

# George E. Brown, Jr. Network for Earthquake Engineering Simulation Research (NEESR)

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## Program Solicitation

**NSF 07-506**

*Replaces Document(s):*

**NSF 06-504**



**National Science Foundation**

Directorate for Engineering  
Civil, Mechanical and Manufacturing Innovation

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

January 30, 2007

## REVISION NOTES

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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](http://Grants.gov) or via the [NSF FastLane](#) system.

Addition of two new proposal categories:

### **NEESR Simulation Development (SD) Proposals**

The NEES equipment sites are state-of-the-art experimental facilities for conducting cutting-edge research in earthquake engineering. Supported by innovative cyberinfrastructure tools, each equipment site provides unique opportunities to develop advanced experimental simulation techniques and instrumentation not previously possible. These techniques may require, for example, the development of advanced sensors, measurement devices, control algorithms, or robotic tools. Hybrid testing techniques, in particular, are expected to progress well beyond their current limitations and new applications will be devised that will allow the equipment sites to offer new capabilities not currently feasible. Innovative testing techniques that could provide experimental information to develop fundamental constitutive relationships for existing or new materials subjected to dynamic loading conditions are also encouraged. NEESR Simulation Development (SD) proposals must focus on developing and demonstrating the feasibility of advanced experimental simulation techniques or instrumentation for NEES. The research, development, and demonstration in an SD proposal must use a NEES equipment site, but the Principal Investigator need not be affiliated with that particular equipment site or any other NEES equipment site.

### **NEESR Payload Proposals**

NEESR Individual Investigator (II), Small Group (SG), and Grand Challenge (GC) projects offer a unique opportunity for researchers outside the project team to use the project's test set-up to accommodate a considerably smaller experimental investigation of a payload component, referred to as a "payload project." This payload is not necessarily part of the main structural, geotechnical, or infrastructure system, e.g., the payload may be a mechanical, control, sensing, or nonstructural

component that may detect or support operation of the overall system, but the payload is not part of the load carrying system. Payload projects also may concern the load carrying system or its components. The NEESR II, SG, or GC project's test set-up would provide the vehicle for testing the payload component. Researchers should contact the Principal Investigator of the NEESR II, SG, or GC project that they wish to use for feasibility and accommodation of the payload project.

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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#### Program Title:

George E. Brown, Jr. Network for Earthquake Engineering Simulation Research (NEESR)

#### Synopsis of Program:

The Division of Civil, Mechanical, and Manufacturing Innovation (CMMI) in the Directorate for Engineering (ENG) of the National Science Foundation (NSF) invites proposals for research that use the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) to advance knowledge discovery and innovation for (1) earthquake and tsunami loss reduction of our nation's civil infrastructure and (2) new experimental simulation techniques and instrumentation for NEES. NEES comprises a network of 15 earthquake engineering experimental equipment sites available for experimentation on-site or in the field and through telepresence. NEES equipment sites include shake tables, geotechnical centrifuges, a tsunami wave basin, unique large-scale testing laboratory facilities, and mobile and permanently installed field equipment. The NEES networking cyberinfrastructure connects, via Internet2, the equipment sites as well as provides telepresence, a curated central data repository, simulation tools, and collaborative tools for facilitating on-line planning, execution, and post-processing of experiments. Through NSF funding, NEES Consortium, Inc. (NEESinc), operates the NEES infrastructure (equipment sites and cyberinfrastructure); coordinates education, outreach and training activities for NEES; develops partnerships nationally and internationally to enhance the capabilities of and participation in NEES; and establishes community-based policies for facilities sharing and data archiving. Projects proposed and funded under this solicitation must use one or more of the NEES equipment sites and the cyberinfrastructure operated by NEESinc. Proposals may be submitted in five categories: Individual Investigator, Small Group, Grand Challenge, Simulation Development, and Payload.

#### Cognizant Program Officer(s):

- Joy Pauschke, Program Director, George E. Brown, Jr. Network for Earthquake Engineering Simulation, Directorate for Engineering, Division of Civil, Mechanical, and Manufacturing Innovation, 545 S, telephone: (703) 292-7024, fax: (703) 292-9053, email: [jpauschk@nsf.gov](mailto:jpauschk@nsf.gov)

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

- 47.041 --- Engineering

### Award Information

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**Anticipated Type of Award:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 10 to 15

This includes a combination of Individual Investigator, Small Group, Grand Challenge, Simulation Development, and Payload awards.

**Anticipated Funding Amount:** \$9,000,000 expected in FY 2007 for new awards, pending availability of funds and quality of proposals.

### Eligibility Information

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## Organization Limit:

Proposals may only be submitted by the following:

- U.S. universities and colleges may submit proposals as the lead organization. Proposals involving more than one organization must be submitted as a single administrative package from the lead organization; collaborative proposals with multiple administrative packages will not be accepted.

