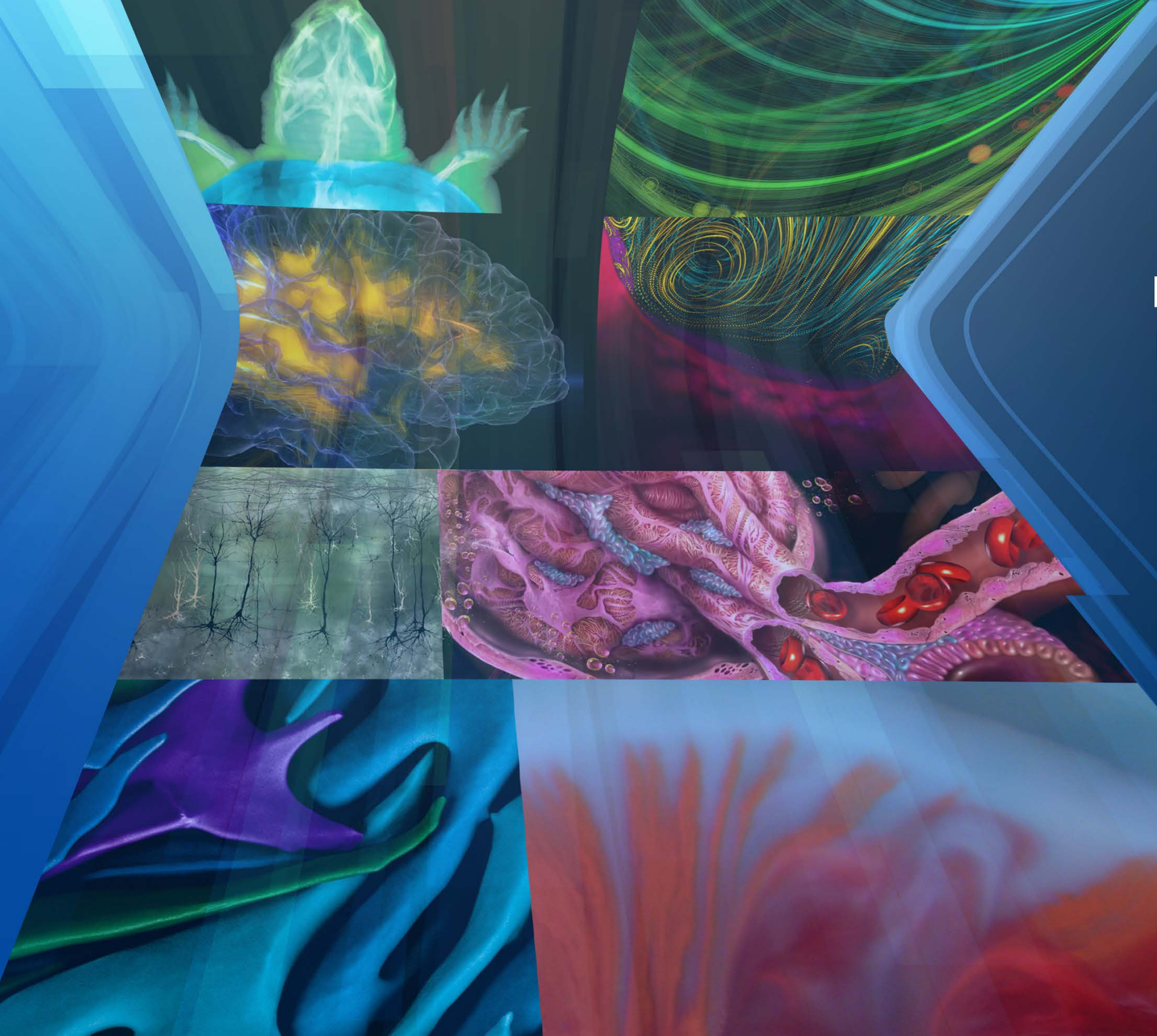


NSF: Supporting Research and Education to Benefit the Nation

Denise M. Barnes, Head
NSF EPSCoR
April 4, 2017

NSF Core Mission: Fundamental Research

Strategic Goals

Transform the Frontiers

Innovate for Society

Perform as a Model Organization

NSF by the Numbers

- $8B — FY 2017 budget request
- 93% — funds research, education and related activities
- 50,000 proposals
- 12,000 awards funded
- 2,000 NSF-funded institutions
- 350,000 NSF-supported researchers
- Fund research in all S&E disciplines
- Fund STEM education & workforce
- 217 Nobel Prize winners

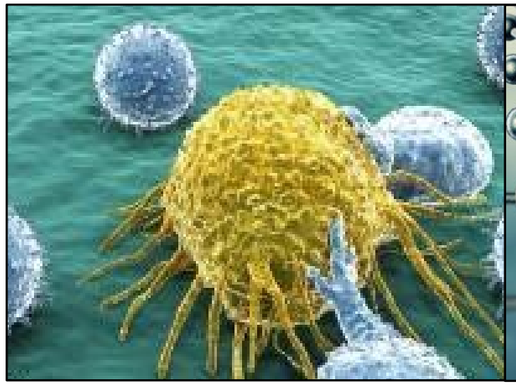
NSF Statistics

- **FY16 NSF Funding Rate (Budget: $7.46 B*)**
  - Proposals received: 49,308
  - Proposals awarded: 11,895 (24%)

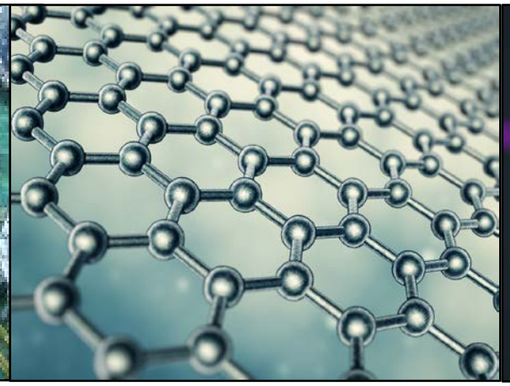
- **FY17 Appropriations Budget Request: $7.96B***
  - $6.43B for Research Support
  - $952.9M for Education & Human Resources
  - $193.1M for Major Research Equipment

