

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U. S. Department of Energy
National Energy Technology Laboratory**

Advanced SynchroPhasor Research

Funding Opportunity Number: DE-FOA-0000035

Announcement Type: Amendment 002

**CFDA Number: 81.122 Electricity Delivery and Energy Reliability,
Research, Development and Demonstration**

Issue Date:	05/01/2009
Letter of Intent Due Date:	Not Applicable
Pre-Application Due Date:	Not Applicable
Application Due Date:	05/27/2009 at 8:00:00 PM Eastern Time

The purpose of this amendment is to revise the application due date above back to May 27, 2009. The date was erroneously changed on the prior amendment.

NOTE: REGISTRATION/SUBMISSION REQUIREMENTS

Registration Requirements

There are several one-time actions you must complete in order to submit an application in response to this Announcement (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contractor Registration (CCR), and register with FedConnect). Applicants who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

Applicants must obtain a DUNS number. DUNS website:

http://www.dnb.com/US/duns_update/

Applicants must register with the CCR. CCR website: <http://www.ccr.gov/>

Applicants must register with FedConnect to submit their application. FedConnect website: www.fedconnect.net

Questions

Questions relating to the **system requirements or how an application form works** must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov.

Questions regarding the **content** of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at <http://www.compusearch.com/products/fedconnect/fedconnect.asp>. DOE/NNSA will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions pertaining to the **submission** of applications through FedConnect should be directed by e-mail to support@FedConnect.net or by phone to FedConnect Support at 800-899-6665.

Application Preparation and Submission

Applicants must download the application package, application forms and instructions, from Grants.gov. Grants.gov website: <http://www.grants.gov/>
(Additional instructions are provided in Section IV A of this FOA.)

Applicants must submit their application through the FedConnect portal. FedConnect website: www.fedconnect.net
(Additional instructions are provided in Section IV H of this FOA.)

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Section I - FUNDING OPPORTUNITY DESCRIPTION

Description

Project Description:

Objective

The Department of Energy (DOE), National Energy Technology Laboratory (NETL), on behalf of the Office of Electricity Delivery and Energy Reliability (OE), Visualization and Controls (VC) Program, is seeking applications for innovative applied research and development (R&D) on the use of synchrophasor data to improve the reliability of the nation's electricity delivery.

Applicants are asked to prepare a multi-year program application with a phased approach: Phase 1 being analytical (theoretical) studies, Phase 2 pilot or prototype studies and Phase 3 a large-scale or full-scale demonstration. Applications selected for award may be divided into two or three Budget Periods which may line up with, or overlap, the proposed phases. DOE has identified Technical Areas of Interest that the applicant should consider when preparing the application.

Applicants shall include demonstration partner(s) as member(s) of the project team. This partner shall host and actively participate in Phase 2 and 3 work. The requirements for the demonstration partner are that the partner owns, controls, or has written permission to use the facilities proposed for Phase 2 and 3 work. Evidence of these qualifications shall be documented in the commitment letter provided by the partner.

The Applicant may propose a three-phase project, or a project that starts with Phase 2 or Phase 3. To skip earlier phases, the Applicant shall provide adequate documentation to demonstrate that sufficient work has been performed in the earlier phase. For example, if the Applicant chooses to skip Phase 1 – analytical studies, the Applicant must justify and document that sufficient analytical work has been performed to support moving into Phase 2 or Phase 3 activities.

If the Applicant proposes both Phase 2 and 3, the demonstration partner can be different for each phase.

Applications shall not duplicate existing projects in the DOE's Transmission Reliability Portfolio. Active projects in the portfolio can be found under the "Transmission Reliability" link at www.oe.energy.gov and under the "2008 Visualization and Controls" link under Peer Review on the right side of the Transmission Reliability page.

Background

Synchrophasor monitoring products are commercially available from several manufacturers and limited progress has been made in the deployment and networking of synchrophasor technologies. However, there remain significant technical and institutional challenges to the wide-spread adoption of synchrophasor monitoring technologies. These challenges involve both the design and creation of networks to enable the exchange of synchrophasor information among utilities as well as the development and industry acceptance of advanced applications that utilize synchrophasor information.