**Research team:** The project team for Individual Investigator, Small Group, and Grand Challenge proposals must include one of the following two options in the research activities:

1. Faculty and students involved in the research activities from a predominantly undergraduate institution, women's college, Historically Black College or University, Hispanic-Serving Institution, Indian Tribally Controlled College or University, Alaska Native-Serving Institution, or Native Hawaiian-Serving Institution.
2. A partnership to integrate the proposed research activities into an existing NSF-funded Louis Stokes Alliance for Minority Participation (LSAMP), Alliance for Graduate Education and the Professoriate (AGEP), or Center of Research Excellence in Science and Technology (CREST) projects. Information on LSAMP, AGEP, and CREST programs and awards made by these programs may be found on the NSF web site for the Division of Human Resource Development in the Directorate for Education and Human Resources (<http://www.nsf.gov/div/index.jsp?div=HRD>).

## PI Limit:

None Specified

## Limit on Number of Proposals per Organization:

None Specified

## Limit on Number of Proposals per PI:

An individual may be included as a Principal Investigator (PI) in only one proposal. However, a PI in one proposal may be a Co-Principal Investigator or project team member in other proposals submitted to this solicitation. There is no limit to the number of proposals an organization may submit.

## Proposal Preparation and Submission Instructions

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### A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: 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](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:** Not Applicable

### C. Due Dates

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

January 30, 2007

## Proposal Review Information Criteria

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**Merit Review Criteria:** National Science Board approved criteria apply.

## Award Administration Information

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**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

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The Division of Civil, Mechanical, and Manufacturing Innovation (CMMI) in the Directorate for Engineering (ENG) of the National Science Foundation (NSF) invites proposals for research that use the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) to advance knowledge discovery and innovation for (1) earthquake and tsunami loss reduction of our nation's civil infrastructure and (2) new experimental simulation techniques and instrumentation for NEES. NEES is authorized under the National Earthquake Hazards Reduction Program (NEHRP) (<http://www.nehrp.gov>) and awards made under this program solicitation contribute to NSF's participation in NEHRP. NEES comprises a network of 15 earthquake engineering experimental equipment sites, available for experimentation on-site or in the field and through telepresence. NEES equipment sites include shake tables, geotechnical centrifuges, a tsunami wave basin, unique large-scale testing laboratory facilities, and mobile and permanently installed field equipment. The NEES networking cyberinfrastructure connects, via Internet2, the equipment sites as well as provides telepresence, a curated central data repository, simulation tools, and collaborative tools for facilitating on-line planning, execution, and post-processing of experiments. Through NSF funding, NEES Consortium, Inc. (NEESinc), operates the NEES infrastructure (equipment sites and cyberinfrastructure); coordinates education, outreach and training activities for NEES; develops partnerships nationally and internationally to enhance the capabilities of and participation in NEES; and establishes community-based policies for facilities sharing and data archiving. Projects proposed and funded under this solicitation must use one or more of the NEES equipment sites and the cyberinfrastructure operated by NEESinc. Proposals may be submitted in five categories: Individual Investigator, Small Group, Grand Challenge, Simulation Development, and Payload. Information about NEESinc, the 15 NEES experimental equipment sites (including detailed specifications about each site's equipment and capabilities as well as contact information), and NEES cyberinfrastructure is available at <http://www.nees.org>.

NEES provides the opportunity for researchers to participate in cutting edge research to extend theory; model-based simulation; computational and visualization tools; design practice and codes in earthquake engineering; advanced technologies for design, retrofit and remediation; experimental simulation techniques and instrumentation; and sensor technology. As an integrated network, NEES offers opportunities for earthquake engineering research to enable or enhance the investigation of problems at the systems level, in a more systematic way than previously possible through use of multiple, independent equipment sites. Proposers may wish to review the following resources for potential research topics. This is not meant to be an exhaustive list but rather to point proposers to some recent reports and information that may be helpful during proposal development.

- *Preventing Earthquake Disasters: The Grand Challenge in Earthquake Engineering. A Research Agenda for the Network for Earthquake Engineering Simulation (NEES)* (available at <http://www.nationalacademies.org/publications/>), a report from a panel organized by the National Research Council of the National Academies to develop a long-term agenda for earthquake engineering research needs that is well suited to investigative techniques involving use of the NEES experimental resources.
- *Securing Society against Catastrophic Earthquake Losses: A Research and Outreach Plan in Earthquake Engineering* (available at [http://www.eeri.org/cds\\_publications/securing\\_society.pdf](http://www.eeri.org/cds_publications/securing_society.pdf)), a long term research and outreach agenda for the earthquake engineering field prepared by the Earthquake Engineering Research Institute.
- *Research Needs Report* (available at <http://www.bssconline.org>). The *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* provides the minimum level design requirements for the protection of life safety in buildings subject to earthquakes in the United States. At the end of each of its triennial updates of this document, the Building Seismic Safety Council prepares a Research Needs Report, which provides a list of issues that each of the thirteen technical subcommittees examined but could not resolve during the provisions update process, due to a lack of available data or information. This report identifies issues that run the entire spectrum of seismic design and construction and generally represents the cutting edge of seismic building science and areas where the subcommittees believe future research emphasis is needed that could then be used during future updates of the provisions. Development of the NEHRP provisions is coordinated by the Federal Emergency Management Agency.
- The 3-D Full-Scale Earthquake Testing Shake Table Facility, known as E-Defense, (<http://www.bosai.go.jp/hyogo/ehyogo/>), built by the Japanese National Research Institute for Earth Science and Disaster Prevention (NIED), opened for research in 2005. The NEES equipment sites and E-Defense facility offer complementary earthquake engineering experimental facilities for large and full scale testing. Since 2004, meetings have been held between researchers in the United States and Japan to develop collaborative research strategies for investigation of the seismic performance of steel structures and bridges that require coordinated use of the NEES and E-Defense facilities. Summaries of these meetings are available at <http://www.nees.org>.