* Includes agency operations (~2100 staff in Arlington, VA)

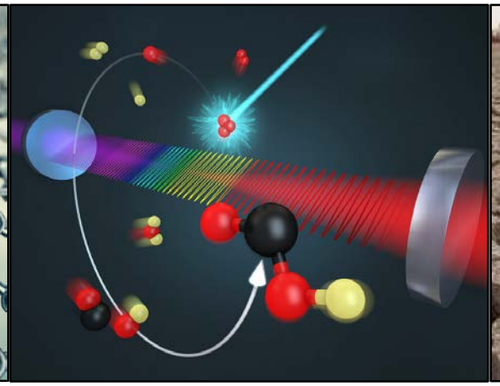
NSF Organization



Biological Sciences (BIO)



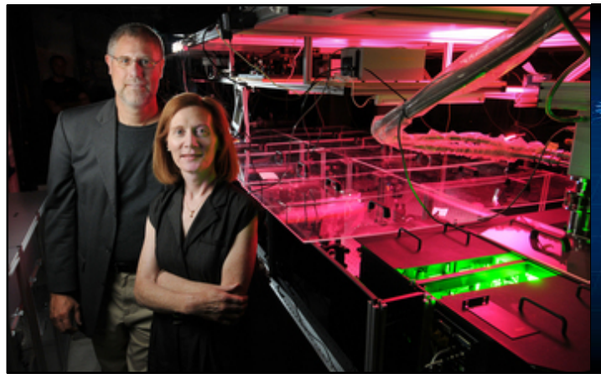
Engineering (ENG)



Mathematical & Physical Sci. (MPS)

Geosciences, incl. Polar (GEO)

Social, Behavioral & Economic Sciences (SBE)



Office of Integrative Activities (OIA)

- EPSCoR

Office of International S&E (OISE)

Computer & Informational S&E (CISE)

Education & Human Resources (EHR)

4

NSF Relocation, Visitor ID

4201 Wilson Blvd, Arlington, VA

2017

2415 Eisenhower Avenue, Alexandria, VA

Visitors and Real ID Act *: 28 states and territories will not be able to use their state/territory issued driver's license to access federal facilities. Please bring alternative ID (e.g., passport, Federal PIV card, Global Entry card, University ID with Photo and expiration dates, etc.,) or be escorted by an NSF employee. Note – South Carolina is compliant with the Real ID Act and residents from the state do not need an alternate form of ID.*

NSF Ideas for Future Investment

RESEARCH IDEAS

- **Harnessing Data for 21st Century Science and Engineering**
- **Work at the Human–Technology Frontier: Shaping the Future**
- **The Quantum Leap: Leading the Next Quantum Revolution**
- **Understanding the Rules of Life: Predicting Phenotype**
- **Navigating the New Arctic**
- **Windows on the Universe: The Era of Multi-messenger Astrophysics**

PROCESS IDEAS

- **Growing Convergent Research at NSF**
- **Mid-scale Research Infrastructure**
- **NSF 2050: The Integrative Foundational Fund**
- **NSF INCLUDES: Enhancing Science and Engineering through Diversity**

Harnessing Data for 21st Century Science and Engineering

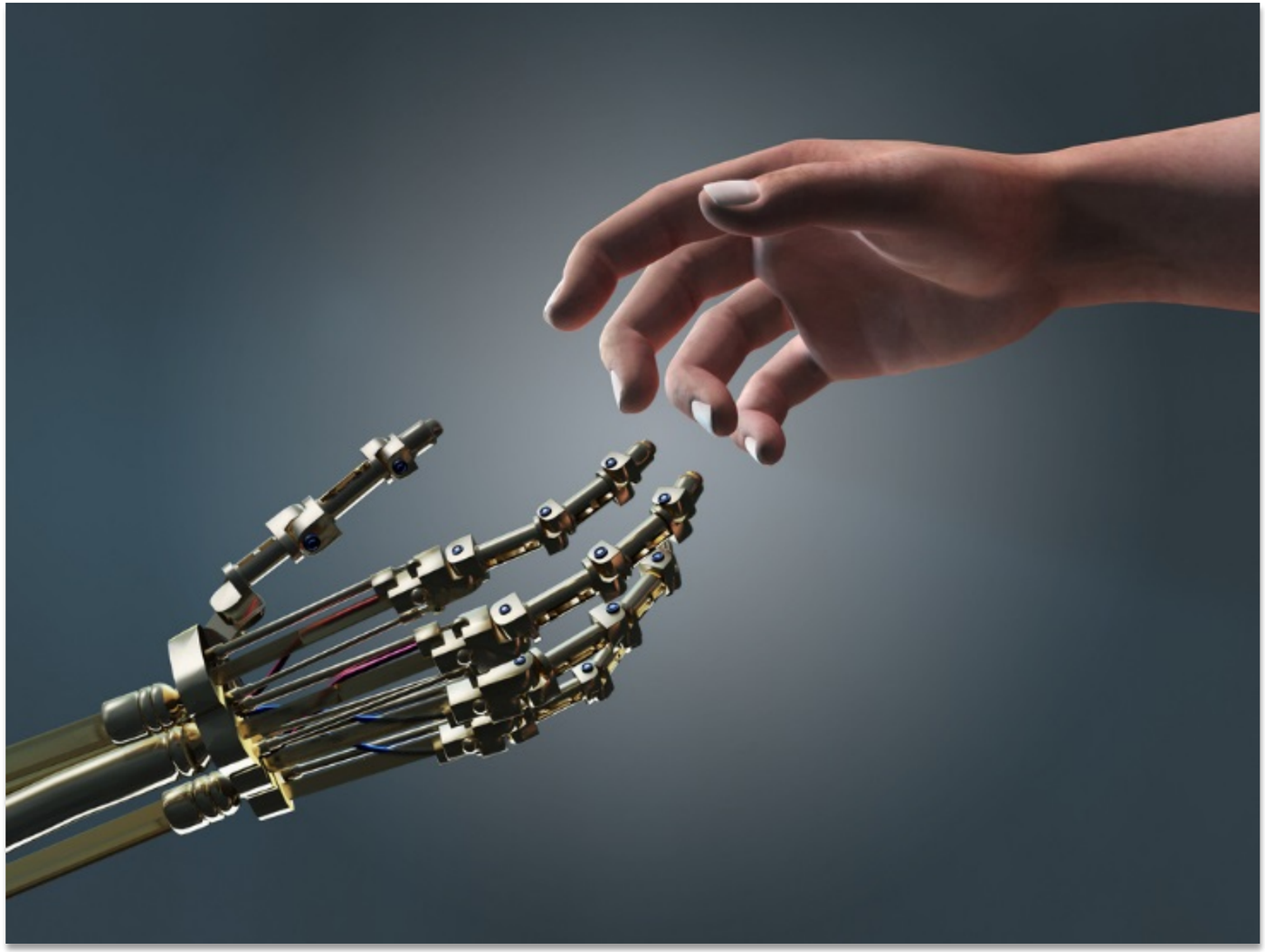
Pursue fundamental research in data science and engineering, the development of a cohesive, federated, national-scale approach to research data infrastructure, and the development of a 21st-century data-capable workforce.

