Maine NSF EPSCoR

at the University of Maine

Overview of EPSCoR Programs

University of Southern Maine, 12/07
University of Maine, 12/18/07

EPSCoR

Experimental Program
to Stimulate
Competitive Research

- Initiated by NSF in 1978
- Maine in 1st cohort (1980)

NSF EPSCoR

- **Goal #1:** provide strategic programs and opportunities that stimulate sustainable improvements in a jurisdiction's R&D capacity and competitiveness.
-
- **Goal #2:** to advance science and engineering capabilities in eligible jurisdictions for discovery, innovation, and overall knowledge-based prosperity.

DoD DEPSCoR

- basic & applied research supporting DoD goals
- State EPSCoR committee selects a limited number of proposals to submit annually from the state in the fall
- Eligibility: universities with degree-granting programs in science, mathematics, or engineering
- www.arl.army.mil/www/default.cfm?Action=6&Page=8

DoE EPSCoR

Implementation Awards:

- enhance capability to conduct nationally-competitive energy-related research and to develop science & engineering human resources in energy-related areas
- limit of one per state every 3-6 years with projects chosen by state's EPSCoR committee – next eligibility FY 2013

State/National Laboratory Partnership Awards:

- Initiate and promote partnering and collaborative relationships that build beneficial energy-related research programs with strong participation by students, postdoctoral fellows, and young faculty
- Pre-application with subsequent invitation to apply – spring deadline
- http://www.science.doe.gov/bes/EPSCoR/index.html

NASA EPSCoR

Research awards & infrastructure development

administered through the Maine Space Grant Consortium

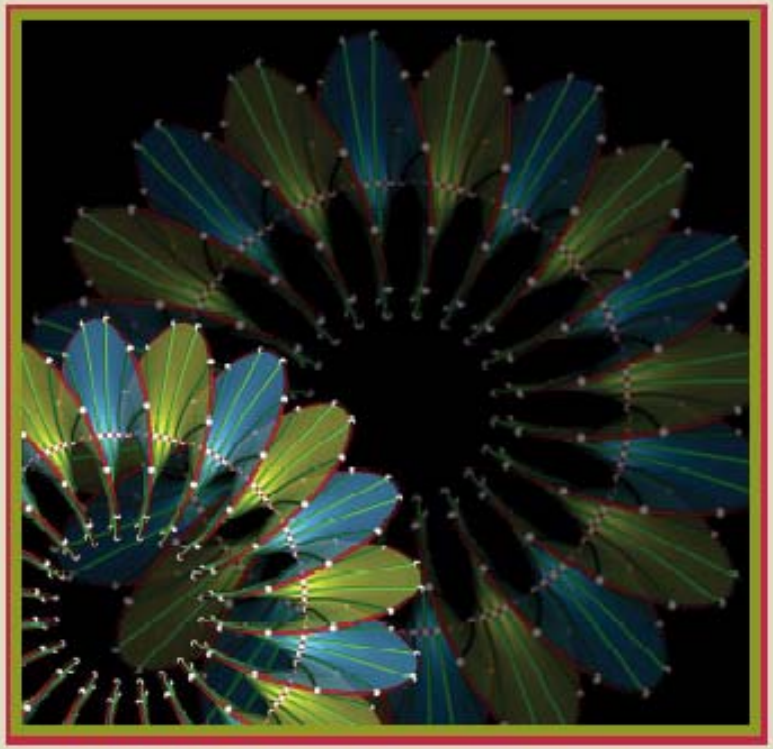
http://www.msgc.org/

NIH IDeA

- **Centers of Biomedical Research Excellence** (COBRE) for Ph.D. granting institutions or biomedical research institutes
- **IDeA Networks of Biomedical Research Excellence** (INBRE) for research & undergraduate institutions
- http://www.ncrr.nih.gov/research_infrastructure/institutional_development_award/
- Maine contact: Patricia Hand, MDIBL, 288-3605

National Science Foundation

INVESTING IN AMERICA'S FUTURE



STRATEGIC PLAN

FY 2006-2011

NSF VISION, MISSION, & "OUTCOME" GOALS

NSF VISION: Advancing discovery, innovation, and education beyond the frontiers of current knowledge, and empowering future generations in science and engineering

MISSION: To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense (NSF Act of 1950)

Strategic Goals

Discovery
Advancing frontiers of knowledge

Learning
S&E workforce and scientific literacy

Research Infrastructure
Advanced instrumentation and facilities

Stewardship
Supporting excellence in S&E research and education

Cross-Cutting Objectives

To Inspire and Transform

To Grow and Develop

Investment Priorities (by Strategic Goal)

KEY NSF INVESTMENT PRIORITIES (FY 06-11 BUDGET DRIVERS)