The NEES infrastructure also provides national resources for developing, coordinating, and sharing new educational programs and materials to train the next generation engineering workforce. NEESinc has developed, through community input, an *Education, Outreach, and Training (EOT) Strategic Plan*, a *NEES EOT Execution Plan* with specific guidelines and recommendations for partnering with NEESinc, and a *Diversity Strategic Plan* (all available at <http://www.nees.org>) that outline a strategy for the use of NEES resources for EOT to best serve the needs of the earthquake engineering community. To maximize broader impacts, proposers should align their project's education and outreach component with these NEESinc documents and coordinate activities with NEESinc at the proposal preparation stage.

For projects funded under this program solicitation, NEESinc will coordinate access to, scheduling, and announcement of

experiments and educational projects at the NEES equipment sites. Projects awarded under this solicitation must conform to the *NEES Facilities User Guide* and the *Data Sharing and Archiving Policies and Guidelines*, both available at <http://www.nees.org>. NSF requires awardees under this program solicitation to comply with these community-established policies for equipment site usage and documenting, archiving, and sharing of data results.

## II. PROGRAM DESCRIPTION

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### General Information Regarding NEES Research (NEESR)

NEESR is a new era in NSF-funded earthquake engineering research to enable or enhance study of larger scale and scope, requiring experimental resources, in a more systematic way than previously possible. As such, this solicitation is aimed at providing funding to support innovative research and education about the performance of structural, nonstructural, geotechnical, hydraulic, and other civil infrastructure systems during earthquake excitation or tsunamis and to advance experimental simulation techniques and instrumentation for NEES. Projects funded under this solicitation are expected to be comprehensive in research scope and provide key research insights and results that will advance the state of the art in earthquake hazard mitigation or experimental simulation. Projects that involve a cross-disciplinary team and active participation by practitioners, industry, and public policy-makers to formulate the research problem and speed technology transfer are strongly encouraged.

Proposals submitted under this solicitation must use one or more of the NEES equipment sites operated by NEESinc as the primary experimental activity and resource(s). Investigators who wish to conduct earthquake engineering research that does not require use of at least one NEES equipment site operated by NEESinc as the primary experimental activity and resource(s) used should submit proposals to one of the other existing programs within the NSF CMMI Division.

NEESR projects will be supported in five categories, according to the research scope and project team composition: Individual Investigator (II), Small Group (SG), Grand Challenge (GC), Simulation Development (SD), and Payload.

### Project Team Eligibility Requirements for NEESR Individual Investigator, Small Group, and Grand Challenge Proposals

**Research team:** The project team for Individual Investigator, Small Group, and Grand Challenge proposals must include one of the following two options in the research activities:

1. Faculty and students involved in the research activities from a predominantly undergraduate institution, women's college, Historically Black College or University, Hispanic-Serving Institution, Indian Tribally Controlled College or University, Alaska Native-Serving Institution, or Native Hawaiian-Serving Institution.
2. A partnership to integrate the proposed research activities into an existing NSF-funded Louis Stokes Alliance for Minority Participation (LSAMP), Alliance for Graduate Education and the Professoriate (AGEP), or Center of Research Excellence in Science and Technology (CREST) project. Information on LSAMP, AGEP, and CREST programs and awards made by these programs may be found on the NSF web site for the Division of Human Resource Development in the Directorate for Education and Human Resources (<http://www.nsf.gov/div/index.jsp?div=HRD>)

LSAMP projects use sustained and comprehensive approaches to facilitate the achievement of the long-term goal of increasing the number of students who earn doctorates in science, technology, engineering, and mathematics (STEM) fields, particularly those from populations underrepresented in STEM fields. The AGEP program is designed to significantly increase the number of domestic students receiving doctoral degrees in STEM, with special emphasis on populations that are underrepresented in STEM fields (i.e., African Americans, Hispanics, American Indians, Alaska natives, native Hawaiians, and other Pacific Islanders). AGEP projects are particularly focused on increasing the number of minorities who enter the professoriate in STEM disciplines. Specific objectives of the AGEP program are to: (1) develop and implement innovative models for recruiting, mentoring, and retaining minority students in STEM doctoral programs; and (2) develop effective strategies for identifying and supporting underrepresented minorities who want to pursue academic careers. The CREST program provides a substantial source of federal support for research at minority-serving institutions across the United States. By facilitating research projects in STEM disciplines with multi-year, multi-million dollar cooperative agreements, the main goal of CREST and its awardees is to build the research competitiveness of minority-serving institutions, while increasing the recruitment and retention of individuals from diverse backgrounds in STEM study and STEM-based careers.