NSF can uniquely lead a bold initiative to create a data-enabled future for the Nation's science, engineering and educational enterprises, and for the country more broadly.

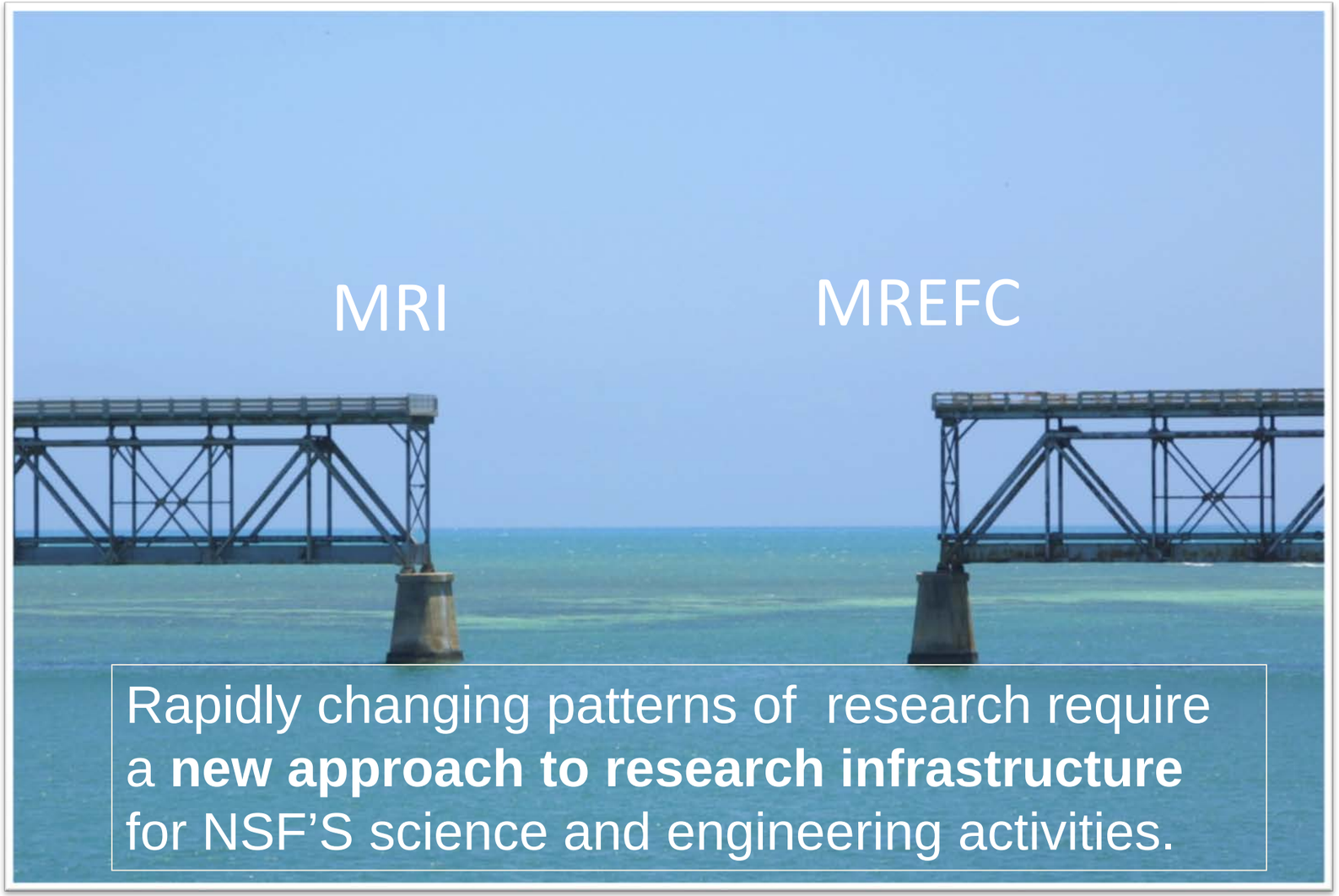
Shaping the New Human-Technology Frontier

Designing, building and deploying the human-centered engineered systems with cognitive and adaptive capacities that are best matched to collaboration with humans, individually and in their smart-and-connected communities.

Seek to understand how technologies affect human behavior and social organizations and how technologies are and can be shaped through interactions with people and designers.



Mid-scale Research Infrastructure



The funding structure available at NSF ranges from relatively small research infrastructure projects through the **Major Research Instrumentation** (MRI) program, to larger projects through the **Major Research Equipment and Facilities Construction** (MREFC) funding. Missing that mid-scale infrastructure leaves essential science undone.