- **Promote transformational, multidisciplinary research**
- **Further U.S. economic competitiveness**
- **Foster ability for living sustainably on earth**
- **Develop *capacity* across full spectrum**
- **Provide enabling *research infrastructure***
- **Develop comprehensive CI to drive S&E discovery**
- ***Strengthen*** **nation's *collaborative advantages* by innovative partnerships that leverage capabilities**
- ***Strengthen partnerships*** **by identifying common goals that can *unite & focus* such partnerships**

NSF

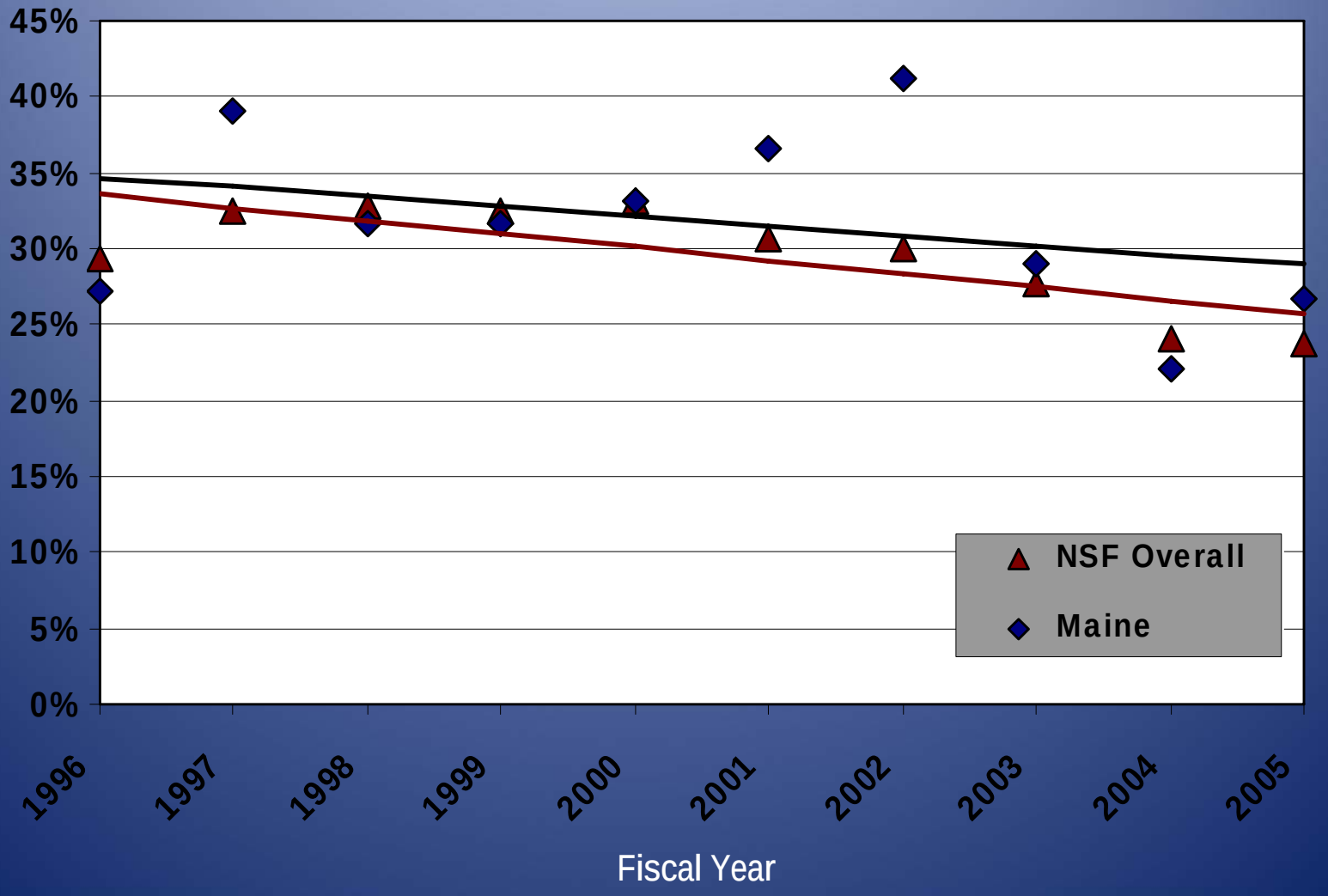
Research proposal success rates dropped from 30% in FY 2000 to 21% in FY 2006

Coincided with:

- **47% increase in proposal submission**
- **29% increase in first time submitters**
- **38% increase in median award size**

Research proposal success rates varied across the directorates, but all experienced declines

PROPOSAL SUCCESS RATE – NSF RESEARCH FUNDS



NSF MISSION

"…to strengthen research and education in the sciences and engineering, including independent research by individuals, throughout the United States, and to avoid undue concentration of such research and education."

