INTERNATIONAL AND INTEGRATIVE ACTIVITIES (IIA) $473,860,000
-$7,730,000 / -1.6%

IIA Funding
(Dollars in Millions)

	FY 2013 Actual	FY 2014 Estimate	FY 2015 Request	Change Over FY 2014 Estimate Amount	Percent
Career Life Balance	$3.88	-	-	-	N/A
Research Investment Communications	1.86	1.80	3.14	1.34	74.4%
EPSCoR	147.60	158.19	159.69	1.50	0.9%
Graduate Research Fellowships	121.49	150.00	166.72	16.72	11.1%
INSPIRE[1]	13.83	26.00	13.75	-12.25	-47.1%
International Science and Engineering	47.63	48.46	48.52	0.06	0.1%
Major Research Instrumentation	78.92	90.00	75.00	-15.00	-16.7%
Science & Technology Centers Class of 2013	13.82	-	-	-	N/A
Science & Technology Centers Administration	0.94	0.85	1.30	0.45	52.9%
Science & Technology Policy Institute	2.98	4.89	4.74	-0.15	-3.1%
STAR METRICS	1.33	1.40	1.00	-0.40	-28.6%
Total, IIA	**$434.28**	**$481.59**	**$473.86**	**-$7.73**	**-1.6%**

Totals may not add due to rounding.

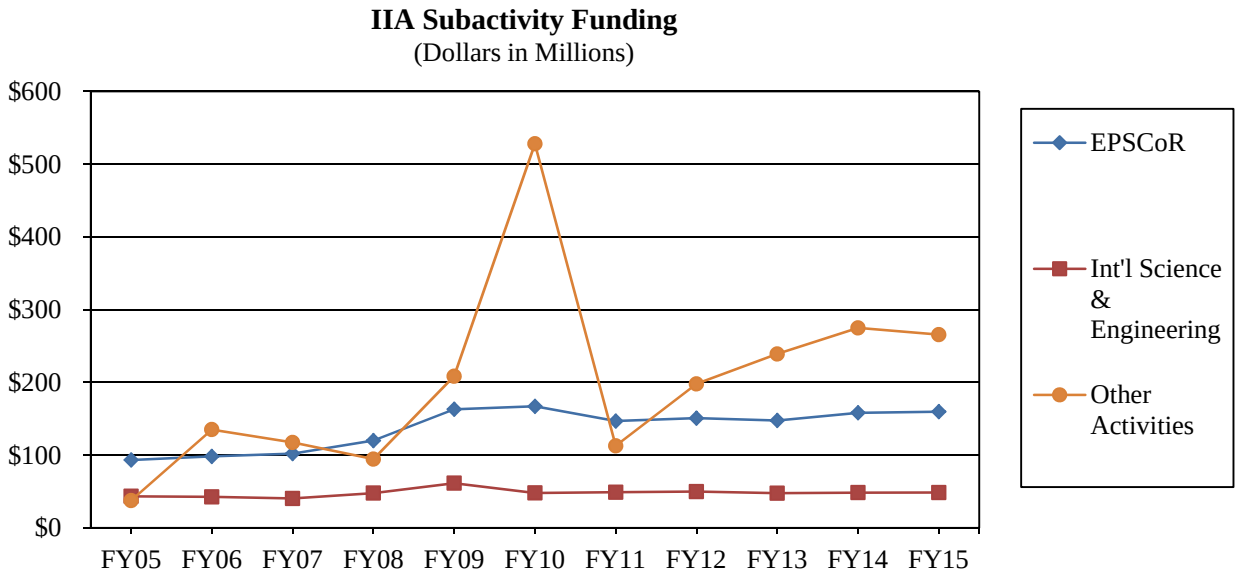
[1] This line shows centralized funding for INSPIRE. Other IIA budget lines, notably International Science and Engineering, also provide funding for INSPIRE.

About IIA

IIA includes a diverse array of Foundation-wide activities that contribute to NSF's national and global leadership role in advancing research excellence and innovation through well-coordinated, frontier-setting efforts that cross disciplinary and geographic boundaries. The FY 2015 Request for IIA is driven by five 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; ensuring global leadership in STEM policies and programs; expanding critical human capital infrastructure; and leveraging physical resources across disciplines to seed a knowledge-based economy.

