.

NSF also hosted several informational booths at scientific meetings such as the annual meeting of the American Association for the Advancement of Science (AAAS). In addition to these larger NSF-wide organized efforts, outreach workshops were sponsored by several of the individual directorates, as well as EPSCoR, the Small Business Innovation Research (SBIR) program, and other NSF-wide programs. Finally, Program Officers frequently conduct outreach when visiting institutions or participating in scientific meetings. NSF outreach to scientists and engineers from underrepresented groups includes efforts such as workshops for tribal colleges and minority-serving institutions, including historically black colleges and universities.

D. Time to Decision (Proposal Dwell Time)

It is important for applicants to receive a timely funding decision. The Foundation’s FY 2010 GPRA performance goal calls for informing at least 70% of PIs of funding decisions (i.e. award or decline) within six months of deadline, target date, or proposal

⁶ 42 CFR 16 §1862, available at http://www4.law.cornell.edu/uscode/html/uscode42/usc_sec_42_00001862----000-.html

receipt date, whichever is later. In 2010 NSF exceeded the dwell time goal with 75% of applicants informed within 6 months. Note that NSF has consistently exceeded its time to decision goal with the exception of 2009 when the NSF dwell time performance measure was suspended for the second through the fourth quarters to delay processing proposals that would have been declined due to lack of funding so that some of these proposals could be funded with the ARRA allocation.

Table 6
Proposal Dwell Time
Percentage of Proposals Processed Within 6 Months

2003	2004	2005	2006	2007	2008	2009*	2010
77%	77%	76%	78%	77%	78%	61%	75%

Source: NSF Enterprise Information System 10/01/10.

E. Data on Research Grants

The purpose of this section is to provide data on what is referred to as “research grants.” The term research grant is used by NSF to represent what could be considered a typical research award, particularly with respect to the award size. Education research grants are included in this category. Excluded are large awards such as centers and facilities, equipment and instrumentation grants, grants for conferences and symposia, grants in the Small Business Innovation Research program, Small Grants for Exploratory Research, Early-concept Grants for Exploratory Research, Grants for Rapid Response Research, and education and training grants.

E1. Research Proposal, Grant, & Funding Rate Trends

Table 7 provides the proposal, grant, and funding rate trends for NSF research grants. The number of awards made in 2010 (8,639) was substantially lower than what was possible in 2009 (10,011) with ARRA funding, but higher than the number of awards in 2008 pre-ARRA (6,999). The funding rate in 2010 was actually slightly lower than in 2008 as a result of the increase in number of proposals.

Table 7
Research Grant Proposal, Grant & Funding Rate Trends

	2003	2004	2005	2006	2007	2008	2009	2010
Proposals	28,676	31,553	31,574	31,514	33,705	33,643	35,609	42,225
Awards	6,846	6,509	6,258	6,708	7,415	6,999	10,011	8,639
<i>Omnibus</i>							6,346	8,613
<i>ARRA</i>							3,665	26
Funding Rate	24%	21%	20%	21%	22%	21%	28%	20%

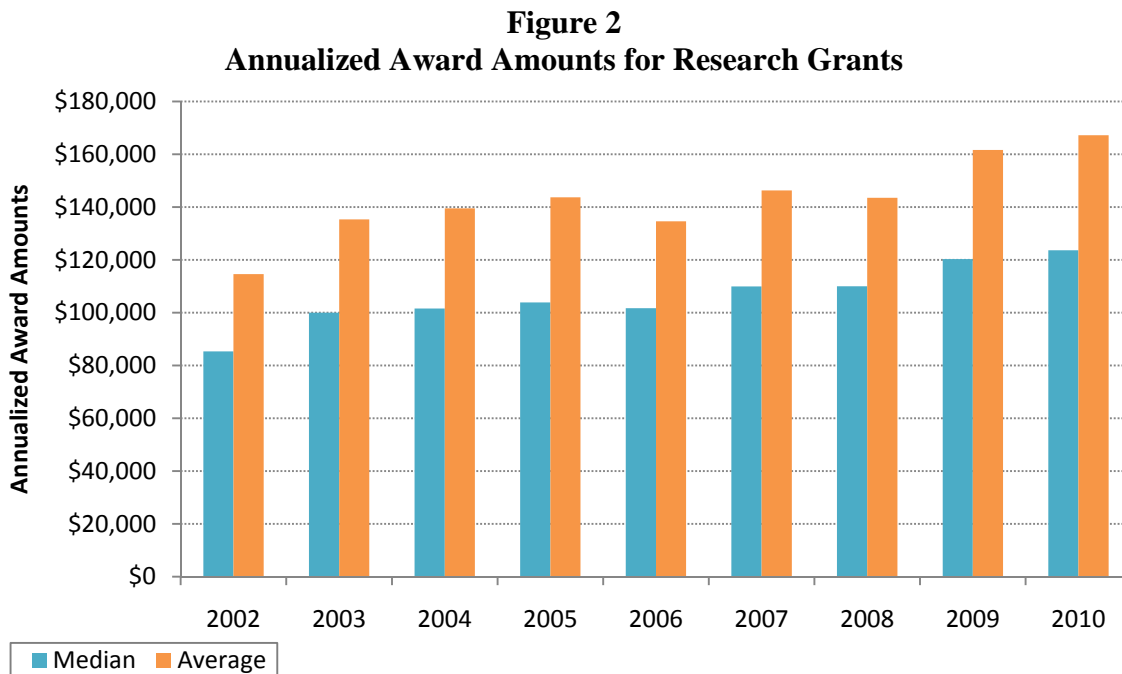
Source: NSF Enterprise Information System 10/01/10.

* The NSF dwell time performance measure was suspended for quarters 2-4 of FY 2009 to delay processing declines due to lack of funding so that they could be funded with the ARRA appropriation. The percentage of proposals meeting the dwell time goal during the 1st quarter was 89%.

E2. Research Grant Size and Duration

Adequate award size and duration are important for enabling science of the highest quality and ensuring that proposed work can be accomplished as planned. Larger award size and longer award duration may also permit the participation of more students and allow investigators to devote a greater portion of their time to conducting research.

With the ARRA allocation, NSF was able to substantially increase the annualized award amounts for research grants as indicated in **Figure 2**. In 2010 the annualized median award size was \$123,391 and the average annualized award amount was \$166,230.



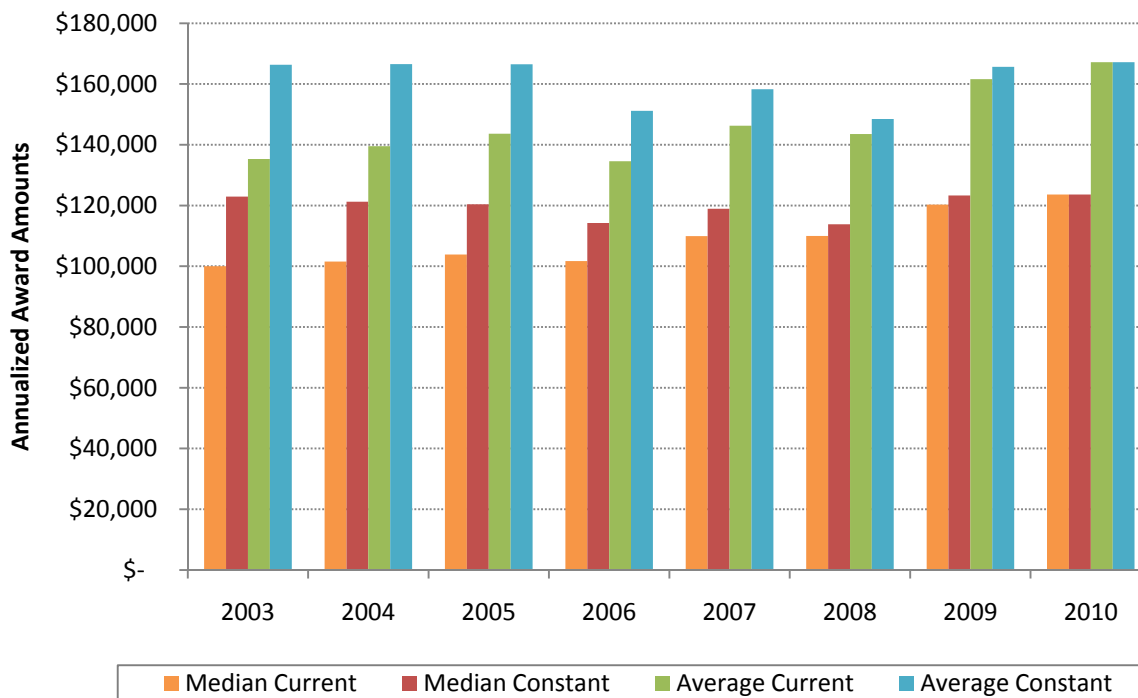
Source: NSF Enterprise Information System 10/01/10.

Data on award size and duration organized by NSF directorate for the last five years are presented in **Appendix 5**.

As indicated in **Figure 3**, the average annual award size has increased by 24% from FY 2003 to FY 2010, while the average annual award size in constant dollars⁷ has risen only by 1%. It should be noted that there was a significant increase in average annual award size in FY 2009 made possible by the ARRA allocation. NSF may not be able to sustain the increase in future years.

⁷ Constant dollars were calculated with the Gross Domestic Product (GDP) Deflator, which is the GDP (chained) Price Index. The deflator is updated by the Office of Management and Budget in the President's Budget and is based on the U.S. Government Fiscal Year, which begins on October 1 and ends on September 30. For this chart, the FY 2010 is the reference year (one FY 2010 dollar equals one constant dollar). This GDP deflator can be used from 1940, up to estimates through 2011.

Figure 3
Annualized Award Amounts for Research Grants in Constant Dollars



Source: NSF Enterprise Information System 10/01/10.

As indicated in **Table 8**, the average award duration has remained relatively constant.⁸ Program officers must balance competing requirements, such as increasing award size, increasing duration of awards, or making more awards.

Table 8
Average Award Duration for Research Grants

	2006	2007	2008	2009	2009 Appropriation	2009 ARRA	2010	2010 Appropriation	2010 ARRA
Duration (Years)	2.9	2.9	3.0	3.0	2.9	3.1	2.9	2.9	2.1

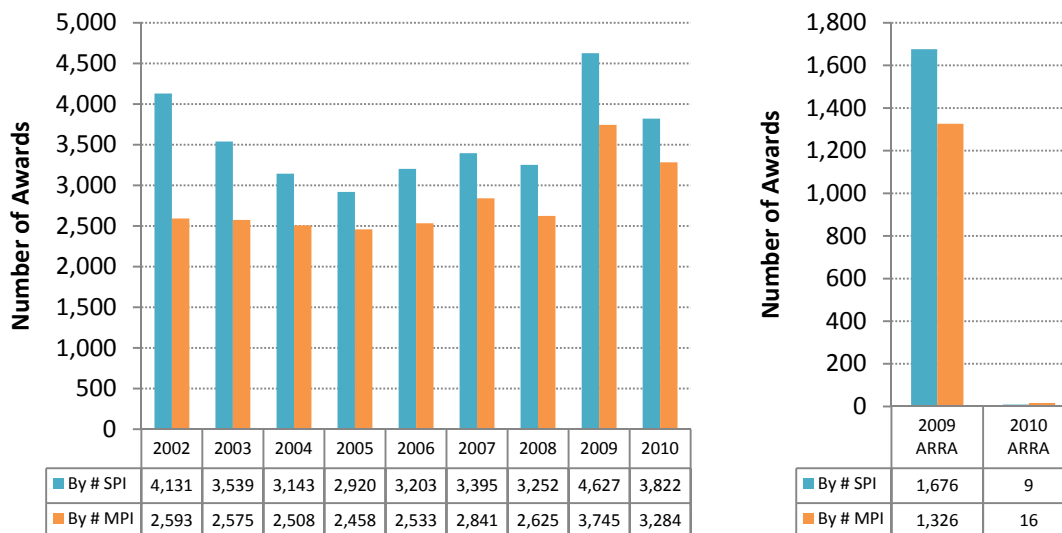
Source: NSF Enterprise Information System 10/01/10.

E3. Number of Investigators per Research Grant

Figure 4 shows the number of research grants made to single PIs (SPI) compared to the number of research grants to projects with multiple PIs (MPI). The number of SPI grants remains greater than the number of MPI grants.

⁸ Although the number of years is rounded to one decimal place, the variations do not indicate significant changes since 0.1 years represents only about five weeks. In addition, this duration rate is the initial duration for new awards made in FY 2009. The rate does not take into account no-cost extensions.

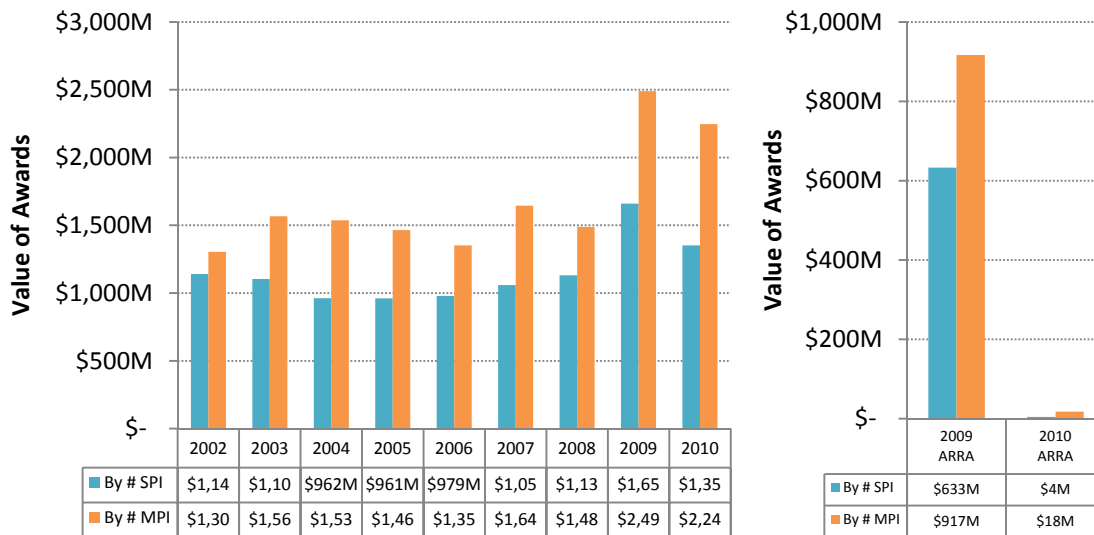
Figure 4
Research Grants to Single PIs (SPI) & Multiple PIs (MPI), by Number of Awards



Source: NSF Enterprise Information System 10/01/10.

In addition, **Figure 5** indicates the total amount of funds awarded to SPI research grants in comparison to the amount of funds awarded to MPI research grants.

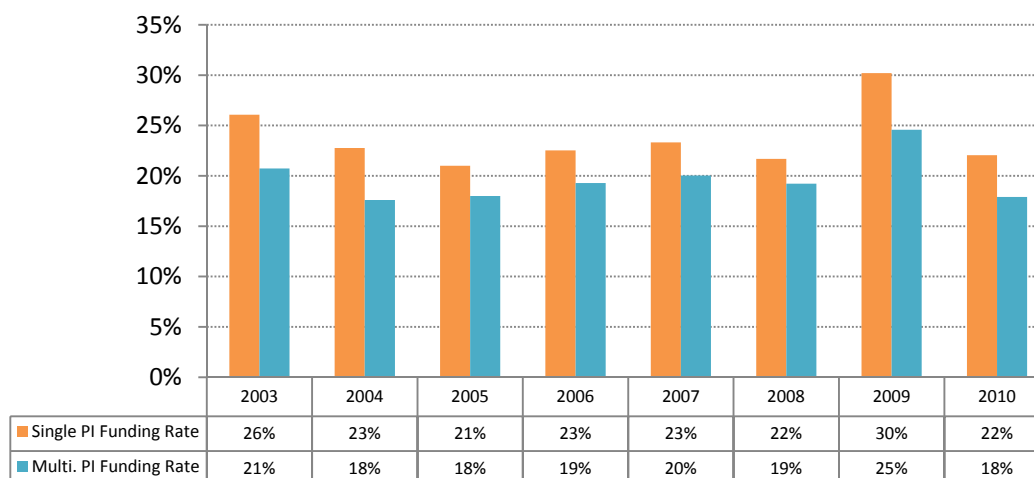
Figure 5
Research Grants for Single PIs (SPI) & Multiple PIs (MPI), by Dollar Amount



Source: NSF Enterprise Information System 10/01/10.

Figure 6 indicates the funding rates for SPI and MPI research proposals. The difference between the SPI and MPI funding rate has varied over the last eight years, but the SPI funding rate has been consistently higher.

Figure 6
Funding Rates for Single-PI & Multiple-PI Research Proposals



Source: NSF Enterprise Information System 10/01/10.