NSF EPSCoR

Assist those states that:

1) historically have received relatively little Federal research and development funding; and

2) have demonstrated a commitment to develop their research bases and improve science and engineering research and education programs at their universities and colleges

NSF EPSCoR Cohorts

FY 1980

Arkansas
Maine
Montana
South Carolina
West Virginia

FY 1985

Alabama
Kentucky
Nevada
North Dakota
Oklahoma
Puerto Rico
Vermont
Wyoming

FY 1987

Idaho
Louisiana
Mississippi
South Dakota

FY 1992

Kansas
Nebraska

FY 2000

Alaska

FY 2001

Hawaii
New Mexico

FY 2002

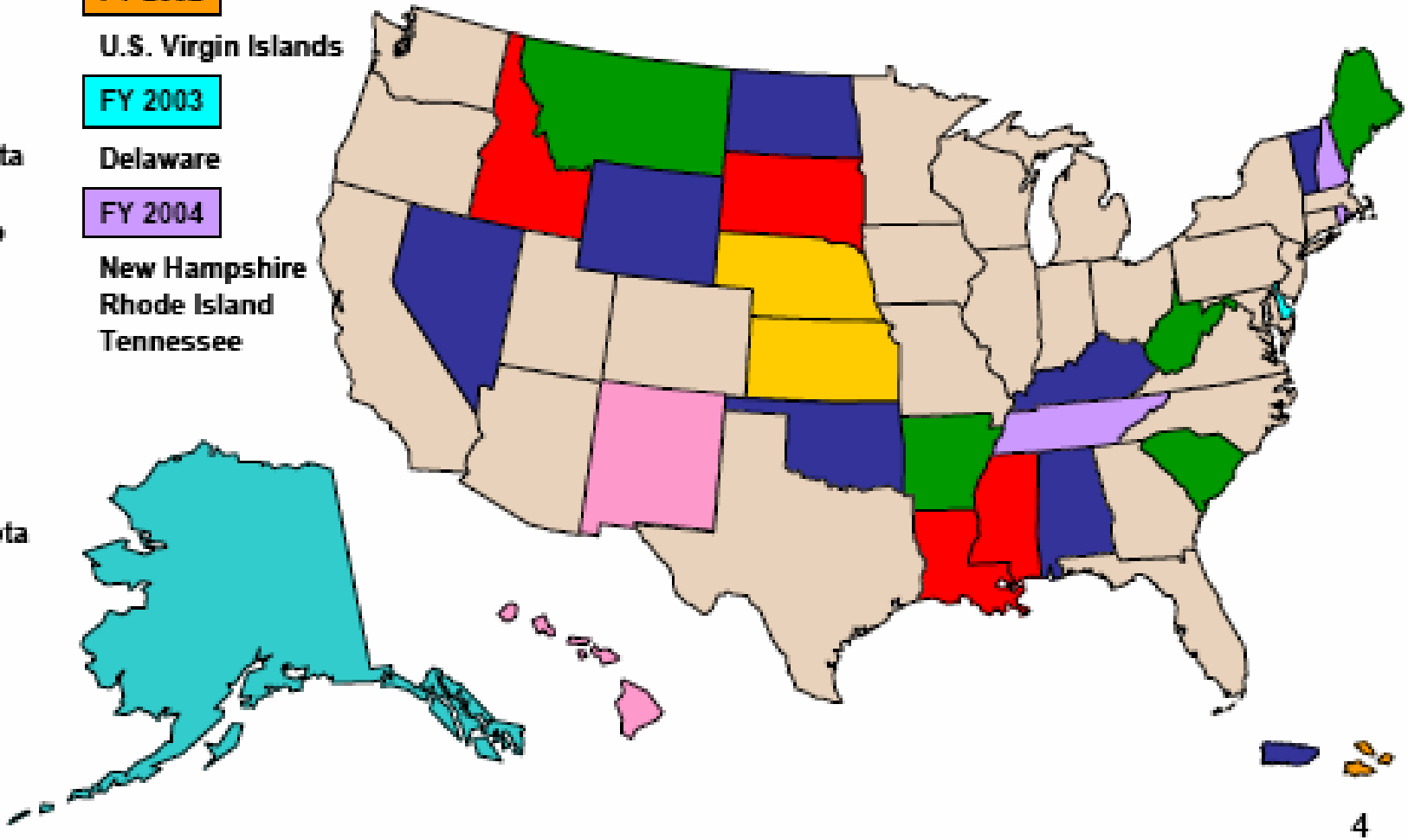
U.S. Virgin Islands

FY 2003

Delaware

FY 2004

New Hampshire
Rhode Island
Tennessee



EPSCoR's Purpose

To build the capacity of educational institutions to participate more fully in NSF research activities.

EPSCoR Objectives

- To catalyze key research themes
- To activate effective collaborations
- To broaden participation in S&E
- To use EPSCoR as a programmatic test bed

Strategic Investment Tools

- Research Infrastructure Improvement Grants (RII)
- Co-funding
- Outreach

Strategic Investment Tools

Research Infrastructure Improvement Grants (RII):

Up to 5 years and $15M to improve physical and human infrastructure critical to R&D competitiveness in priority research areas.