NSF INCLUDES

WHY?

Increasingly, science and engineering advances drive the U.S. economy, so creating inclusive pathways for more people to become scientists and engineers is a national priority.

WHAT?

NSF INCLUDES aims to build on the proven success of a wide variety of programs across the U.S. in reaching populations traditionally underserved in STEM.

WHO?

We're looking for novel approaches. Our 2016 call for proposals is open to diverse teams of stakeholders that may include:

- Academic institutions
- Industry
- Non-profits
- Government
- Professional organizations
- Science- and industry-focused organizations

HOW?

NSF wants to help create collaborative alliances of partner organizations with a shared goal in STEM inclusion and the potential to realize national impacts.


Building Research Infrastructure to Advance Science
and Engineering Research and Education Across America
EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCoR)

Current EPSCoR Jurisdictions

1980
Arkansas
Maine
Montana
South Carolina
West Virginia

1985
Alabama
Kentucky
Nevada
North Dakota
Oklahoma
Puerto Rico
Vermont
Wyoming

1987
Idaho
Louisiana
Mississippi
South Dakota

1992
Kansas
Nebraska

2000
Alaska

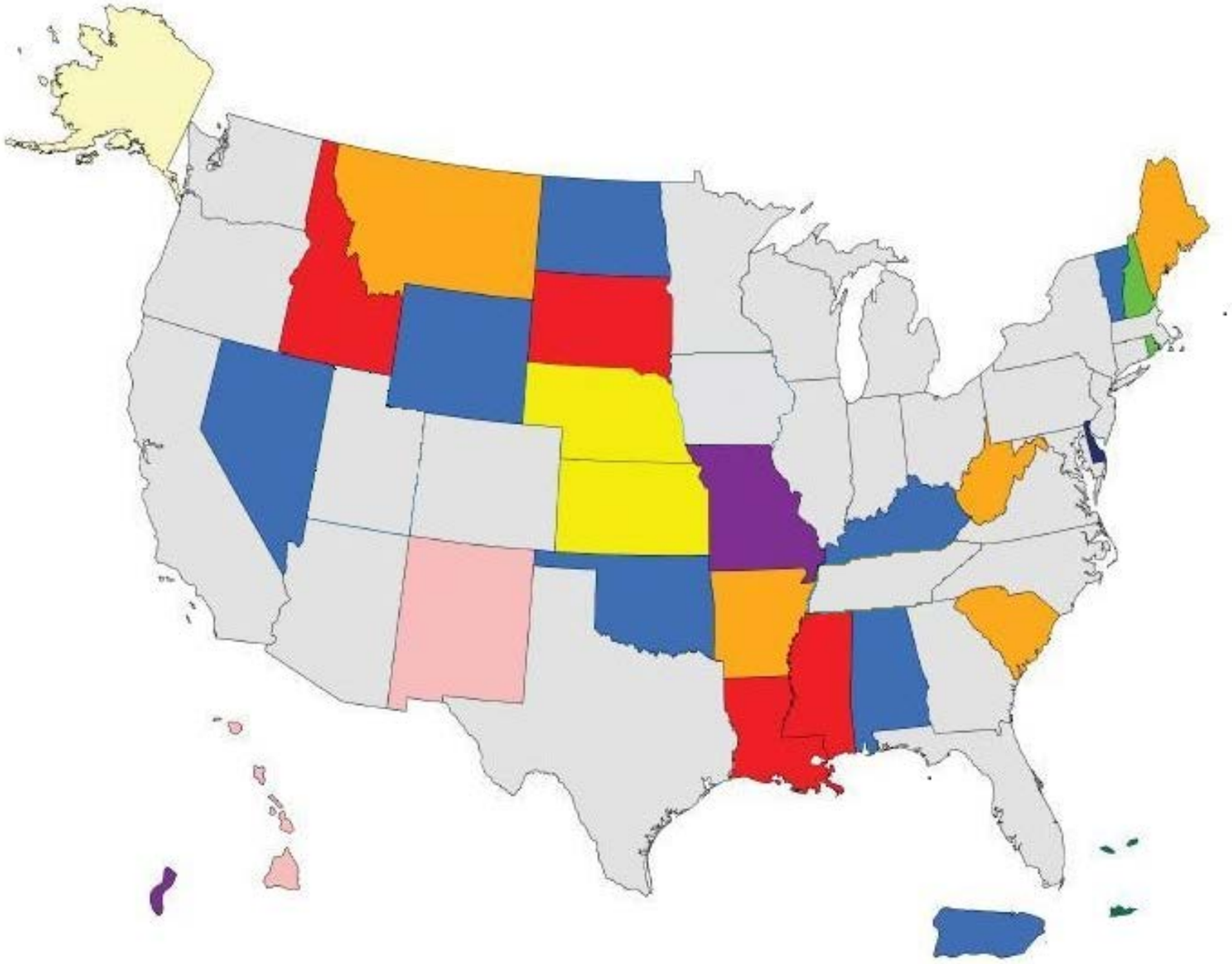
2001
Hawaii
New Mexico

2002
U.S. Virgin Islands

2003
Delaware

2004
New Hampshire
Rhode Island

2012
Guam
Missouri



* Missouri not eligible for new RII awards

EPSCoR

Enhances research competitiveness of targeted jurisdictions (states, territories, commonwealth) by strengthening STEM capacity and capability

Goals

- Catalyze jurisdiction-wide research capability
- Advance STEM training/workforce development
- Broaden participation of diverse groups and
- institutions in STEM
- Effect engagement in STEM at national and
- global levels
- Impact jurisdictional economic development

https://www.nsf.gov/od/oia/programs/epscor/index.jsp

EPSCoR Big Picture Overview

Jurisdiction-wide partnerships

- Federal, state, and private-sector
- Governance by steering committee
- Alignment with jurisdiction's S&T plan
- Multi-faceted approach to infrastructure improvement, including physical, human, and cyber

Administratively complex

- Team-based
- Cross-sectors
- Cross-institutions

EPSCoR Investment Strategies

- **Research Infrastructure Improvement (RII)** (79% of EPSCoR budget)