### NEESR Individual Investigator (NEESR II) Proposals

NEESR II proposals are appropriate for projects where a relatively small investigation can be clearly defined and the duration

and budget for a NEESR II award are sufficient, thus they are similar to traditional NSF individual investigator research proposals. NEESR II proposals may be used to generate pilot data for a future NEESR SG or NEESR GC proposal for research where significant technical risk may be involved with a larger scope proposal or focus on recognized gaps in the earthquake engineering community's knowledge of earthquake hazard mitigation strategies. The research may be conducted by an individual investigator or a small research team and may involve more than one organization.

### **NEESR Small Group (NEESR SG) Proposals**

NEESR SG proposals should address problems that require considerably more resources or a wider range of disciplinary expertise than appropriate for a NEESR II proposal. NEESR SG proposals offer the opportunity for earthquake engineering researchers to team with researchers in emerging areas such as nanotechnology, biotechnology, and information technology to address knowledge gaps in earthquake hazard mitigation strategies.

### **NEESR Grand Challenge (NEESR GC) Proposals**

NEESR GC proposals should focus on a compelling national research challenge in earthquake hazard mitigation that can only be addressed through significant use of NEES resources. GC projects should take a comprehensive systems approach and engage investigators from a range of disciplines to advance new knowledge, innovation, and technology transfer for earthquake hazard mitigation. In particular, GC proposers may find it especially helpful during the proposal preparation stage to include input from practitioners, industry, and public policy-makers to formulate the research and technology transfer strategy and who may also become part of the project team. The project may benefit from a project manager, who may either be the Principal Investigator or a member of the project team. GC projects may budget for an External Advisory Board; however, member names must not be included in the proposal.

### **NEESR Simulation Development (NEESR SD) Proposals**

The NEES equipment sites are state-of-the-art experimental facilities for conducting cutting-edge research in earthquake engineering. Supported by innovative cyberinfrastructure tools, each equipment site provides unique opportunities to develop advanced experimental simulation techniques and instrumentation not previously possible. These techniques may require, for example, the development of advanced sensors, measurement devices, control algorithms, or robotic tools. Hybrid testing techniques, in particular, are expected to progress well beyond their current limitations and new applications will be devised that will allow the equipment sites to offer new capabilities not currently feasible. Innovative testing techniques that could provide experimental information to develop fundamental constitutive relationships for existing or new materials subjected to dynamic loading conditions are also encouraged. NEESR Simulation Development (SD) proposals must focus on developing and demonstrating the feasibility of advanced experimental simulation techniques or instrumentation for NEES. The research, development, and demonstration in an SD proposal must use a NEES equipment site, but the Principal Investigator need not be affiliated with that particular equipment site or any other NEES equipment site.

### **NEESR Payload Proposals**

NEESR Individual Investigator (II), Small Group (SG), and Grand Challenge (GC) projects offer a unique opportunity for researchers outside the project team to use the project's test set-up to accommodate a considerably smaller experimental investigation of a payload component, referred to as a "payload project." This payload is not necessarily part of the main structural, geotechnical, or infrastructure system, e.g., the payload may be a mechanical, control, sensing, or nonstructural component that may detect or support operation of the overall system, but the payload is not part of the load carrying system. Payload projects also may concern the load carrying system or its components. The NEESR II, SG, or GC project's test set-up would provide the vehicle for testing the payload component. Researchers should contact the Principal Investigator of the NEESR II, SG, or GC project that they wish to use for feasibility and accommodation of the payload project.

### **Earth Science (EarthScope)/Earthquake Engineering (NEES) Research Opportunities**

EarthScope is an earth science program to explore the four-dimensional structure of the North America continent. The EarthScope Program provides a framework for broad, integrated studies across the earth sciences, including research on fault properties and the earthquake process, strain transfer, magmatic and hydrous fluids in the crust and mantle, plate boundary processes, large-scale continental deformation, continental structure and evolution, and composition and structure of the deep earth. In addition, EarthScope offers a centralized forum for earth science education at all levels and an excellent opportunity to develop cyberinfrastructure to integrate, distribute, and analyze diverse data sets. The nucleus of the program is the EarthScope facility, consisting of the Plate Boundary Observatory, the San Andreas Fault Observatory at Depth, and the USArray. The EarthScope facility is a multi-purpose array of instruments and observatories that will greatly expand the observational capabilities of the earth sciences and permit us to advance our understanding of the structure, evolution and dynamics of the North America continent. The NEES and EarthScope facilities provide complementary capabilities to extend the continuum and interface of knowledge, innovation, and technology in earth sciences and earthquake engineering. Co-funding opportunities will be considered between the CMMI Division, through this solicitation, and by the NSF Directorate for

Geosciences (GEO), Division of Earth Sciences (EAR), for projects that propose research requiring coordinated use of both NEES and EarthScope facilities. Proposals should address both the requirements of this solicitation and program solicitation NSF 06-562, EarthScope (<http://www.nsf.gov/pubs/2006/nsf06562/nsf06562.htm>). Proposals will be co-reviewed by ad hoc mail reviews or panels or both formed to review proposals under both solicitations.