Strategic Investment Tools

Co-Funding:

Joint support of research proposals submitted by EPSCoR researchers to non-EPSCoR NSF programs.

EPSCoR Co-Funding History

- **During FY 1998-2006, EPSCoR co-funded ~1,970 regular NSF research and education awards.**
- **EPSCoR provided ~ $270M of the ~ $630M total for these awards.**
- **During FY 1998-2006, co-funding has positively impacted EPSCoR jurisdictions' proposal average success rates by ~5%.**

NSF AWARDS CO-FUNDED BY EPSCoR: MAINE

Fiscal Year*	Awards	EPSCoR $	TOTAL $
FY 2000	6	$677,691	$1,357,557
FY 2001	16	$2,279,970	$6,452,773
FY 2002	23	$2,383,212	$6,025,422
FY 2003	11	$1,010,121	$1,530,078
FY 2004	9	$992,071	$2,373,146
FY 2005	7	$745,053	$1,929,666
FY 2006	11	$1,241,835	$3,800,836
FY 2000 - 2006	**83**	**$9,329,953**	**$23,469,478**

*FY 2004 - 2006 data includes 5 SBIR/STTR Co-funded awards

NSF EPSCoR Outreach

Objectives:

- provides financial support for selective travel by permanent NSF staff and Visiting Scientists to acquaint researchers and educators in EPSCoR jurisdictions with NSF priorities, programs, & policies.
- EPSCoR Outreach also serves to acquaint NSF staff more fully with research activities, facilities, and investigator expertise/ potential within the EPSCoR jurisdictions.

Eligibility:

- The NSF EPSCoR Office will pay costs of approved outreach visits to EPSCoR jurisdictions
- NSF staff must travel solely for the purpose of EPSCoR Outreach.
- Specific program manager site visits are the responsibility of the managing program and do not qualify.

OUTREACH

Initiating:

An outreach visit may be initiated either by

1) a state EPSCoR office in **concert with the NSF EPSCoR Office,**

2) or an NSF EPSCoR staff member, in concert with the jurisdiction.

Instructions:

- prospective traveler cannot be contacted before discussing the proposed outreach the EPSCoR office
- planning should begin at least one month in advance of the visit
- the jurisdiction host must develop an agenda/itinerary including time with faculty members (particularly new hires), with research administrators, and with students.
- the visit should include a general presentation to a broad audience (e.g., multiple departments, campuses, and/or institutions).
- the host is also responsible for publicizing the visit well in advance to ensure an audience of as many current and prospective investigators as possible and for taking other steps to broaden dissemination of the presentation(s) (e.g., videoconferencing for remote audiences, subsequent website posting of presentation materials)

WORKSHOPS

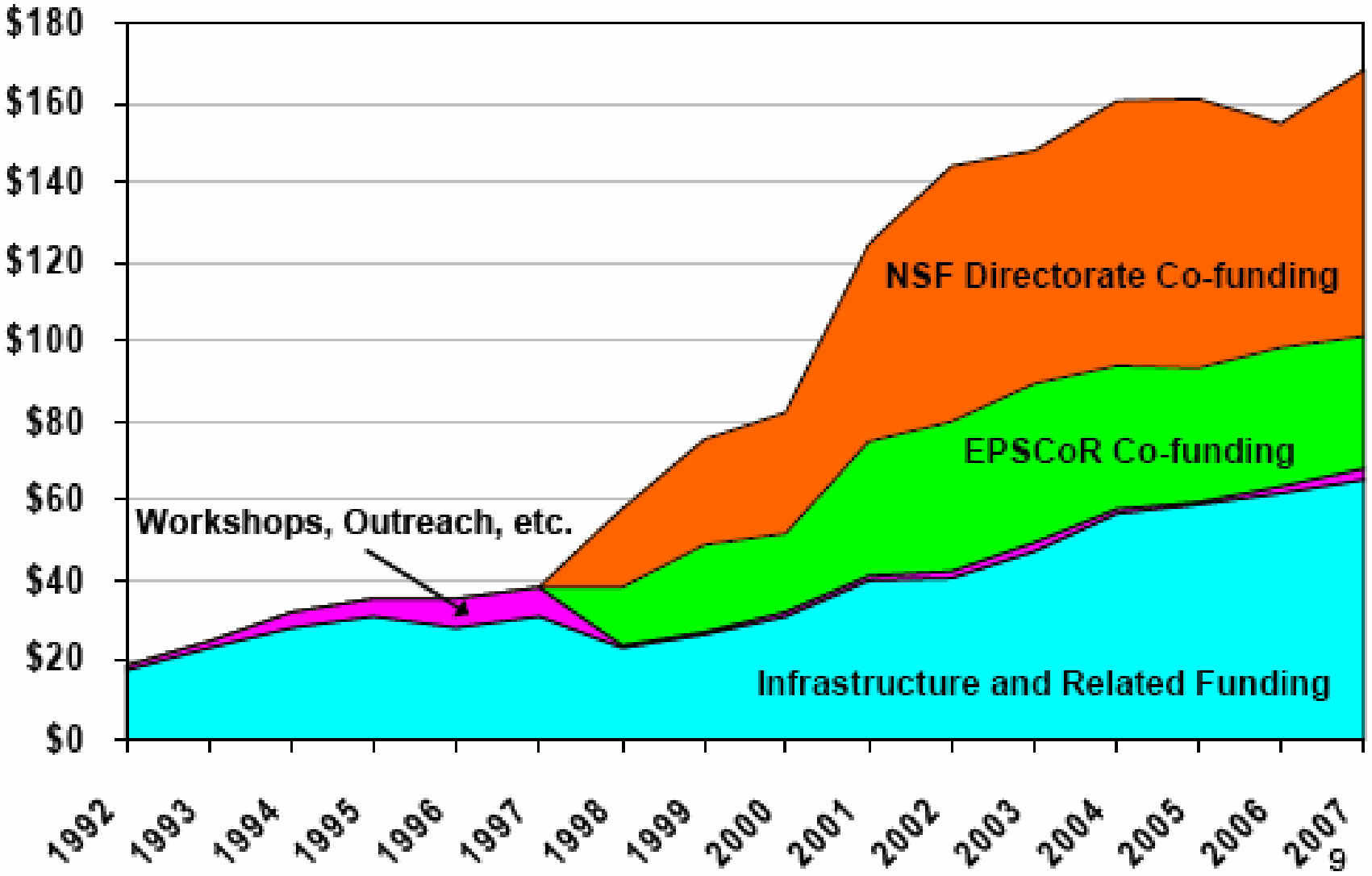
Funding opportunities to sponsor regional/national workshops on topics of interest to EPSCoR states

