EPSCoR Research Infrastructure Improvement Grant Program (RII)

Program Solicitation
NSF 08-500

Replaces Document(s):
NSF 06-583

National Science Foundation

Office of the Director
    Office of Integrative Activities

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

January 04, 2008

REVISION NOTES

In furtherance of the President's Management Agenda, NSF has identified programs that will offer proposers the option to utilize Grants.gov to prepare and submit proposals, or will require that proposers utilize Grants.gov to prepare and submit proposals. Grants.gov provides a single Government-wide portal for finding and applying for Federal grants online.

In response to this program solicitation, proposers may opt to submit proposals via Grants.gov or via the NSF FastLane system.

1. Jurisdictions with current RII awards that expire before August 1, 2008, will be eligible to compete in the 2008 RII competition. Jurisdictions will be allowed to have a maximum overlap period of six months for two active RII awards (i.e., the concluding duration of a previous award and the initial period of a new award). In cases where no-cost extensions are employed, the maximum overlap for two awards still cannot exceed six months.
2. Award duration can be up to 60 months.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

EPSCoR RESEARCH INFRASTRUCTURE IMPROVEMENT GRANT PROGRAM (RII)

Synopsis of Program:

The Experimental Program to Stimulate Competitive Research (EPSCoR) is a program designed to fulfill the National Science Foundation's (NSF) mandate to promote scientific progress nationwide. The EPSCoR program is directed at those jurisdictions that have historically received lesser amounts of NSF Research and Development (R&D) funding. Twenty-five states, the Commonwealth of Puerto Rico and the U. S. Virgin Islands currently participate. Through this program, NSF establishes partnerships with government, higher

education and industry that are designed to effect lasting improvements in a state's or region's research infrastructure, R&D capacity and hence, its national R&D competitiveness.

Research Infrastructure Improvement (RII) Grants are awards of up to 60 months and up to a total of $3 million annually to support infrastructure improvements in research areas selected by the jurisdiction's EPSCoR governing committee as having the best potential to improve future R&D competitiveness.

Cognizant Program Officer(s):

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Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.078 --- Office of Polar Programs
- 47.079 --- Office of International Science and Engineering
- 47.080 --- Office of Cyberinfrastructure

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant or Cooperative Agreement

Estimated Number of Awards: 8

Anticipated Funding Amount: $24,000,000 in FY08 (pending availability of funds)

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- Only organizations located in jurisdictions that meet EPSCoR criteria are eligible to submit proposals to the Research Infrastructure Improvement (RII) Grant competition. The jurisdiction's EPSCoR governing committee must designate a fiscal agent/proposing organization as the awardee for the RII grant. Where possible, this should be the employing organization of the Project Director.

PI Limit:

None Specified

Limit on Number of Proposals per Organization: 1

Only one Research Infrastructure Improvement proposal may be submitted in response to this solicitation by the designated fiscal agent/proposing organization, acting on behalf of a jurisdiction's EPSCoR governing committee.

Limit on Number of Proposals per PI: 1

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable

- **Full Proposals:**

    - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.

    - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf/)

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.

- **Indirect Cost (F&A) Limitations:** Not Applicable

- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

    January 04, 2008

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Section 3(e) of the National Science Foundation (NSF) Act of 1950, as amended, states that: "...it shall be an objective of the Foundation 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." Through its Congressional mandate, NSF promotes and advances scientific progress nationwide. In 1978, public concern about undue geographical concentration of federal funding of academic research and development (R&D) led Congress to further authorize NSF to conduct the Experimental Program to Stimulate Competitive Research (EPSCoR). These Congressional instructions, which established the Experimental Program to Stimulate Competitive Research, have been restated in subsequent Congressional authorizations of the Foundation's budget. Eligibility for EPSCoR participation is restricted to those jurisdictions that have historically received lesser amounts of NSF R&D funding and have demonstrated a commitment to develop their research bases and to improve the quality of science, technology, engineering, and mathematics (STEM) research conducted at their universities and colleges. Twenty-seven jurisdictions including twenty-five states, the Commonwealth of Puerto Rico and the U. S. Virgin Islands currently participate in one or more elements of the NSF EPSCoR program. (See section I, paragraph C, for additional EPSCoR eligibility information).