Enabling integrative interdisciplinary and potentially transformative research across all fields of STEM involves support at multiple levels, including individual investigators, scientific teams, multi-sector centers, multi-institutional and multi-national collaborations. These investment areas are managed in three organizational units of the Office of International and Integrative Activities (OIIA): Experimental Program to Stimulate Competitive Research (EPSCOR), Integrative Activities (IA), and International Science and Engineering (ISE).

IIA also provides support for activities that shape agency-wide policies and new strategic directions to further promote cross-Foundational programmatic and operational coherence, alignment and innovation. These include support for NSF-related monitoring and assessment activities conducted by the Science and Technology Policy Institute (STPI) for pilot assessment activities and analysis of administrative data for decision-making; and support to promote new policies and approaches to broaden participation in the scientific enterprise (e.g. Career-Life Balance [CLB]).



FY 2015 Summary

All funding changes are over FY 2014 Estimate.

- CLB is designed to promote an excellent U.S. STEM workforce by creating a coherent set of career-life policies and program opportunities that take into account the career-family life course as a key strategy for reducing the rate of departure of early career scientists and engineers (both women and men), from developing their scientific careers. In FY 2013-2014, IIA investments provided supplemental support to awardees for CLB activities like dependent care and dual career needs, developed web-based modules for internal CLB training, and supported international gender summits that included the exchange of ideas and lessons learned about CLB policies and practices. In FY 2015, CLB funding is included in directorates' budgets to continue to support dependent care through supplemental funding in NSF's Faculty Early Career Development (CAREER) program, the Graduate Research Fellowship (GRF) Program, and postdoctoral professionals on NSF research awards; and to continue supplemental support for dual career activities through the Advancement of Women in Academic Science and Engineering Careers (ADVANCE) program.

- Research Investment Communications (RIC), formerly Communicating Science Broadly (CSB) (+$1.34 million to a total of $3.14 million) is a leading-edge communications effort that is essential for awareness and support of science and engineering. RIC creates products and processes through traditional and social media platforms that make NSF's investments in science, technology, engineering, and mathematics readily available and easily understandable. In FY 2015, RIC will focus on informing policy makers, the media, and the general public on the impact of these investments on our daily lives and our Nation's future. The increase in funding for RIC represents an expansion of contracts and services previously covered in disparate accounts that are aligned with the scope of RIC. This expansion will strengthen oversight of RIC activities.

- The Experimental Program to Stimulate Competitive Research (EPSCoR) (+$1.50 million to a total of $159.69 million) funding in FY 2015 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 a National Academy of Sciences (NAS) study of EPSCoR and EPSCoR-like programs as called for in the America COMPETES Reauthorization Act of 2010 (P.L. 111-358). NAS released its findings in November 2013 and EPSCoR is in the process of developing responses to applicable recommendations. In addition, EPSCoR expects to receive the findings of STPI's review of the NSF EPSCoR program by the third quarter of FY 2014, and will draw upon those as well to enhance the program's effectiveness. For more information, please see the EPSCoR section, which begins on page IIA-7.

- The Graduate Research Fellowship (GRF) program invests (+$16.72 million to a total of $166.72 million) in the U.S. science and engineering (S&E) 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. IIA funding provides 50 percent of NSF's funding for GRF, with the remainder provided by the Directorate for Education and Human Resources (EHR). For additional information on GRF, please see the discussion of graduate education in the NSF-Wide Investments section.

- In FY 2015, Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE) (-$12.25 million to 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 2012 – FY 2014, INSPIRE enabled unconventional pairings of research disciplines beyond conventional boundaries for potentially transformative research in areas such as modeling and optimization of DNA manufacturing processes, statistical mechanics of natural climate variability, wireless sensor networks in experimental biology research, and scalable toolkits for transformative astrophysics research. In FY 2014, INSPIRE will initiate an external formative assessment to test whether the process is conducive to achieve program and portfolio-level goals. In FY 2015, IIA funding of $13.75 million will allow for approximately 30 up-to-$1.0-million INSPIRE awards; with an equal amount being provided from other NSF directorates. The IIA co-funding serves as an incentive to engage in cross-cutting collaboration and risk-taking on potentially transformative proposals when managing their awards portfolio.