E4. Number of Research Grants per PI

Table 9 indicates the average number of active research grants per PI during the indicated time period. These percentages have remained relatively unchanged from previous years.

Table 9
Number of Grants per PI

Fiscal Years	One	Two	Three	Four or More
2008-2010	80%	16%	3%	1%
2008-2010, Excluding ARRA	82%	14%	3%	1%

Source: NSF Enterprise Information System 10/01/10. Percentages may not sum to 100 due to rounding.

E5. Number of People Supported on Research Grants

Table 10 provides the number of graduate students, postdoctoral associates, and senior personnel supported on NSF research grants awarded in FY 2010. These data were extracted from the budget details of research grants active in the year indicated.

Table 10
Number of People Supported on NSF Research Grants, by Recipient Type

	2006	2007	2008	2009	2009 Approp- -riation	2009 ARRA	2010	2010 Approp- -riation	2010 ARRA	% Change, 2004- 2010
Senior Personnel Supported	23,186	26,176	26,494	33,536	24,289	9,247	33,650	33,600	50	55%
Postdocs Supported	4,023	4,034	3,909	5,580	3,941	1,639	4,653	4,651	2	1%
Graduate Students Supported	20,949	22,777	22,936	33,371	22,592	10,779	24,554	24,529	25	16%

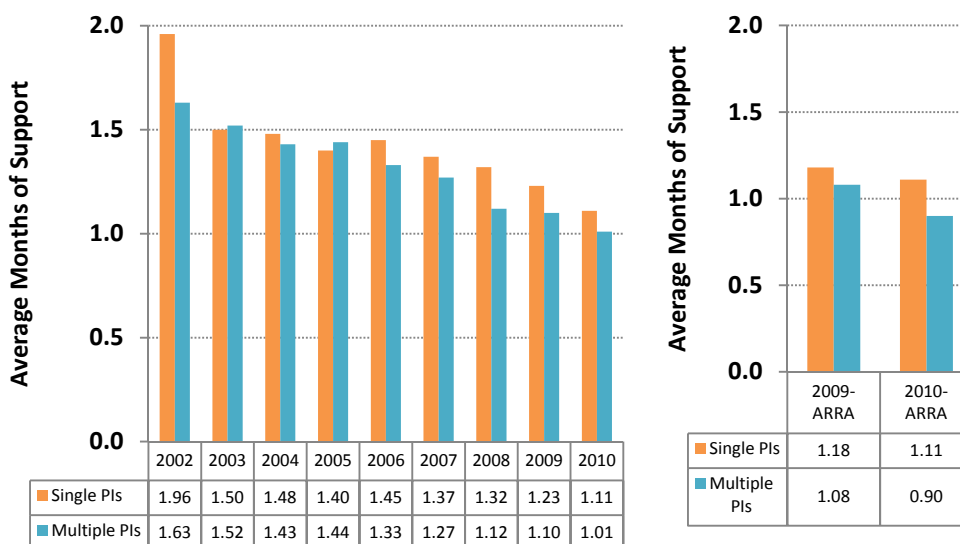
Source: NSF Enterprise Information System 10/01/10.

Appendix 7 provides data on the estimated number of individuals involved in NSF activities supported by all NSF active awards, including senior researchers, postdoctoral associates, teachers, and students across all educational levels.

E6. Average Number of Months of Salary Support for Single- & Multiple-PI Research Grants

Figure 7 indicates the average number of months of salary support per individual on single PI and multiple PI research grants. Months of salary support are for PIs and Co-PIs only. Since FY 2002, the average number of months of support has generally decreased for both single and multiple PIs. Multiple PIs consistently averaged fewer months of support than single PIs (see **Appendix 6** for directorate or office level data on months of support).

Figure 7
Average Number of Months of Salary for Single- & Multiple-PI Research Grants

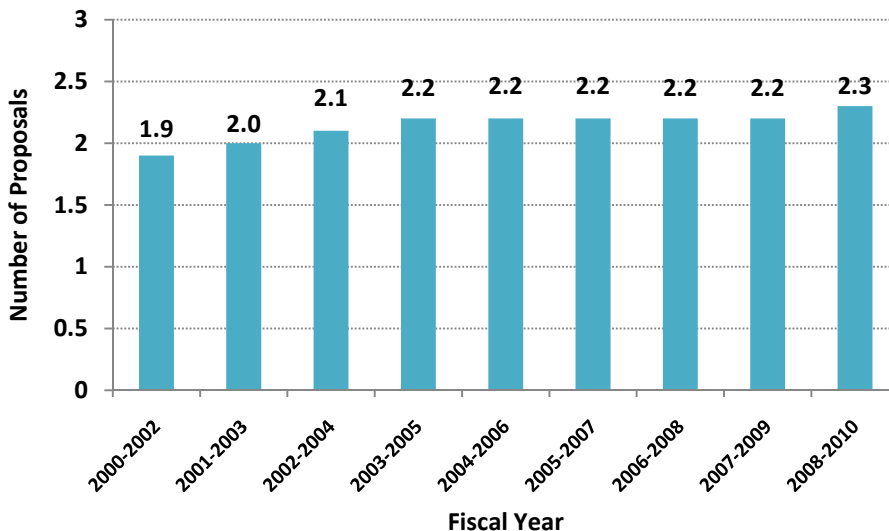


Source: NSF Enterprise Information System 10/01/10.

E7. Investigator Submission and Funding Rates

Figure 8 shows that on average the number of proposals an investigator submits before receiving an award has stayed relatively constant in recent years. This average is calculated across all PIs, including both new and previous PIs. **Appendix 8** provides a directorate level breakout of the average number of research proposals per PI before receiving one award.

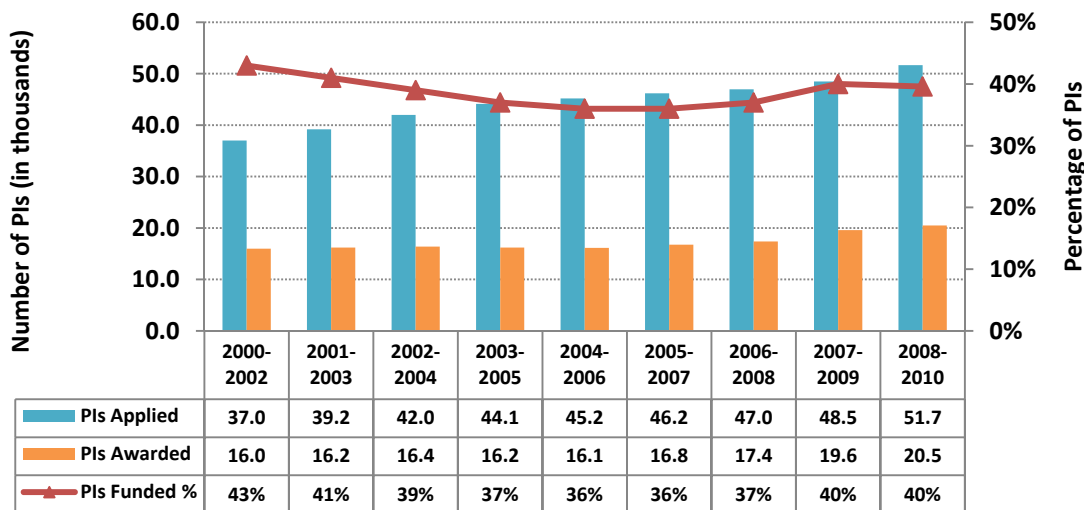
Figure 8
Average Number of Research Proposals per PI before Receiving One Award



Source: NSF Enterprise Information System 10/01/10.

Figure 9 provides the funding rate for investigators (the number of investigators receiving a grant divided by the number of investigators submitting proposals).

Figure 9
NSF PI Funding Rates for Research Grants



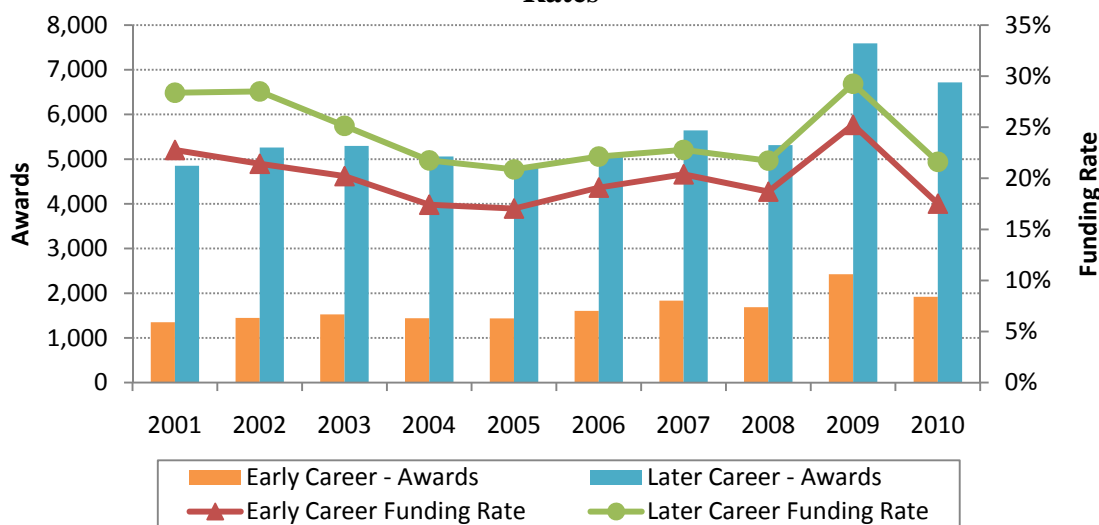
Source: NSF Enterprise Information System 10/01/10.

E8. Early and Later Career PIs

Figure 10 indicates the percentage of NSF PIs that are in the early or later stage of their career. An early career PI is defined as someone within seven years of receiving their last degree at the time of the award. For the purposes of this report, PIs who received their last degree more than seven years before the time of their first NSF award are considered later career PIs.

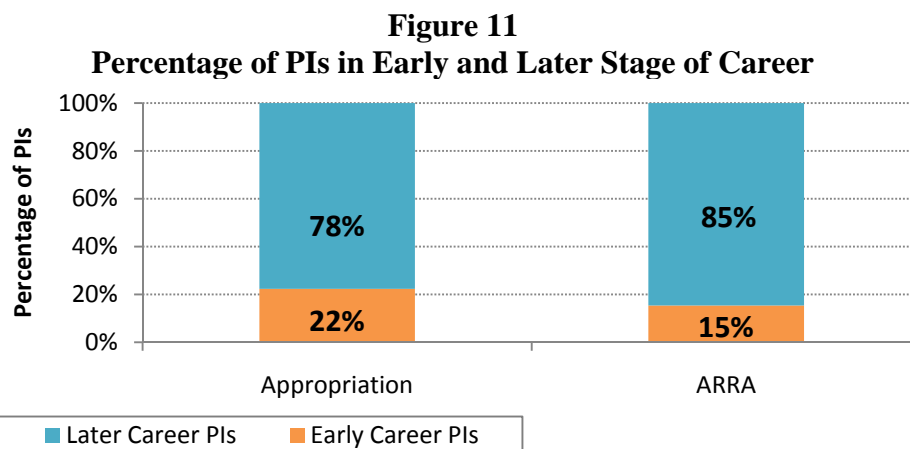
Since FY 2003, the percentage of early career PIs has remained relatively constant at about 23% and the percentage of later career PIs has also remained relatively constant at about 77%.

Figure 10
Percentage of PIs in Early & Later Stages of Career and Research Grant Funding Rates



Source: NSF Enterprise Information System 10/01/10.

Figure 11 shows the percentage of PIs in early or later stage of career as they relate to FY 2010 Omnibus and ARRA appropriations.



Source: NSF Enterprise Information System 10/01/10.

E 9. Small Grants for Exploratory Research (SGER), Early-concept Grants for Exploratory Research (EAGER), and Grants for Rapid Response Research (RAPID)

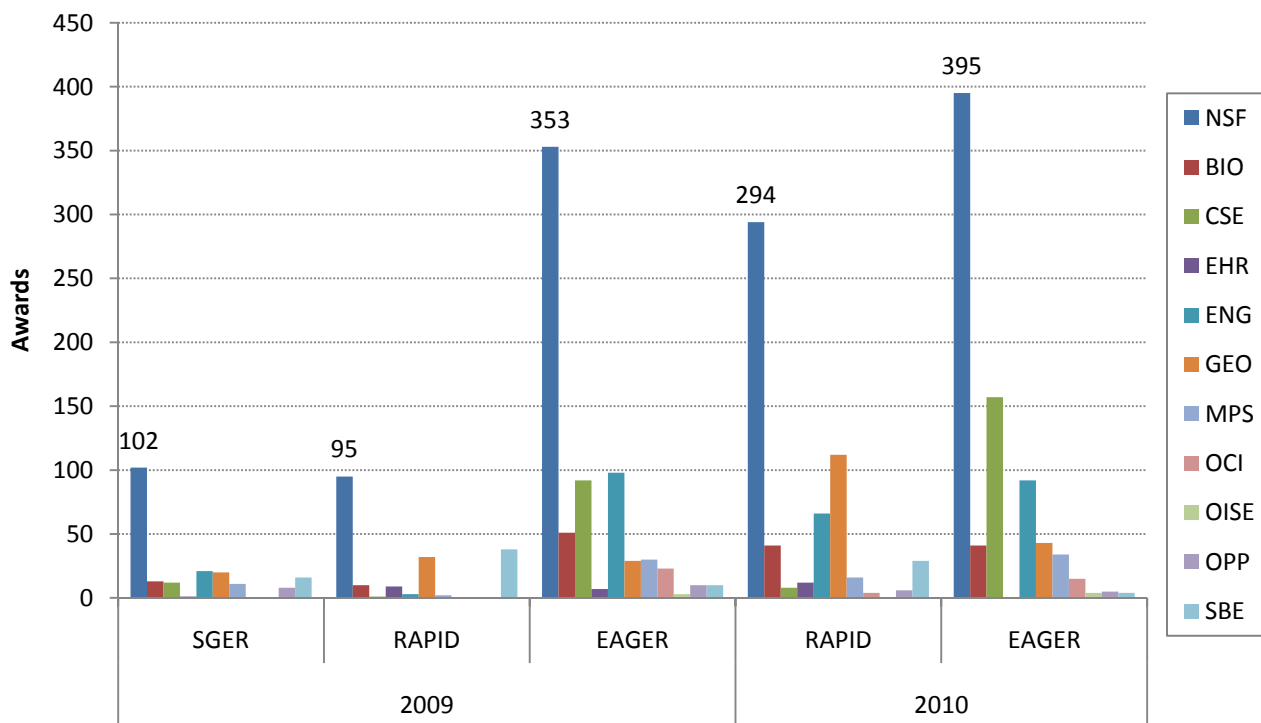
Since the beginning of FY 1990, the Small Grants for Exploratory Research (SGER) option has permitted program officers throughout the Foundation to make small-scale grants without formal external review. Effective January 2009, the SGER funding mechanism was replaced by two funding mechanisms EAGER and RAPID, in part to emphasize the importance of funding of both potentially transformative research and research requiring an urgent response:

- **Early-concept Grants for Exploratory Research (EAGER)**
The EAGER funding mechanism is used to support exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. The work may be considered especially "high risk-high payoff" in the sense that it, for example, involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives. Requests may be for up to \$300 thousand and up to two years duration.
- **Grants for Rapid Response Research (RAPID)**
The RAPID funding mechanism is used for proposals having a severe urgency with regard to availability of, or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events. Requests may be for up to \$200 thousand and of one year duration.

Only internal merit review is required for EAGER and RAPID proposals. Program officers may elect to obtain external reviews to inform their decision. If external review is to be obtained, then the PI is so informed in the interest of maintaining the transparency of the review and recommendation process.

Figure 12 Shows the change in SGERs, EAGERs and RAPIDs from 2009 to 2010 by Directorate. In 2009 the total number of SGERs, RAPIDs and EAGERs was 550, which is similar to previous years (see Appendix 10 for a comparison with SGERs since 2002). However, the total number of EAGERs and RAPIDs increased to 689 in 2010, partly as a result of awards made to fund research related to the Oil Spill in the Gulf of Mexico. On May 27th, 2010 Arden Bement and Cora Marrett released a Dear Colleague Letter reminding the community of the RAPID mechanism that is intended to be used to enable research on unanticipated events.

Figure 12
SGER, EAGER and RAPID Awards by Directorate



Source: NSF Enterprise Information System 12/15/10.

Additional information on SGERs, RAPIDs, and EAGERS can be found in Appendix 10.