  A. **EPSCoR Mission and Goals**

      The mission of EPSCoR is to assist the National Science Foundation 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:

- to provide strategic programs and opportunities for EPSCoR participants that stimulate sustainable improvements in their R&D capacity and competitiveness, and
- to advance science and engineering capabilities in EPSCoR jurisdictions for discovery, innovation, and overall knowledge-based prosperity.

  B. **EPSCoR Objectives**

      EPSCoR pursues its goals through investment strategies elaborated below. These programmatic strategies support the titled objective of EPSCoR, namely the **stimulation** of research that is fully competitive in the disciplinary and multidisciplinary research programs of the National Science Foundation.

      These strategies also bolster the capacity of jurisdictions to:

- facilitate knowledge generation leading to economic development;
- develop the diverse, well-prepared, internationally competent and globally engaged STEM workforce necessary to sustain the nation's competitive edge;
- enhance discovery and learning through utilization of cyberinfrastructure and other technologies; and
- expand the scientific literacy of all citizens, and disseminate to them the importance of STEM research and education.

C. **Criteria for Eligibility to Participate in the Research Infrastructure Improvement (RII) and other EPSCoR Grant Programs**

Research Infrastructure Improvement (RII) and other EPSCoR grant program eligibility is based on two primary considerations:

- A jurisdiction's demonstrated commitment to develop their research bases and to improve the quality of science, technology, engineering, and mathematics (STEM) research conducted at their universities and colleges, and
- A jurisdiction's most recent three-year history of research funds awarded by NSF relative to the Foundation's total research budget for that same period.

Regarding the second consideration, a jurisdiction is eligible to participate in the RII and other EPSCoR programs if its level of research support is equal to or less than 0.75 percent of the total NSF research budget for that same period. Adjustments are made in the rare instances where a single large NSF-funded national or international facility skews the data. The NSF EPSCoR website lists these summary data and the **eligibility criteria**. Twenty-five states, the Commonwealth of Puerto Rico and the U. S. Virgin Islands currently participate in NSF EPSCoR programs.

Any currently participating EPSCoR jurisdiction that does not meet the eligibility criteria for the RII competition will continue to be eligible for EPSCoR Co-Funding and EPSCoR Outreach funding (described below) for a period of three years.

D. **EPSCoR Investment Strategies**

EPSCoR's investment portfolio is aligned with the Foundation's strategic outcome goals of DISCOVERY, LEARNING, RESEARCH INFRASTRUCTURE, and STEWARDSHIP:

- Discovery – Foster research that will advance the frontiers of knowledge, emphasizing areas of greatest opportunity and potential benefit, and establishing the nation as a global leader in fundamental and transformational science and engineering.
- Learning – Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens.
- Research Infrastructure – Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure, and experimental tools.
- Stewardship – Support excellence in science and engineering research and education through a capable and responsive organization.

EPSCoR uses three major strategies to achieve its goal of improving the R&D competitiveness of researchers and institutions within EPSCoR jurisdictions. These strategies are Research Infrastructure Improvement (RII) grants, Co-Funding of disciplinary and multidisciplinary research, and Workshops and Outreach.

- Research Infrastructure Improvement (RII) Grants. RII Grants are awards of up to $3 million per year for up to five years. They are intended to improve the research competitiveness of jurisdictions by improving their academic research infrastructure in areas of science and engineering supported by the National Science Foundation and critical to the particular jurisdiction's science and technology initiative or plan. These areas must be identified by the jurisdiction's EPSCoR governing committee as having the best potential to improve the jurisdiction's future R&D competitiveness.
- Co-Funding of Disciplinary and Multidisciplinary Research. EPSCoR co-invests with NSF Directorates in the support of certain meritorious proposals from individual investigators, groups, and centers in EPSCoR jurisdictions that are submitted to the Foundation's research and education programs, and special competitions. Co-funding is an internal NSF funding mechanism that does not require any action on the part of the proposer; it is a major cross-directorate activity applicable to all Directorates and Offices of the Foundation.
- Workshops and Outreach. The EPSCoR Office will consider 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 planning and implementation in

areas of diversity, communication, cyberinfrastructure, and evaluation.

The EPSCoR Office also supports outreach travel that enables NSF staff from all Directorates and Offices to work with the EPSCoR research community regarding NSF opportunities, priorities, programs, and policies, and to more fully acquaint NSF staff with the science and engineering accomplishments, ongoing activities, and new directions and opportunities in research and education in the jurisdictions.