- ISE serves as the NSF focal point for international science and engineering activities. In FY 2015, ISE will emphasize activities that are strategic, and augment and further integrate the international engagement of research and education programs across NSF. ISE will work directly with directorates and offices across NSF through two activities: Science Across Virtual Institutes (SAVI) and the Global Venture Fund (GVF). In addition to co-funding collaborations with NSF disciplinary units, ISE-managed programs, including Partnerships for International Research and Education (PIRE), International Research Experience for Students (IRES), East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI), and Catalyzing New International Collaborations (CNIC), enhance U.S. international research and education capacity. These programs support U.S. scientists, engineers, and students engaged in international research and education activities in all NSF-supported disciplines involving any region of the world. ISE also contributes to U.S. participation in global organizations, and manages three overseas offices to facilitate U.S. engagement with foreign counterpart organizations, researchers and educators. For more information, see the ISE section, which begins on page IIA-9.

- Major Research Instrumentation (MRI) program (-$15.0 million to a total of $75.0 million). In FY 2015, MRI 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 instruments such as microscopes, spectrometers, cyberinfrastructure, genome sequencers, and telescopes. MRI also supports research-intensive learning environments that promote the development of a diverse workforce and next generation instrumentation, as well as facilitates

academic/private sector partnerships. The FY 2015 funding level will support roughly 175 MRI awards.

- The Science and Technology Policy Institute (STPI) (-$150,000 to a total of $4.74 million). STPI is a Federally Funded Research and Development Center (FFRDC) sponsored by the 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) (-$400,000 to a total of $1.0 million) is an interagency pilot activity that represents a new approach to developing information on how NSF and other federal R&D 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 into a 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.*

Major Investments

IIA Major Investments

(Dollars in Millions)

				Change Over FY 2014 Estimate	
Area of Investment	FY 2013 Actual	FY 2014 Estimate	FY 2015 Request	Amount	Percent
CAREER	$0.13	-	-	-	N/A
CIF21	1.00	-	-	-	N/A
Clean Energy Technology	23.57	23.57	19.00	-4.57	-19.4%
SEES	10.00	10.00	10.00	-	-

Major investments may have funding overlap and thus should not be summed.

- Clean Energy Technology (-$4.57 million to a total of $19.00 million): Support will enhance research and innovations in such areas as solar energy technologies, biofuels and bioenergy, wind energy generation, sustainability, and renewable energy storage.

- Science, Engineering, and Education for Sustainability (SEES) ($10.0 million, equal to the FY 2014 Estimate) activity will enhance clean energy research and innovation.

IIA Funding for Centers Programs and Facilities

IIA Funding for Centers Programs

(Dollars in Millions)

	FY 2013 Actual	FY 2014 Estimate	FY 2015 Request	Change Over FY 2014 Estimate Amount	Change Over FY 2014 Estimate Percent
Total, Centers Programs	**$14.77**	**$0.85**	**$1.30**	**$0.45**	**52.9%**
Science & Techology Centers Administration	0.94	0.85	1.30	0.45	52.9%
Science & Techology Centers Class of 2013	13.82	-	-	-	N/A

Totals may not add due to rounding.

For detailed information on individual centers, please see the NSF-Wide Investments chapter.

- NSF's investment in Science and Technology Centers (STCs) create platforms to support interdisciplinary discovery. The STC Integrative Partnerships program — which in FY 2015 will fund a total of 12 existing centers nationwide — supports innovative, potentially transformative, complex research and education projects that require large-scale, long-term efforts. STCs engage the nation's intellectual talent through partnerships between academia and other sectors including industry, national laboratories, and government. In FY 2015, $1.30 million (+$450,000 over FY 2014 Estimate) will support administrative costs associated with post-award management for the existing 12 centers and costs associated with the planned FY 2016 competition.

IIA Funding for Facilities

(Dollars in Millions)

	FY 2013 Actual	FY 2014 Estimate	FY 2015 Request	Change Over FY 2014 Estimate Amount	Change Over FY 2014 Estimate Percent
Facilities Total	**$0.10**	**$0.10**	**$0.10**	**-**	**-**
National Nanotechnology Infrastructure Network (NNIN)	0.10	0.10	0.10	-	-

For detailed information on individual facilities, please see the Facilities chapter.