The DOE's VC Program has focused on applications of networked synchrophasor technologies as the principal way of improving the reliability of delivering electricity. The DOE has provided assistance over the past several years to complement significant effort invested by industry and academia. The theme that has surfaced repeatedly is the promise that synchrophasor networks and applications will only be created and adopted through a focused and concentrated effort among stakeholders.

Technical Areas of Interest

Applications shall address analytical studies and demonstration of technologies that would improve electricity reliability and market efficiency and that rely on data exchange among electric utility companies and other organizations from high-speed, time-synchronized measurement devices installed in electric power substations or at generation stations. Applications may include, but are not limited to, monitoring and visualization for improved control room operations, wide-area control and protection, power system restoration, and improved wholesale market efficiency. Applications across all Technical Areas of Interest will compete with each other; applications will not be divided into technology areas for evaluation and award.

The following are examples of the Technical Areas of Interest that Applicants should consider when preparing their application; however, applications addressing other subject areas to improving synchrophasor data will also be considered.

1. Monitoring and visualization for improved control room operations

Use of synchrophasor data to provide early indication of grid problems (abnormal angle difference; inter-area oscillations; voltage stability). This will enable operators to assess stress on the grid, and take timely actions. In general, phase angle differences or the rate of change of the phase angle could be displayed as numbers, vector or bar graphs (using a reference angle), and/or angle-time curves. In addition, the phase angle display may be stand-alone or superimposed onto a network diagram.

Applicants shall not propose projects that duplicate work being done on Real-Time Dynamics Monitoring Systems (RTDMS), which was developed by the Consortium for Electric Reliability Technology Solutions (CERTS) Electric Power Group and is continually being upgraded. The following websites describe the work being done in this area.

See <http://www.naspi.org/resources/oitt/oittresources.stm>, for the two documents, Functional Specifications for:

NASPI RTDMS Enhancements Version 5, and
NASPI RTDMS Enhancements Version 6.

2. Wide-Area Control and Protection.

Use of synchrophasor data to enable highly precise detection of islanding. Phasor measurement unit (PMU)-facilitated coordination can allow a micro-grid to continue to operate in island mode until the utility grid disturbance is resolved, reducing the likelihood of a blackout.

Use of synchrophasor data to improve planned separation of a power system into islands when instability occurs, including:

- More accurately detecting whether a power system is heading to an unstable state and if a network separation is necessary to avoid a catastrophic failure.
- Dynamically determining islanding boundaries according to the prevailing system conditions (e.g., among which groups of generators the loss of stability is imminent and how to optimally balance load and generation in each island).

Use of synchrophasor data to improve existing protective relay algorithms by making certain functions/parameters are self-adjustable based on changing system conditions. Some potential applications:

- Adaptive security and dependability to avoid cascading.
- Improved out-of-step protection schemes (including multi-machine instability).
- Improved backup protection.
- Intelligent load shedding.

Use of synchrophasor data for automated prevention of angular instability, voltage instability, low-frequency oscillations, and thermal constraints.

Use of synchrophasor data to support optimized and integrated control with flexible alternating current transmission systems (FACTS), static volt-amp reactive compensators (SVC), and high voltage direct current (HVDC) systems.

3. Power System Restoration

Use of synchrophasor data for timely and proper decision-making to bring equipment back into service without risking instability or unsuccessful reclosing attempts. This includes using synchrophasor data to directly measure system conditions, so that an operator would know if it is feasible to reclose the tie line or reconnect a substation. Since use of synchrophasor data will increase the level of confidence in measured system conditions, it is a valuable tool for operators who are under pressure to reenergize the grid.

4. Improved Wholesale Market Efficiency

Use of synchrophasor data to improve State Estimation (SE):

- “Evolutionary” solution: Improvements achieved by adding synchronized measurements to existing SE measurement set and applying ‘meter placement’ methods to determine most beneficial PMU locations.
- “Revolutionary,” next generation supervisory control and data acquisition (SCADA): State Measurement solution with synchronized measurements for full system observability.
- “Equivalent” solution: For independent system operator (ISO) and regional

transmission organization (RTO) SE applications to represent “boundary conditions” for the utility SE.