This solicitation describes the Research Infrastructure Improvement grant program.

II. PROGRAM DESCRIPTION

RII Program Description

Essential to EPSCoR's goal of enhancing the competitive position of jurisdictions' research and research-based education in science and engineering is a well-designed State-wide Science and Technology initiative or plan (S&T Plan). This S&T Plan establishes state-wide goals and objectives, and provides a framework that guides the jurisdiction's utilization of resources from EPSCoR and other stakeholders to achieve them.

The purpose of an EPSCoR Research Infrastructure Improvement Grant is to provide support for lasting improvements in a jurisdiction's academic research infrastructure, that is, its research capacity in identified areas of research and education in science and engineering that are aligned with the jurisdiction's S&T Plan. The RII award is intended to add specific value to the jurisdiction's academic infrastructure not generally available through other funding sources. RII grants focus on building the core infrastructure strength needed to develop both individual and collaborative efforts for the successful pursuit of significant jurisdictional and regional opportunities in science and engineering that may also have national importance.

Each jurisdiction must establish and utilize an EPSCoR governing committee that works closely with leaders in academe, government, and the private sector. The committee will identify potential R&D improvement strategies and activities that are consistent with the S&T plan and most likely to advance the further development of a nationally competitive academic R&D capability. Once in place, this academic R&D capability is expected to provide a key ingredient for a definitive innovation and commercialization strategy to stimulate the jurisdiction's economic development.

An EPSCoR RII proposal must describe the strategy and implementation mechanisms to develop, expand, use, and sustain the science and technology resources that reside in the jurisdiction's colleges and universities. In preparation for submitting a proposal, the EPSCoR governing committee within each jurisdiction is expected to have undertaken a recent comprehensive analysis of the strengths, barriers, and opportunities for further development of its institutions in support of overall objectives in research, education and innovation. Successful infrastructure improvement plans are likely to be those that provide sound platforms and opportunities for enhanced academic R&D competitiveness by a jurisdiction's colleges and universities, including pragmatic plans for generation of sustained non-EPSCoR support. Most importantly, the jurisdiction's infrastructure improvement strategy must identify implementation mechanisms that have a high probability of realizing stated goals and objectives. In all instances, clear specification of competitiveness goals, performance milestones and a timetable for achieving such milestones is a requirement for EPSCoR support.

Major accomplishments from prior NSF EPSCoR support and a detailed plan for achieving sustainable success in science and engineering, together with formative and summative evaluation plans with measurable metrics, must be included in the proposal. It is expected that the improvement strategies described in RII proposals will enable targeted research areas to become viable for the development of new sources of future non-EPSCoR funding. Finally, the RII proposal should summarize the coordination and synergy among all the EPSCoR/EPSCoR-like programs in the jurisdiction and define the role for the proposed NSF EPSCoR RII project within this broader context.

Infrastructure enhancement strategies that sharply focus available resources on research and research-based education and innovation activities that are consistent with specified long-term jurisdictional and regional objectives are most successful. In conjunction with this focus, the proposed education and innovation projects should demonstrate direct connectivity to the identified research theme(s). EPSCoR strives for improvements that will significantly increase the R&D capacity of a jurisdiction or region to enable stronger competitiveness in large scale and cross-cutting competitions. EPSCoR support of a proposed research improvement activity should not duplicate other available federal, jurisdictional, or institutional resources and should add significant value to increase defined competitiveness at the jurisdiction, or larger regional level.

A. **Examples of RII**

Examples of research infrastructure improvement activities that are consistent with NSF EPSCoR program objectives include:

- Support for competitive levels of "start-up" funding for new faculty including faculty exchange programs with major centers of research activity and/or the acquisition of state-of-the-art research instrumentation;
- Support for competitive levels of strategic funding to attract and/or retain established faculty who are active researchers in areas aligned with the state S&T plan;
- Development of meaningful partnerships, including regional collaborations, among EPSCoR jurisdiction-based colleges and universities; partnerships between such EPSCoR colleges and universities and nationally recognized centers of R&D activity (*e.g.,* federal and industrial R&D laboratories, NSF-sponsored research centers, and academic institutions with nationally-recognized research capabilities); and productive partnerships between the jurisdiction's research universities and the private sector in the region. Of special value are those alliances that increase linkages between EPSCoR researchers and their counterparts in research and/or technology-based small businesses and thereby increase the competitiveness of the jurisdiction's/region's S&T entrepreneurial talent for federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants;
- Establishment of graduate research training groups or similar appropriate mechanisms that integrate research and education, encourage multidisciplinary research-based educational experiences, and establish links with the private sector, industry and national laboratories;
- Promote partnerships between U.S. scientists and engineers and their international counterparts to enhance research excellence and foster development of the next generation of globally engaged U.S. scientists and engineers;
- Implementation of novel concepts for discovery-based STEM education and human resource development and the identification of best practices to develop leadership, build faculty and student teams that are diverse in gender, race, and ethnicity that will result in a strong, quantifiable impact on the STEM workforce;
- Support for the acquisition of equipment for research and other discovery based learning activities at predominately undergraduate and minority serving institutions; and
- Development of nationally competitive high-performance computing and networking capabilities that strengthen and enrich the cyberinfrastructure environment to enable more robust science and engineering research and education, and facilitate broader collaborative interactions with researchers at minority serving institutions within the jurisdiction.

 An RII grant is not the appropriate mechanism to provide support for individual faculty research projects. Requests for support of such projects should be directed to NSF's research grant programs.

To insure maximum impact of limited EPSCoR funds, requests for EPSCoR funding must:

- Add significant and measurable value to research capability in S&T areas of high institutional and jurisdictional priority,
- Present a detailed strategy to generate subsequent, sustained non-EPSCoR funding from federal, jurisdictional, or private sector sources, and
- Contribute to the jurisdiction's strategy for future research and innovation

B. **Eligible Activities**

Proposals requesting funds for research infrastructure improvement may include support for academic, jurisdictional, profit and non-profit organizations, as well as eligible individuals employed by such organizations both inside and outside the jurisdiction. In addition, cooperative programs among research universities within or across EPSCoR jurisdictions, or between a jurisdiction's research universities and predominately undergraduate institutions, especially minority serving institutions, are eligible for EPSCoR support. In all cases however, Project Directors/Principal Investigators of proposed EPSCoR projects must be affiliated with research universities, agencies, or organizations within the participant jurisdiction. Whereas the proposed project may employ collaborations between EPSCoR and non-EPSCoR participants, EPSCoR funding can only be requested and used for the EPSCoR-based components. In addition, all activities carried out under an EPSCoR award are subject to the restrictions concerning eligible science, technology, engineering, and mathematics disciplines and activities detailed in the NSF Proposal and Award Policy and Procedures (PAPP) Guide found on the NSF website at www.nsf.gov/pubs/policydocs/papp/gpg07140.pdf..

III. AWARD INFORMATION

Anticipated Type of Award: Standard, Continuing Grant, or Cooperative Agreement

Estimated Number of Awards: Up to 8

Duration: Award duration of up to 60 months

Anticipated Funding Amount: $24 Million in FY08 (pending availability of funds)

Limitation of Awards:

- RII award amount not to exceed a total of $3 million per year.

- Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

- Jurisdictions with current RII awards that expire before August 1, 2008, will be eligible to compete in the 2007 RII competition. Jurisdictions will be allowed to have a maximum overlap period of six months for two active RII awards (i.e., the concluding duration of a previous award and the initial period of a new award). In cases where no-cost extensions are employed, the maximum overlap for two awards still cannot exceed six months.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- Only organizations located in jurisdictions that meet EPSCoR criteria are eligible to submit proposals to the Research Infrastructure Improvement (RII) Grant competition. The jurisdiction's EPSCoR governing committee must designate a fiscal agent/proposing organization as the awardee for the RII grant. Where possible, this should be the employing organization of the Project Director.

PI Limit:

None Specified

Limit on Number of Proposals per Organization: 1

Only one Research Infrastructure Improvement proposal may be submitted in response to this solicitation by the designated fiscal agent/proposing organization, acting on behalf of a jurisdiction's EPSCoR governing committee.