EPSCoR Funding by Activity ($M)

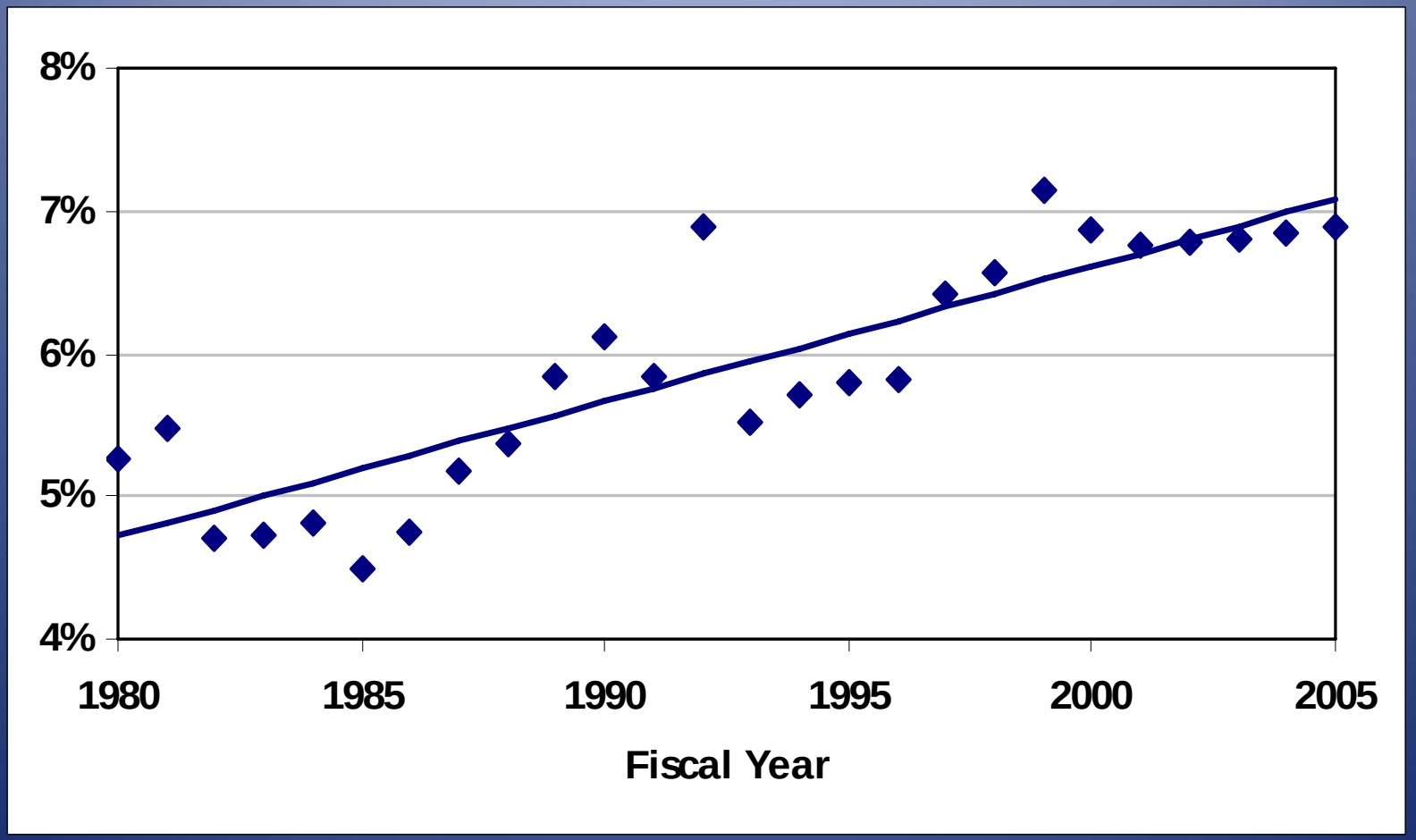
Activity	FY 2006	FY 2007	FY 2008
RII	61.21	65.31	65.00
Co-Funding	36.09	35.94	40.00
Outreach	0.52	0.25	2.00
Total	97.82	101.50	107.00