V. The NSF Merit Review Process

A. Merit Review Criteria

In FY 1998, the National Science Board approved the use of the two current NSF merit review criteria, and, in FY 2007, modified the criteria to promote potentially transformative research. The two criteria now in effect are:

Intellectual Merit. What is the intellectual merit of the proposed activity? How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

Broader Impacts. What are the broader impacts of the proposed activity? How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what

extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Careful consideration is also given to the following in making funding decisions: 1) *Integration of Research and Education* and 2) *Integrating Diversity into NSF Programs, Projects, and Activities*, as is indicated in the *Grant Proposal Guide*⁹. Programs may have additional review criteria specific to the goals and objectives of the program. All relevant review criteria are described in the program announcement or solicitation.

Effective October 1, 2002, NSF returned without review proposals that failed to separately address both merit review criteria within the Project Summary. The number of proposals returned without review for failing to address both NSB merit review criteria had been steadily decreasing since 2003. There was a departure from that trend in 2008 and 2009, with a slight increase in the number of proposals returned without review for failing to address both merit review criteria. However, in FY 2010 the number of proposals returned without review decreased and the percentage fell to a historical low of less than a quarter of one percent.

Table 11
Proposals Returned Without Review for Failing to
Address both Merit Review Criteria

Fiscal Year	2004	2005	2006	2007	2008	2009	2010
Number of Proposals	236	176	134	117	124	147	131
Percent of all Proposals Decisions	0.54%	0.42%	0.32%	0.26%	0.28%	0.33%	0.24%

Source: NSF Enterprise Information System 10/01/10.

B. Transformative Research

The March 2007 NSB report *Enhancing Support of Transformative Research at the National Science Foundation* (NSB 07-32) has been instrumental in informing NSF's efforts to promote and support potentially transformative research. The statement of the Intellectual Merit review criteria was modified effective January 5, 2008 to reference explicitly transformative research. An Important Notice No. 130 was sent on September 24, 2007 from the NSF Director to presidents of universities and colleges and heads of other NSF grantee organizations to inform the community of the changes in the merit review criteria and NSF's effort to promote and support potentially transformative concepts.

All NSF programs encourage and support potentially transformative research proposals. This attention to promoting potentially transformative research proposals has been increased through efforts such as:

⁹The National Science Foundation *Grant Proposal Guide* can be accessed online at: http://www.nsf.gov/pubs/policydocs/pappguide/nsf08_1/gpg_index.jsp.

- **Focus on Identifying Potentially Transformative Research.** Through discussions and training, NSF program officers and reviewers have an increased focus on identifying potentially transformative research. For example, in the multi-day program manager seminar for all new program officers, there are sessions on approaches to promote and identify potentially transformative research. Another example is the attention given to identifying potentially transformative research in the orientation session for review panels.
- **Modifications to Review Process.** Several programs are experimenting with modifications in the review process to help identify potentially transformative research proposals. For example, in addition to a panel there may be a “shadow panel.” The shadow panel has the primary purpose of identifying potentially transformative research proposals. The results from both panels then inform the program officers in making their funding recommendations. Another modification to the usual panel review process is called the “second-dimension” approach. With this approach, a panel provides an assessment of potentially transformative research of the proposals. This assessment provides a ‘second-dimension’ in that it is independent of the panel’s comprehensive review of the proposal.
- **Transformative Research Web Page.** A new web page linked to the NSF home page was posted in April of 2010 to explain the importance of funding transformative research: http://www.nsf.gov/about/transformative_research/.

NSF also has several mechanisms particularly developed to promote the support of potentially transformative research. These include EARly-Concept Grants for Exploratory Research (EAGER), Creativity Extensions, and Accomplishment-Based Renewals. See **Section E9** and **Appendix 17** for a description of these mechanisms.

In addition to its existing programs and mechanisms indicated above, NSF has been experimenting with innovative approaches to promote and identify potentially transformative research. These approaches include, for example:

- **Emerging Transformational Areas of Research.** NSF uses different mechanisms to identify emerging transformational areas of research and innovation. For example, the Office of Emerging Frontiers in Research and Innovation (EFRI) in the Directorate for Engineering annually solicits ideas for transformational areas through a Dear Colleague letter to the community as well as through workshops, professional society meetings, and advisory committees. Based on this input, EFRI prioritizes the topics and calls for proposals in the selected areas through its program solicitation.
- **Ideas Factory Sandpit.** The Sandpit process has some unique features. Prior to the workshop, called a Sandpit, “mentors” are selected and serve as advisors during the Sandpit. The Sandpit participants identify grand challenges in the selected research area, and then develop approaches to address those challenges. Projects are selected for funding from among those emerging from the Sandpit.

The “Ideas Factory Sandpit” on the topic of Synthetic Biology was conducted by NSF, and future Sandpits are anticipated.

- **Joint Funding.** Some directorates, offices, or divisions provide joint support from funds held specifically for potentially transformative research proposals. This joint funding emphasizes the importance of supporting potentially transformative research, while reducing the impact on the budgets of programs funding these proposals.

NSF continues to experiment with approaches to promote and support potentially transformative research. In fact, in the FY2010 NSF budget request, each research division is provided funds explicitly to explore methodologies that help support transformative research.

C. Description of NSF Merit Review Process

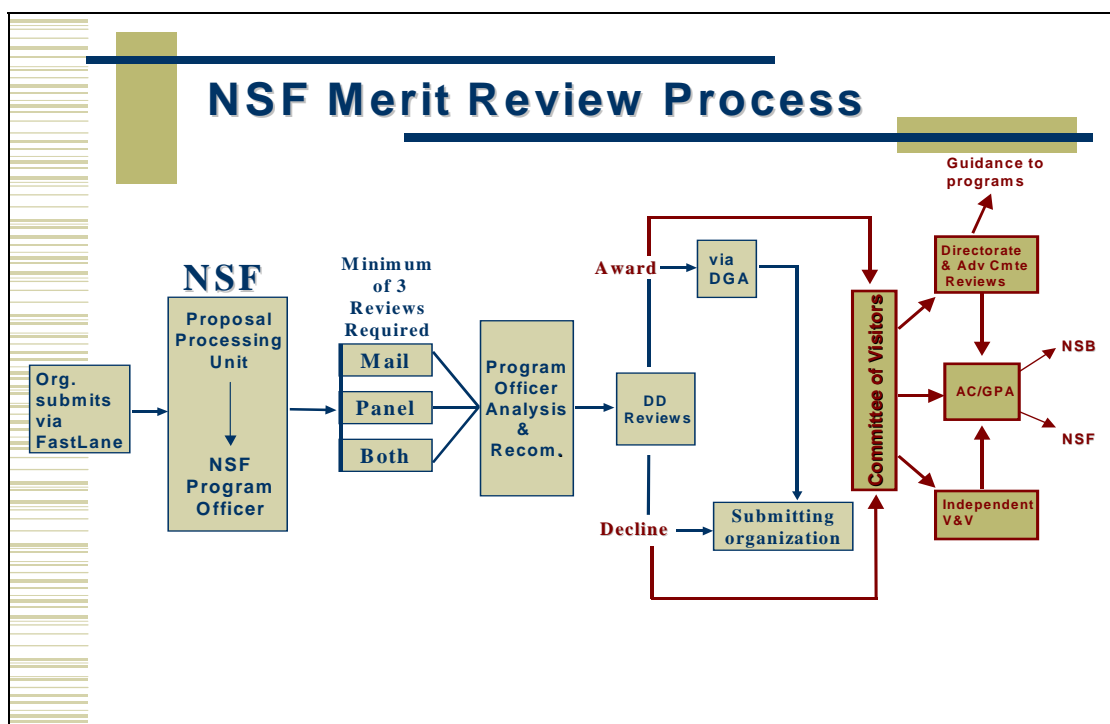
The NSF merit review process includes the steps listed below and is depicted in **Figure 13**:

- The proposal arrives electronically and is assigned to the appropriate program(s) for review. Some programs also include preliminary proposals as part of the application process. See **Appendix 2** for more information about preliminary proposals. Proposals that do not comply to NSF regulations, as stated in the *Grant Proposal Guide*, may be returned without review.
- The review process is overseen by a division director, or other appropriate NSF official.
- The program officer (or team of program officers) is responsible for the following:
 - Reviewing the proposal and determining the appropriate level of review. NOTE: Some proposals do not require external review. These include, for example, EAGERS, RAPIDs and proposals for small conferences, workshops, or symposia.
 - Selecting reviewers and panel members. Selection may be based on program officer’s knowledge, references listed in the proposal, individuals cited in recent publications or relevant journals, presentations at professional meetings, reviewer recommendations, bibliographic and citation databases, or proposal author’s suggestions.
 - Checking for conflicts of interest. In addition to checking proposals and selecting reviewers with no apparent potential conflicts, NSF staff provides reviewers guidance and instruct them how to identify and declare potential conflicts-of-interest. All NSF program officers receive annual conflict of interest training.

- Synthesizing the comments of the reviewers and panel (if reviewed by a panel), as provided in the individual reviewer analyses and panel summaries.
- Recommending action to award or decline the proposal, taking into account external reviews, panel discussion, and other factors such as portfolio balance and amount of funding available.

The division director, or other appropriate NSF official, reviews all program officer recommendations. Large awards may receive additional review. The Director's Review Board examines award recommendations with an average annual award amount of 2.5% or more of the awarding division's annual budget. The National Science Board (NSB) reviews recommended awards with an annual award amount of one percent or more of the awarding Directorate's prior year current plan or \$3,000,000, whichever is greater.¹⁰ In FY 2010, NSB approved 8 funding items that included 6 awards, and two increases in funding authorization. Once approved, a grants and agreements officer in the Office of Budget, Finance, and Award Management performs an administrative review of award recommendations.

Figure 13
Diagram of the NSF Merit Review Process



Also as indicated in **Figure 13**, the Foundation has several oversight and advisory mechanisms relevant to the merit review process:

- An external Committee of Visitors (COV), whose membership is comprised of scientists, engineers, and educators, assesses each major NSF program every 3-5

¹⁰ Other items requiring NSB prior approval include new programs, major construction projects that meet certain specifications, as well as programs and awards involving policy issues.

years. COVs examine the integrity and efficiency of merit review processes and the results from the programmatic investments.

- NSF directorates and offices have advisory committees (comprised of scientists, engineers, and educators). One of the tasks of these advisory committees is to review COV reports and staff responses in order to provide guidance to the Foundation. The COV reports and NSF responses are publically available on the NSF website.
- An external contractor performs an independent verification and validation of the programmatic performance measurements, which include aspects of the merit review process.

Additional information about COVs, and NSF Advisory Committees, is provided in **Appendix 11**.

D. Program Officer Award/Decline Recommendations

As noted above, the narrative comments and summary ratings provided by external reviewers are essential inputs for program officers who formulate award and decline recommendations to NSF senior management.

NSF program officers are experts themselves in the scientific areas that they manage. They have advanced educational training (e.g., a Ph.D. or equivalent credentials) in science or engineering and relevant experience in research, education, and/or administration. They are expected to produce and manage a balanced portfolio of awards that addresses a variety of considerations and objectives. When making funding recommendations, in addition to information contained in the external proposal reviews, NSF program officers evaluate proposals in the larger context of their overall portfolio and consider issues such as:

- Support for potentially transformative advances in a field;
- Novel approaches to significant research questions;
- Capacity building in a new and promising research area;
- Potential impact on the development of human resources and infrastructure;
- NSF core strategies, such as 1) the integration of research and education and 2) broadening participation;
- Achievement of special program objectives and initiatives;
- Other available funding sources; and
- Geographic distribution.

E. Review Information to Proposer and Appeal Process

Proposers receive notification of the award/decline decision, copies of all reviews used in the decision with reviewer-identifying information redacted, and a copy of the panel summary (if panel review was conducted). A "context statement" is also sent that

explains the broader context under which any given proposal was reviewed. Program officers are also expected to provide additional communication (either in writing or by phone) to proposers in the case of a decline recommendation if the basis for the decision is not provided in the panel summary.

If, after receiving the reviews and other documentation of the decision, an unsuccessful proposer would like additional information, he or she may ask the program officer for further clarification. If, after considering the additional information, the applicant is not satisfied that the proposal was fairly handled and reasonably reviewed, he or she may request formal reconsideration. Information about the reconsideration process is included in all decline notifications.¹¹ A reconsideration request can be based on the applicant's perception of procedural errors or on disagreements over the substantive issues dealt with by reviewers. If the relevant NSF assistant director or office director upholds the original action, the applicant's institution may request a second reconsideration from the Foundation's Deputy Director.

NSF declines approximately 30,000 proposals a year but receives only 30-50 annual requests for formal reconsideration. The number of requests for formal reconsideration and resulting decisions at both the Assistant Director and Director levels from FY 2002 through FY 2010 are displayed in **Appendix 12**. NSF received 37 formal reconsideration requests in FY 2010; 33 decline decisions were upheld and 2 were reversed and 2 were pending as of writing this report.

F. Methods of External Review

The Foundation's merit review process relies on extensive use of knowledgeable experts from outside NSF. As stated in the *Grant Proposal Guide* (GPG), proposals usually receive at least three external reviews. Under certain circumstances the requirement for external review can be waived.¹²

NSF programs obtain external peer review by three principal methods: (1) "mail-only," (2) "panel-only," and (3) "mail + panel" review.

In the "mail-only" review method, reviewers are sent proposals and asked to submit written comments to NSF through FastLane, NSF's web-based system for electronic proposal submission and review.

"Panel-only" refers to the process of soliciting reviews from panelists who convene to discuss their reviews and provide advice to the program officer.

¹¹ Please note that certain types of proposals are not eligible for reconsideration. See NSF *Grant Proposal Guide* (GPG) at http://www.nsf.gov/pubs/policydocs/pappguide/nsf08_1/gpg_4.jsp#IVD

¹² Exemptions that program officers may choose to exercise, for example, include proposals for EAGER and RAPID proposals and certain categories of workshop and symposia proposals. See **Appendix 10** for more information about EAGER and RAPID proposals.

Many proposals submitted to NSF are reviewed using some combination of these two processes. Those programs that employ the “mail + panel” review process have developed several different configurations, such as:

- A reviewer submits a mail review and also serves as a panelist.
- A reviewer submits a mail review, but does not serve on the panel.
- A reviewer does not submit a mail review, but participates as a panelist. Panelists discuss the proposal and mail reviews to formulate advice for the program officer.

The total numbers of reviews and the average numbers of reviews per proposal obtained by the three different review methods are presented in **Table 12**.

Table 12
Reviews per Proposal, FY 2010

	All Methods	Mail + Panel	Mail-Only	Panel-Only
Reviews	287,023	105,349	15,855	165,819
Proposals	53,195	16,483	3,853	32,859
Rev/Prop	5.4	6.4	4.1	5.0

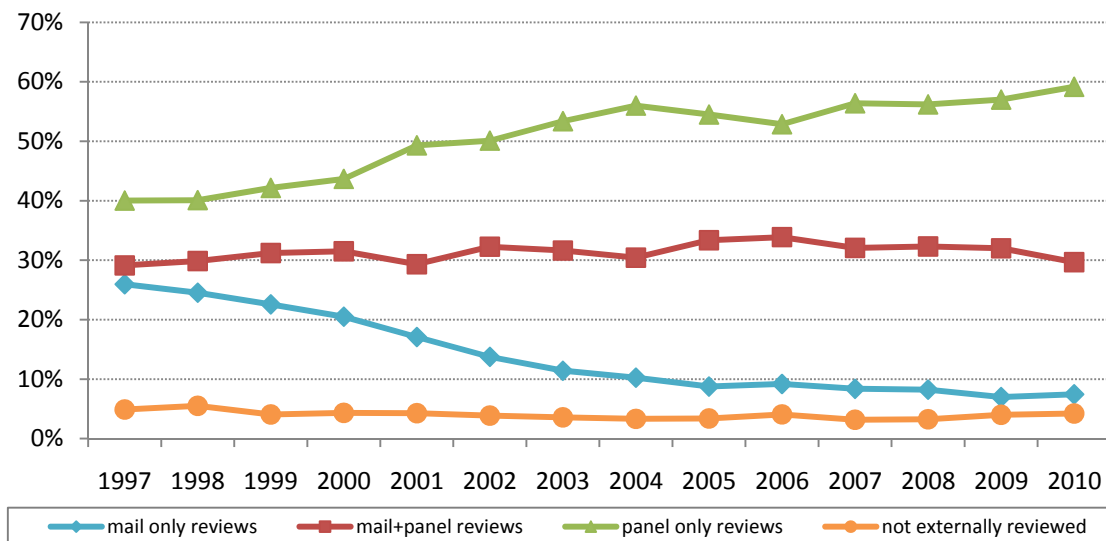
Source: NSF Enterprise Information System 10/01/10.

The mail-plus-panel method had the highest number of reviews per proposal, averaging 6.4, while the mail-only method averaged 4.1. Directorate-level data for FY 2010 are presented in **Appendix 13**.

In addition, site visits (on-site and reverse-site) by NSF staff and external members of the community are often used to review proposals for facilities and centers. NSF program officers are given discretion in the specific use of review methods, subject to approval by the division director or other NSF official.

