

INTEGRATIVE ACTIVITIES (IA)

\$459,150,000
+\$33,810,000 / 7.9%

IA Funding (Dollars in Millions)

	FY 2014 Actual	FY 2015 Estimate	FY 2016 Request	Change Over FY 2015 Estimate	
				Amount	Percent
Career-Life Balance	\$1.50	-	-	-	N/A
EPSCoR	158.19	159.69	169.99	10.30	6.4%
Graduate Research Fellowships	150.00	166.72	168.75	2.03	1.2%
INSPIRE	24.92	13.75	13.75	-	-
Major Research Instrumentation	89.59	75.00	75.00	-	-
NSF INCLUDES	-	-	1.88	1.88	N/A
Research Investment Communications (RIC)	1.80	3.14	3.14	-	-
Science & Technology Centers Class of 2016	-	-	20.00	20.00	N/A
Science & Technology Centers Administration	0.84	1.30	0.90	-0.40	-30.8%
Science & Technology Policy Institute	4.89	4.74	4.74	-	-
STAR METRICS	1.40	1.00	1.00	-	-
Total, IA	\$433.12	\$425.34	\$459.15	\$33.81	7.9%

Totals may not add due to rounding.

About IA

The FY 2016 Request for IA is driven by six aspects of the mission of the Foundation: catalyzing new concepts and fields across all disciplinary boundaries; promoting efforts to strengthen research and education in science and engineering throughout the United States and to avoid undue concentration of research and education; expanding critical human capital infrastructure; leveraging physical resources across disciplines to seed a knowledge-based economy; and evaluating the impacts of NSF's investments to make more data-driven decisions, and to establish a culture of evidence-based planning and policy-making.

IA's FY 2016 Request will provide support in frontier research areas, including clean energy and Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS). The Office of Integrative Activities (OIA) will co-lead new activities in broadening participation (BP), which support the Administration's diversity agenda.

FY 2016 Summary

All funding changes are over FY 2015 Estimate.

- The Experimental Program to Stimulate Competitive Research (EPSCoR) (+\$10.30 million to a total of \$169.99 million) funding in FY 2016 will catalyze key research themes, including national research priorities, and other activities within and among EPSCoR jurisdictions that empower knowledge generation and broaden participation in science and engineering. Additionally, EPSCoR themes will draw upon the findings of the National Academy of Sciences (NAS) study of EPSCoR¹

¹ www.nap.edu/catalog.php?record_id=18384

Integrative Activities

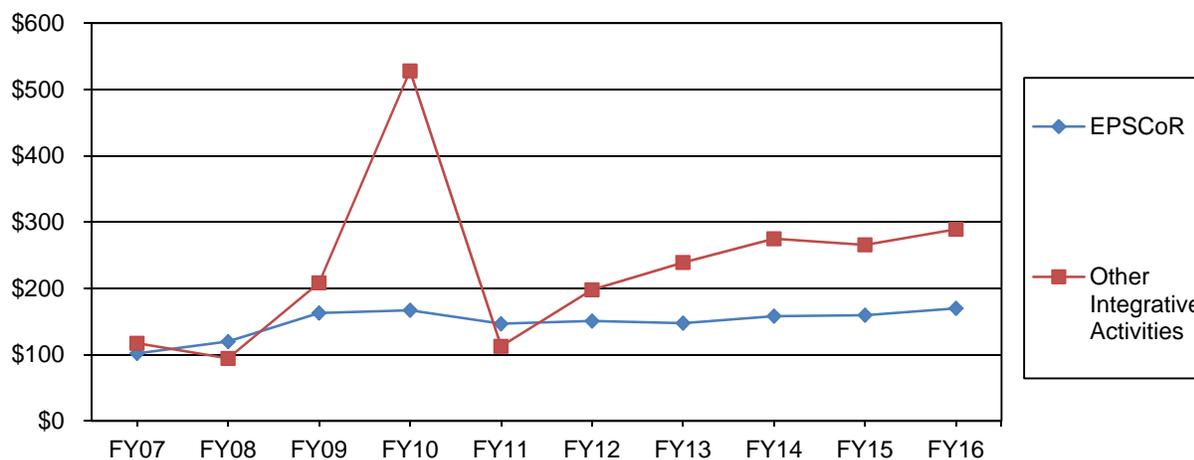
and EPSCoR-like programs as called for in the America COMPETES Reauthorization Act of 2010 (P.L. 111-358).