How successful has NSF EPSCoR been?

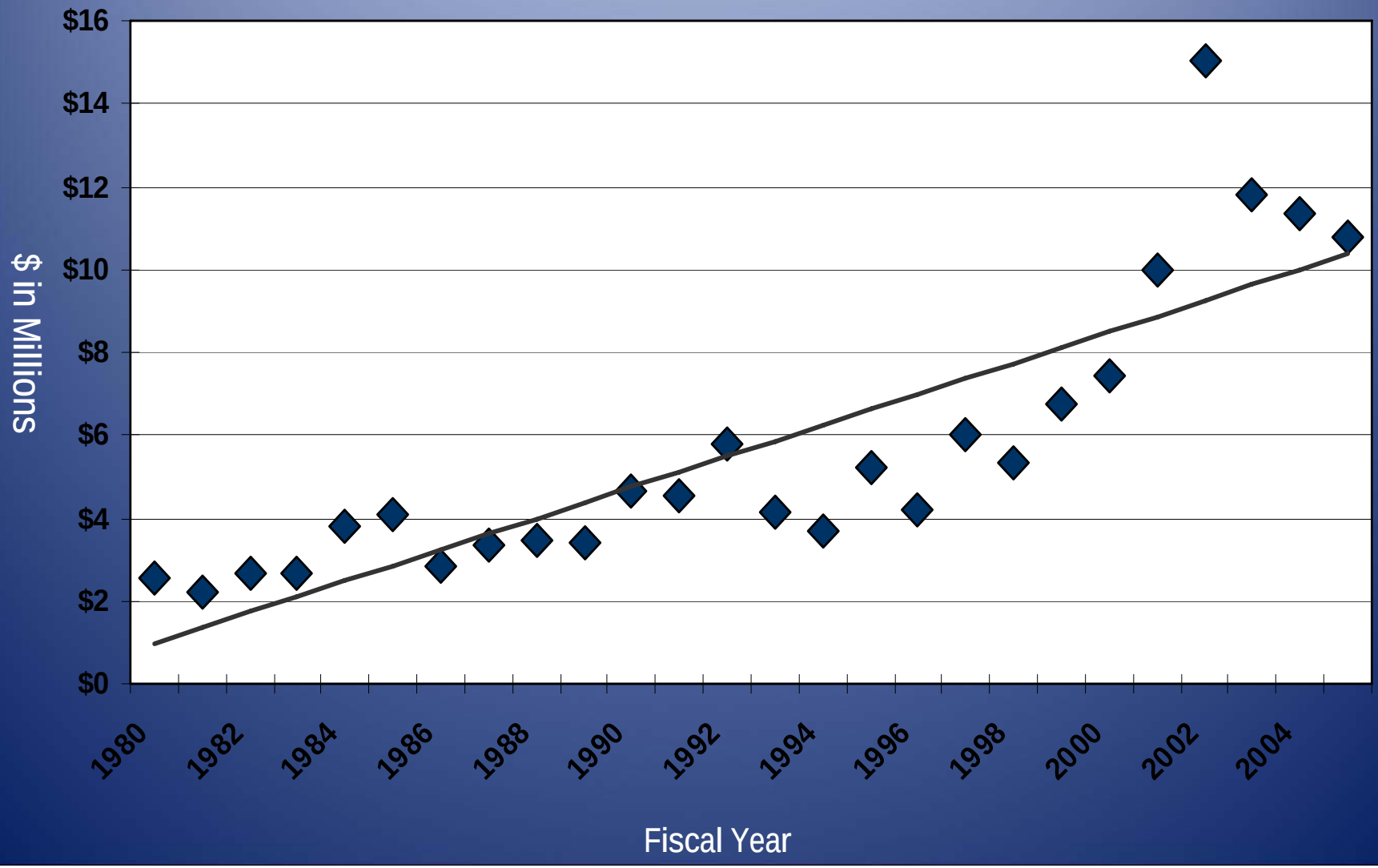
EPSCoR Investments Leveraged with Funds from NSF Disciplinary Directorates ($M)