## International Collaboration Opportunities

*General Information:* NSF encourages collaboration with international researchers. Proposals including international collaboration should identify the names and affiliations of the international collaborators, the nature and goals of collaboration activities, and the international synergies and benefits to be gained from the collaboration. NSF policies and procedures regarding participation of international researchers in NSF awards can be obtained from the NSF Office of International Science and Engineering (<http://www.nsf.gov/div/index.jsp?div=OISE>). International collaborators cannot be funded under this solicitation and must provide their own support.

*NEES/E-Defense Earthquake Engineering Research Collaboration:* The NEES equipment sites operated by NEESinc and the new Japanese E-Defense shake table operated by NIED offer complementary earthquake engineering experimental facilities for large and full scale testing. Since 2004, meetings have been held between researchers in the United States and Japan to identify research strategies for investigations of the seismic performance of steel structures and bridges that require coordinated use of the NEES and E-Defense facilities. Summaries of these meetings are available at the NEESinc web site (<http://www.nees.org/>). NSF strongly encourages proposals to be submitted for these topics that coordinate such research for the United States at the national level, rather than through uncoordinated, individual projects; proposals most likely will be best suited under the Grand Challenge or Small Group project categories. Prior to proposal submission, proposers: (1) are encouraged to consult with the Joint Technical Coordinating Committee (JTCC) for the NEES/E-Defense Earthquake Engineering Research Collaboration. Contacts for the JTCC are the NEESinc Executive Director, Dr. Clifford Roblee ([cliff.roblee@nees.org](mailto:cliff.roblee@nees.org)), and Professor Masayoshi Nakashima, Director of E-Defense, NIED ([nakashima@archi.kyoto-u.ac.jp](mailto:nakashima@archi.kyoto-u.ac.jp)); (2) are recommended to include on the project team at least one counterpart Japanese researcher funded by NIED for such collaborations; and (3) must contact the Director of E-Defense for the availability, costs, accommodations, and other associated issues of the E-Defense facility.

## NEESR Requirements Regarding Telepresence and Data

NEES experimental, telepresence, data archival, simulation, and collaborative capabilities have been designed to provide an infrastructure for earthquake engineering research and education partnerships, and to encourage broad participation from different segments of the earthquake engineering community (e.g., researchers, educators, students, practitioners, consultants, government agencies, national laboratories, and international collaborators).

NEES enables broad teleparticipation in experimentation at each NEES equipment site, for both private clients (e.g., remote collaborators involved on the project research team) and public clients (e.g., remote viewers such as K-12 faculty and students, an engineering class, and practicing engineers). The planned test dates of all experiments conducted by awards made under this solicitation must be coordinated with NEESinc and be announced on the NEESinc web site (<http://www.nees.org>). The experimental set-up must be configured to enable viewing by both private and public clients to the maximum extent practical. Viewing in this context means the ability to observe not only static web pages, but also includes a range of streaming images, subsets of non-mission critical sensor data, results, and background documentation. All of this should be in a format that is appropriate to the intended educational outreach (public) clients.

At all times, even when a specific test is not being conducted, a public telepresence web site will be kept operational at each NEES equipment site allowing the general public to observe the real-time events occurring in the laboratory facility (e.g., construction, experimentation, disassembly). In addition, NEES equipment sites must provide the ability to browse non-mission critical documentation, representative data, and, if practical, video replays of past experiments. The intent is to expand the community's awareness and understanding of the scientific process by allowing them into the laboratory in a safe manner, yet leaving them the opportunity to explore in a structured environment.

NEES has been designed to share both experimental facilities and the data generated from research that uses these facilities (experimental and analytical data). NSF advocates and encourages open scientific communication. NSF expects significant findings from supported research and educational activities to be *promptly* submitted for publication with authorship that accurately reflects the contributions of those involved. NSF expects awardees to share with other researchers, at no more than incremental cost and within a reasonable time, the data, samples, physical collections and other supporting materials created or gathered in the course of the work. NSF also encourages grantees to share software and inventions, once appropriate protection for them has been secured, and otherwise act to make the innovations they embody widely useful and usable.



### III. AWARD INFORMATION

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Anticipated funding amount: \$9,000,000 expected in FY 2007 for new awards, pending availability of funds and quality of proposals. This amount includes up to \$3,000,000 for collaborative research on steel structures and bridges between U.S. and Japanese researchers jointly using the NEES equipment sites and E-Defense shake table facility, pending availability of funds and quality of proposals.

- Payload Awards
  - Up to five.
  - Funding up to \$100,000 per award, for up to two years total, pending the availability of funds.
- Simulation Development Awards
  - Up to three.
  - Funding up to \$100,000 per year per award, for up to two years total, pending the availability of funds.
- Individual Investigator Awards
  - Up to four.
  - Funding up to \$125,000 per year per award, for up to three years total, pending the availability of funds.
- Small Group Awards
  - Up to four
  - Funding up to \$400,000 per year per award, for up to four years total, pending the availability of funds.
- Grand Challenge Awards
  - One.
  - Funding up to \$400,000 for the first year, up to \$500,000 for the last year, and up to \$1,000,000 per year for the intermediate years, per award, for up to five years total, pending the availability of funds.