Use of synchrophasor data for real-time congestion management - Synchronized measurements make it possible to operate the grid according to true dynamic limits, not limits that are derived based on off-line studies. This allows improved visibility of flowgates with improved detection of angular stability, voltage stability, low-frequency oscillations, and thermal constraints.

Section II - AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

Cooperative Agreements

- DOE anticipates awarding cooperative agreements under this program announcement (See Section VI.B.2 Statement of Substantial Involvement).

B. ESTIMATED FUNDING

Amount New Awards

- Approximately \$2,250,000 is expected to be available for new awards under this announcement.

C. MAXIMUM AND MINIMUM AWARD SIZE

Ceiling (i.e., the maximum amount for an individual award made under this announcement):
\$ 2,250,000

Floor (i.e., the minimum amount for an individual award made under this announcement):
\$ 750,000

D. EXPECTED NUMBER OF AWARDS

Number of Awards

- DOE anticipates making approximately 1-3 awards under this announcement.

E. ANTICIPATED AWARD SIZE

Maximum Award Size Range

- While the maximum award size (i.e., the ceiling) is \$2,250,000, DOE anticipates that awards will be in the \$[Insert Range] range for the total project period.

F. PERIOD OF PERFORMANCE

Number of Years

- DOE anticipates making awards that will run for up to 3 years.

G. TYPE OF APPLICATION

New Applications Only

- DOE will accept only new applications under this announcement.

Section III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

All Entities excluding Federal Agencies, FFRDC and Non Profit

- All types of entities are eligible to apply, except other Federal agencies, Federally Funded Research and Development Center (FFRDC) Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.

B. COST SHARING {or MATCHING}

Cost Share 20% & 50%

- The cost share must be at least 20% of the total allowable costs for research and development projects and 50% of the total allowable costs for demonstration and commercial application projects and must come from non-Federal sources unless otherwise allowed by law. The sum of the Government share, including FFRDC contractor costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project. (See 10 CFR part 600 for the applicable cost sharing requirements.)

Phase 1	“Analytical (Theoretical) Studies”	20% Cost Share
Phase 2	“ Pilot or Prototype Studies”	20% Cost Share
Phase 3	“Large-scale or Full-scale Demonstration”	50% Cost Share

Section IV - APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE

Application forms and instructions are available at Grants.gov. To access these materials, go to <http://www.grants.gov>, select "Apply for Grants," and then select "Download Application Package." Enter the CFDA and/or the funding opportunity number located on the cover of this announcement and then follow the prompts to save the application package. Once you have SAVED the application package and completed all the required documentation, you will submit your application via the Fedconnect portal. **DO NOT use the Save & Submit selection in Grants.gov.**

B. LETTER OF INTENT AND PRE-APPLICATION

1. Letter of Intent.

Letters of Intent Not Required

- Letters of Intent are not required.

2. Pre-application

Pre-applications Not Required

- Pre-applications are not required.

C. CONTENT AND FORM OF APPLICATION

You must complete the mandatory forms and any applicable optional forms (e.g., SF-LLL- Disclosure of Lobbying Activities) in accordance with the instructions on the forms and the additional instructions below. Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement.

1. SF 424 - Application for Federal Assistance

Complete this form first to populate data in other forms. Complete all required fields in accordance with the pop-up instructions on the form. To activate the instructions, turn on the "Help Mode" (Icon with the pointer and question mark at the top of the form). The list of certifications and assurances referenced in Field 21 can be found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm under Certifications and Assurances.

2. Project/Performance Site Location(s)

Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided.

Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a 3 digit Congressional district code, for example VA-001. Hover over this field for additional instructions.

Use the Next Site button to expand the form to add additional Project/Performance Site Locations.

3. Other Attachments Form

Submit the following files with your application and attach them to the Other Attachments Form. Click on "Add Mandatory Other Attachment" to attach the Project Narrative. Click on "Add Optional Other Attachment," to attach the other files.