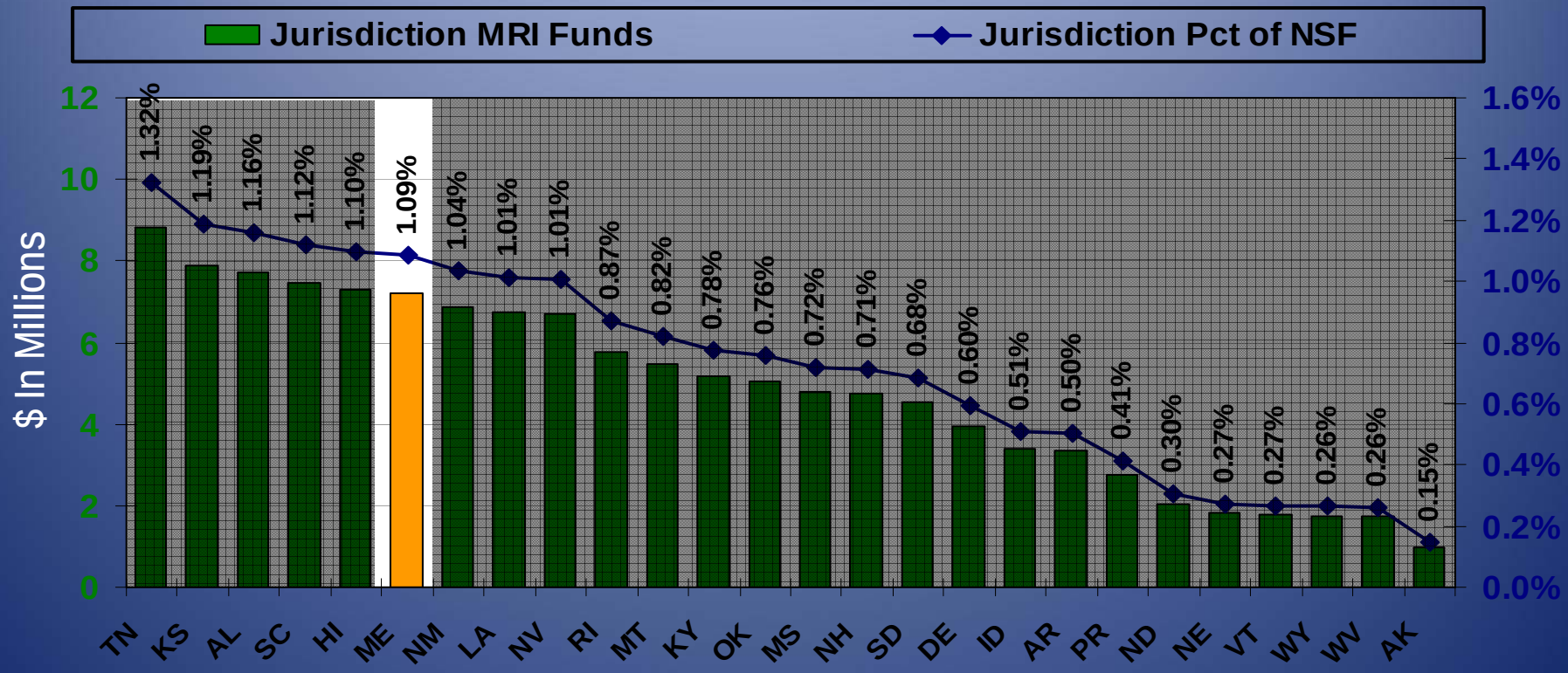
First 22 EPSCoR Jurisdictions: Aggregate Percent NSF Research Funding (1980-2005)



NSF RESEARCH FUNDING TO MAINE: FY 1980-2005



NSF MRI AWARDS TO EPSCoR JURISDICTIONS (1997 - 2005)



EPSCoR In Transition

- Attendant to EPSCoR move to OD is heightened visibility and the need for
  - Sharper research focus
  - Stronger integration across Foundation
- Increase EPSCoR competitiveness through
  - Increased co-funding
  - EPSCoR participation in NSF initiatives
  - Alignment of RII-supported S&E with discovery frontiers in Directorates/Offices

A More Effective EPSCoR

EPSCoR Science & Engineering Group

- Strategic input from Directorates and Offices to shape the Foundation's vision for EPSCoR and to help implement that vision
- Strong disciplinary expertise and guidance
- Raise level/broaden scope of interactions
- Ensure excellence and breadth of impact of EPSCoR science and engineering activities

Recent Changes in RII

- Maximum duration: 48 mos => 60 mos
- Maximum award: $9 million => 15 million
- Project Description now requires:
  - Cyberinfrastructure plan
  - Diversity plan
  - Outreach and Communication plan
  - Succession plan for project leadership
- New requirements reflected in review criteria

