EPSCoR Research Infrastructure Improvement Grant Program (RII)

Trajectory Toward Sustainable Scientific Success

Program Solicitation
NSF 05-589
***Replaces Document* NSF 04-564**

National Science Foundation
Directorate for Education and Human Resources
Office of the Experimental Program To Stimulate Competitive Research

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

September 16, 2005

REVISIONS AND UPDATES

1. Proposals responding to this solicitation do not require cost sharing. 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 proposers because of the variability of resources available among jurisdictions. At a minimum, a letter of support from a senior official (e.g., organizational Chief Financial Officer or organizational 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 organizational support should be submitted as supplementary documents in the FastLane proposal.

2. The proposal section labeled Project Description may not exceed **25** pages. See Project Description Requirements in Section V.A. for full details.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

EPSCoR Research Infrastructure Improvement Grant Program (RII)
Trajectory Toward Sustainable Scientific Success

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 region/jurisdiction's research infrastructure, R&D capacity and hence, its national R&D competitiveness.

Research infrastructure improvement (RII) Grants are 36 or 48 month awards of up to a total of $9 million 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):

- B. Jane Harrington, Program Director, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-5179, fax: (703) 292-9047, email: bharring@nsf.gov
- Martha L. James, Program Manager, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-7772, fax: (703) 292-9047, email: mjames@nsf.gov
- Julio E. Lopez-Ferrao, Program Director, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-5183, fax: (703) 292-9047, email: jlopezfe@nsf.gov
- Karen L. Sandberg, Program Director, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-4828, fax: (703) 292-9047, email: ksandber@nsf.gov

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

- 47.076 --- Education and Human Resources

Eligibility Information

- **Organization Limit:**

  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 Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** 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. Collaborative proposals are not permitted.

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 6
- **Anticipated Funding Amount:** $18,000,000 in FY06 (pending availability of funds)

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:** This solicitation contains information that supplements the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

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 Date(s)** (due by 5 p.m. submitter's local time):
  September 16, 2005

Proposal Review Information

- **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.

TABLE OF CONTENTS

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. However, 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 the NSF EPSCoR program. (See section I, paragraph C, for additional EPSCoR eligibility information).

A. EPSCoR MISSION, GOALS AND OBJECTIVES

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: a) to provide strategic programs and opportunities for EPSCoR participants that stimulate sustainable improvements in their R&D capacity and competitiveness; and b) to advance science and engineering capabilities in EPSCoR jurisdictions for

discovery, innovation and overall knowledge-based prosperity.

B. **EPSCoR Objectives**

Within this framework of mission and goals, EPSCoR objectives are:

- to catalyze key research themes and related activities within EPSCoR jurisdictions that empower knowledge generation, dissemination and application;
- to activate effective jurisdictional and regional collaborations among academic, government and private sector stakeholders that advance scientific research, promote innovation and provide multiple societal benefits;
- to broaden participation in science and engineering by institutions, organizations and people within EPSCoR jurisdictions;
- to use EPSCoR for development, implementation and evaluation of future programmatic experiments that motivate positive change and progression.

C. **Criteria for Eligibility to Participate in NSF's Experimental Program to Stimulate Competitive Research (EPSCoR) Program**

The eligibility criterion for EPSCoR participation is based on 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. Each year, the NSF EPSCoR Office compiles summary data for the preceding three years of NSF research funding by jurisdiction. The data are reported by the NSF Office of Budget, Finance and Award Management (BFA) and listed on the NSF's Budget Internet Information System (BIIS). The NSF EPSCoR website also lists these summary data and the eligibility criteria for new jurisdictions. Twenty-five states, the Commonwealth of Puerto Rico and the U. S. Virgin Islands currently participate in the NSF EPSCoR program.

Based on the above calculation, a jurisdiction is eligible to participate in the EPSCoR program if the level of research support is equal to or less than 0.75 percent. Adjustment is made in the rare instances where a single large NSF-funded national or international facility skews the data.

D. **Criteria for Eligibility to Participate in the Research Infrastructure Improvement (RII) Grant Program**

Research Infrastructure Improvement (RII) Grant Program eligibility is based on 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. Based on the above calculation, a jurisdiction is eligible to participate in the RII program if the level of research support is equal to or less than 0.70 percent. Adjustment is made in the rare instances where a single large NSF-funded national or international facility skews the data.

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

E. **EPSCoR Investment Strategy**

EPSCoR's investment portfolio is consistent with the Foundation's Strategic Outcome Goals of PEOPLE, IDEAS, and TOOLS as described:

- **People** - A diverse, competitive, and globally-engaged U.S. workforce of scientists, engineers, technologists and well-prepared citizens.
- **Ideas** - Discovery across the frontier of science and engineering, connected to learning, innovation and service to society.
- **Tools** - Broadly accessible, state-of-the-art science and engineering facilities, tools and other infrastructure that enable discovery, learning and innovation.