- The Graduate Research Fellowship (GRF) program invests (+\$2.03 million to a total of \$168.75 million) in the U.S. science and engineering human capital necessary to ensure the Nation's leadership in STEM research and innovation through the selection and support of outstanding U.S. graduate students. IA provides 50 percent of NSF's funding for GRF, with the remainder provided through the Education and Human Resources account. For additional information on GRF, please see the discussion of graduate education in the NSF-Wide Investments section.
- In FY 2016, Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE) (no change for a total of \$13.75 million) will continue to spur new interdisciplinary and potentially transformative scientific and engineering concepts and fields. INSPIRE is an NSF-wide investment that addresses the complicated and pressing scientific problems at the intersection of traditional disciplines. In FY 2016, IA funding will allow for approximately 30 up-to-\$1.0-million INSPIRE awards; with an equal amount being provided by other NSF directorates. The IA co-funding serves as an incentive to engage in cross-cutting collaboration and risk-taking on potentially transformative research.
- Major Research Instrumentation (MRI) program (no change for a total of \$75.0 million) will continue to catalyze new knowledge and discoveries by empowering the Nation's scientists and engineers with state-of-the-art research instrumentation. The MRI program supports the acquisition and development of instruments such as: advanced imaging systems for biological, chemical and materials research; new types of detectors for telescopes and high-energy physics experiments; next-generation genome sequencers; magnetic resonance imagers for neuroscience; and cyberinfrastructure. MRI investments support research-intensive learning environments that promote the development of a diverse workforce trained in the use of state-of-the-art instrumentation in research, and facilitate academic/private sector partnerships. The FY 2016 funding level will support roughly 160 MRI awards, or equal to the number anticipated in FY 2015.
- Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science (NSF INCLUDES) is a campaign and associated set of investments to broaden knowledge of and participation in STEM fields. This initiative invests in community-generated bold visions that represent new models and new partnerships and will serve as national resources to increase the preparation, participation, advancement, and contributions of those who have been traditionally underserved and/or underrepresented in the science, technology, engineering, and mathematics (STEM) enterprise: women/girls, underrepresented ethnic/racial groups, and persons with disabilities. In FY 2016, \$1.88 million will fund the Networks for STEM Excellence pilot. For additional information on NSF INCLUDES, please see the NSF-Wide Investments section.
- Research Investment Communications (RIC) funding in FY 2016 is \$3.14 million, or equal to the FY 2015 Estimate. RIC is a leading-edge communications effort intended to increase awareness and support of science and engineering. RIC makes NSF's investments in science, technology, engineering, and mathematics readily available and easily understandable. RIC supports events that highlight NSF partnerships such as the USA Science and Engineering Festival. In FY 2016, RIC will focus on informing policy makers, the media, and the general public on the impact of these investments on our daily lives and the Nation's future.
- Science and Technology Centers: Integrative Partnerships (STC) program supports innovative,

potentially transformative, complex research and education projects that require large-scale, long-term awards. STCs engage the Nation’s intellectual talent through partnerships across academia, industry, national laboratories, and government. These collaborations create synergies that enhance the training of the next generation of scientists, engineers, and educators. STCs have impressive records of research achievements as well as strong partnerships with education communities and industry. A new solicitation was announced in FY 2014 that replaces the sunseting Class of 2005 and 2006 cohort of STCs and encourages themes consistent with NSF priorities. The FY 2016 Request of \$20.0 million will support up to four new STCs. Additionally, \$900,000 will support the administrative costs associated with the STC post award management for the existing eight centers.

- The Science and Technology Policy Institute (STPI) (no change for a total of \$4.74 million). STPI is a Federally Funded Research and Development Center sponsored by NSF on behalf of the White House Office of Science and Technology Policy (OSTP). STPI provides analysis of significant domestic and international science and technology policies and developments for OSTP and other federal agencies.
- Science and Technology for America’s Reinvestment: Measuring the Effect of Research on Innovation, Competitiveness, and Science (STAR METRICS) (no change for a total of \$1.0 million) is an interagency pilot activity that represents a transformative approach to developing information on how NSF and other federal research and development investments affect the innovation ecosystem. Funding will enable NSF to meet commitments to the interagency STAR METRICS partnership, promote the integration of elements of STAR METRICS to developing assessment and evaluation information system linked to NSF’s management information systems, and support assessment and evaluation pilots in NSF programs using STAR METRICS tools. The project supports the assessment and evaluation plans described in *Investing in Science, Engineering, and Education for the Nation’s Future – NSF Strategic Plan 2014 – 2018*.