Limit on Number of Proposals per PI: 1

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

The following instructions are specific to proposals submitted to the Research Infrastructure Improvement competition and supplement the NSF GPG and NSF Grants.gov Application Guide:

- The jurisdiction's EPSCoR governing committee shall designate a fiscal agent/proposing organization for the project. Where possible, this should be the employing organization of the Project Director.
- Separately submitted collaborative proposals will not be accepted and will be returned without review.
- **The proposal section labeled Project Description may not exceed 25 pages, including text, as well as any graphic or illustrative materials.**

PROJECT DESCRIPTION REQUIREMENTS

The project description is the heart of the RII proposal. It should describe the current status of the jurisdiction's academic R&D enterprise, the jurisdiction's science and technology plans and goals, and how the infrastructure for which NSF support is being requested will enable successful pursuit of those science and technology plans and goals. The science and engineering activities to be facilitated by the RII award should be compellingly presented and closely aligned with the NSF's strategic outcome goals.

The Project Description must include the following elements:

Status and Overview. The current status of the jurisdiction's academic R&D enterprise must be described. This description must include a comprehensive analysis of the strengths, barriers, and opportunities for development of its academic institutions in support of overall jurisdiction R&D objectives. The proposal narrative should provide convincing background and rationale for the project activities envisioned. It should show how the overall strategy and accompanying implementation mechanisms, if augmented with the requested infrastructure support, will improve the jurisdiction's competitiveness for federal, jurisdictional, and private sector R&D funding. The narrative should demonstrate how the specific S&T infrastructure improvements and activities proposed will advance the jurisdiction's future research competitiveness and develop clearly focused research areas. The relationship of these proposed infrastructure investments and activities to the jurisdiction's science and technology plans and policies must be made clear.

Results from Relevant Prior NSF Support. A section on results from prior NSF support must be included and the relevance of that support to the proposed activities explained. This is particularly important for RII renewal proposals.

Cyberinfrastructure Plan. Cyberinfrastructure capabilities are critical to advances in research and education in science and engineering. Cyberinfrastructure can provide opportunities to leapfrog impediments posed by limited physical infrastructure and can enable broad educational engagement at the frontiers of discovery and innovation in science and engineering. Well-articulated plans for the development, improvement, and deployment of cyberinfrastructure appropriate to pursuit of the goals of the jurisdiction's science and technology plan are an expected element of the RII project description. The importance of cyberinfrastructure to the research and education activities of NSF is reflected in the Foundation's cyberinfrastructure strategic plan, *NSF's Cyberinfrastructure Vision for 21st Century Discovery* (http://www.nsf.gov/pubs/2007/nsf0728/nsf0728.pdf), to which RII proposers are referred.

Diversity Plan. Diversity is the key to utilization of all of the nation's intellectual and physical resources. The need for greater diversity among states receiving NSF funding for research and education in science and engineering prompted the creation of the NSF EPSCoR program. Diversity is essential if jurisdictions are to utilize all of the human and institutional resources in the pursuit of the goals of their science and technology plans. This includes diversity of all types, *e.g.,* institutional, individual, disciplinary, geographic, etc. RII project narratives should describe the current state of diversity within the jurisdiction's science and technology enterprise and plans – including specific goals and milestones – to increase that diversity as an integral part of the infrastructure improvement activities for which support is being requested.

Outreach and Communication Plan. Outreach and communication are essential elements of successful strategies for the development of a diverse, well-prepared, internationally competent, and globally engaged STEM workforce. A clearly articulated plan for outreach activities that will expand institutional participation, student career options and facilitate the entry of women and members of underrepresented groups and institutions into STEM fields is required in the RII project description. This plan may include outreach to the private sector to develop partnerships that promote research and

workforce development. This plan should include, as appropriate, outreach by NSF staff in disciplinary areas of importance to the jurisdiction's science and technology strategic plan.

Communicating the results, benefits, and processes of science to all citizens at all educational levels builds scientific literacy and strengthens educational and research capacity throughout jurisdictions. Plans for the development of substantive technology that enables and facilitates communication within and among jurisdictions and between jurisdictions and the NSF EPSCoR Office must be described. It is expected that these plans will build upon and enhance the videoconferencing capabilities identified by the jurisdictions to the NSF EPSCoR Office.

Evaluation and Assessment Plan. A comprehensive evaluation and assessment plan must be included. This plan, including milestones, must show the metrics selected to assess and evaluate demonstrable impacts and achievements of the award on the science and technology enterprise, both during and after the award period. The plan should detail metrics that indicate how the project is progressing towards developing strength for the formation of intra/inter-jurisdiction collaborations to address scientific issues of regional relevance and national importance. The plan should include review and evaluation of RII activities by a diverse group of independent, external experts during the award period. Reports prepared by these review committees are to be conveyed to the NSF EPSCoR Office in a timely manner.