The use of various review methods has changed markedly over time, as shown in **Figure 14**. The data for **Figure 14** are provided in **Appendix 14** and **Appendix 15** provides data on review methods by directorate and office.

Figure 14
FY 1997-2009 Trend, NSF Review Method



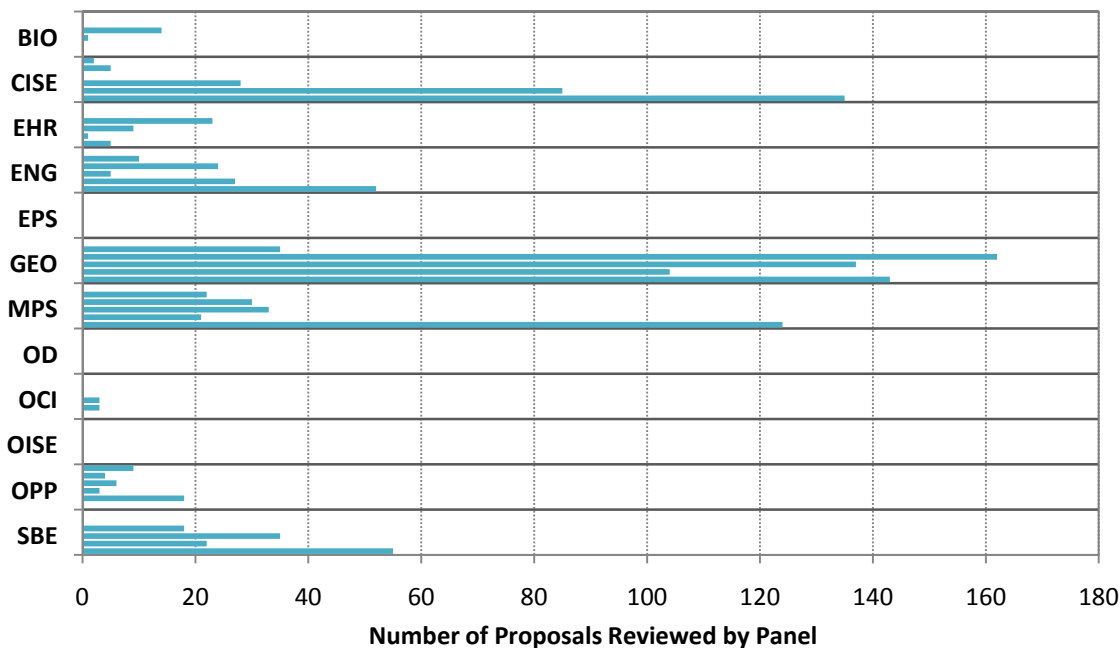
Source: NSF Enterprise Information System 10/01/10.

There are a number of reasons for the trend away from mail-review only. Panels allow reviewers to discuss and compare proposals. Panels tend to be used for programs that have deadlines and target dates, as opposed to unrestricted submission windows. The panel review process has the advantage that different perspectives can be discussed and integrated if appropriate. Also, using panels in the review process tends to reduce proposal processing time (time-to-decision), compared to mail-only reviews. For example, in FY 2010, 78% of all proposals reviewed by panel-only were processed within six months, compared to 72% for mail + panel and 55% for mail-only.

A chief advantage of mail review is that the expertise of the reviewers can be more precisely matched to the proposal. The mail + panel review process is used frequently because it combines the in-depth expertise of mail review with the comparative analysis of panel review.

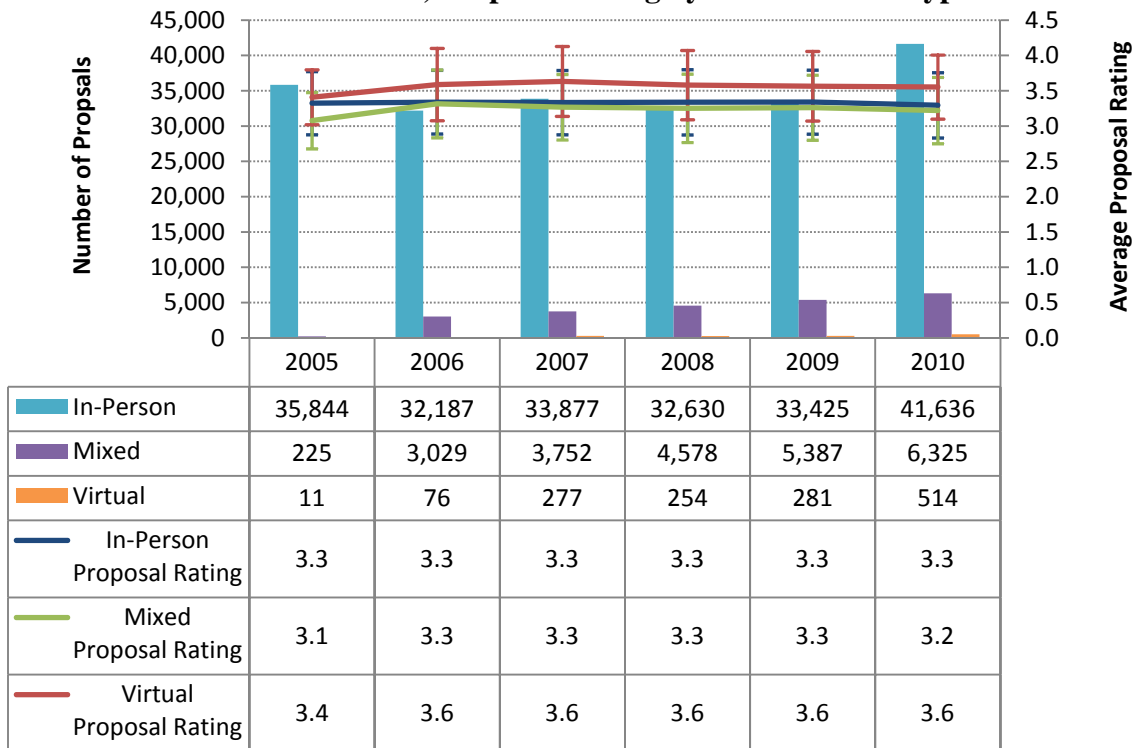
Some programs use “virtual panels.” In virtual panels, panelists participate from their remote locations and interact using NSF’s Interactive Panel System (IPS), accompanied by a teleconference. **Figure 15** shows the number of proposal reviewed by virtual panel since 2005. **Figure 16** shows the proposal ratings by panel review type (in person, virtual, and mixed). There has been an increase in the use of “Mixed” panels since 2005, but a leveling off in recent years. Although virtual panels have a slightly higher reviewer ratings, they do not differ significantly from other panel types.

Figure 15
FY 2005-2010 Trend, Number of Proposals Reviewed by Virtual Panel



Source: NSF Enterprise Information System 02/01/10. Each Division/Office is divided into fiscal years 2005 – 2010.

Figure 16
FY 2005-2010 Trend, Proposal Rating by Panel Review Type



Source: NSF Enterprise Information System 02/01/10.

Nearly 100% of panels, whether they assemble at NSF, offsite at a common location, or virtually, are now using the Interactive Panel System (IPS). A part of FastLane, IPS permits the viewing of proposals, reviews, basic panel discussions, collaboration on panel summaries, and approval of the draft panel summary through the web.

NSF's videoconferencing facilities are used by some programs to enhance the participation of panelists whose schedules do not permit them to be physically present at the time of the panel. Videoconferencing is also employed in award management and oversight for large center-type projects. The Foundation is continuing its efforts to improve web-based and electronic means of communication to contribute to the quality of the merit review and award oversight processes.

G. Data on Reviewers

The Foundation maintains a central electronic database of more than 300,000 reviewers who can potentially be drawn on to participate in mail or panel reviews. Program officers identify potential reviewers using a variety of sources including their own knowledge of the discipline, applicant suggestions, references attached to proposals, published papers, scientific citation indexes and other similar databases, and input from other reviewers.

During FY 2010, approximately 15,493 individuals served on panels. An additional 30,560 individuals conducted a mail review for one or more proposals. Approximately 4,217 of the individuals who served on panels also served as mail reviewers during the year. About 9,397 or 20% of these reviewers had never reviewed an NSF proposal before. The reviewers were from all 50 states in addition to the District of Columbia, Puerto Rico, Virgin Islands, and other U.S. jurisdictions. More than 6,531 reviewers were from outside of the United States by address of record. Moreover, reviewers were from a range of institutions, including two-year and four-year colleges and universities, Master's level and Ph.D.-granting universities, industry, profit and non-profit institutions, K-12 systems, informal science institutions, and government. NSF also maintains data on numbers of reviewers from each state, territory, and country as well as by type of institution.

In FY 2010, out of a total of 46,055 distinct reviewers who returned reviews, 15,634 (34%) provided demographic information. Of those reporting their demographic data, 5,881 (38%) indicated they are members of a group underrepresented in science and engineering. In particular, of the reviewers who reported their demographic data, 4,875 (31%) reported female, 1,607 (10%) reported from an underrepresented race or ethnic minority, and 311 (2%) reported a disability. Of the 1,607 reviewers that reported they are from an underrepresented race or ethnic group, 946 (59%) reported Hispanic or Latino, 606 (38%) reported Black or African American, 72 (4%) reported American Indian or Alaskan Native, and 9 (1%) reported Hawaiian or Pacific Islander.

NSF has seen a modest increase in the proportion of reviewers providing demographic information. However, provision of demographic data is voluntary and the low response rate remains a challenge that the Foundation continues to address.

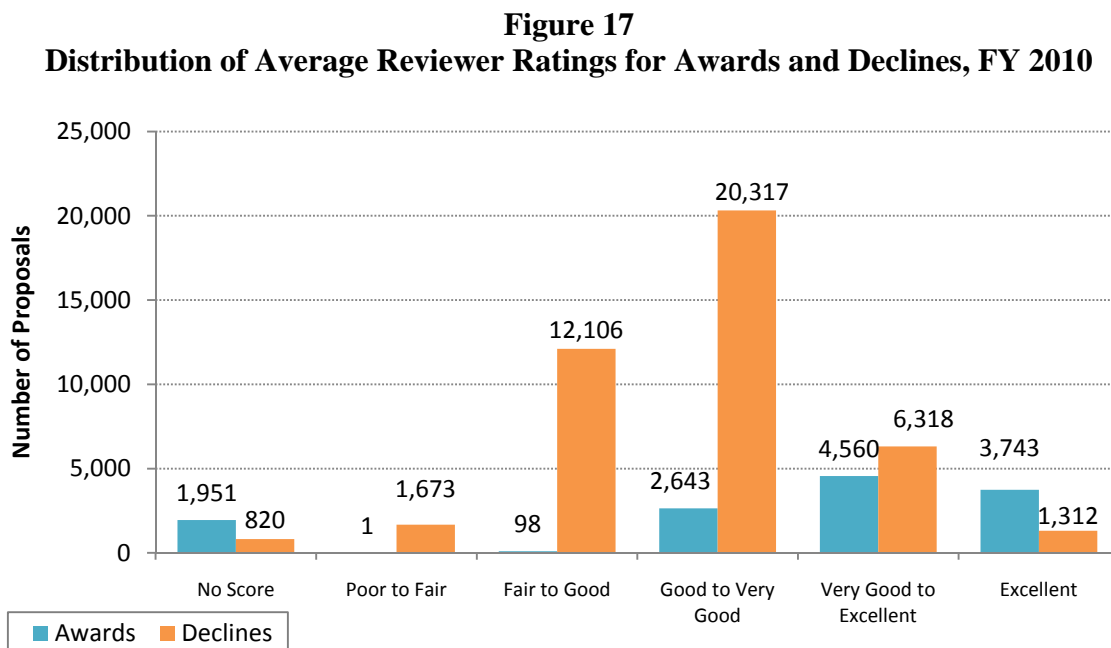
The NSF library continually updates its resources to help NSF staff identify reviewers. This includes the collection and sharing of potential reviewer data from associations that work with underrepresented groups in science and engineering. Frequent tutorials on finding reviewers are also available for program officers.

Reviewers are also identified through literature searches and professional activities such as workshops and conferences. Some NSF divisions actively solicit new reviewers through their web pages and outreach activities. To increase transparency, Chapter III.B of the *Grant Proposal Guide* describes how reviewers are selected by the NSF program officers.

Participation in the peer review process is voluntary. It brings with it increased familiarity with NSF programs, knowledge of the state of research and education nationally, and increased awareness of elements of a competitive proposal. Panelists are reimbursed for expenses, but mail reviewers receive no financial compensation. For proposals received in FY 2010, NSF requested 101,104 mail reviews, of which there were 36,457 positive responses. This 36% response rate in FY 2010 is a sharp decline in response rate relative to recent years. The response rate does vary by program.

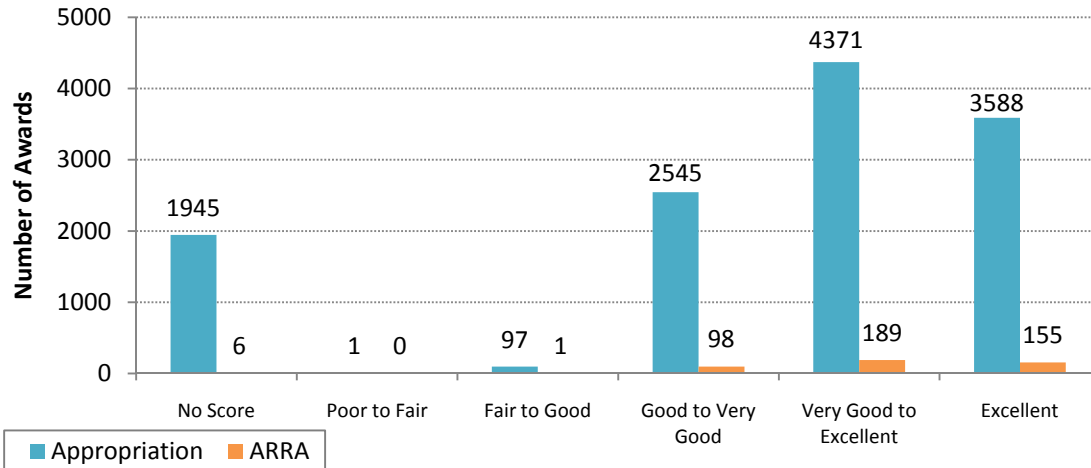
H. Reviewer Proposal Ratings and Impact of Budget Constraints

The NSF merit review system emphasizes reviewer narratives in addition to categorical ratings. The written comments provided by reviewers, the summary of panel discussions, and the expert opinions of program officers and division directors are important components of the merit review system. The distribution of average summary ratings of reviews for awarded and declined proposals is provided in **Figure 17** and **Figure 18** provides a comparison between Omnibus and ARRA in reviewer ratings for awards.



Source: NSF Enterprise Information System 10/01/10.

Figure 18
Distribution of Average Reviewer Ratings for Awards, FY 2010

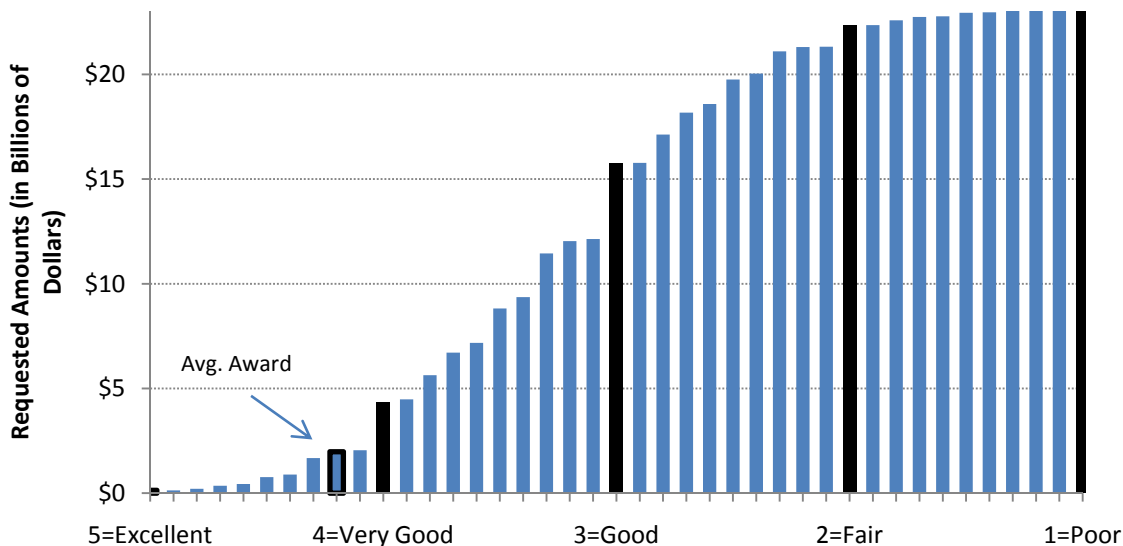


Source: NSF Enterprise Information System 10/01/10.