  Support physical, human, and cyber infrastructure within academic institutions across the state
  - RII Track-1: State-based capacity building program, multi- discip & inst
  - RII Track-2: Focused EPSCoR Collaborations, more than one state
  - RII Track-3: Building Diverse Communities
  - RII Track-4: EPSCoR Research Fellows ← New in FY17

- **Co-Funding with NSF Directorates and Offices** (20% of EPSCoR budget)

  Meritorious proposals reviewed in other NSF programs

- **Outreach and Workshops** (1% of EPSCoR budget)

  Interaction among EPSCoR Community and NSF; builds mutual awareness

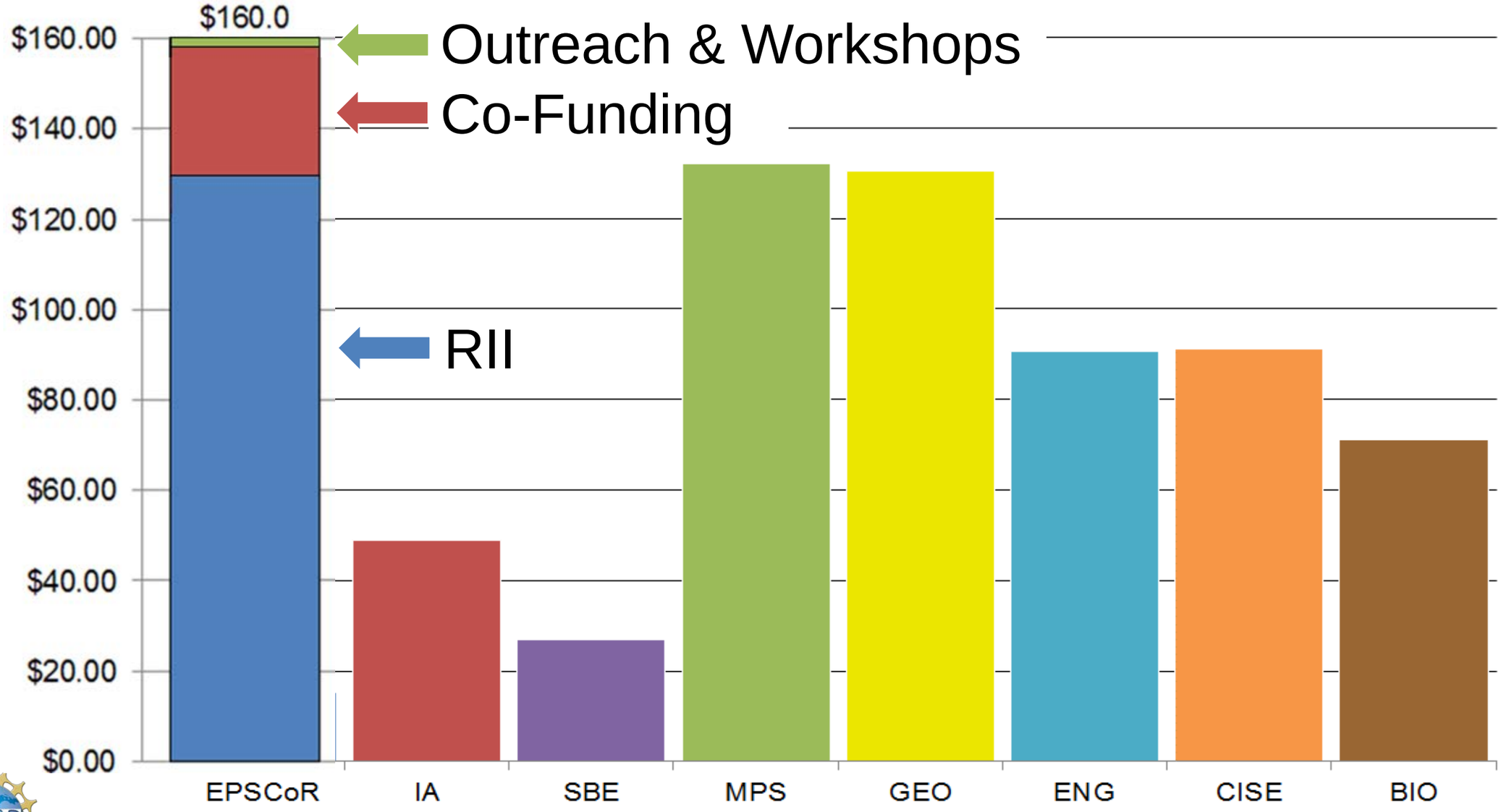
EPSCoR Funding ($M)

EPSCoR funding represents ~2.7% of NSF's overall research support

Activity	FY12	FY13	FY14	FY15	FY16
RII	110.6	116.3	132.2	137.4	130.4
Co-funding	38.8	30.8	25.3	27.6	28.5
Outreach & Workshops	1.5	0.5	1.0	0.5	1.1
Total*	150.9	147.6	158.2	165.5	160.0

