

Nevada EPSCoR Advisory Committee Meeting April 22, 2015 NSHE System Offices

#### **HOW DOES EPSCoR WORK?**

#### Agenda Items

- 3. EPSCoR/IDeA Coalition Meeting
- FY2016 EPSCoR Budget Status
- 5. EPSCoR Evaluation – STPI Report



**Nevada EPSCoR** impacts quality of life, education, and economic development through science, technology, engineering, and mathematics (STEM) research.



#### March 3-4, 2015

#### Washington, D.C.





#### FY2016 Budget Requests

	FY14 Enacted	FY 15 Budget Request	FY15 Omnibus	FY16 Budget Request	FY16 Coalition Goals
NSF	158.19	159.69	159.69	169.99	180.0
NIH	273.325	273.325	273.325	273.325	310.0
DOE	10.0	8.52	10.0	8.52	20.0
USDA	10% language** (31.6)		15 percent language** (48.7)		15% language** (67.5)
NASA	18.0	9.0	18.0	9.0	25.0
Totals	491.115	450.535	509.715	460.835	602.5

#### FY2016 Budget Update

House & Senate each passed versions

- Capped to Budget Control Act
- Non-defense spending stays at post sequester level
- Coalition working hard to increase EPSCoR budgets but they are likely to stay flat with this scenario
- Will know more in Fall 2015 when "deals are cut"

#### FY2016 Budget Update, cont.

- House Science Committee released its version of the America COMPETES Act
- Proposes reduction in NSF Integrative Activities budget, home of EPSCoR
- Proposed level is
  - \$47.8M below current levels
  - \$81.6M below FY2016 budget request
- Coalition drafted amendment to support EPSCoR and change language

#### STPI Study of NSF EPSCoR

Released January 2015

#### **Study Objectives**

- In-depth, life-of-program (1980-2012) assessment of NSF EPSCoR activities and their outcomes
- Address whether EPSCoR has met its two legislatively mandated objectives

#### **Congressional Mandates\***

- Assist States that have historically received relatively little Federal R&D funding <"to avoid undue concentration">; and
- Assist States that have demonstrated a commitment to develop their research bases and improve S&E research and education programs at their universities and colleges

\*National Science Foundation Authorization Act of 1988

## STPI Methodology

- Interviews with state committee members
- Historical NSF survey and awards data
- Journals-Thomson Reuters Web of Knowledge
- EPSCoR annual reports
- EPSCoR eligibility requirements
- Literature on EPSCoR
- External sources: e.g. Carnegie classifications, STEM workforce data, Patents & Trade
  Organization on state patents, OMB

# STPI Findings

#### EPSCoR support contributed to:

- Numerous Centers, Facilities, & large awards
- Institutional policy changes
- Sustainable faculty hiring and retention
- Economic development
- Building & strengthening research infrastructure
- Engaging education, outreach, and diversity

# **Overarching Finding 1**

The legislative mandate for EPSCoR is broad, but EPSCoR funding is limited.

- EPSCoR budget is only 2.5% of NSF total
- Difficult to fully accomplish mandate with limited funds

# **Overarching Finding 2a**

- Earlier EPSCoR cohorts (1980, 1985, 1987, 1992) have become more competitive for NSF funding while the 2000 and later cohorts have not become competitive to date.
  - NSF funding received by 1985 and 1987 cohorts increased by more than 50%

#### EPSCoR Gains Over Time compared with 2008 data (STPI)



#### EPSCoR gains over time Compared with 2012-2014 data (NSF)

Initial 3 Years in EPSCoR Most Recent 3 Year Period (FY12 - FY14)



Jurisdictional Cohort Year of Entry into EPSCoR

# Overarching Finding 2b

- The EPSCoR program has contributed meaningfully to jurisdictions increased competiveness for NSF funds.
  - Estimates that 20%-40% of NSF funding since 2000 to the early cohorts can be attributed to EPSCoR

## Overarching Finding 2c

Hiring has been an effective EPSCoR strategy

- 1,346 tenure-track faculty members hired with EPSCoR funds
- As of 2013, 78% remain on faculty

While only representing ~5% of S&E faculty in the 1980, 1985, and 1987 cohorts, the percentage of NSF funds awarded to these "EPSCoR" hires has exceeded 10% and has approached 15%.