In addition, **Appendix 16** provides average reviewer ratings by the method of review

A large number of potentially fundable proposals are declined each year. As shown in **Figure 19**, approximately \$1.98 billion was requested for declined proposals that had received ratings at least as high as the average rating (4.2 out of 5.0) for all awarded proposals. In FY 2002, the ratio of awards to highly rated declines was 6.5:1; in FY 2009, that ratio was 7:1. However, in comparison, the ratio was 4:1 in FY 2008 indicating the impact of ARRA in reducing the ratio of awards to highly rated declines. These declined proposals represent a rich portfolio of unfunded opportunities, proposals that if funded may have produced substantial research and education benefits.

Figure 19
Cumulative Requested Amounts for Declined Proposals by Average Reviewer Rating for FY 2010 (dollars in billions)



Source: NSF Enterprise Information System 10/01/10.

I. Program Officer Characteristics and Workload

The number of program officers decreased from 525 in FY 2009 to 518 in FY 2010, a 1.3% decrease. Program officers can be permanent NSF employees or non-permanent employees. As indicated in **Table 13**, 54% are permanent program officers and 46% are in the non-permanent category. Some non-permanent program officers are “on loan” as “Visiting Scientists, Engineers, and Educators” (VSEEs) for up to three years from their host institutions. Others are supported through grants to the home institutions under the terms of the Intergovernmental Personnel Act (IPA). The percentage of permanent program officers increased by 5% in 2010. Whether they are hired as temporary or permanent, incoming NSF program officers receive training in the merit review process.

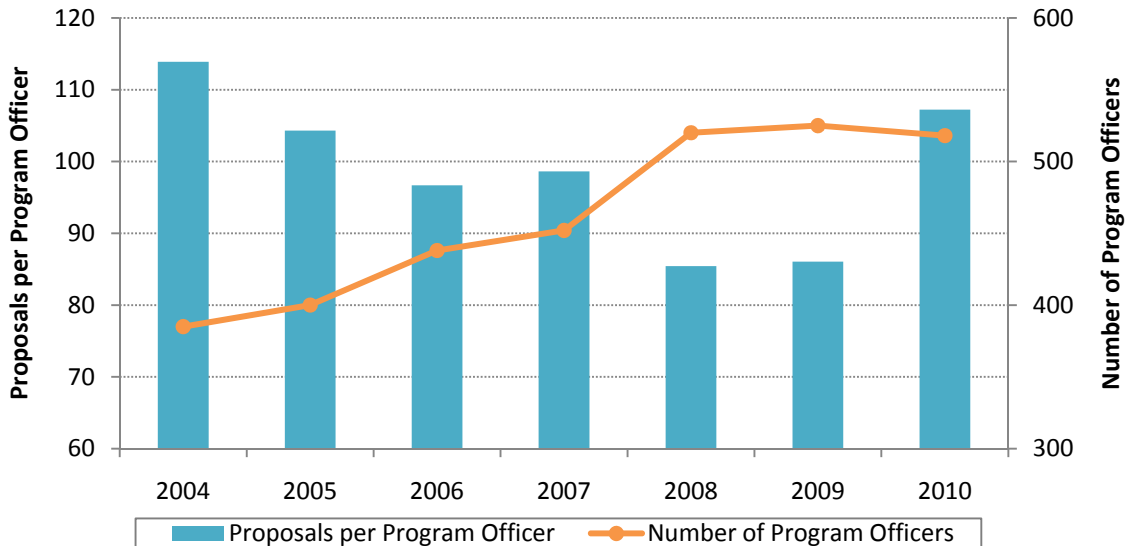
Table 13
Distribution of NSF Program Officers by Characteristics

Program Officers	Total	Percent
Total	518	100%
<i>Gender</i>		
Male	302	58%
Female	216	42%
<i>Race</i>		
Minority	116	22%
White, Non-Hispanic	402	78%
<i>Employment</i>		
Permanent	279	54%
Visiting Scientists, Engineers & Educators (VSEE)	35	7%
Temporary	55	11%
Intergovernmental Personnel Act (IPA)	148	29%
Intermittent	1	0%

Source: NSF Division of Human Resource Management.

With a large increase in the number of proposals and a slight decrease in the number of program officers, the average number of proposals per program officer increased significantly in FY 2010 to 107 proposals per program officer. This is a rate not seen since FY 2004.

Figure 20
Proposals per Program Officer



Source: NSF Enterprise Information System 10/01/10.

In addition to the growing emphasis on interdisciplinary and cross-directorate programs, program officers are also tasked with an increasing number of programmatic activities, e.g., increased program accountability, outreach, mentoring new staff. NSF has revitalized its professional development opportunities for program staff, offering in-house courses in project management, leadership, and communication through the NSF Academy. New NSF program staff attend the NSF Program Manager Seminar, which is an orientation to NSF and the merit review process.

Appendices

Appendix 1

Proposals, Awards and Funding Rates by Directorate and Office

		Fiscal Year							
		2003	2004	2005	2006	2007	2008	2009	2010
NSF	Proposals	40,075	43,851	41,722	42,352	44,577	44,428	45,181	55,542
	Awards	10,844	10,380	9,757	10,425	11,463	11,149	14,595	12,996
	<i>Omnibus</i>							9,975	12,547
	<i>ARRA</i>							4,620	449
	Funding Rate	27%	24%	23%	25%	26%	25%	32%	23%
BIO	Proposals	5,591	6,063	6,475	6,617	6,728	6,598	6,578	8,059
	Awards	1,448	1,432	1,355	1,202	1,303	1,291	1,823	1,556
	<i>Omnibus</i>							1,261	1,476
	<i>ARRA</i>							562	80
	Funding Rate	26%	24%	21%	18%	19%	20%	28%	19%
CSE	Proposals	5,270	6,276	5,238	4,843	5,744	5,567	5,664	6,487
	Awards	1,175	1,017	1,088	1,280	1,631	1,352	1,734	1,586
	<i>Omnibus</i>							1,355	1,567
	<i>ARRA</i>							379	19
	Funding Rate	22%	16%	21%	26%	28%	24%	31%	24%
EHR	Proposals	4,111	4,644	3,699	3,254	4,248	3,887	3,699	5,055
	Awards	890	925	736	824	903	1,111	1,009	930
	<i>Omnibus</i>							919	908
	<i>ARRA</i>							90	22
	Funding Rate	22%	20%	20%	25%	21%	29%	27%	18%
ENG	Proposals	9,076	8,994	8,692	9,423	9,574	9,643	10,611	13,226
	Awards	1,945	1,753	1,493	1,730	1,955	1,966	2,688	2,375
	<i>Omnibus</i>							1,771	2,321
	<i>ARRA</i>							917	54
	Funding Rate	21%	19%	17%	18%	20%	20%	25%	18%
GEO	Proposals	4,230	4,267	4,676	4,603	4,367	4,237	4,136	4,816
	Awards	1,515	1,419	1,315	1,418	1,341	1,328	1,810	1,686
	<i>Omnibus</i>							1,039	1,642
	<i>ARRA</i>							771	44
	Funding Rate	36%	33%	28%	31%	31%	31%	44%	35%
MPS	Proposals	6,694	7,184	7,083	7,466	7,315	7,837	7,883	9,411
	Awards	2,268	2,175	2,071	2,221	2,360	2,269	3,122	2,669
	<i>Omnibus</i>							2,004	2,529
	<i>ARRA</i>							1,118	140
	Funding Rate	34%	30%	29%	30%	32%	29%	40%	28%

		2003	2004	2005	2006	2007	2008	2009	2010
OCI	Proposals	342	220	116	130	304	500	337	830
	Awards	56	47	75	42	68	97	192	169
	<i>Omnibus</i>							97	156
	<i>ARRA</i>							95	13
	Funding Rate	16%	21%	65%	32%	22%	19%	57%	20%
OISE	Proposals	670	851	822	712	776	910	781	1,042
	Awards	373	386	333	319	353	357	428	395
	<i>Omnibus</i>							339	395
	<i>ARRA</i>							89	0
	Funding Rate	56%	45%	41%	45%	45%	39%	55%	38%
OPP	Proposals	557	689	816	775	1,200	864	855	798
	Awards	241	268	281	238	370	235	416	284
	<i>Omnibus</i>							113	275
	<i>ARRA</i>							303	9
	Funding Rate	43%	39%	34%	31%	31%	27%	49%	36%
SBE	Proposals	3,491	4,619	4,089	4,520	4,284	4,364	4,525	5,618
	Awards	894	939	1,004	1,144	1,143	1,126	1,337	1,257
	<i>Omnibus</i>							1,056	1,249
	<i>ARRA</i>							281	8
	Funding Rate	26%	20%	25%	25%	27%	26%	30%	22%
Other *	Proposals	12	44	16	9	37	21	112	200
	Awards	12	19	6	7	36	17	36	89
	<i>Omnibus</i>							21	29
	<i>ARRA</i>							15	60
	Funding Rate	100%	43%	38%	78%	97%	81%	32%	45%

Source: NSF Enterprise Information System 10/01/10.

* The majority of the proposals included in the 'Other' category are managed by the Office of Integrated Activities (OIA). In FY 2007, management of the EPSCoR program was transferred from EHR to OIA. The following are not included in the above statistics: 6,664 Continuing Grant Increments, 3,728 Supplements, and 475 Contracts.

Appendix 2

Preliminary Proposals

Several NSF programs utilize preliminary proposals in an effort to limit the workload of PIs and to increase the quality of full proposals. The annual number of preliminary proposals varies considerably as a result of competitions being held in a given year. For some programs, preliminary proposals are externally reviewed; other programs provide internal review only.

Decisions regarding preliminary proposals may be non-binding or binding. Non-binding decisions regarding preliminary proposals are recommendations. A PI may choose to submit a full proposal even if it has been discouraged. Binding decisions, however, are restrictive in that non-invited PIs are not allowed to submit a full proposal.

Number of Preliminary Proposals and Subsequent Actions

Fiscal Year	2003	2004	2005	2006	2007	2008	2009	2010
Total # Preliminary Proposals	2,469	2,310	2,120	1,874	2,842	3,203	3,856	2,883
Non-Binding (NB) Total*	1,924	1,412	1,302	1,279	1,540	669	1,140	1,384
NB Encouraged	669	544	512	509	662	333	519	636
NB Discouraged	1,255	868	790	770	878	336	621	748
Binding Total*	534	892	816	594	1,301	2,534	2,500	1,273
Binding Invite	152	221	246	136	252	572	685	372
Binding Non-invite	382	671	570	458	1,049	1,962	1,815	901

Source: NSF Enterprise Information System 10/01/10.

* Non-binding and binding totals do not include withdrawn preliminary proposals

Appendix 3

Proposals, Awards and Funding Rates by PI Race and Ethnicity

		Fiscal Year							
		2003	2004	2005	2006	2007	2008	2009	2010
American Indian/Alaska Native	Proposals	112	93	94	93	80	82	77	97
	Total Awards	28	23	24	30	28	21	27	22
	<i>Omnibus</i> <i>ARRA</i>							19	22
	Funding Rate	25%	25%	26%	32%	35%	26%	35%	23%
Black/ African American	Proposals	822	900	813	881	992	965	1,005	1,241
	Total Awards	192	208	193	197	234	239	291	264
	<i>Omnibus</i> <i>ARRA</i>							227	256
	Funding Rate	23%	23%	24%	22%	24%	25%	29%	21%
Hispanic or Latino	Proposals	1,191	1,432	1,436	1,483	1,591	1,590	1,726	2,050
	Total Awards	342	347	322	374	418	381	530	469
	<i>Omnibus</i> <i>ARRA</i>							372	458
	Funding Rate	29%	24%	22%	25%	26%	24%	31%	23%
Native Hawaiian/ Pacific Islander	Proposals	37	47	21	25	24	30	21	30
	Total Awards	12	4	4	7	4	7	8	8
	<i>Omnibus</i> <i>ARRA</i>							5	7
	Funding Rate	32%	9%	19%	28%	17%	23%	38%	27%
Asian	Proposals	6,895	7,618	7,253	7,821	8,622	8,847	9,396	11,454
	Total Awards	1,445	1,382	1,278	1,507	1,776	1,762	2,433	2,090
	<i>Omnibus</i> <i>ARRA</i>							1,674	2,038
	Funding Rate	21%	18%	18%	19%	21%	20%	26%	18%
White, Not of Hispanic Origin	Proposals	28,081	30,251	28,752	28,645	29,318	28,842	28,525	34,396
	Total Awards	8,130	7,713	7,305	7,568	8,103	7,815	10,031	8,866
	<i>Omnibus</i> <i>ARRA</i>							6,818	8,527
	Funding Rate	29%	25%	25%	26%	28%	27%	35%	26%

Source: NSF Enterprise Information System 10/01/10.

Appendix 4

Funding Rates of New PIs and Former PIs by Directorate

		2003	2004	2005	2006	2007	2008	2009	2010
New PIs <i>Former Definition</i>	BIO	19%	18%	15%	14%	14%	15%	23%	14%
	CISE	16%	13%	15%	18%	22%	18%	24%	18%
	EHR	18%	15%	16%	21%	17%	23%	21%	14%
	ENG	16%	15%	13%	15%	17%	16%	21%	14%
	GEO	28%	26%	22%	23%	23%	24%	32%	25%
	MPS	22%	21%	20%	19%	20%	19%	29%	17%
	OCI	20%	19%	59%	24%	22%	20%	45%	15%
	OISE	45%	35%	39%	42%	43%	36%	55%	37%
	OPP	33%	29%	31%	25%	20%	19%	33%	31%
	SBE	18%	15%	18%	18%	20%	20%	21%	16%
New PIs <i>Revised Definition¹</i>	BIO	20%	17%	15%	14%	14%	15%	23%	14%
	CISE	16%	13%	15%	18%	22%	18%	25%	19%
	EHR	17%	14%	15%	20%	16%	22%	20%	13%
	ENG	16%	15%	14%	15%	17%	16%	21%	13%
	GEO	28%	26%	21%	23%	23%	23%	31%	25%
	MPS	21%	21%	20%	19%	20%	19%	29%	18%
	OCI	19%	25%	53%	9%	18%	19%	41%	12%
	OISE	45%	35%	39%	42%	44%	35%	55%	37%
	OPP	35%	29%	28%	23%	18%	19%	29%	32%
	SBE	18%	15%	18%	18%	21%	20%	22%	17%
Prior PIs <i>Former Definition</i>	BIO	31%	28%	25%	21%	24%	23%	32%	23%
	CISE	26%	19%	25%	32%	32%	28%	34%	27%
	EHR	26%	23%	24%	29%	25%	35%	34%	23%
	ENG	27%	23%	20%	21%	23%	24%	29%	22%
	GEO	39%	36%	30%	34%	33%	34%	48%	39%
	MPS	41%	36%	35%	37%	40%	35%	47%	36%
	OCI	14%	26%	70%	35%	23%	19%	63%	23%
	OISE	64%	58%	44%	51%	52%	54%	55%	42%
	OPP	45%	42%	36%	33%	35%	30%	54%	37%
	SBE	33%	26%	32%	32%	35%	32%	39%	30%
Prior PIs <i>Revised Definition¹</i>	BIO	30%	28%	25%	21%	23%	23%	31%	23%
	CISE	25%	18%	24%	31%	31%	27%	32%	26%
	EHR	26%	23%	24%	28%	24%	34%	33%	22%
	ENG	26%	23%	19%	21%	23%	23%	28%	21%
	GEO	38%	35%	30%	33%	33%	34%	47%	38%
	MPS	41%	35%	34%	36%	39%	34%	46%	35%
	OCI	16%	23%	71%	37%	24%	20%	63%	23%
	OISE	64%	57%	43%	50%	51%	55%	55%	40%
	OPP	44%	41%	37%	33%	35%	30%	54%	37%
	SBE	32%	25%	32%	32%	33%	32%	38%	29%

Source: NSF Enterprise Information System 10/01/10.