EPSCoR uses four major strategies to achieve its goal of improving the R&D competitiveness of the EPSCoR researchers and institutions. These strategies are: Research Infrastructure Improvement Grants, Planning Support, Co-funding, and Outreach Travel Support for NSF staff.

- ***Research Infrastructure Improvement (RII) Grants*** - Research Infrastructure Improvement Grants are 36-48 month awards of up to $9 million 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. Successful awards will focus on the building of the core strength needed to develop collaborative methods for the solution of important problems having both regional and national importance (see Program Description below).

- ***Planning Support:*** Proposals for EPSCoR planning grants may be considered from new EPSCoR eligible jurisdictions. The planning proposal (no more than one per jurisdiction) may request support up to a maximum of $200,000 for a period of 12-18 months. Eligible jurisdictions may seek planning support to formulate and prepare future proposals that will focus infrastructure development towards building strength for solving regional problems of national importance.

  A jurisdiction wishing to submit a planning grant proposal must notify the NSF EPSCoR Office with a letter of intention to submit and then meet with NSF EPSCoR officials to discuss the conceptual project, potential partners and estimated cost. Depending on the outcome of these discussions, the jurisdiction may be invited to submit an EPSCoR planning proposal, using NSF's grant proposal guidelines.

  The EPSCoR Office, on a case-by-case basis, may consider support for other types of planning activities, e.g., support for planning reformative activities resulting from declined proposals.

- ***Co-Funding*** - Joint support may be provided for certain meritorious proposals submitted to the Foundation's ongoing research and education programs and special competitions. Co-funding is an internal NSF funding mechanism that does not involve any action on the part of the proposer. EPSCoR Co-funding is a major NSF cross- directorate activity, applicable to programs in all Directorates, the Office of Integrative Activities, the Office of International Science and Engineering, and the Office of Polar Programs.
- **Outreach Travel Support-** Financial support is provided for outreach visits by NSF staff to inform the EPSCoR research community about NSF priorities, programs, and policies and to more fully acquaint NSF staff with the R&D resources and further potential residing within EPSCoR jurisdictions.

This solicitation describes the Research Infrastructure Improvement (RII) Grant program, which includes funding opportunities for specific collaborative planning activities. Further information on EPSCoR Planning, Co-funding and Outreach Travel Support strategies can be found under “Investment Strategy“ on the EPSCoR website.

II. PROGRAM DESCRIPTION

RII Program Description

It is anticipated that in FY 2007, the RII Grants Program will expand to offer the potential for intensive support of Strength-Based Research Collaborations (SBRC). These collaborations will join together the strongest investigators from one or more jurisdictions and bring their expertise to bear on an identified science and engineering challenge with regional relevance and national importance. "Regional" can be geographical, virtual or both. The SBRCs will take advantage of the best talent and technical capability from each participant in order to pursue frontier research and innovation in well-defined areas. Here, innovation is defined as the combined use of human creativity, scientific knowledge and engineering design to produce new materials, devices, structures, processes and systems of social and/or economic value. The anticipated SBRC Program will complement the RII Program by providing a mechanistic linkage between building capacity and attaining national competitiveness.

The purpose of an EPSCoR Research Infrastructure Improvement (RII) Grant is to provide support for lasting improvements in a jurisdiction's academic research infrastructure, its research capacity and capability in identified research areas, and hence, increased national competitiveness. EPSCoR support is intended to add specific value to the jurisdiction's academic infrastructure not generally available through other funding sources. Starting with the FY 2005 competition, RII grants will focus on building the strength needed to develop collaborative efforts for the successful pursuit of significant regional opportunities having 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 most likely to advance the 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 plan. The governing committee will also initiate and promote intra-jurisdictional as well as inter-jurisdictional collaborations where the latter may involve both EPSCoR and non-EPSCoR jurisdictions. However, EPSCoR funding can only be requested and used for the EPSCoR-based components.

An EPSCoR Research Infrastructure Improvement 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 universities. In preparation for submitting a proposal, the EPSCoR governing committee within each jurisdiction is expected to have undertaken a 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 represent the opportunities for enhanced academic R&D competitiveness among a jurisdiction's 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 performance milestones and a timetable for achieving such milestones is a requirement for EPSCoR support. Major accomplishments from prior EPSCoR support, detailed sustainability plans for achieving sustainable scientific success along with a formative and summative evaluation plan (with measurable metrics) must be include in the proposal. With EPSCoR support, it is expected that the improvement strategies will enable targeted research areas to become nationally competitive and sustained by non-EPSCoR support after the award period. Furthermore, improvement strategies must be targeted to foster strength building in order to initiate collaborative efforts for the solution of important problems having both regional and national significance. Finally, the RII proposal should summarize the coordination and synergy between all the EPSCoR/EPSCoR-like programs in the jurisdiction and then define the role for the proposed NSF EPSCoR RII within this broader context.