### IV. ELIGIBILITY INFORMATION

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#### Organization Limit:

Proposals may only be submitted by the following:

- U.S. universities and colleges may submit proposals as the lead organization. Proposals involving more than one organization must be submitted as a single administrative package from the lead organization; collaborative proposals with multiple administrative packages will not be accepted.

**Research team:** The project team for Individual Investigator, Small Group, and Grand Challenge proposals must include one of the following two options in the research activities:

1. Faculty and students involved in the research activities from a predominantly undergraduate institution, women's college, Historically Black College or University, Hispanic-Serving Institution, Indian Tribally Controlled College or University, Alaska Native-Serving Institution, or Native Hawaiian-Serving Institution.
2. A partnership to integrate the proposed research activities into an existing NSF-funded Louis Stokes Alliance for Minority Participation (LSAMP), Alliance for Graduate Education and the Professoriate (AGEP), or Center of Research Excellence in Science and Technology (CREST) projects. Information on LSAMP, AGEP, and CREST programs and awards made by these programs may be found on the NSF web site for the Division of Human Resource Development in the Directorate for Education and Human Resources (<http://www.nsf.gov/div/index.jsp?div=HRD>).

**PI Limit:**

None Specified

**Limit on Number of Proposals per Organization:**

None Specified

**Limit on Number of Proposals per PI:**

An individual may be included as a Principal Investigator (PI) in only one proposal. However, a PI in one proposal may be a Co-Principal Investigator or project team member in other proposals submitted to this solicitation. There is no limit to the number of proposals an organization may submit.

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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**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](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](mailto: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](mailto:pubs@nsf.gov).

Individual Investigator, Simulation Development, and Payload proposals are limited to the standard 15-page limit for the project description. Because of their larger scopes, Small Group and Grand Challenge proposals will be limited to 20 and 25 pages, respectively, for the project description. Proposals must have the entire project description submitted in a single file upload. The project scope, budget, and schedule should incorporate all activities required to conduct the entire project. Proposers should consult the *NEES Facilities User Guide*, as well as NEESinc and the NEES equipment site(s) intended to be used in the project, during proposal preparation for information on the shared use of NEES equipment sites, including protocols, scheduling, budget, and experimental planning information.

Proposals must include the items listed below, as well as those specified in the GPG. Proposals missing one or more of these items will be **returned without review**.

- **Proposal titles must begin** with one of the following phrases: Individual Investigator proposal titles must begin with the phrase "NEESR-II," Small Group proposal titles must begin with the phrase "NEESR-SG," Grand Challenge proposal titles must begin with the phrase "NEESR-GC," Simulation Development proposal titles must begin with the phrase "NEESR-SD," and Payload proposal titles must begin with the phrase "NEESR Payload."
- Proposals must include the following items in the project description, in the order shown below, starting with page one. Use the headings shown in bold-face type below:

- **Project Team.** Provide a table listing information about each project team member in the project description, i.e., every individual named in the project description should be included in this table, regardless of the role in the project and whether that role is funded or unfunded. Include for each project team member the following: name, title, affiliation, expertise, role in the project, and annual time budgeted for project activities. This table will be used by NSF to check for conflicts of interest in assembling the reviewer community. Note: Proposals submitted in any category must not include the names of external advisory group/board/committee members.
- **Experimental Facilities.** Provide a table listing the NEES equipment site(s) and any other experimental facilities to be used in the project, including the planned schedule and duration of use of each NEES equipment site and any other experimental facilities.
- **Functional Budget.** Provide a table that itemizes the requested annual and cumulative budgets into the following categories:
  - Research activities budget.
    - Experimental activities budget. Provide a separate breakdown for each NEES equipment site and any other experimental facility used (e.g., Japanese E-Defense facility or other academic experimental facility).
    - Total budget for specimen removal or disposal.
    - Non-experimental activities budget.
  - Education and outreach activities budget.
  - Data archiving and sharing budget.
  - Management budget (optional, e.g., GC proposals may wish to have a project manager).
- **Summary of Proposal Preparation Discussions with NEES Consortium, Inc., and Requested NEES Equipment Sites.**
- **Vision.** A vision for new knowledge or innovation in earthquake hazard mitigation or experimental simulation.
- **Literature Review.**
- **Research Program Justification, Description, and Expected Outcomes.**
- **Education and Outreach Activities.** Proposers are strongly encouraged to focus on only one or two major activities that contribute to the broader earthquake engineering community vision for NEES by aligning activities with the community-developed *NEESinc Education, Outreach, and Training (EOT) Strategic Plan*, *NEES EOT Execution Plan*, and the *NEESinc Diversity Strategic Plan* and coordinating with NEESinc.
- **Data Archiving and Sharing Plan.** For dissemination and transfer of findings to the earthquake engineering community, include a data archiving and sharing plan to use the NEES central data repository in accordance with the *NEESinc Data Sharing and Archiving Policies and Guidelines*.
- **Payload Opportunities** (for Individual Investigator, Small Group, Grand Challenge, and Simulation Development Proposals only, as applicable).
- **Project Implementation Plan**, to include the following:
  - Project schedule (alternatively, this may be included in the Supplementary Documents section);
  - Project management plan;
  - Organizational chart;
  - Plan for experimental planning, testing, and post-processing and analysis using the NEES cyberinfrastructure resources (see <http://it.nees.org>), e.g., collaborative tools, NEES central data repository, simulation tools, and telepresence configured for both private and public clients during testing; and
  - Project web site.
- **Project Risk Mitigation Plan**, not to exceed five pages, which addresses the following items, as applicable (alternatively, this may be included in the Supplementary Documents section):
  - Protection of NEES equipment during test structure construction.
  - Stability of test structure construction during erection.
  - Safety of NEES equipment and personnel during test structure erection.
  - Protection of NEES equipment and adjacent structures during testing.
  - Safety during removal of test structure from NEES equipment.
  - Protection of mobile NEES equipment during transport to and from experimental field site.
  - Acquisition of required permissions and permits for use of mobile NEES equipment at experimental field site.
- **Additional Topics Pertinent to the Proposal**, if applicable.