Appendix 5

Median and Average Award Amounts for Research Grants By Directorate or Office (in Thousands)*

		Fiscal Year								<i>2010 Appropriation</i>	<i>2010 ARRA</i>
		2003	2004	2005	2006	2007	2008	2009	2010		
NSF	Median	\$100	\$102	\$104	\$102	\$110	\$110	\$120	\$124	\$123	\$588
	Average	\$136	\$140	\$144	\$135	\$146	\$143	\$162	\$167	\$166	\$440
BIO	Median	\$126	\$133	\$140	\$140	\$142	\$150	\$161	\$171	\$172	\$62
	Average	\$177	\$171	\$184	\$191	\$182	\$180	\$200	\$222	\$222	\$62
CSE	Median	\$113	\$113	\$112	\$117	\$115	\$117	\$150	\$150	\$150	\$348
	Average	\$159	\$167	\$151	\$146	\$139	\$165	\$188	\$200	\$200	\$348
ENG	Median	\$100	\$97	\$97	\$90	\$100	\$100	\$100	\$100	\$100	N/A
	Average	\$119	\$120	\$117	\$110	\$116	\$112	\$120	\$122	\$122	N/A
GEO	Median	\$103	\$115	\$116	\$110	\$120	\$118	\$124	\$123	\$124	\$91
	Average	\$146	\$150	\$148	\$149	\$154	\$150	\$175	\$159	\$159	\$91
MPS	Median	\$100	\$100	\$100	\$100	\$106	\$105	\$113	\$115	\$115	N/A
	Average	\$129	\$130	\$135	\$120	\$130	\$133	\$138	\$150	\$150	N/A
OCI	Median	\$134	\$365	\$161	\$253	\$450	\$179	\$200	\$209	\$209	N/A
	Average	\$160	\$402	\$315	\$287	\$512	\$217	\$568	\$318	\$318	N/A
OISE	Median	\$10	\$10	\$15	\$33	\$47	\$30	\$25	\$50	\$50	N/A
	Average	\$21	\$15	\$91	\$59	\$157	\$29	\$33	\$198	\$198	N/A
OPP	Median	\$126	\$141	\$122	\$132	\$167	\$148	\$175	\$150	\$152	\$117
	Average	\$144	\$204	\$180	\$150	\$238	\$187	\$218	\$187	\$188	\$113
SBE	Median	\$77	\$78	\$84	\$85	\$94	\$100	\$101	\$100	\$100	\$66
	Average	\$89	\$90	\$110	\$103	\$115	\$116	\$114	\$116	\$116	\$66

Source: NSF Enterprise Information System 10/2/10.

* EHR is not included in this appendix since the number of awards included in the “research grant” category is small relative to the number of education awards managed by that directorate.

Appendix 6

Average Number of Months of Salary Support for Single- and Multi-PI Research Grants, by Directorate or Office

Directorate or Office	Type of Award	2004	2005	2006	2007	2008	2009	2010	2010	2010
									Appropriation	ARRA
NSF	Single PI Grants	1.5	1.4	1.5	1.4	1.3	1.2	1.1	1.1	1.1
	Multi-PI Grants	1.4	1.4	1.3	1.3	1.1	1.1	1.0	1.0	0.9
	NSF Average	1.5	1.4	1.4	1.3	1.3	1.2	1.1	1.1	1.0
BIO	Single PI Grants	1.8	1.9	1.6	2.0	1.8	1.3	1.2	1.2	N/A
	Multi-PI Grants	1.7	2.3	2.0	2.0	1.7	1.6	1.2	1.2	N/A
	BIO Average	1.7	2.0	1.7	2.0	1.8	1.4	1.2	1.2	N/A
CSE	Single PI Grants	1.2	1.1	1.3	0.9	0.8	0.9	0.9	0.9	N/A
	Multi-PI Grants	1.0	1.0	0.8	0.8	0.7	0.8	0.9	0.9	N/A
	CSE Average	1.1	1.1	1.1	0.9	0.8	0.9	0.9	0.9	N/A
EHR	Single PI Grants	3.0	2.0	1.5	1.6	2.0	1.6	1.9	1.9	N/A
	Multi-PI Grants	1.9	2.0	1.8	1.5	1.2	1.6	1.8	1.8	N/A
	EHR Average	2.2	2.0	1.7	1.5	1.5	1.6	1.8	1.8	N/A
ENG	Single PI Grants	1.1	1.0	1.2	1.2	0.9	0.9	0.4	0.4	N/A
	Multi-PI Grants	0.9	0.9	0.7	0.8	0.7	0.7	0.4	0.4	N/A
	ENG Average	1.0	1.0	1.0	1.0	0.8	0.8	0.4	0.4	N/A
GEO	Single PI Grants	1.5	1.4	1.6	1.5	1.3	1.3	1.2	1.2	2.3
	Multi-PI Grants	1.7	1.8	1.8	1.7	1.6	1.4	1.4	1.4	N/A
	GEO Average	1.6	1.5	1.7	1.5	1.4	1.3	1.2	1.2	2.3
MPS	Single PI Grants	1.4	1.4	1.4	1.3	1.3	1.5	1.3	1.3	N/A
	Multi-PI Grants	2.0	1.4	1.5	1.5	1.4	1.5	1.2	1.2	N/A
	MPS Average	1.6	1.4	1.4	1.3	1.4	1.5	1.3	1.3	N/A
OCI	Single PI Grants	2.3	1.3	0.8	2.4	1.3	0.8	0.7	0.7	N/A
	Multi-PI Grants	2.4	1.3	0.8	2.2	1.2	1.6	0.7	0.7	N/A
	OCI Average	2.4	1.3	0.8	2.3	1.2	1.2	0.7	0.7	N/A
OISE	Single PI Grants	1.1	N/A	2.9	0.5	N/A	1.0	0.3	0.3	N/A
	Multi-PI Grants	4.0	1.1	0.6	0.9	1.0	0.9	1.8	1.8	N/A
	OISE Average	1.8	1.1	2.2	0.9	1.0	1.0	1.4	1.4	N/A
OPP	Single PI Grants	2.4	1.7	1.6	1.7	2.0	1.3	1.6	1.6	0.6
	Multi-PI Grants	2.1	1.8	2.2	1.5	1.5	1.1	1.3	1.3	N/A
	OPP Average	2.3	1.7	1.8	1.6	1.9	1.2	1.5	1.5	0.6
SBE	Single PI Grants	1.7	1.7	1.9	1.6	2.0	1.5	1.7	1.7	0.7
	Multi-PI Grants	1.1	1.3	1.4	1.4	1.1	1.0	1.3	1.3	N/A
	SBE Average	1.5	1.6	1.7	1.5	1.7	1.4	1.6	1.6	0.7

Source: NSF Enterprise Information System 10/01/10.

Appendix 7

Number of People Involved in NSF Activities¹³

In FY 2009, an estimated 240,000 senior researchers, post-doctoral associates, teachers and students across all levels were directly involved in NSF research and education programs and activities.

	FY 2010 ARRA Estimate	FY 2010 Actual Estimate
Senior Researchers	1,726	53,161
Other Professionals	301	14,194
Postdoctorates	58	6,923
Graduate Students	259	39,559
Undergraduate Students	300	33,234
K-12 Students	-	59,312
K-12 Teachers	-	85,319
Total Number of People	2,644	291,702

Source: NSF FY 2012 Budget Request.

In addition, NSF programs indirectly impact many millions of people. These programs reach K-12 students, K-12 teachers, the general public, and researchers. Outreach activities include workshops, activities at museums, television, educational videos, journal articles, and dissemination of improved curriculum and teaching methods.

¹³ These data are based on the budget details of awards active in the year indicated, with modifications made as appropriate based on additional information provided by the managing directorates or offices.

Appendix 8

Average Number of Research Proposals per PI before Receiving One Award by Directorate/Office

	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010
NSF	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.3
BIO	1.8	1.8	2.0	2.0	2.2	2.2	2.1	2.1
CISE	2.2	2.5	2.5	2.6	2.4	2.4	2.5	2.6
EHR	1.1	1.2	1.3	1.3	1.4	1.3	1.4	1.4
ENG	2.1	2.2	2.3	2.4	2.6	2.5	2.5	2.6
GEO	2.0	2.1	2.1	2.2	2.2	2.2	2.1	2.0
MPS	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
OCI	1.1	1.2	1.2	1.2	1.2	1.2	1.4	1.5
OISE	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
OPP	1.7	1.6	1.6	1.8	1.8	1.9	1.9	1.7
SBE	1.5	1.6	1.7	1.7	1.6	1.6	1.6	1.6

Source: NSF Enterprise Information System 10/01/10.

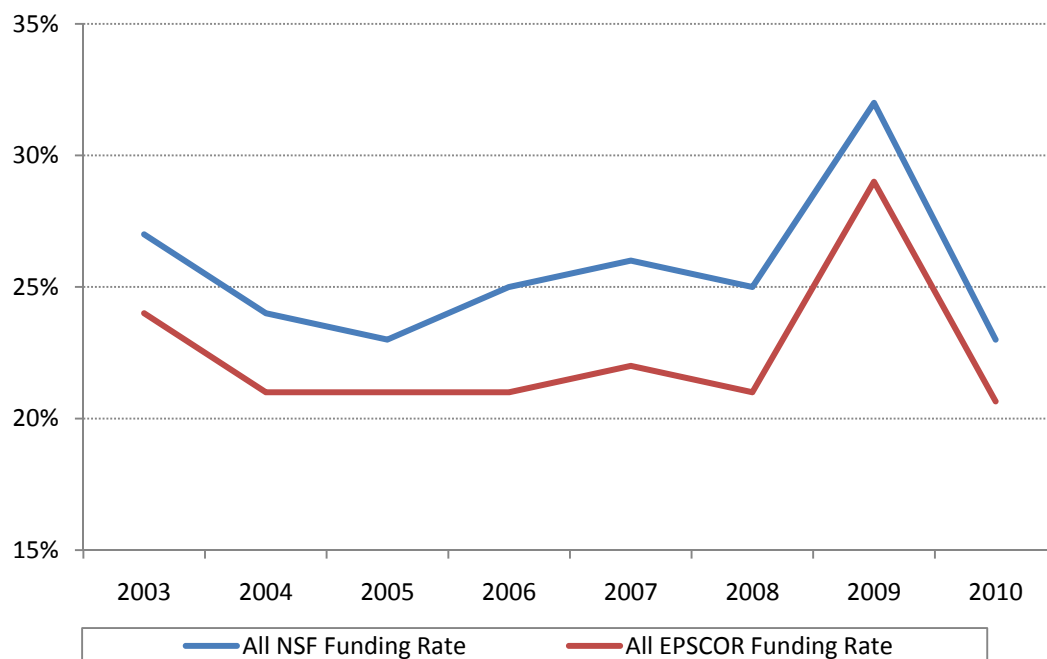
Appendix 9

EPSCoR: Jurisdictions, Proposal, Award, and Funding Data

Twenty-seven states, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands were eligible to compete in the NSF EPSCoR program in FY 2009. The states are: Alabama, Alaska, Arkansas, Delaware, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, West Virginia, and Wyoming.

Figure 9.1 shows the change over time for the funding rate of EPSCoR jurisdictions relative to the overall funding rate for all of the United States.

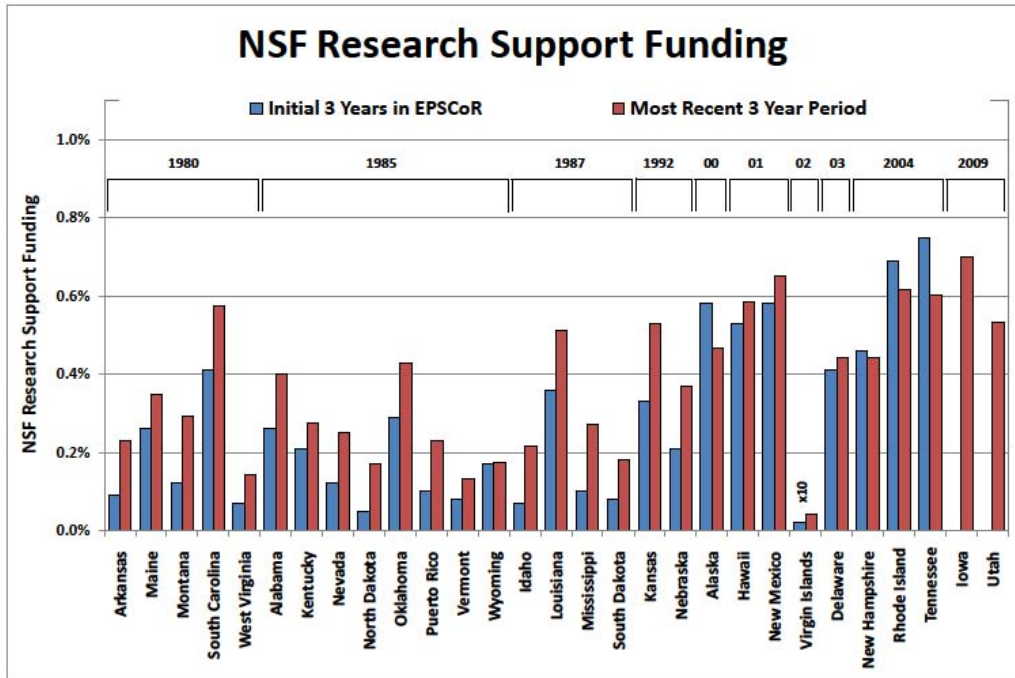
Figure 9.1
Overall Funding Rates for EPSCoR Jurisdictions and Overall NSF Funding Rates



Source: NSF Budget Internet Information System (BIIS).

Figure 9.2 shows the funding data for each EPSCoR jurisdiction in its initial three years in the EPSCoR program, and the most recent three year period, FY 2008 to FY 2010.

Figure 9.2
Funding to EPSCoR Jurisdictions as Percentage of the NSF Budget:
Initial 3 Years in EPSCoR and Most Recent (FY 2008-10) 3-Year Period



Source: NSF Budget Internet Information System (BIIS) and NSF Report Database.

Table 9.3 shows the number of proposals, awards, and funding rate for EPSCoR jurisdictions. Below the name of the EPSCoR jurisdiction is the year that that jurisdiction joined EPSCoR.

Table 9.3
Funding Rates by EPSCoR Jurisdiction
 (Date under the state name is year state joined EPSCoR)

		2003	2004	2005	2006	2007	2008	2009	2010
All NSF	Awards	10,798	10,367	9,772	10,450	11,484	11,162	14,641	12,996
	Proposals	40,084	43,816	41,723	42,374	44,593	44,438	45,181	55,542
	Funding Rate	27%	24%	23%	25%	26%	25%	32%	23%
All EPSCoR Jurisdictions	Awards	1,567	1,454	1,433	1,489	1,653	1,564	2,474	2,171
	Proposals	6,418	6,815	6,802	7,037	7,392	7,349	8,476	10,513
	Funding Rate	24%	21%	21%	21%	22%	21%	29%	21%
Alabama	Awards	81	99	78	84	86	85	148	119
-1985	Proposals	443	488	483	530	508	489	606	708
	Funding Rate	18%	20%	16%	16%	17%	17%	24%	17%
Alaska	Awards	74	63	52	63	75	52	77	65
-2000	Proposals	200	211	203	209	246	204	186	235
	Funding Rate	37%	30%	26%	30%	30%	25%	41%	28%
Arkansas	Awards	43	45	29	47	58	36	41	60
-1980	Proposals	201	236	191	209	244	197	194	276
	Funding Rate	21%	19%	15%	22%	24%	18%	21%	22%
Delaware	Awards	64	50	54	50	67	68	77	80
-2003	Proposals	239	266	254	247	283	283	244	295
	Funding Rate	27%	19%	21%	20%	24%	24%	32%	27%
Hawaii	Awards	71	66	89	77	74	73	109	99
-2001	Proposals	247	252	265	240	276	276	277	379
	Funding Rate	29%	26%	34%	32%	27%	26%	39%	26%
Idaho	Awards	33	24	31	29	34	44	44	35
-1987	Proposals	153	148	140	148	161	201	168	199
	Funding Rate	22%	16%	22%	20%	21%	22%	26%	18%
Iowa	Awards	120	118	106	109	99	132	142	136
-2009	Proposals	515	545	501	524	491	524	564	661
	Funding Rate	23%	22%	21%	21%	20%	25%	25%	21%
Kansas	Awards	79	70	88	76	78	82	88	92
-1992	Proposals	338	388	367	393	404	387	399	464
	Funding Rate	23%	18%	24%	19%	19%	21%	22%	20%
Kentucky	Awards	66	72	62	52	60	62	78	71
-1985	Proposals	298	337	307	293	330	300	356	429
	Funding Rate	22%	21%	20%	18%	18%	21%	22%	17%
Louisiana	Awards	98	107	100	117	96	98	132	149
-1987	Proposals	455	517	514	548	495	471	483	715
	Funding Rate	22%	21%	19%	21%	19%	21%	27%	21%