# **Overarching Finding 3**

- Jurisdictions across all EPSCoR cohorts have developed their research bases and increased their S&E research and education programs, reaching, in certain cases, parity with non-EPSCoR jurisdictions. EPSCoR funds have:
  - Created 66 research centers still in existence
  - Created or upgraded 83 laboratory facilities still operational today
  - Created more than 100 degree programs (including 64 PhD programs)

# **Overarching Finding 4**

 Identification of the jurisdictions receiving "relatively little" funding depends strongly on the indicators chosen.

## **Evolution of EPSCoR Eligibility**

#### Table 1. Summary of Eligibility Criteria Changes

	Eligibility Determination for EPSCoR Cohorts				
Eligibility Criteria	1980	1985/1987	1992	2002	2003+
Primary Indicator (NSI					
Which NSF funds?	All	All	To universities only	R&RA <sup>a</sup>	R&RA <sup>a</sup>
Normalization approach	Absolute	Absolute	Percentage of total	Percentage of total	Percentage of total
Eligibility threshold	\$1 million <sup>b</sup>	\$3 million <sup>b</sup>	0.5%	0.7%	0.75%
Number of jurisdictions eligible after primary indicator calculated <sup>c</sup>	18	20	23	24	Varies by year (31 as of 2012)
Secondary Indicators					
Secondary indicators	Included	Included	Included	Not included	Not included
Number of jurisdictions eligible after secondary indicators calculated	7 d	17	19	24	31

Source: Data provided by the NSE Office of International and Integrative Activities (OIIA) EPSCoR Section

#### **EPSCoR Eligibility**

Eligibility Criteria Year	Admission Criteria	Admitted	Eligible Today Under Admission Criteria	Criterion Graduation Rate
1980	1M\$ All NSF (0.1% R&RA)	Arkansas Maine Montana South Carolina West Virginia	None	100%
1985 (1985, 1987 cohorts)	3M\$ All NSF (0.2% R&RA)	Alabama Kentucky Nevada North Dakota Oklahoma Puerto Rico Vermont Wyoming Idaho Louisiana Mississippi South Dakota	North Dakota Puerto Rico Vermont	75%

### EPSCoR Eligibility, cont'd

Eligibility Criteria Year	Admission Criteria	Admitted	Eligible Today Under Admission Criteria	Criterion Graduation Rate
1992 (1992, 2000, 2001 cohorts)	0.5% All NSF	Kansas Nebraska Alaska Hawaii New Mexico	Kansas Nebraska Alaska	40%
2002	0.7% R&RA	Virgin Islands	Virgin Islands	0%
2003 (2003, 2004, 2009, 2012 cohorts)	0.75% R&RA	Delaware New Hampshire Rhode Island Tennessee Iowa Utah Guam	Delaware New Hampshire Rhode Island Guam	37.5%

# **Overarching Finding 5**

The geographic concentration of NSF R&D funding has decreased slightly since 1980 but attribution of the decrease to EPSCoR could not be established.

#### **Other Findings of Note**

- 5,874 graduate students and 984 postdoctoral researchers supported over the course of the NSF EPSCoR program.
- EPSCoR supported more than 1,200 distinct education/ outreach/diversity activities in K-12 through jurisdiction-level STEM planning.
- 9,184 EPSCoR research articles mapped to Thomson Reuters Web of Knowledge.
- EPSCoR supported purchase of more than 2,400 individual pieces of equipment.

#### Other Findings of Note, cont.

- 10 of 11 STC/ERC/MRSEC awards to jurisdictions in 1980–1992 cohorts are attributed to EPSCoR support by EPSCoR principal investigators (PIs).
- As of FY12, there are 190 EPSCoR-associated patents and 52 EPSCoR-associated startup companies.
- EPSCoR catalyzed Small Business Innovation Research (SBIR) Phase 0 programs in 14 jurisdictions.

#### **STPI Eligibility Recommendations**

- NSF should develop an explicit definition of "undue concentration" (including whether it applies to NSF or total Federal research funding), the implementation of which might require legislative action.
- NSF should ensure that EPSCoR program design, funding levels, and eligibility indicators(s) reflect the new explicit definition of "undue concentration" which might require legislative action.

#### **Additional Recommendations**

- The EPSCoR program should continue to encourage jurisdictions to employ experimental strategies for improving their research capacity and performance.
- EPSCoR should make technical improvements to its eligibility calculations.
- EPSCoR/OIIA should work with NCSES\* to create easily usable public profiles of EPSCoR jurisdictions.

\*National Center for Science and Engineering Statistics

#### **Additional Recommendations**

EPSCoR should focus future program level evaluation(s) on the research competitiveness goal and not on improvement(s) in S&E research base within jurisdictions.

#### Questions?