IA Subactivity Funding
(Dollars in Millions)



FY 2009 funding reflects both the FY 2009 omnibus appropriation and funding provided through the American Recovery and Reinvestment Act of 2009 (P.L. 111-5).

Program Monitoring and Evaluation

External Program Evaluations and Studies:

- In FY 2015, IA will co-fund with the Directorate for Engineering an evaluation of the NSF Innovation Corps (I-Corps™) program based on the FY 2014 feasibility study. A longitudinal data collection and formal evaluation study will be launched to evaluate the impact of the I-Corps™ program. Results are expected to be used to inform programmatic directions. Final results from this study are expected in FY 2016.
- There are three evaluations underway, each of which is summarized below:
 - The INSPIRE program is currently being assessed. The external formative assessment will test whether the process is conducive to achieve program and portfolio-level goals. Final results from this study are expected in FY 2016.
 - The NSF merit review process is currently being assessed. The scope of the study is to enable an assessment of changes in workload, the impacts of the technologies used to support merit review, and the quality of feedback provided to principal investigators. The evaluation is being conducted by INSIGHT. Final results from this study are expected in FY 2016.
 - The Career Life Balance initiative is being assessed from inception in 2011 to current implementation in 2014. The formative evaluation will be used to: document objectively progress to date; inform strategic planning for priority setting; and make improvements in management of the initiative. Final results from this study are expected in FY 2016.
- Final actionable reports from the Science, Engineering, and Education for Sustainability (SEES) evaluations will be received in the Summer of FY 2015.
- The America COMPETES Reauthorization Act of 2010 (H.R. 5116, Sec. 517) stated that “the Director [NSF] shall contract with the National Academy of Sciences to conduct a study on all Federal agencies that administer an Experimental Program to Stimulate Competitive Research or a program similar to the Experimental Program to Stimulate Competitive Research [EPSCoR].” An evaluation of EPSCoR and EPSCoR-like programs (Government-wide) was performed by the National Academy of Science (NAS) to investigate: (1) the delineation of policies of each Federal agency with respect to awarding of grants to EPSCoR States; (2) the effectiveness of each program; (3) improvements for each agency to achieve EPSCoR goals; (4) the effectiveness of EPSCoR States in using awards to develop science and engineering research and education infrastructure within their States; and (5) the overall effectiveness of EPSCoR.
 - The NAS report presented several high-level findings based on the committee’s assessment.²
 - NSF will respond to those recommendations and take appropriate actions as informed by such reports in FY 2015.

Science and Technology Policy Institute (STPI) Reports:

- An evaluation of the NSF EPSCoR program was performed by STPI to investigate: (1) progress over time in the percentage of NSF funding received by EPSCoR jurisdictions; (2) the difference over time between individual investigators in EPSCoR and non-EPSCoR jurisdictions with respect to factors such as proposals per faculty member and proposal success rates; and (3) time series analyses of the evolution of NSF funding in EPSCoR and non-EPSCoR jurisdictions. The STPI report included several high-level findings based on STPI’s assessment of NSF’s EPSCoR program.³

Workshops and Reports:

- Broader Impacts Infrastructure Summit and a recently released report on Perspectives on Broader Impacts have been of interest to the STEM community.⁴ The America COMPETES Reauthorization

² www.nap.edu/catalog.php?record_id=18384

³ www.ida.org/~media/Corporate/Files/Publications/STPIpubs/2015/P-5221.ashx

⁴ www.nsf.gov/od/ia/publications/Broader_Impacts.pdf

Act of 2010 (P.L. 111-358, Sec 526) reaffirmed the importance of the broader impacts criterion and encouraged institutions of higher education and nonprofit organizations to take an institutional approach towards achieving the societal benefits championed via broader impacts. This institutional approach has been embraced by a number of institutions of higher education and nonprofits, who are collectively pooling their expertise and experiences to put in place on their campuses the broader impacts infrastructure that is necessary. The Broader Impacts Infrastructure Summit, held in Arlington, VA, in April 2014, brought together more than 120 professionals from 80 higher education institutions and nonprofits for wide-ranging discussions on broader impacts focused on institutional collaboration, guidance, and accountability.