- **Project Narrative File - Mandatory Other Attachment**

The project narrative must not exceed 15 pages, including cover page, table of contents, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) [select single or double spaced]. **EVALUATORS WILL REVIEW ONLY THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE.** The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application. See Part VIII.D for instructions on how to mark proprietary application information. Save the information in a single file named "Project.pdf," and click on "Add Mandatory Other Attachment" to attach.

The project narrative must include:

Project Objectives. This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.

Merit Review Criterion Discussion. The section should be formatted to address each of the merit review criterion and sub-criterion listed in Section V. A. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. **DOE/NNSA WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERION AND SUB-CRITERION.**

Project Timetable: This section should outline as a function of time, year by year, all the important activities or phases of the project, including any activities planned beyond the project period. Successful applicants must use this project timetable to report progress.

Relevance and Outcomes/Impacts: This section should explain the relevance of the effort to the objectives in the program announcement and the expected outcomes and/or impacts. The justification for the proposed project should include a clear statement of the importance of the project in terms of the utility of the outcomes and the target community of beneficiaries.

Roles of Participants: For multi-organizational or multi-investigator projects, describe the roles and the work to be performed by each participant/investigator, business agreements between the applicant and participants, and how the various efforts will be integrated and managed.

Multiple Principal Investigators: The applicant, whether a single organization or team/partnership/consortium, must indicate if the project will include multiple PIs. This decision is solely the responsibility of the applicant.

If multiple PIs will be designated, the application must identify the Contact PI/Project Coordinator and provide a "Coordination and Management Plan" that describes the organization structure of the project as it pertains to the designation of multiple PIs.

This plan should, at a minimum, include:

- process for making decisions on scientific/technical direction;
- publications;
- intellectual property issues;
- communication plans;
- procedures for resolving conflicts; and

- PIs' roles and administrative, technical, and scientific responsibilities for the project.

Facilities And Other Resources: Identify the facilities (e.g., office, laboratory, computer, etc.) to be used at each performance site listed and, if appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Provide any information describing the other resources available to the project such as machine and electronics shops.

Equipment: List important items of equipment already available for this project and, if appropriate, note the location and pertinent capabilities of each. If you are proposing to acquire equipment, describe comparable equipment, if any, already at your organization and explain why it cannot be used.

Bibliography And References, If Applicable: Provide a bibliography for any references cited in the Project Narrative section. This section must include only bibliographic citations.

- **Statement Of Project Objectives (SOPO):**

The project narrative must contain a single, detailed Statement of Project Objectives that addresses how the project objectives will be met. The Statement of Project Objectives must contain a clear, concise description of all activities to be completed during project performance and follow the structure discussed below. The Statement of Project Objectives may be released to the public by DOE in whole or in part at any time. It is therefore required that it shall not contain proprietary or confidential business information.

The Statement of Project Objectives is generally less than 5 in total for the proposed work. Applicants shall prepare the Statement of Project Objectives in the following format:

TITLE OF WORK TO BE PERFORMED (Insert the title of work to be performed. Be concise and descriptive.)

A. OBJECTIVES

Include one paragraph on the overall objective(s) of the work. Also, include objective(s) for each phase of the work.

B. SCOPE OF WORK

This section should not exceed one-half page and should summarize the effort and approach to achieve the objective(s) of the work for each Phase.

C. TASKS TO BE PERFORMED

Tasks, concisely written, should be provided in a logical sequence and should be divided into the phases of the project, as appropriate. This section provides a brief summary of the planned approach to this project. An outline of the Project Management Plan (referenced in Task 1.0 below and required to be submitted with your application) is provided later in this Part.

PHASE I

Task 1.0 - Project Management and Planning

(Description includes work elements required to revise and maintain the Project Management Plan and to manage and report on activities in accordance with the plan)

Subtask 1.1

(Description)

Task 2.0 - (Title)

PHASE II (Optional)

Task 3.0 - (Title)

D. DELIVERABLES

The periodic, topical, and final reports shall be submitted in accordance with the attached "Federal Assistance Reporting Checklist" and the instructions accompanying the checklist.