* May not add due to rounding

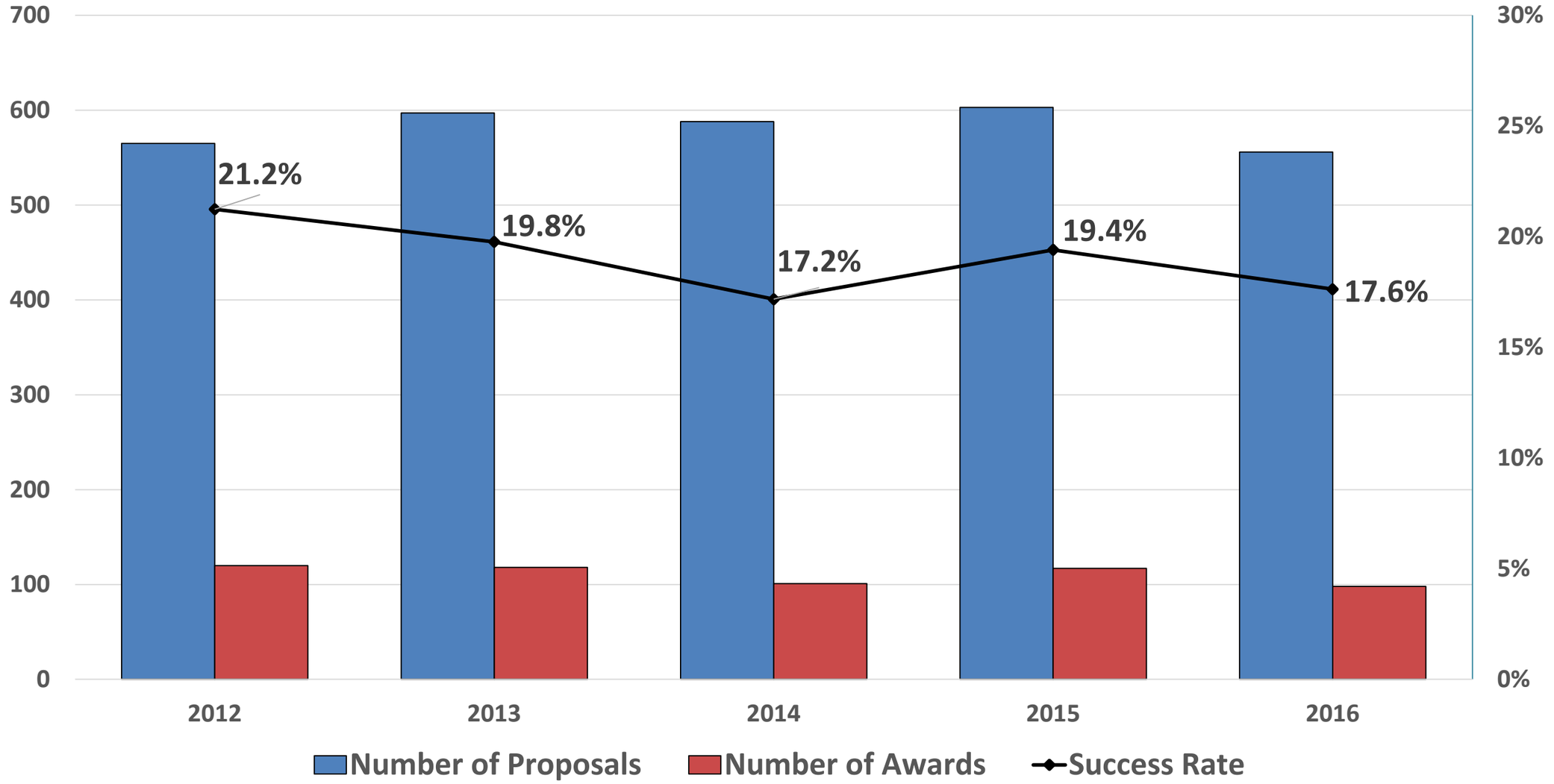
FY16 Research by Directorate/Office, $M



NSF Funding: South Carolina

Year	Total $M	Research $M	EHR $M
FY16	60.16	55.88	4.28
FY15	58.60	47.15	11.45
FY14	53.81	47.81	6.00
FY13	45.30	35.07	10.23
FY12	64.56	58.90	5.66
Total	**282.43**	**244.81**	**37.62**
Average	**56.49**	**48.96**	**7.52**

NSF Proposal Success Rates in South Carolina



For more fine-scale data on funding rates: http://dellweb.bfa.nsf.gov/awdfr3/default.asp

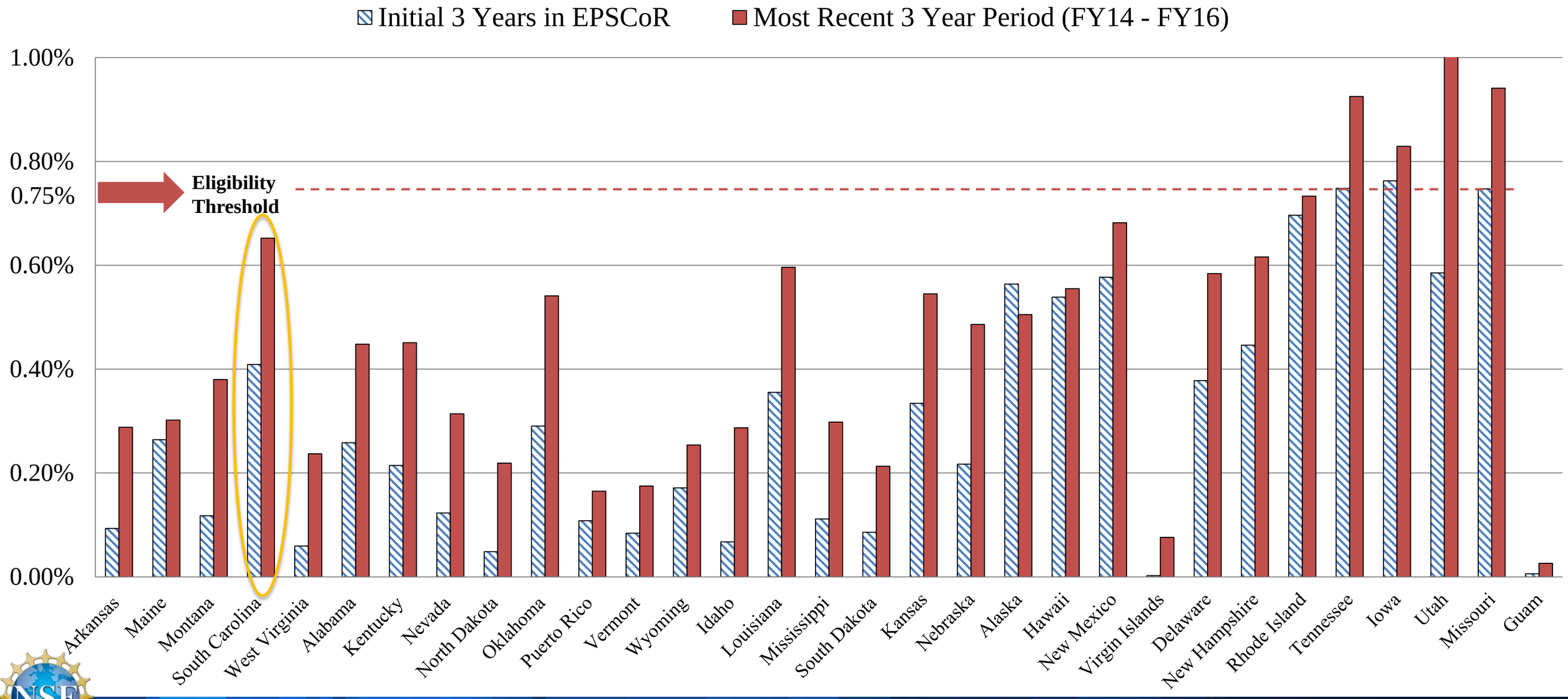
NSF Funding: South Carolina (FY16)