A. **Examples of Infrastructure Improvements**

Infrastructure improvement strategies that sharply focus available fiscal and human resources on research, educational and innovation activities that are consistent with specified long-term jurisdiction 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 a jurisdiction's or region's R&D competitiveness for large scale and cross-cutting competitions, such as Science & Technology Centers (STC's), Materials Research Science and Engineering Centers (MRSEC's), Engineering Research Centers (ERC's), Integrative Graduate Education and Research Traineeships (IGERT's); Partnerships for Innovation, ADVANCE, Biocomplexity in the Environment, and Nano-Scale Science and Engineering Research. 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 focused competitiveness at the jurisdiction, or larger regional level.

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

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 "keep-up" funding for established faculty who are active researchers but need a critical infrastructure investment to maintain their credibility and competitiveness for future external support;

Development of meaningful partnerships, including regional collaborations, among EPSCoR colleges and universities; partnerships between EPSCoR colleges, 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 in competitions for federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants;

Creation of graduate research training groups, or similar appropriate mechanisms that: integrate research and education; encourage multidisciplinary educational experiences; establish links with industry and national laboratories; and nurture a synergistic "corporate" educational and research responsibility;

Novel concepts for STEM education and human resource development along with the identification of incentives that stimulate leadership, build faculty and student teams that are diverse in gender, race, and ethnicity and that will result in a strong, quantifiable impact on the diversity of the STEM workforce;

Competitive support for the acquisition of equipment for research experiences and instruction by predominately undergraduate research institutions and minority-serving institutions;

Development of nationally competitive, high-performance computing and networking capabilities to

strengthen and enrich the cyber infrastructure environment needed for research/educational collaborations.

A Research Infrastructure Improvement 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 regular research and educational grant programs. Because EPSCoR investments are important to enhancing a jurisdiction's competitiveness, it is expected that equipment purchased with EPSCoR funds will remain in the jurisdiction and will not be transferred in the event that a Principal Investigator transfers to another jurisdiction.

To insure maximum impact of limited EPSCoR funds, requests for EPSCoR funding must: (1) add significant and measurable value to research capability in S&T areas of high institutional and jurisdiction priority, (2) present a detailed strategy to generate subsequent, sustained non-EPSCoR funding from federal, jurisdictional, or private sector sources, and (3) contribute to a strength-based strategy for future research and innovation.

B. **Eligible Activities**

NSF recognizes that local considerations strongly influence the scope and nature of EPSCoR activities within a jurisdiction and therefore, NSF does not require that a set of specific activities be carried out as part of EPSCoR awards.

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, 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 Grant Proposal Guide found on the NSF website at http://www.nsf.gov/cgi-bin/getpub?gpg.

III. ELIGIBILITY INFORMATION

Limit: Only organizations located in jurisdictions that meet EPSCoR criteria are eligible to submit proposals to the Research Infrastructure Improvement 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 Eligibility Limit: None specified.

Limit on Number of Proposals: 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. Collaborative proposals are not permitted.

IV. AWARD INFORMATION

Anticipated Type of Award: Standard or Continuing Grant

Estimated Number of Awards: Up to 6

Duration: Award duration of up to 36 or 48 months

Anticipated Funding Amount: $18 Million in FY06 (pending availability of funds)

Limitation of Awards:

RII award amount not to exceed a total of $9 million over the 36 or 48 month duration.

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

A jurisdiction is permitted to have only one active RII award during the time period of the initial or amended award. Jurisdictions with expiring RII awards will be eligible to compete in the competition nearest the current grant expiration date. In cases where no-cost extensions are required, the jurisdiction's project director must consult with the EPSCoR Office in regard to potential eligibility to submit a new proposal for the next competition.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposals submitted in response to this program announcement/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.

The following instructions are specific to proposals submitted to the Research Infrastructure Improvement competition and supplement the NSF Grant Proposal Guide (GPG):

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.

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 must include the following elements:

1. The current status of the jurisdiction's academic R&D enterprise, including 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 projects proposed. The narrative should also explain the relationship of the proposed infrastructure investments and activities to the jurisdiction's science and technology plans and policies.

2. A section on Results from Prior NSF Support must be included.

3. The proposed overall strategy and accompanying implementation mechanisms, which if augmented with the requested infrastructure, will improve the jurisdiction's competitiveness for federal, jurisdictional, and private sector R&D funding.

4. The specific S&T infrastructure improvement investments and activities must advance the jurisdiction's future research competitiveness and develop tightly focused research areas. It is important to show how substantial value will be added to the R&D enterprise and to the educational institutions of the jurisdiction and/or region.

5. A description of planned 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.

6. A 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 level of 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 elucidated.