Sustainability Plan. A plan for long-term sustainability of the proposed activities must be included in the project description. The proposer must describe clearly, with milestones, the strategy for sustaining the impacts and achievements in the science and technology enterprise subsequent to the period of proposed NSF EPSCoR support.

Management Plan. The management plan is a critical component of the RII project. The EPSCoR management team is responsible for implementing the proposed research infrastructure improvement activities and managing all aspects of the project. It is important that the project's management team be sufficient in number and levels of expertise and effort to assume technical and administrative oversight of the project and accomplishment of project milestones. In addition, it is expected that the EPSCoR management team will coordinate with other offices (*e.g.*, sponsored research offices) to identify funding opportunities and facilitate outreach. The management team must make optimal use of resources and respond to emerging opportunities as they develop. The management team is also responsible for enhancing public understanding about the importance of the role of science in service to society.

Specific requirements for the management plan include:

- EPSCoR governing committee: The committee should be composed of representatives from academe, government and the private sector. Its role in project governance, including specific management responsibilities for the NSF EPSCoR project as well as for the coordination of the jurisdiction's EPSCoR/EPSCoR-like portfolio, should be clearly detailed.
- EPSCoR management team: The role and responsibilities of the Project Director (and Co-Directors), administrative support personnel, and other team members must be clearly defined. A succession plan for key personnel should be included.
- Technical Assistance: Plans for any technical or administrative assistance required for the development and execution of the RII project should be clearly described.

B. Budgetary Information

Cost Sharing: Cost sharing is not required by NSF.

Other Budgetary Limitations:

Although no cost sharing funds are required for these proposals, clear evidence of the jurisdiction's commitment must be included with the proposal. The level of commitment will differ among applicants because of the variability of resources available among jurisdictions. At a minimum, a letter of support from a senior official (e.g., institutional Chief Financial Officer or institutional Vice President for Research) should outline the commitment of resources and facilities to sustain and support the project throughout the period of funding, and to maintain these resources beyond the period of support. Such evidence of jurisdictional and/or institutional support should be submitted as supplementary documents in the FastLane proposal system.

Funding requests can be for durations of up to 60 months. Annual budgets for NSF support cannot exceed $3 million.

Budgets should include sufficient funding for participation in annual jurisdictional and regional EPSCoR conferences. In addition, budgets should request support for key jurisdiction personnel to participate in the National EPSCoR Conference and in evaluative activities including reverse site visits.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

  Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

  Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **For Proposals Submitted Via Grants.gov:**

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: http://www.grants.gov/CustomerSupport. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

  Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program and, if they meet NSF proposal preparation requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts with the proposer.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

Notwithstanding Important Notice 130, proposals submitted in response to this solicitation will be reviewed against

the revised Intellectual Merit criterion. This revised criterion specifically includes review of the extent to which the proposal also suggests and explores potentially transformative concepts.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf.

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria:

Reviewers for the RII competition will also consider the following specific aspects of intellectual merit and broader impacts:

1. ***Strategic Fidelity and Impact*** - Are the proposed infrastructure, education, outreach and technology transfer plans in harmony with the central research themes? Are the proposed research infrastructure improvement plans and strategies appropriate and responsive to the strengths, barriers, and opportunities identified in the proposal? Is the project likely to have a meaningful impact on capacity and capability in the jurisdiction? Is there ample evidence that the project will build strength that can be used, alone or in regional collaborations, to address scientific issues of regional relevance and national importance? Is there an appropriate level of integration among shared facilities and research partners? Does each proposed component contribute to an identifiable strategy for intensifying competitiveness in research and innovation?
2. ***Value Added*** - Do the proposed activities add value at the institutional, jurisdictional and regional levels in research, education and innovation? How will the magnitude of the additional value be measured? Does the project advance the jurisdiction's innovation and economic development plans through greater emphasis on creativity, inventiveness, technology transfer, potential commercialization, and national R&D competitiveness? Do the proposed activities promote organizational connections and linkages within and between campuses, schools, private and public sector? Are the scope and depth of the proposed activities appropriate to achieve the greatest project impacts? Are the leadership, faculty and student teams diverse in gender, race, and ethnicity and will the proposed strategic plan result in increased diversity in the jurisdiction's and/or nation's workforce?
3. ***Cyberinfrastructure*** – How well does the cyberinfrastructure plan support and integrate with the jurisdiction's science and technology plan? To what extent is the cyberinfrastructure plan likely to enhance capacity for discovery, innovation, and education in science and engineering? How well does the plan as presented position the proposing jurisdiction for future cyberinfrastructure development?
4. ***Dissemination and Communication*** - Will the proposed internal communications network enable the efficient sharing of data and information among the project's partners? Does the network take advantage of cyberinfrastructure and integrate with the cyberinfrastructure plan? Is there a coordinated process for the