FY16	Proposals Awarded	Success Rate
South Carolina	98	17.6%
All EPSCoR	1678	21.5%

EPSCoR Co-Funding: South Carolina 5 Fiscal Years

FY12 – FY16	Proposals Awarded	Project Total
South Carolina	55	$18.08M
EPSCoR	961	$404.31M

NSF Research Support Funding



University of South Carolina, Columbia Success Rates, by DIR (FY12 – FY16)

	Proposals	Awards	Inst. Success Rate	NSF Success Rate
BIO	67	21	**31.3%**	**24.9%**
CISE	104	17	**16.3%**	**22.7%**
EHR	46	8	**17.4%**	**19.2%**
ENG	445	76	**17.1%**	**19.9%**
GEO	186	42	**22.6%**	**27.5%**
MPS	299	86	**28.8%**	**26.8%**
O/D	44	20	**45.5%**	**44.8%**
SBE	133	23	**17.3%**	**22.4%**
Total	1324	293	**22.1%**	**23.5%**

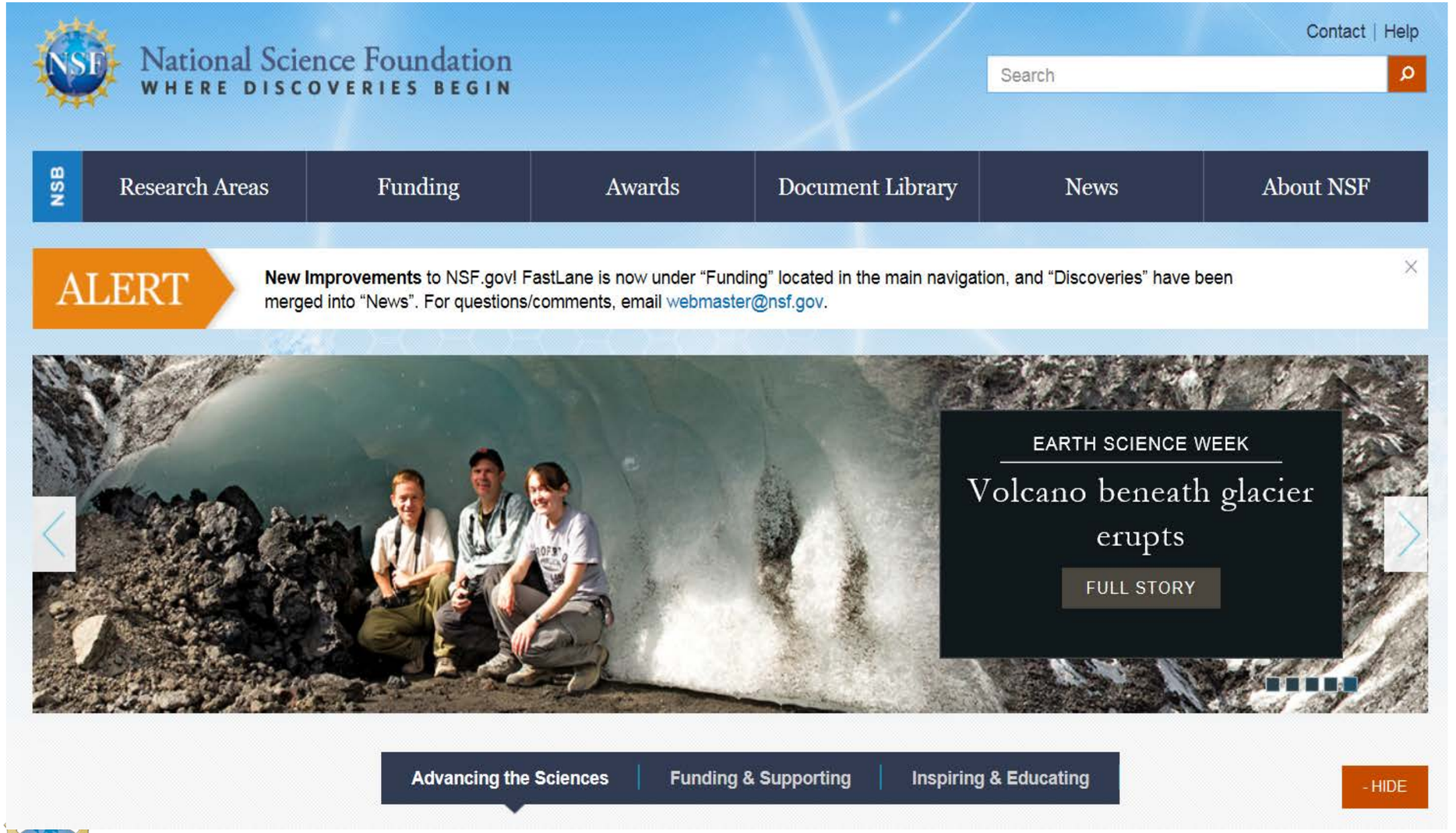
South Carolina EPSCoR

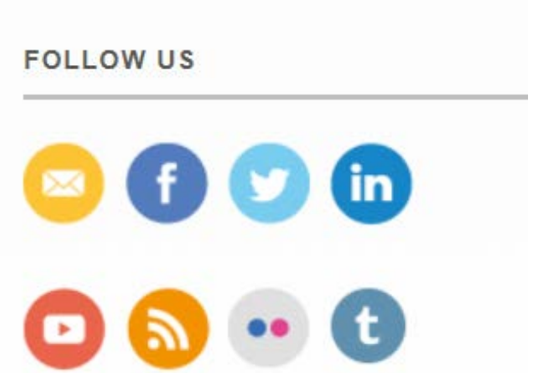
- Do you know how to contact SC EPSCoR?
- Do you know how RII Track-1 proposal topics are selected?
- What is the state Science and Technology (S&T) Plan? http://scepscoridea.org/documents/Vision2025.pdf
- Does your research align with the S&T plan?
- What are current SC EPSCoR awards, activities, and opportunities for research, education, outreach, and collaboration?
- Are seed funding and emerging opportunities possible?
- SC EPSCoR Website https://www.epscoridea.org
  – speak to the Project Director and other members of SC EPSCoR Office

What can you do?

- Stay abreast of NSF funding priorities and opportunities; familiarize and take part in SC EPSCoR activities
- Participate in grant-writing workshops
- APPLY!!! And respond to the solicitation and review criteria
- Revise and resubmit; Manage awards efficiently – follow guidelines
- Serve as a reviewer
- Serve as a NSF Rotating Program Officer https://www.nsf.gov/careers/
- Communicate with NSF Program Officers, SC EPSCoR Leadership

Navigating https://www.nsf.gov





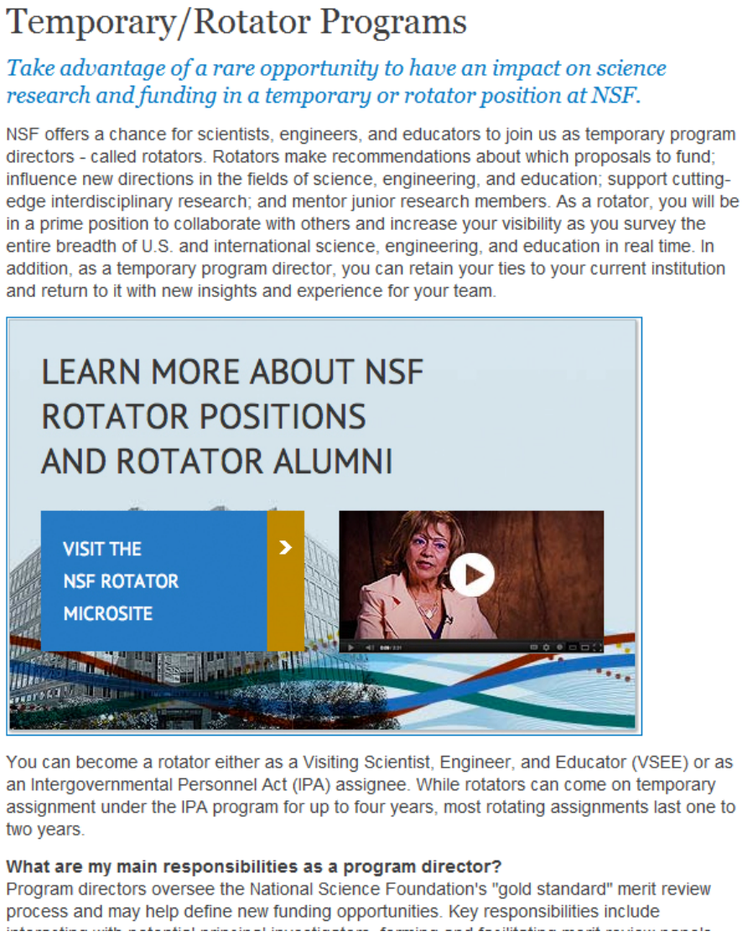
Useful Resources on nsf.gov

- Find Funding, Award Search at http://www.nsf.gov
  Directorate/Divisions/Program; cross-cutting, students, postdocs, and international opportunities
- Proposal Preparation and Merit Review