- In FY 2015, through ISE, IIA will continue support of the National Nanotechnology Infrastructure Network (NNIN) to leverage connections and collaborations with foreign institutions.

Program Monitoring and Evaluation

Science and Technology Policy Institute (STPI) Reports and Evaluations:

- In FY 2012, ISE supported a contract to STPI to perform an in-depth review and assessment of NSF's three overseas offices (Paris, Tokyo, and Beijing). The purpose of the contract was to identify ways to optimize services provided by the offices, as well as to examine options to achieve an effective, strategic NSF presence in different regions of the world. The initial report was submitted to NSF in May 2013, and the final report was delivered on September 25, 2013. NSF embarked on an intra-agency review of the report. ISE has already begun implementing the report's recommendations and this will continue in FY 2015 and beyond.

- In FY 2014, IIA initiated an evaluation of the INSPIRE program to develop and execute a formative evaluation of the INSPIRE initiative to test whether the process is one conducive to achieve program and portfolio-level goals. Final results from this study are expected in the middle of FY 2016.

Committees of Visitors (COV):

- In 2014, a COV will review ISE's programs. The COV will present their reports to the ISE Advisory Committee, which convenes in the summer of 2014.
- In 2015, a COV will review the outcomes from EPSCoR, MRI, and the Academic Research Infrastructure (ARI) program awards supported by funding from the American Recovery and Reinvestment Act of 2009. The COV will present their report to the IIA Head and the NSF Deputy Director.

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

EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCoR) **$159,690,000**
+$1,500,000 / 0.9%

EPSCoR Funding

(Dollars in Millions)

	FY 2013 Actual	FY 2014 Estimate	FY 2015 Request	Change Over FY 2014 Estimate Amount	Change Over FY 2014 Estimate Percent
Total, EPSCoR	**$147.60**	**$158.19**	**$159.69**	**$1.50**	**0.9%**
Research Infrastructure Improvement (RII)	116.34	121.58	121.58	-	-
Co-Funding	30.79	34.61	36.11	1.50	4.3%
Outreach and Workshops	0.47	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 2015 Request focuses on three strategic investment tools: Research Infrastructure Improvement (RII) awards, Co-Funding, and Outreach/Workshops.

FY 2015 Summary

All funding decreases/increases represent change over the FY 2014 Estimate.

Research Infrastructure Improvement (RII)

- RII (no change from the FY 2014 Estimate level of $121.58 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 (+$1.50 million to a total of $36.11 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.

Outreach and Workshops

- The Outreach and Workshops (no change from the FY 2014 Estimate 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 2013 Actual Estimate	FY 2014 Estimate	FY 2015 Estimate
Senior Researchers	293	300	300
Other Professionals	278	300	300
Postdoctorates	53	60	60
Graduate Students	272	300	300
Undergraduate Students	570	600	600
K-12 Teachers	3,718	5,400	5,500
K-12 Students	50,926	49,500	50,000
Total Number of People	**56,110**	**56,460**	**57,060**

INTERNATIONAL SCIENCE AND ENGINEERING (ISE) $48,520,000
+$60,000 / 0.1%

International Science and Engineering Funding

(Dollars in Millions)

	FY 2013 Actual	FY 2014 Estimate	FY 2015 Request	Change Over FY 2014 Estimate Amount	Percent
Total, ISE	**$47.63**	**$48.46**	**$48.52**	**$0.06**	**0.1%**
Research	38.21	40.11	40.17	0.06	0.1%
Education	9.31	8.25	8.25	-	-
Infrastructure	0.10	0.10	0.10	-	-

Totals may not add due to rounding.

ISE serves as the NSF focal point for international science and engineering activities. ISE's goal is to promote an integrated, Foundation-wide international strategy and manage internationally-focused programs and funding mechanisms that are innovative, catalytic, and responsive to a broad range of NSF and national interests. In FY 2015, ISE will emphasize support of activities that augment and further integrate international engagement of research and education programs across NSF. This will be accomplished by co-funding with directorates and offices through two activities: Science Across Virtual Institutes (SAVI) and the Global Venture Fund (GVF). In addition to co-funding collaborations with NSF disciplinary units, ISE-managed programs enhance U.S. international research and education interests: Partnerships for International Research and Education (PIRE); International Research Fellowship Program (IRFP); International Research Experience for Students (IRES); East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI); and Catalyzing New International Collaborations (CNIC). These programs support U.S. scientists, engineers, and students engaged in international research and education activities in all NSF-supported disciplines involving any region of the world. ISE also contributes to U.S. participation in global organizations, and manages overseas offices to facilitate U.S. engagement with foreign researchers and educators.