Committees of Visitors (COV):

- In 2015, COVs will review the Experimental Program to Stimulate Competitive Research.
- In 2016, COVs will review the Science and Technology Centers program.

The Performance chapter provides details regarding the periodic reviews of programs and portfolios of programs by external Committees of Visitors and directorate and office Advisory Committees. Please see this chapter for additional information.

**EXPERIMENTAL PROGRAM TO STIMULATE
COMPETITIVE RESEARCH (EPSCoR)**

**\$169,990,000
+\$10,300,000 / 6.4%**

EPSCoR Funding
(Dollars in Millions)

	FY 2014 Actual	FY 2015 Estimate	FY 2016 Request	Change Over FY 2015 Estimate	
				Amount	Percent
Total, EPSCoR	\$158.19	\$159.69	\$169.99	\$10.30	6.4%
Research Infrastructure Improvement (RII)	131.90	121.58	128.99	7.41	6.1%
Co-Funding	25.32	36.11	39.00	2.89	8.0%
Outreach and Workshops	0.97	2.00	2.00	-	-

Totals may not add due to rounding.

EPSCoR assists the National Science Foundation (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.” EPSCoR goals are: 1) to provide strategic programs and opportunities for EPSCoR participants that stimulate sustainable improvements in their R&D capacity competitiveness; and 2) to advance science and engineering capabilities in EPSCoR jurisdictions for discovery, innovation and overall knowledge-based prosperity.

EPSCoR’s FY 2016 Request uses three strategic investment tools: Research Infrastructure Improvement (RII) awards, co-funding, and outreach and workshops.

FY 2016 Summary

All funding increases represent change over the FY 2015 Estimate.

Research Infrastructure Improvement (RII)

- RII (+\$7.41 million to a total of \$128.99 million): RII awards support development of physical, human, and cyber-based research infrastructure in EPSCoR jurisdictions with emphasis on collaborations among academic researchers, the private sector, and state and local governments to effect sustainable improvements in research infrastructure. These awards are designed to improve the research competitiveness of jurisdictions by strengthening their academic research infrastructure in areas of science and engineering supported by NSF and critical to the particular jurisdiction’s science and technology initiative or plan. RII awards also increase the participation of underrepresented groups in STEM and enable broader regional and topical collaborations among jurisdictions and facilitate the enhancement of discovery, learning, and economic development of EPSCoR jurisdictions.

Co-Funding

- Co-funding (+\$2.89 million to a total of \$39.0 million): EPSCoR co-invests with NSF directorates and offices on meritorious proposals from individual investigators, groups, and centers in EPSCoR jurisdictions that are submitted to the Foundation’s research and education programs, and to crosscutting initiatives. These proposals are merit reviewed in NSF disciplinary programs and recommended for award, but cannot be funded without the combined, leveraged support of EPSCoR. Through this funding mechanism, EPSCoR will support INFEWS (\$5.0 million) and Clean Energy Technology (\$10.77 million). Furthermore, other NSF priority areas like Understanding the Brain may be supported by EPSCoR co-funding activities.

Outreach and Workshops

- The Outreach and Workshops (unchanged to a total of \$2.0 million) component of EPSCoR solicits requests for support of workshops, conferences, and other community-based activities designed to explore opportunities in emerging areas of science and engineering, and to share best practices in strategic planning, diversity, communication, cyberinfrastructure, evaluation, and other capacity-building areas of importance to EPSCoR jurisdictions. EPSCoR also supports outreach travel that enables NSF staff from all directorates and offices to directly engage and inform the EPSCoR research community about NSF opportunities, priorities, programs, and policies.

Number of People Involved in EPSCoR Activities			
	FY 2014	FY 2015	FY 2016
	Actual	Estimate	Estimate
	Estimate	Estimate	Estimate
Senior Researchers	531	500	600
Other Professionals	242	200	300
Postdoctorates	71	70	70
Graduate Students	443	500	500
Undergraduate Students	571	600	600
K-12 Teachers	3,945	4,000	4,200
K-12 Students	70,415	71,100	75,700
Total Number of People	76,218	76,970	81,970

Integrative Activities