		2003	2004	2005	2006	2007	2008	2009	2010
Maine	Awards	53	41	50	36	58	65	60	58
-1980	Proposals	190	197	192	181	200	199	172	190
	Funding Rate	28%	21%	26%	20%	29%	33%	35%	31%
Mississippi	Awards	33	43	32	48	40	34	76	72
-1987	Proposals	181	238	226	293	251	271	301	358
	Funding Rate	18%	18%	14%	16%	16%	13%	25%	20%
Montana	Awards	67	54	43	52	61	57	78	51
-1980	Proposals	189	194	193	242	238	232	207	251
	Funding Rate	35%	28%	22%	21%	26%	25%	38%	20%
Nebraska	Awards	44	52	41	59	51	54	64	56
-1992	Proposals	233	242	226	238	250	255	248	324
	Funding Rate	19%	21%	18%	25%	20%	21%	26%	17%
Nevada	Awards	45	31	40	42	50	43	61	39
-1985	Proposals	160	159	203	200	231	261	232	295
	Funding Rate	28%	19%	20%	21%	22%	16%	26%	13%
New Hampshire	Awards	67	53	64	53	60	58	108	76
-2004	Proposals	244	232	280	243	240	230	251	311
	Funding Rate	27%	23%	23%	22%	25%	25%	43%	24%
New Mexico	Awards	117	90	80	91	104	102	115	105
-2001	Proposals	406	378	352	348	401	444	389	506
	Funding Rate	29%	24%	23%	26%	26%	23%	30%	21%
North Dakota	Awards	29	20	19	22	15	19	31	35
-1985	Proposals	127	140	154	170	139	158	141	171
	Funding Rate	23%	14%	12%	13%	11%	12%	22%	20%
Oklahoma	Awards	61	65	55	74	66	67	112	74
-1985	Proposals	302	338	327	342	338	378	420	457
	Funding Rate	20%	19%	17%	22%	20%	18%	27%	16%
Puerto Rico	Awards	20	20	16	19	32	24	37	34
-1985	Proposals	115	106	119	140	153	148	183	203
	Funding Rate	17%	19%	13%	14%	21%	16%	20%	17%
Rhode Island	Awards	105	128	117	140	127	129	176	148
-2004	Proposals	291	340	334	353	390	357	350	442
	Funding Rate	36%	38%	35%	40%	33%	36%	50%	33%
South Carolina	Awards	110	80	90	86	122	87	152	136
-1980	Proposals	472	452	453	464	523	470	527	671
	Funding Rate	23%	18%	20%	19%	23%	19%	29%	20%

		2003	2004	2005	2006	2007	2008	2009	2010
South Dakota	Awards	23	12	21	14	21	20	31	33
-1987	Proposals	86	93	101	97	97	116	132	184
	Funding Rate	27%	13%	21%	14%	22%	17%	23%	18%
Tennessee	Awards	111	102	113	99	145	124	183	133
-2004	Proposals	521	540	585	564	642	633	608	759
	Funding Rate	21%	19%	19%	18%	23%	20%	30%	18%
U.S. Virgin Islands	Awards	0	2	2	1	0	2	0	1
-2002	Proposals	1	6	5	6	4	5	1	3
	Funding Rate	0%	33%	40%	17%	0%	40%	0%	33%
Utah	Awards	93	105	106	94	95	111	135	129
-2009	Proposals	399	444	474	466	449	492	464	595
	Funding Rate	23%	24%	22%	20%	21%	23%	29%	22%
Vermont	Awards	24	21	22	16	26	27	42	23
-1985	Proposals	113	111	129	119	129	144	120	126
	Funding Rate	21%	19%	17%	13%	20%	19%	35%	18%
West Virginia	Awards	18	17	16	19	21	25	33	27
-1980	Proposals	111	105	100	121	128	119	130	160
	Funding Rate	16%	16%	16%	16%	16%	21%	25%	17%
Wyoming	Awards	31	27	29	23	26	27	44	35
-1985	Proposals	102	101	99	99	91	121	123	146
	Funding Rate	30%	27%	29%	23%	29%	22%	36%	24%

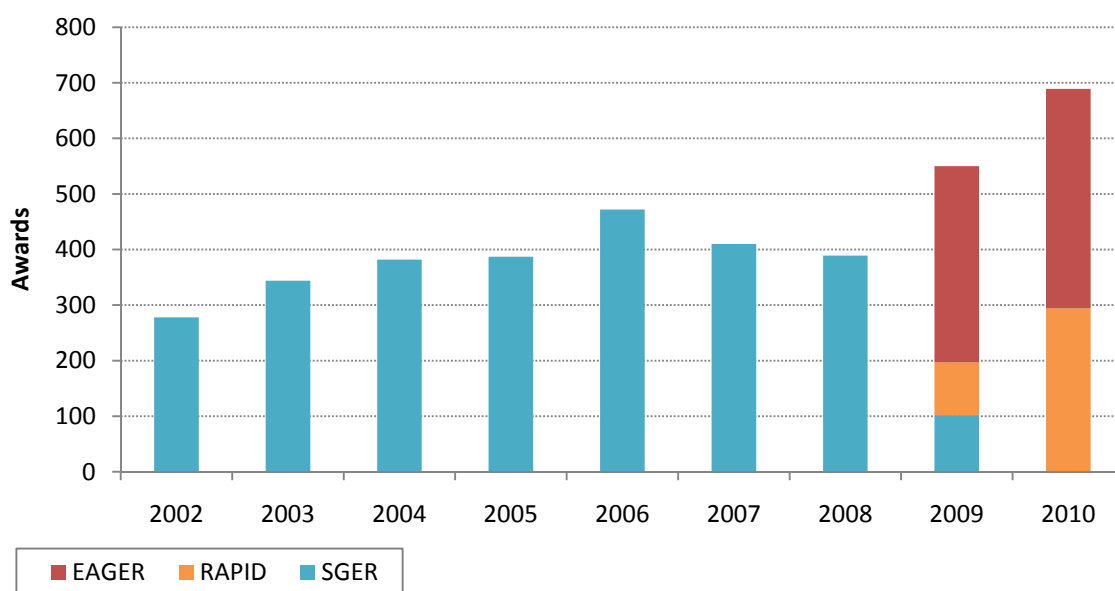
Source: NSF Budget Internet Information System (BIIS).

Appendix 10

Small Grants for Exploratory Research (SGER), Early-concept Grants for Exploratory Research (EAGER) and Grants for Rapid Response Research (RAPID)

Table 10.1 and Figure 10.1 provide funding trends for EAGERS and RAPIDs, as well as that for SGERs.

Figure 10.1
Small Grants for Exploratory Research (SGER), Early-concept Grants for Exploratory Research (EAGER) and Grants for Rapid Response Research (RAPID)
Awards by Funding Mechanism



Source: NSF Enterprise Information System 12/15/10.

Table 10.1
Small Grants for Exploratory Research (SGER), Early-concept Grants for Exploratory Research (EAGER) and Grants for Rapid Response Research (RAPID)
Funding Trends by Directorate or Office

		Fiscal Year									
		2006	2007	2008	2009				2010		
					SGER	RAPID	EAGER	Total	RAPID	EAGER	Total
NSF	Proposals	697	469	438	119	99	363	581	341	440	781
	Awards	472	410	389	102	95	353	550	294	395	689
	Total \$ (In Millions)	\$40.0	\$34.8	\$34.2	\$9.3	\$8.7	\$52.7	\$70.7	\$27.4	\$53.2	\$80.7
	% of Obligations	0.7%	0.6%	0.6%	0.1%	0.1%	0.6%	0.8%	0.4%	0.7%	1.1%
	Average \$ (In Thousands)	\$85	\$85	\$88	\$91	\$91	\$149	\$129	\$93	\$135	\$117

		2006	2007	2008	2009				2010		
					SGER	RAPID	EAGER	Total	RAPID	EAGER	Total
BIO	Proposals	55	29	29	17	13	53	83	52	45	97
	Awards	49	26	23	13	10	51	74	41	41	82
	Total \$ (In Millions)	\$5.4	\$2.7	\$2.3	\$1.4	\$0.9	\$10.2	\$12.5	\$5.1	\$8.3	\$13.4
	% of Obligations	0.9%	0.4%	0.4%	0.1%	0.1%	1.1%	1.3%	0.7%	1.1%	1.8%
	Average \$ (In Thousands)	\$110	\$104	\$98	\$108	\$87	\$200	\$169	\$124	\$202	\$163
CISE	Proposals	89	136	104	12	1	92	105	8	178	186
	Awards	88	136	102	12	1	92	105	8	157	165
	Total \$ (In Millions)	\$10.2	\$14.6	\$10.4	\$1.5	\$0.0	\$14.4	\$15.9	\$1.1	\$20.4	\$21.5
	% of Obligations	2.0%	2.7%	1.9%	0.2%	0.0%	1.8%	1.9%	0.2%	3.2%	3.4%
	Average \$ (In Thousands)	\$116	\$107	\$102	\$124	\$26	\$157	\$152	\$137	\$130	\$130
EHR	Proposals	16	7	9	1	9	7	17	13	2	15
	Awards	16	7	9	1	9	7	17	12	0	12
	Total \$ (In Millions)	\$0.8	\$0.9	\$1.7	\$0.2	\$1.3	\$1.8	\$3.3	\$1.9	\$0.2	\$2.1
	% of Obligations	0.1%	0.1%	0.2%	0.0%	0.1%	0.2%	0.3%	0.2%	0.0%	0.2%
	Average \$ (In Thousands)	\$50	\$129	\$188	\$200	\$140	\$258	\$192	\$162	N/A	\$177
ENG	Proposals	180	134	125	28	3	104	135	95	96	191
	Awards	145	89	104	21	3	98	122	66	92	158
	Total \$ (In Millions)	\$11.2	\$5.8	\$7.6	\$1.4	\$0.2	\$10.7	\$12.3	\$5.0	\$9.1	\$14.2
	% of Obligations	1.8%	0.9%	1.1%	0.1%	0.0%	1.1%	1.3%	0.6%	1.1%	1.7%
	Average \$ (In Thousands)	\$77	\$65	\$73	\$67	\$65	\$109	\$101	\$76	\$99	\$90
GEO	Proposals	83	85	67	21	32	29	82	113	44	157
	Awards	79	81	64	20	32	29	81	112	43	155
	Total \$ (In Millions)	\$4.4	\$4.8	\$3.5	\$1.1	\$2.1	\$2.9	\$6.1	\$10.0	\$4.1	\$14.1
	% of Obligations	0.5%	0.6%	0.5%	0.1%	0.1%	0.2%	0.4%	1.0%	0.4%	1.5%
	Average \$ (In Thousands)	\$56	\$59	\$55	\$55	\$66	\$99	\$75	\$89	\$95	\$91
MPS	Proposals	39	39	58	15	2	32	49	19	41	60
	Awards	31	34	45	11	2	30	43	16	34	50
	Total \$ (In Millions)	\$2.6	\$3.5	\$5.4	\$2.1	\$0.2	\$3.9	\$6.2	\$1.6	\$6.7	\$8.3
	% of Obligations	0.2%	0.3%	0.4%	0.1%	0.0%	0.2%	0.3%	0.1%	0.4%	0.5%
	Average \$ (In Thousands)	\$84	\$103	\$121	\$191	\$90	\$131	\$144	\$98	\$197	\$165

OCI		2006	2007	2008	2009				2010		
					SGER	RAPID	EAGER	Total	RAPID	EAGER	Total
OCI	Proposals	2	1	7	0	0	23	23	5	19	24
	Awards	2	1	7	0	0	23	23	4	15	19
	Total \$ (In Millions)	\$0.2	\$0.2	\$1.0	\$0.0	\$0.0	\$6.3	\$6.3	\$0.3	\$2.6	\$2.9
	% of Obligations	0.1%	0.1%	0.5%	0.0%	0.0%	2.2%	2.2%	0.1%	1.2%	1.3%
	Average \$ (In Thousands)	\$100	\$200	\$140	N/A	N/A	\$275	\$275	N/A	\$176	\$154
OISE	Proposals*	0	0	0	0	0	3	3	0	5	5
	Awards	0	0	0	0	0	3	3	0	4	4
	Total \$ (In Millions)	\$0.1	\$0.1	\$0.1	\$0.0	\$0.0	\$0.9	\$1.0	\$0.5	\$0.6	\$1.1
	% of Obligations	0.3%	0.2%	0.2%	0.0%	0.1%	1.4%	1.6%	1.1%	1.2%	2.3%
	Average \$ (In Thousands)	N/A	N/A	N/A	N/A	N/A	\$294	\$317	N/A	\$143	\$275
OPP	Proposals	16	23	17	9	0	10	19	6	5	11
	Awards	16	23	15	8	0	10	18	6	5	11
	Total \$ (In Millions)	\$0.5	\$1.2	\$1.0	\$0.6	\$0.2	\$0.7	\$1.5	\$0.3	\$0.7	\$1.0
	% of Obligations	0.1%	0.3%	0.2%	0.1%	0.0%	0.1%	0.2%	0.1%	0.1%	0.2%
	Average \$ (In Thousands)	\$31	\$52	\$67	\$76	N/A	\$71	\$83	N/A	\$134	\$88
SBE	Proposals	217	15	21	16	39	10	65	30	5	35
	Awards	46	13	20	16	38	10	64	29	4	33
	Total \$ (In Millions)	\$4.5	\$1.0	\$1.2	\$1.0	\$3.8	\$0.9	\$5.7	\$1.6	\$0.6	\$2.2
	% of Obligations	2.0%	0.4%	0.5%	0.3%	1.1%	0.3%	1.7%	0.6%	0.2%	0.8%
	Average \$ (In Thousands)	\$98	\$77	\$59	\$64	\$101	\$87	\$89	\$56	\$139	\$66

Source: NSF Enterprise Information System 12/15/10.

* Although a directorate or office may have no proposals reported in this table, the unit may have obligations from split-funding awards that are managed by other directorates or offices. Only the SGER program was active in FYs 2002-2008.

Appendix 11

Oversight and Advisory Mechanisms

- **Committees of Visitors.**

To ensure the highest quality in processing and recommending proposals for awards, NSF convenes external groups of experts, called Committees of Visitors (COVs), to review each major program approximately every three-to-five years. This includes disciplinary programs in the various directorates and offices, and the cross-disciplinary programs managed across directorates. The COVs (comprised of scientists, engineers and educators from academia, industry, and government) convene at NSF for a two-to-three day assessment. These experts evaluate the integrity and efficiency of the processes used for proposal review and program decision-making. In addition, the COVs provide a retrospective assessment of the quality of results of NSF's programmatic investments. The COV reports, written as answers and commentary to specific questions, are submitted for review through Advisory Committees to the directorates and the NSF Director. Questions include aspects of the program portfolio, such as the balance of high-risk, multidisciplinary, and innovative projects. The recommendations of COVs are reviewed by management and taken into consideration by NSF when evaluating existing programs and future directions for the Foundation.¹⁴

- **Advisory Committee (AC) Reporting on Directorate/Office Performance.**

Advisory committees regularly provide community perspectives to the research and education directorates, Office of Cyberinfrastructure, Office of International Science and Engineering, and Office of Polar Programs. They are typically composed of 15-25 experts who have experience relevant to the programs under review and are broadly drawn from academia, industry, and government. Advisory Committees, as part of their mission, regularly review COV reports and staff responses.

¹⁴ The COV reports and directorate responses are available electronically as a link from the NSF GPRA web page, <http://www.nsf.gov/about/performance/>.

Appendix 12

Requests for Formal Reconsideration of Declined Proposals

		Fiscal Year							
		2003	2004	2005	2006	2007	2008	2009	2010
First Level Reviews (Assistant Directors):									
BIO	Request	4	3	2	4	2	5	3	1
	- Upheld	4	3	2	4	2	5	3	1
	- Reversed	0	0	0	0	0	0	0	0
CISE	Request	1	2	3	1	1	0	0	2
	- Upheld	0	2	3	1	1	0	0	2
	- Reversed	1	0	0	0	0	0	0	0
EHR	Request	3	2	7	4	6	7	2	2
	- Upheld	3	2	7	4	6	7	2	2
	- Reversed	0	0	0	0	0	0	0	0
ENG	Request	2	3	3	6	3	3	3	11
	- Upheld	2	3	3	6	3	3	3	9
	- Reversed	0	0	0	0	0	0	0	2
GEO	Request	4	4	0	0	2	0	2	3
	- Upheld	4	4	0	0	2	0	1	3
	- Reversed	0	0	0	0	0	0	1	0
MPS	Request	4	24	15	16	16	14	9	14*
	- Upheld	4	24	15	15	15	14	7	12
	- Reversed	0	0	0	1	1	0	2	0
SBE	Request	3	3	3	4	0	2	1	1
	- Upheld	2	3	3	4	0	2	1	1
	- Reversed	1	0	0	0	0	0	0	0
Other*	Request	0	0	0	0	3	0	1	0
	- Upheld	0	0	0	0	3	0	0	0
	- Reversed	0	0	0	0	0	0	1	0
Second Level Reviews (Deputy Director):									
O/DD	Request	5	7	2	0	1	3	2	3
	- Upheld	4	7	2	0	1	3	2	3
	- Reversed	1	0	0	0	0	0	0	0
Total Reviews First & Second Level									
NSF	Request	26	48	35	35	34	34	23	37*
	- Upheld	24	48	35	34	33	34	19	33
	- Reversed	2	0	0	1	1	0	4	2

Source: Office of the Director.