## Supplementary Documents

Proposers are strongly discouraged from including supplementary documents other than those listed below. Proposers are strongly discouraged from including letters of endorsement from individuals (e.g., other faculty, consultants, practitioners), professional organizations, or other federal, state, and local government agencies, etc., unless the names of the individuals providing these letters are explicitly listed in the project team table at the start of the project description.

- Project Schedule.
- Project Risk Mitigation Plan.
- For NEES/E-Defense collaborations: (1) One letter of endorsement from the counterpart Japanese collaborator

verifying interest in collaboration and proposed or funded sources of research support, and (2) one letter of support from the Director of E-Defense verifying the availability, costs, and accommodation of that facility for coordinated research.

- Letter from the NSF-funded LSAMP, AGEP, or CREST project verifying interest in collaborating, including the NSF award number of the LSAMP, AGEP, or CREST award.
- For Payload proposals, a letter from the PI of the NSF-funded NEESR II, SG, or GC project whose experimental test set-up will be used, acknowledging feasibility and accommodation of the payload project. The letter should include the NSF award number of the NEESR II, SG, or GC project that will be used.
- Formal vendor quote(s), if needed, for specific equipment, specimen, or services beyond those available at the equipment sites. Note: A formal vendor quote states a specific price for equipment or specimen to be provided or for services to be rendered.

## B. Budgetary Information

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**Cost Sharing:** Cost sharing is not required by NSF in proposals submitted to the National Science Foundation.

## C. Due Dates

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

January 30, 2007

## D. FastLane/Grants.gov Requirements

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- **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](mailto: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](mailto: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

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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

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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.

#### **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.

### B. Review and Selection Process

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Proposals submitted in response to this program solicitation will be reviewed by Adhoc Review or Panel Review or Reverse Site Review.

#### **Additional NSF Review Process for Earth Science (EarthScope)/Earthquake Engineering (NEES) Research Proposals**

Proposals focusing on Earth Science (EarthScope)/Earthquake Engineering (NEES) research will be co-reviewed by ad hoc mail reviews or panels or both formed to review proposals under the NSF NEESR and EarthScope solicitations.

## **Additional NSF Review Process for Grand Challenge Proposals**

Grand Challenge (GC) proposals will first undergo a panel merit review, with ad hoc mail reviews as needed. For this review, GC proposals will be reviewed in panels along with other NEESR proposals in the same topical areas. These panel reviews will make recommendations for GC proposals to be considered for a second merit review that will be a reverse site visit. NSF staff will review these recommendations and select a shortlist of GC proposals to be invited by NSF for merit review (reverse site visit) by a Grand Challenge research panel. Principal Investigators that make the shortlist will be required for the reverse site visit to brief the Grand Challenge research panel in person at NSF headquarters in Arlington, VA. Each invited Principal Investigator may bring up to two additional project team members as briefing participants. NSF will notify the Principal Investigators of all submitted GC proposals of the planned review dates within one month after the proposal deadline. GC proposers should plan their schedules to be available for this second and final step of the merit review process in case they are selected. Briefing dates will not be rescheduled. Travel and other costs will be the responsibility of proposers. Proposers will be asked to submit, one week prior to the briefing, a ten-page maximum proposal addendum to address reviewer comments; this addendum will be included as part of the Grand Challenge research panel review.