collection and dissemination of major project results to audiences that include, for example, the scientific community, other EPSCoR jurisdictions and the general public? Does the described process contain a communication pathway to the NSF EPSCoR Office?

5. *Outreach Strategy and Diversity Plan* - Are the outreach strategy and diversity plan likely to be effective in broadening participation (e.g., institutions, women and underrepresented minorities, persons with disabilities, and the economically disadvantaged and/or first generation students) in the activities of the proposed project? Will the proposed activities likely achieve a significant impact on the targeted research and education population in the jurisdiction and/or region? Does the proposal offer novel and effective ways to reach non-traditional populations and underrepresented groups?

6. *Evaluation and Assessment* - Are there clear and appropriate metrics and criteria for measuring project accomplishments according to a well-defined schedule? Is there a process described for metric-related data capture, processing, interpretation and timely reporting? Is it evident how the evaluation process and results will be used by project leadership for monitoring and management? Are there appropriate formative and summative evaluation plans for assessing current status, major impacts, and future directions? Are the proposed external review processes and review groups appropriate?

7. *Sustainability* - Are the plans for sustainability clear, reasonable and viable? What is the potential for the proposed activities to foster and sustain the activities and/or innovation in the long-term following of EPSCoR support? How will each of the project's partners contribute to sustainability and how will the partnership evolve to ensure future progress in research, education and innovation?

8. *Management Plan* - Is the management plan clearly structured and likely to be effective? Do the Project Director and the management team demonstrate the vision, experience and capacity to manage a complex, multi-faceted research, education, and knowledge transfer enterprise? Are the membership and roles of the jurisdiction's EPSCoR governing committee and external advisors plainly identified, and is their involvement in the project apparent, logical, and free of conflicts of interest? Are plans for technical assistance appropriate and are the anticipated providers of such assistance appropriately qualified?

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/ general_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

The annual and final reports must include identification of numbers of women and members of other underrepresented groups in faculty and staff positions and as participants in the activities funded by the award.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project reporting system, available through FastLane, for preparation and submission of annual and final project reports. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Failure to provide the required annual or final project reports will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete.

The NSF EPSCoR Office will conduct performance effectiveness reviews biennially during the award. These reviews will include site visits, reverse site visits, and/or video teleconferencing. Continued funding will be determined by both the annual progress reports and by the results of performance effectiveness reviews.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Denise Barnes, Program Director, 1122, telephone: (703) 292-8683, fax: (703) 292-9047, email: dbarnes@nsf.gov

- M. E. Galindo, Program Director, 1122, telephone: (703) 292-8683, fax: (703) 292-9047, email: mgalindo@nsf.gov

- Douglas L. MacTaggart, Program Director, 1122, telephone: (703) 292-4361, fax: (703) 292-9047, email: dmactagg@nsf.gov

- Anthony Walters, Program Director, 1122, telephone: (703) 292-8361, fax: (703) 292-9047, email: awalters@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

- Sheila R. Tyndell, Program Specialist, 1122, telephone: (703) 292-5325, fax: (703) 292-9047, email: styndell@nsf.gov

- Simona L. Gilbert, Administrative Manager, 1122, telephone: (703) 292-7216, fax: (703) 292-9047, email: sgilbert@nsf.gov

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, MyNSF (formerly the Custom News Service)is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. MyNSF also is available on NSF's Website at http://www.nsf.gov/mynsf/.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230

- **For General Information** (703) 292-5111
  (NSF Information Center)**:**

- **TDD (for the hearing-impaired):** (703) 292-5090

- **To Order Publications or Forms:**

      Send an e-mail to: pubs@nsf.gov

      or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records, " 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services
National Science Foundation

Arlington, VA 22230