* Other category includes OCI, OIA, OPP, and OISE. The number of decisions (upheld or reversed) may not equal the number of requests in each year due to the carryover of the pending reconsideration request.

Appendix 13

Average Number of Reviews per Proposal, By Method and Directorate or Office, FY 2010

		Methods of Review				Not Reviewed*	Returned without Review	Withdrawn Proposals
		All Methods	Mail + Panel	Mail-Only	Panel-Only			
NSF	Reviews	287,023	105,349	15,855	165,819	2,347	38	311
	Proposals	53,195	16,483	3,853	32,859			
	Rev/Prop	5.4	6.4	4.1	5.0			
BIO	Reviews	44,930	33,874	415	10,641	248	5	21
	Proposals	7,811	5,380	105	2,326			
	Rev/Prop	5.8	6.3	4.0	4.6			
CISE	Reviews	32,535	4,209	449	27,877	430	3	32
	Proposals	6,057	638	124	5,295			
	Rev/Prop	5.4	6.6	3.6	5.3			
EHR	Reviews	29,792	1,441	352	27,999	66	4	5
	Proposals	4,985	232	93	4,660			
	Rev/Prop	6.0	6.2	3.8	6.0			
ENG	Reviews	60,530	3,300	407	56,823	408	7	49
	Proposals	12,818	590	110	12,118			
	Rev/Prop	4.7	5.6	3.7	4.7			
GEO	Reviews	26,798	21,443	2,975	2,380	314	4	22
	Proposals	4,503	3,377	648	478			
	Rev/Prop	6.0	6.3	4.6	5.0			
MPS	Reviews	46,158	11,338	9,147	25,673	540	5	105
	Proposals	8,871	1,735	2,219	4,917			
	Rev/Prop	5.2	6.5	4.1	5.2			
OCI	Reviews	4,285	777	47	3,461	58	1	16
	Proposals	776	121	9	646			
	Rev/Prop	5.5	6.4	5.2	5.4			
OISE	Reviews	4,209	1,429	769	2,011	111	1	23
	Proposals	931	190	236	505			
	Rev/Prop	4.5	7.5	3.3	4.0			
OPP	Reviews	4,418	3,970	249	199	51	2	7
	Proposals	746	632	55	59			
	Rev/Prop	5.9	6.3	4.5	3.4			
SBE	Reviews	32,019	23,493	993	7,533	120	4	30
	Proposals	5,498	3,581	242	1,675			
	Rev/Prop	5.8	6.6	4.1	4.5			
Other	Reviews	1,349	75	52	1,222	1	2	1
	Proposals	199	7	12	180			
	Rev/Prop	6.8	10.7	4.3	6.8			

Source: NSF Enterprise Information System 10/01/10.

* The proposal totals shown in the "All Methods" category do not include the proposals shown in the "Not Reviewed" category. Proposals which are not reviewed include SGERs and grants for travel and symposia. The "Not Reviewed" category includes award and decline actions which were not reviewed, while the "Returned without Review" and "Withdrawn Proposal" categories reflect proposals which were neither awarded nor declined. There were 51,799 panel summaries in FY 2010. Reviewers participating as both a mail and a panel reviewer for the same proposal are counted as one review in this table. Withdrawn proposals include only those that underwent merit review.

Appendix 14

Methods of NSF Proposal Review

FY	Total	Mail + Panel		Mail Only		Panel Only *		Not Externally Reviewed	
	Proposals	Proposals	Percent	Proposals	Percent	Proposals	Percent	Proposals	Percent
2010	55,542	16,483	30%	3,853	7%	32,859	59%	2,347	4%
2009	45,181	14,262	32%	3,370	7%	25,835	57%	1,714	4%
2008	44,428	14,355	32%	3,662	8%	24,966	56%	1,445	3%
2007	44,577	14,292	32%	3,737	8%	25,135	56%	1,413	3%
2006	42,352	14,349	34%	3,895	9%	22,384	53%	1,724	4%
2005	41,722	13,919	33%	3,656	9%	22,735	54%	1,412	3%
2004	43,851	13,345	30%	4,496	10%	24,553	56%	1,457	3%
2003	40,075	12,683	32%	4,579	11%	21,391	53%	1,388	3%

Source: NSF Enterprise Information System 10/01/10.

Appendix 15

Methods of NSF Proposal Review by Directorate or Office, FY 2010

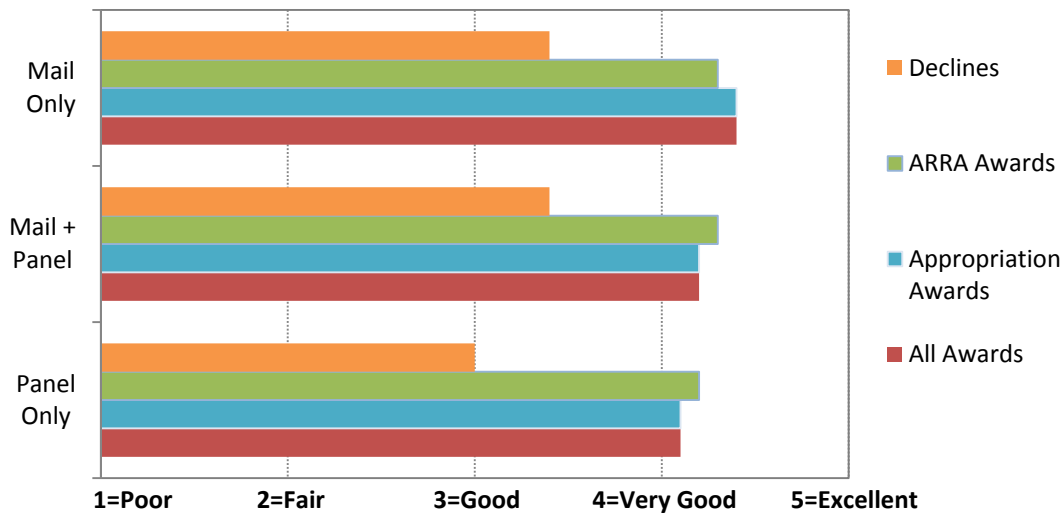
Directorate	Total Proposals	Mail + Panel		Mail-Only		Panel-Only		Not Reviewed	
		Proposals	Percent	Proposals	Percent	Proposals	Percent	Proposals	Percent
NSF	55,542	16,483	30%	3,853	7%	32,859	59%	2,347	4%
BIO	8,059	5,380	67%	105	1%	2,326	29%	248	3%
CISE	6,487	638	10%	124	2%	5,295	82%	430	7%
EHR	5,051	232	5%	93	2%	4,660	92%	66	1%
ENG	13,226	590	4%	110	1%	12,118	92%	408	3%
GEO	4,817	3,377	70%	648	13%	478	10%	314	7%
MPS	9,411	1,735	18%	2,219	24%	4,917	52%	540	6%
OCI	834	121	15%	9	1%	646	77%	58	7%
OISE	1,042	190	18%	236	23%	505	48%	111	11%
OPP	797	632	79%	55	7%	59	7%	51	6%
SBE	5,618	3,581	64%	242	4%	1,675	30%	120	2%
Other	200	7	4%	12	6%	180	90%	1	1%

Source: NSF Enterprise Information System 10/01/10.

* Panel-Only includes cases where panel was mailed proposal for review prior to panel.

Appendix 16

Average Reviewer Ratings by Method of Review FY 2010



Source: NSF Enterprise Information System 10/01/10.

Appendix 17

Accomplishment-Based Renewals and Creativity Extensions

Accomplishment-Based Renewals

In an accomplishment-based renewal, the project description is replaced by copies of no more than six reprints of publications resulting from the research supported by NSF (or research supported by other sources that is closely related to the NSF-supported research) during the preceding three-to-five year period. In addition, a brief (not to exceed four pages) summary of plans for the proposed support period must be submitted. All other information required for NSF proposal submission remains the same. The proposals undergo merit review in the tradition of the specific program. In 2010, there were 86 requests for accomplishment-based renewals; 34 of which were awarded.

Creativity Extensions

A program officer may recommend the extension of funding for certain research grants beyond the initial period for which the grant was awarded for a period of up to two years. The objective is to offer the most creative investigators an extension to address opportunities in the same general research area, but not necessarily within the scope covered by the original/current proposal. Awards eligible for such an extension are generally three-year continuing grants. Special Creativity Extensions are usually initiated by the NSF program officer based on progress during the first two years of a three-year grant. In FY 2010, there were 12 Special Creativity Extensions granted.

Appendix 18

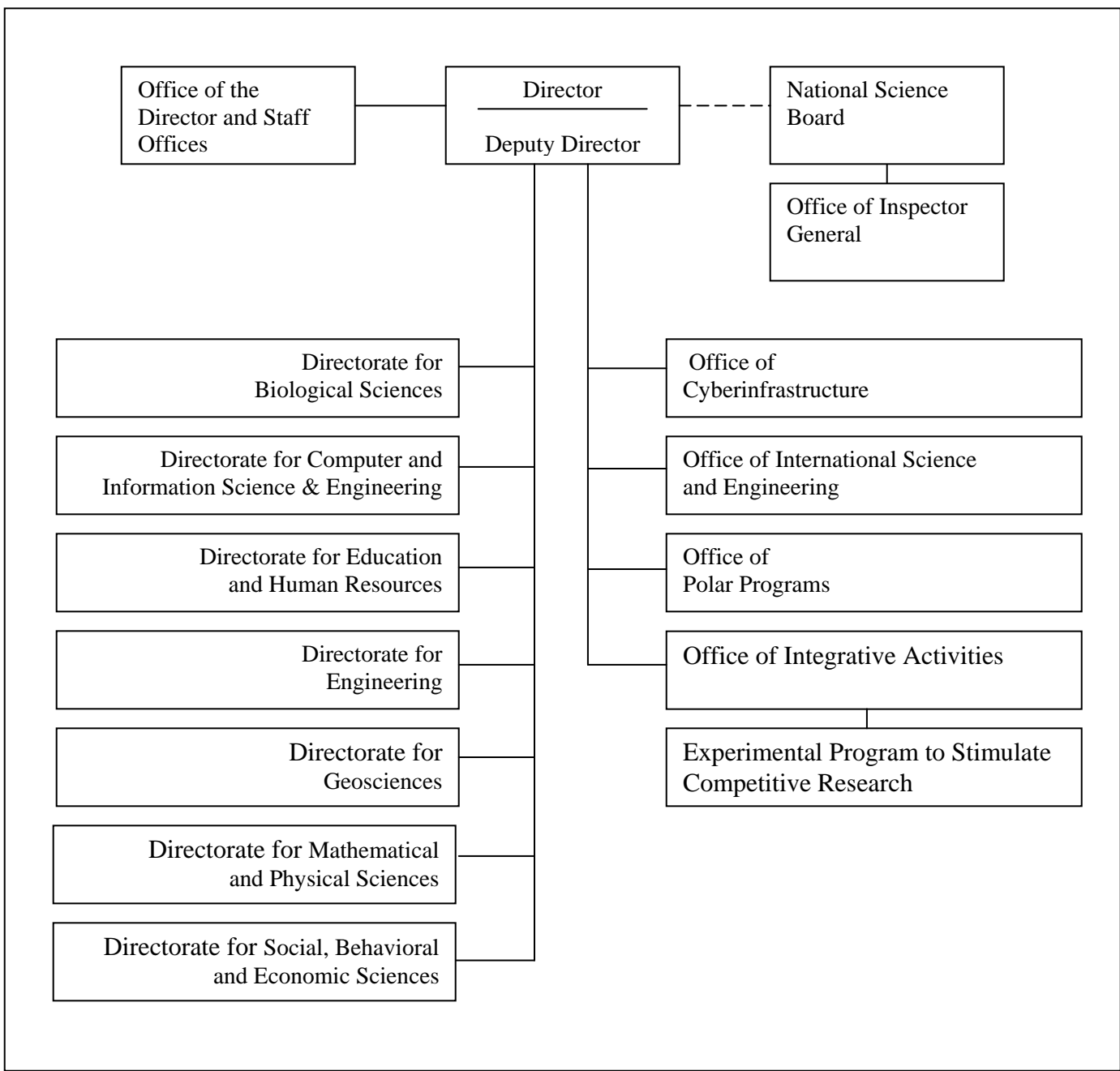
Accomplishment-Based Renewals by Directorate

Directorate or Office	Award vs Decline	2004	2005	2006	2007	2008	2009	2010
NSF	Award	40	28	32	27	28	40	34
	Decline	47	73	70	70	51	54	52
	Avg Annual Award	\$130,787	\$173,988	\$116,263	\$174,137	\$196,551	\$285,422	\$180,755
BIO	Award	10	6	5	4	3	5	8
	Decline	7	15	20	25	13	16	11
	Avg Annual Award	\$108,148	\$177,830	\$128,260	\$98,410	\$125,556	\$134,862	\$174,666
CSE	Award	0	1	1	1	1	1	1
	Decline	1	1	2	3	1	0	2
	Avg Annual Award	-	\$160,140	\$83,333	\$50,000	\$100,017	\$274,923	\$363,279
EHR	Award	3	2	2	2	2	3	3
	Decline	5	4	14	6	3	7	6
	Avg Annual Award	\$355,730	\$597,667	\$167,348	\$142,410	\$493,450	\$403,539	\$379,113
ENG	Award	3	1	3	2	1	1	1
	Decline	10	17	14	13	6	13	7
	Avg Annual Award	\$105,887	\$94,833	\$69,589	\$83,542	\$103,293	\$249,954	\$203,310
GEO	Award	11	8	7	8	7	9	8
	Decline	8	7	3	3	2	3	8
	Avg Annual Award	\$114,543	\$122,595	\$132,370	\$107,295	\$132,682	\$478,109	\$164,462
MPS	Award	10	9	7	10	12	16	11
	Decline	9	25	13	16	19	12	13
	Avg Annual Award	\$122,132	\$151,720	\$143,631	\$287,206	\$237,542	\$207,374	\$143,423
OCI	Award	N/A	N/A	N/A	N/A	N/A	1	N/A
	Decline	N/A	N/A	N/A	N/A	N/A	0	N/A
	Avg Annual Award	N/A	N/A	N/A	N/A	N/A	\$521,556	N/A
OISE	Award	N/A	0	N/A	N/A	N/A	N/A	1
	Decline	N/A	1	N/A	N/A	N/A	N/A	2
	Avg Annual Award	N/A	-	N/A	N/A	N/A	N/A	\$50,000
OPP	Award	0	0	1	0	1	1	N/A
	Decline	2	1	0	1	1	0	N/A
	Avg Annual Award	-	-	\$117,500	-	\$136,611	\$609,026	N/A
SBE	Award	3	1	6	0	1	3	1
	Decline	5	2	4	3	6	3	3
	Avg Annual Award	\$81,667	\$11,969	\$59,712	-	\$102,657	\$85,178	\$101,052

Source: NSF Enterprise Information System 10/01/10. "N/A" = No accomplishment-based renewals requested.

Appendix 19

National Science Foundation Organization Chart



Appendix 20

Terms & Acronyms

<u>Acronym</u>	<u>Definition</u>
AC	Advisory Committee
AC/GPA	Advisory Committee for GPRA Performance Assessment
AD	NSF Assistant director
ARRA	American Recovery and Reinvestment Act of 2009
BFA	Office of Budget, Finance and Award Management
BIO	Directorate for Biological Sciences
BIIS	NSF Budget Internet Information System
CAREER	Faculty Early Career Development Program
CGI	Continuing Grant Increments
CISE	Directorate for Computer and Information Science and Engineering
COV	Committee of Visitors
EAGER	Early-concept Grants for Exploratory Research
EHR	Directorate for Education and Human Resources
EIS	Enterprise Information System
ENG	Directorate for Engineering
EPSCoR	Experimental Program to Stimulate Competitive Research
FTE	Full-Time Equivalent
FY	Fiscal Year
GEO	Directorate for Geosciences
GPRA	Government Performance and Results Act
IPAs	Temporary employees hired through Intergovernmental Personnel Act
IPAMM	Impact of Proposal & Award Management Mechanisms
IPS	Interactive Panel System
MPS	Directorate for Mathematical and Physical Sciences
NSB	National Science Board
NSF	National Science Foundation
OCI	Office of Cyberinfrastructure
OD	Office of the Director
ODS	Online Document System
OIA	Office of Integrative Activities
OIG	Office of Inspector General
OISE	Office of International Science & Engineering
OMB	Office of Management and Budget
OPP	Office of Polar Programs
PARS	Proposal, PI and Reviewer System
PART	Program Assessment Rating Tool
PI	Principal Investigator
RAPID	Grants for Rapid Response Research
R&RA	Research and Related Activities
SBE	Directorate for Social, Behavioral and Economic Sciences
SGER	Small Grants for Exploratory Research
VSEE	Visiting Scientists, Engineers and Educators