  Proposal and Award Policies and Procedures Guide (PAPPG)
  https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf17001
  effective for proposals submitted on or after Jan. 30, 2017
- Merit Review Process Video
  http://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=76467
- NSF Outreach – Grants Conference Presentations
  https://nsf.gov/bfa/dias/policy/outreach.jsp#present
- NSF Days – Presentation Slides
  https://www.nsf.gov/about/congress/nsfdays/index.jsp

NSF Program Officer (Rotator) Opportunities

http://www.nsf.gov

- About NSF: Career Opp → Temporary/Rotator Programs
- About NSF: Career Opp → Job Openings: Science/ Engineering/Education
- (All or specific NSF Unit)



Temporary/Rotator Programs

Take advantage of a rare opportunity to have an impact on science research and funding in a temporary or rotator position at NSF.

NSF offers a chance for scientists, engineers, and educators to join us as temporary program directors - called rotators. Rotators make recommendations about which proposals to fund; influence new directions in the fields of science, engineering, and education; support cutting-edge interdisciplinary research; and mentor junior research members. As a rotator, you will be in a prime position to collaborate with others and increase your visibility as you survey the entire breadth of U.S. and international science, engineering, and education in real time. In addition, as a temporary program director, you can retain your ties to your current institution and return to it with new insights and experience for your team.

You can become a rotator either as a Visiting Scientist, Engineer, and Educator (VSEE) or as an Intergovernmental Personnel Act (IPA) assignee. While rotators can come on temporary assignment under the IPA program for up to four years, most rotating assignments last one to two years.

What are my main responsibilities as a program director?
Program directors oversee the National Science Foundation's "gold standard" merit review process and may help define new funding opportunities. Key responsibilities include

Thank You