[Note: The Recipient shall provide a list of deliverables other than those identified on the "Federal Assistance Reporting Checklist" that will be delivered. These reports shall also be identified within the text of the Statement of Project Objectives. See the following examples:

1. Task 1.1 - (Report Description)
2. Task 2.2 - (Report Description)

- **Project Summary/Abstract File**

The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the project director/principal investigator(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information as the Department may make it available to the public. The project summary must not exceed one (1) page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right) [select single or double spaced] with font no smaller than 11 point. Save this information in a file named "Summary.pdf," and click on "Add Optional Other Attachment" to attach.

- **Resume File**

Provide a resume for each key person proposed, including subawardees and consultants if they meet the definition of key person. A key person is any individual who contributes in a substantive, measurable way to the execution of the project. Save all resumes in a single file named "bio.pdf" and click on "Add Optional Other Attachment" to attach. The biographical information for each resume must not exceed 2 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) [select single or double spaced] with font no smaller than 11 point and should include the following information, if applicable:

Education and Training. Undergraduate, graduate, and postdoctoral training; provide institution, major/area, degree, and year.

Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications. Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically.

Patents, copyrights, and software systems developed may be provided in addition to or substituted for publications.

Synergistic Activities. List no more than 5 professional and scholarly activities related to the effort proposed.

- **SF 424 A Excel, Budget Information - Non-Construction Programs File**

You must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Use the SF 424 A Excel, "Budget Information - Non Construction Programs" form on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm.

You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (See PART IV, G). Save the information in a single file named "SF424A.xls," and click on "Add Optional Other Attachment" to attach.

- **Budget Justification File**

You must justify the costs proposed in each Object Class Category/Cost Classification category (e.g., identify key persons and personnel categories and the estimated costs for each person or category; provide a list of equipment and cost of each item; identify proposed subaward/consultant work and cost of each subaward/consultant; describe purpose of proposed travel, number of travelers, and number of travel days; list general categories of supplies and amount for each category; and provide any other information you wish to support your budget). Provide the name of your cognizant/oversight agency, if you have one, and the name and phone number of the individual responsible for negotiating your indirect rates. If cost sharing is required, you must have a letter from each third party contributing cost sharing (i.e., a party other than the organization submitting the application) stating that the third party is committed to providing a specific minimum dollar amount of cost sharing. In the budget justification, identify the following information for each third party contributing cost sharing: (1) the name of the organization; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and (4) the proposed cost sharing - cash, services, or property. By submitting your application, you are providing assurance that you have signed letters of commitment. Successful applicants will be required to submit these signed letters of commitments. Save the budget justification information in a single file named "Budget.pdf," and click on "Add Optional Other Attachment" to attach.

- **Subaward Budget File(s)**

You must provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each subawardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (which ever is less). Use the SF 424 A Excel for Non Construction Programs or the SF 424 C Excel for Construction Programs. These forms are found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm. Save each Subaward budget in a separate file. Use up to 10 letters of the subawardee's name (plus .xls) as the file name (e.g., ucla.xls or energyres.xls), and click on "Add Optional Other Attachment" to attach.

- **Commitment Letters**

If a third party, (i.e., a party other than the organization submitting the application) proposes to provide all or part of the required cost sharing, the applicant must include a letter from the third party stating that it is committed to providing a specific minimum dollar amount of cost sharing. The letter should also identify the proposed cost sharing (e.g., cash, services, and/or property) to be contributed. Letters must be signed by the person authorized to commit the expenditure of funds by the entity and be provided in a PDF format. Save this information in a single file named "CLTP.pdf" and click on "Add Optional Other Attachments" to attach.

4. SF-LLL Disclosure of Lobbying Activities

If applicable, complete SF- LLL. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying."