EPSCoR States in Context

In EPSCoR States:

- **18% of the nation's total population**
- **16% of its African-Americans**
- **26% of its American Indians and Alaskan Natives**
- **20% of its Native Hawaiians and Pacific Islanders**
- **13% of its Hispanics**

EPSCoR -

Excellent Progress

Significant Challenges

Outstanding Opportunities

MAINE NSF EPSCoR

- NSF EPSCoR requires jurisdictions to establish a state EPSCoR infrastructure in order to fulfill the program requirements.
- Maine NSF EPSCoR Office was established and staffed at the University of Maine, Orono in order to act as the fiscal agent/proposing organization for NSF EPSCoR programs; to be the designated liaison with the NSF EPSCoR Office; and to be responsible for the administration, implementation and evaluation of Maine NSF EPSCoR programs.

MAINE NSF EPSCoR

- The Maine Innovation Economy Advisory Board (formerly the Maine Science and Technology Advisory Council) serves as the State EPSCoR Coordinating Committee. For the Maine NSF EPSCoR program, the State EPSCoR Coordinating Committee participates in reviewing pre-proposals and making recommendations.

MAINE NSF EPSCoR

- The Maine Office of Innovation manages the remaining EPSCoR programs for the State, which may include DEPSCoR, DOE EPSCoR, NASA EPSCoR (through MSGC), and NIH IDeA .

MAINE NSF EPSCoR OFFICE

Responsible for overseeing/implementing/integrating the following components of RII projects:

1)Management of project
2)Integrity and progress of the academic research
3) Cyberinfrastructure
4) Diversity
5) Outreach
6) Communication
7) Evaluation & Assessment
8) Coordinating sustainability activities
9) Technical assistance activities
10) Finances
11) Proposal development, submission, & reporting

Academic Research Focus Requirements

• involves multiple institutions & partners with large statewide focus
• not a single PI or small group RFP
• can have integrated research themes, but they all need to work together towards a very specific overall research focus
• research focus needs to lead to innovation and commercialization for the state
•focus needs to be in an area eligible for large-scale and cross-cutting competitions (NSF & other federal)
•research needs to be transformative & on the discovery frontier of NSF directorates

MAINE NSF EPSCoR RII PLANNING PROCESS

FY2009-2013 PROJECT

Recent & Current
NSF EPSCoR RII Projects

PHASE I

January 7, 2008 deadline: soliciting interest of potential project groups from eligible institutions and appropriate research projects throughout the State through:

1) Informational presentations:

* University of Southern Maine, December 2007

* University of Maine, December 18, 2007

2) Submission of two-page white papers indicating general

proposed project information – these will be utilized

PHASE II

January 16, 2008 - noon to 4:30 pm

informational and networking meeting

University of Maine, Orono

- additional information about the structure, intent, and specific requirements of the NSF EPSCoR RII program
- information about pre-proposal guidelines
- short presentations on potential projects
- Networking to try to develop further partnerships & solidify potential projects

PHASE III

April 4, 2008 deadline

submission of pre-proposals

PHASE IV

April 2008

implementation of an external scientific and technical review process for accepted pre-proposals (AAAS or similar)

PHASE V

May 2008

implementation of a subsequent internal review process by an adhoc state panel that allows projects to be more fully presented, and for responses to the external review comments

PHASE VI

June 2008

adhoc state panel recommendations to the Maine Innovation Economy Advisory Board (formerly the Science and Technology Advisory Council), which serves as the State EPSCoR Committee, and which will make the final determination on the best proposal components to develop for submission by the State.

PHASE VII

June to September 2008

Maine NSF EPSCoR office works with applicable project personnel to develop a proposal that complies with the NSF EPSCoR solicitation guidelines and intent (projected RFP release date of July 2008).

PHASE VIII

October 2008

(tentative)

submit the State's proposal by the specified deadline

PHASE IX

Late spring 2009

award notification

PHASE X

July 2009

project begins

Ensuring Scientific Credibility

- Mid-term Site Visits
- Evaluation Metrics (consistent, well documented plus strong advisory committees)
- Teleconferences of Management Team and NSF EPSCoR
- Strong, consistent Annual Reports (read by the EHR AD)
- Business Plan approach – Relationship to State S&T Plan and based on jurisdiction strengths, capabilities
- Evidence of Sustainability of past investments and plan for future investments
- Graduation of science theme
- Important Findings promoted Nationally (by state, NSF, EPSCoR Foundation, EPSCoR Coalition)
- Inter-jurisdiction support mechanisms to improve all

NSF DEFINITION: "Transformative" Research

Essential to Agency Mission

Has Capacity To:

- **Revolutionize Existing S&E Fields**
- **Create New S&E Subfields**
- **Yield New Knowledge, Discoveries & Technologies**
- **Drive National Innovation Process**