FY 2015 Summary

All funding decreases/increases represent the change over the FY 2014 Estimate.

ISE support for international engagement involves linking research and education activities. Students and faculty are directly involved in research activities as an integral part of their educational experience. The level of emphasis between research and education varies by program.

ISE will use a variety of approaches to coordinate and collaborate across NSF, including exchanges of program officers with research divisions, joint review of solicitations and proposals, and on-going engagement through an internal cross-directorate NSF International Coordinating Committee.

Research

- ISE will support international research interactions through two major mechanisms: co-funding of awards with programs managed by other NSF organizational units, and direct funding of awards through programs managed by ISE.
- ISE works actively with NSF disciplinary programs to provide incentives for funding international components in new proposals and as supplements to existing grants. The specific allocation of

funding resources among programs is dependent on proposal pressure from the community and NSF program initiative to encourage international engagements.

- Although NSF programs are encouraged to involve international components, where appropriate, the following NSF programs are specifically designed to facilitate international research partnerships: Science Across Virtual Institutes (SAVI), Partnerships for International Research and Education (PIRE), Catalyzing New International Collaborations (CNIC), Global Venture Fund (GVF), and INSPIRE.
- ISE will continue to provide support of U.S. participation in domestic and foreign organizations that facilitate international activities for U.S. researchers and educators.
- ISE investments in activities with a research emphasis in FY 2015 will be $40.17 million, an increase of $60,000 over the FY 2014 Estimate.

Education

- International interactions will be closely integrated into NSF's disciplinary and interdisciplinary programs to expose U.S. students to the mutual benefits of international research partnerships in their careers. Recent evaluations of ISE-managed programs, including EAPSI and IRFP, have documented the long-term value of such program investments.
- In FY 2015, ISE will continue to manage two programs that emphasize support for students and early career researchers to engage in international activities: EAPSI, and Pan-American Advanced Studies Institutes (PASI).
- The former ISE-managed IRFP and IRES programs will be operationally incorporated respectively into the NSF-wide GRF and Research Experiences for Undergraduates (REU) programs. However, ISE will continue to provide funding for the international components of the two programs. Further, ISE will contribute to the international training of GRF program awardees through Graduate Research Opportunities Worldwide (GROW), in partnership with a number of foreign funding agencies.
- ISE investments in activities with an education emphasis in FY 2015 will be $8.25 million, or equal to the FY 2014 Estimate.

Infrastructure

- ISE will support the Next-Generation National Nanotechnology Infrastructure Network (NG NNIN) at $100,000, consistent with the level provided to the former NNIN.

Summary and Funding Profile

ISE supports investment in core research and education as well as research infrastructure. In FY 2015, the number of research grant proposals is expected to increase from the FY 2014 Estimate level. ISE expects to award approximately 270 research grants in FY 2015. Average annualized award size will increase significantly over the FY 2014 Estimate as a result of the FY 2015 PIRE competition.

ISE Funding Profile

	FY 2013 Actual Estimate	FY 2014 Estimate	FY 2015 Estimate
Statistics for Competitive Awards:			
Number of Proposals	539	550	630
Number of New Awards	253	260	270
Funding Rate	47%	47%	43%
Statistics for Research Grants:			
Number of Research Grant Proposals	353	320	390
Number of Research Grants	57	60	70
Funding Rate	16%	19%	18%
Median Annualized Award Size	$58,354	$59,000	$195,000
Average Annualized Award Size	$87,389	$61,000	$201,000
Average Award Duration, in years	1.8	1.8	2.0

Number of People Involved in ISE Activities

	FY 2013 Actual Estimate	FY 2014 Estimate	FY 2015 Estimate
Senior Researchers	438	400	400
Other Professionals	71	70	70
Postdoctorates	192	200	200
Graduate Students	160	200	200
Undergraduate Students	88	100	100
Total Number of People	**949**	**970**	**970**