## **NEESinc Equipment Site Policies Compliance Check (ESPCC)**

Upon completion of the NSF peer review process and prior to the NSF award being made, proposals recommended for funding must undergo supplementary review that will be coordinated by NEESinc with each equipment site at which experimental work is proposed. This Equipment Site Policies Compliance Check (ESPCC) provides NEESinc and the equipment sites an opportunity to assure policy compliance with respect to the *NEES Facilities User Guide*, experimental feasibility, safety, budget, schedule, and available data services. A copy of the ESPCC form is available at the NEESinc web site (<http://www.nees.org>). After NSF notification that the proposal is being recommended for an award, the prospective awardee must submit to NEESinc those sections of the proposal required by NEESinc and the equipment sites to evaluate policy compliance. The required information will include experimental plans (e.g., proposed schedule, specimen preparation details, equipment loads and sequence, instrumentation and data acquisition needs) and the experimental portion of the budget. To satisfy the ESPCC requirement, NEESinc and the equipment sites may require more detailed information than provided in the proposal. The information provided will be shared with NEESinc and equipment site staff. The equipment sites may work directly with the prospective awardee in the process of completing the ESPCC. NEESinc will provide the prospective awardee with the outcome of the ESPCC, which the prospective awardee is to in turn share with NSF prior to award recommendation. Using the ESPCC outcomes, NSF will work with the prospective awardee to determine an effective start date for the award that may be later than the start date originally proposed and may require revised budgets. NSF expects NEESinc and the equipment sites to maintain confidentiality of the proposals during the ESPCC process.

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.

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## **VII. AWARD ADMINISTRATION INFORMATION**

### **A. Notification of the Award**

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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

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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](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](mailto: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 *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpm](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm).

### Special Award Conditions:

#### Project Data

All experimental data generated by a NEESR project must be submitted electronically to the NEES curated central data repository maintained by NEESinc in accordance with the NEESinc *Data Sharing and Archiving Policies and Guidelines*. Data in this context refers to all measurements, calibrations, observations, analyses, images, commentary, reports, logs, notes, and electronic notebook entries that relate directly to the proposed experiments. Any data (as described above), which is recorded in hardcopy of any form, must be transcribed or converted, without loss of information, into an appropriate searchable format onto electronic media. In addition, this information must be properly characterized with appropriate metadata descriptors and then subsequently stored into one of the NEES accepted digital formats to facilitate archiving in accordance with the NEESinc *Data Sharing and Archiving Policies and Guidelines*.

#### Annual Principal Investigator Meeting

Principal Investigators are required to attend an annual NEES research and education awardees meeting; this meeting will be open to the public and may be scheduled in conjunction with the NEESinc Annual Meeting (<http://www.nees.org>).

#### Research Participation Agreement (RPA) to Access NEES Equipment Sites

Awardees will be required to enter into a Research Participation Agreement (RPA) with NEESinc and each of the NEES equipment site(s) to be used in their project. The RPA provides the contractual basis for awardees to access the NEES facilities and contains the terms and conditions for their use. RPA templates for each NEES equipment site are provided at <http://www.nees.org/research/rpa/>. Researchers will not be allowed access to the experimental tools at NEES equipment sites until an executed RPA is on file with NEESinc. Questions regarding RPAs should be directed to NEESinc staff (<http://www.nees.org>).

## C. Reporting Requirements

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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.

### **Final Project Report**

The final project report must include a letter from NEES Consortium, Inc., certifying that all project data appropriate for archiving has been fully documented, curated, and published on the NEES central data repository.

## **VIII. AGENCY CONTACTS**

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General inquiries regarding this program should be made to:

- Joy Pauschke, Program Director, George E. Brown, Jr. Network for Earthquake Engineering Simulation, Directorate for Engineering, Division of Civil, Mechanical, and Manufacturing Innovation, 545 S, telephone: (703) 292-7024, fax: (703) 292-9053, email: [jpauschk@nsf.gov](mailto:jpauschk@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@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](mailto:support@grants.gov).

### **Cognizant Program Officer(s):**

- Douglas A. Foutch, Program Director, Structural Systems and Hazard Mitigation of Structures Program, Directorate for Engineering, Division of Civil, Mechanical, and Manufacturing Innovation, 545 S, telephone: (703) 292-7003, fax: (703) 292-9053, email: [dfoutch@nsf.gov](mailto:dfoutch@nsf.gov)
- Richard J. Fragaszy, Program Director, GeoEnvironmental Engineering and GeoHazards Mitigation Program, Directorate for Engineering, Division of Civil, Mechanical, and Manufacturing Innovation, 545 S, telephone: (703) 292-7011, fax: (703) 292-9053, email: [rfragasz@nsf.gov](mailto:rfragasz@nsf.gov)
- Joy M. Pauschke, Program Director, George E. Brown, Jr. Network for Earthquake Engineering Simulation, Directorate for Engineering, Division of Civil, Mechanical, and Manufacturing Innovation, 545 S, telephone: (703) 292-7024, fax: (703) 292-9053, email: [jpauschk@nsf.gov](mailto:jpauschk@nsf.gov)
- Kaye Shedlock, Program Director, EarthScope Program, Directorate for Geosciences, Division of Earth Sciences, 785 S, telephone: (703) 292-8556, fax: (703) 292-9025, email: [kshedloc@nsf.gov](mailto:kshedloc@nsf.gov)

## **IX. OTHER INFORMATION**

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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

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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** (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](mailto: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

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