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.

Technical assistance plan: A plan to ensure that adequate scientific, technical, and management expertise and assistance are available. Technical assistance may include, but is not necessarily limited to: (1) assisting with planning of proposals to be submitted to major NSF and other grant competitions; (2) developing frameworks for university-industry-government collaboration; (3) bringing experts to an institution/ jurisdiction in a mentoring capacity, either individually or in a workshop context; (4) building foundations for new cross-disciplinary and/or multi-jurisdictional collaborations; and (5) designing and using effective evaluation tools.

7. 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 external experts during the award period. The report prepared by these review committees must be shared in a timely manner with the NSF EPSCoR Office.

8. 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 NSF EPSCoR support.

Proposers are reminded to identify the program announcement/solicitation number (05-589) in the program announcement/ solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required by NSF in proposals submitted under this Program Solicitation.

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 request can be for a total of up to $9 million with an award duration of up to 36 or 48 months. Annual budgets for NSF support should not exceed $3 million.

Budgets should include sufficient funding for annual jurisdiction or regional EPSCoR conferences.

C. Due Dates

Proposals must be submitted by the following date(s):

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

September 16, 2005

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal 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 announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

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. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: http://www.fastlane.nsf.gov

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 (NSB 97-72). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued Important Notice 127, Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the Grant Proposal Guide Chapter III.A for further information). 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 he/she is qualified to make judgments.

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 and original 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?

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 to form 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 and potential commercialization? 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. ***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 both apparent and logical?

4. ***Evaluation*** - 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? Is there an appropriate summative evaluation plan for assessing major impacts and future directions? Are the proposed external review process and review group appropriate?

5. ***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 after cessation 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?

6. ***Outreach Strategy*** - Is the outreach strategy likely to be effective in broadening participation (e.g., institutions, women and underrepresented minorities and 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?

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

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by 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.

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 Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In most cases, proposers will be contacted by the Program Officer after his or her recommendation to award or decline funding has been approved by the Division Director. This informal notification is not a guarantee of an eventual award.

NSF is striving to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation, or the date of proposal receipt, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

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 Division 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.A. 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 (NSF-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 agreement awards are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/. Paper copies of these documents 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 is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Website at http://www.gpo.gov.

Special Award Conditions:

The annual progress and final reports must contain evaluation information collected according to the project's defined metrics. Progress, as quantified by these reported measures, will be used to help determine the feasibility and timing of future funding increments.

As a part of this process, the annual progress and final reports must identify the numbers of women and members of other underrepresented groups in faculty and staff positions and as participants in the activities funded by the award. The annual report must also include the results of efforts to increase the participation of women and members of other underrepresented groups in project staffing and project activities. Future funding will be based, in part, on progress in increasing the numbers of women and members of other underrepresented groups in the activities funded by this award.

The annual report must include evidence of linkages, coordination, and collaboration with other NSF-funded projects in the jurisdiction or regionally that enhance the proposed research infrastructure improvement activities.

The annual report must include compelling evidence of efforts, accomplishments, commitments, and plans to ensure that human and fiscal resources will be available in the future to sustain the project beyond the expiration of the grant. These may include not only quantitative data (e.g., a record of proposals submitted to NSF competitions and an analysis of award success rate), but also a listing of programs and policies proposed or implemented and resources sought or obtained.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

The NSF EPSCoR Office will conduct performance effectiveness reviews at the mid-point and in the final year of the award. These reviews will include site visit and/or reverse site visits. Continued funding will be determined by both the annual progress report and by the results of the mid-point evaluation.

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. See Special Award Condition above.

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.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

B. Jane Harrington, Program Director, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-5179, fax: (703) 292-9047, email: bharring@nsf.gov

Martha L. James, Program Manager, Office of Experimental Program To Stimulate Competitive Research, 1122 S,

telephone: (703) 292-7772, fax: (703) 292-9047, email: mjames@nsf.gov

Julio E. Lopez-Ferrao, Program Director, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-5183, fax: (703) 292-9047, email: jlopezfe@nsf.gov

Karen L. Sandberg, Program Director, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-4828, fax: (703) 292-9047, email: ksandber@nsf.gov

For questions related to the use of FastLane, contact:

Patricia A. Ferguson, Senior Program Assistant, Office of Experimental Program To Stimulate Competitive Research, 1122 S, telephone: (703) 292-8683, fax: (703) 292-9047, email: pferguso@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF E-Bulletin, which is updated daily on the NSF Website at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's MyNSF News Service (http://www.nsf.gov/mynsf/) to be notified of new funding opportunities that become available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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** (NSF Information Center)**:** (703) 292-5111
- **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; 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 applicant 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 needing information as part of the review process or in order to coordinate programs; 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," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). 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 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 this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

OMB control number: 3145-0058.