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Format	File Name
Application for Federal Assistance – SF424	Form	N/A
Project/Performance Site Location(s)	Form	N/A
Other Attachments Form: Attach the following files to this form:	Form	N/A
Project Narrative File	PDF	Project.pdf
Statement of Project Objectives	PDF	SOPO.pdf
Project Summary/Abstract File	PDF	Summary.pdf
Resume File	PDF	Bio.pdf
SF 424A File - Budget Information for Non-Construction Programs	Excel	SF424A.xls
Budget Justification File	PDF	Budget.pdf
Subaward Budget File(s)	Excel	See Instructions
Commitment Letters	PDF	CLTP.PDF
SF-LLL Disclosure of Lobbying Activities, if applicable.	Form	N/A

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS

If selected for award, DOE/NNSA reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5)
- Representation of Limited Rights Data and Restricted Software, if applicable
- Commitment Letter from Third Parties Contributing to Cost Sharing, if applicable

E. SUBMISSION DATES AND TIMES

1. Pre-application Due Date

Pre-applications Are Not Required

- Pre-applications are not required.

2. Application Due Date

Applications Due Date 8:00 PM

- Applications should be received by 05/27/2009, not later than 8:00 PM Eastern Time. You are encouraged to transmit your application well before the deadline. APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

F. INTERGOVERNMENTAL REVIEW

Program Not Subject to Executive Order 12372

- This program is not subject to Executive Order 12372 - Intergovernmental Review of Federal Programs.

G. FUNDING RESTRICTIONS

Cost Principles. Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. The cost principles for commercial organization are in FAR Part 31.

Pre-award Costs. Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. Recipients must obtain the prior approval of the contracting officer for any pre-award costs that are for periods greater than this 90 day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

H. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS

1. Where to Submit

- APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT TO BE CONSIDERED FOR AWARD.

Submit electronic application through the FedConnect portal at www.FedConnect.net. Information regarding how to submit application via FedConnect can be found at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf.

2. Registration Process

One Time Registration Process

- There are several one time actions you must complete in order to submit an application in response to this Announcement (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), and register with FedConnect). Applicants, who are not registered with CCR and FedConnect, should allow at least 10 days to complete these requirements. It is suggested that the process be started as soon as possible.

Section V - APPLICATION REVIEW INFORMATION

A. CRITERIA

1. Initial Review Criteria

Application Award Eligibility

- Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the funding opportunity announcement.

2. Merit Review Criteria

Criterion 1: Impact and Technical Understanding 45%

- Degree to which the Applicant demonstrates an understanding of the applications of wide-area measurements and related technologies to improve reliability of the nation's electric grid.
- Degree to which the Applicant's proposed analytical studies would improve reliability of the nation's electric grid and support proposed demonstrations.
- Degree to which the Applicant's proposed Phase 2 and/or 3 activities would show whether or not the proposed method of improving reliability would be effective.
- Degree to which the proposed work is based on sound scientific and engineering principles.
- Degree to which the proposed work is innovative, involving new technologies and lines of inquiry.
- Degree to which the proposal demonstrates a capability of how to address the most technically challenging aspects of improving reliability of the nation's electric grid.

Criterion 2: Technical Approach 30%

- Adequacy and feasibility of the technical aspects of the Applicant's approach to developing and demonstrating the technology.
- Appropriateness, rationale, and completeness of the proposed Statement of Project Objectives (SOPO).
- Adequacy of the project timetable to successfully accomplish project objectives (defined in SOPO) on time and within the proposed budget.

Criterion 3: Relevant Experience and Capabilities 25%

- Credentials, capabilities and experience of key personnel.
- Adequacy of the facilities to successfully demonstrate the proposed technology.
- Demonstrated experience of the project team (Applicant, consultants, subcontractors, demonstration partner) in applying relevant computer science technologies to power systems or similar systems.
- Clarity, logic and likely effectiveness of project organization.
- Degree of commitment of the project team as evidenced by letters of commitment from team members, other than the Applicant.

Program Policy Factors

- The selection official will consider the following program policy factors in the selection process:

A. Desirability to select projects for award to optimize use of available funds by allowing more projects to be supported while not being detrimental to the overall objectives of the program.

B. Desirability to select projects for award that result in a portfolio of projects that provides the greatest positive impact on deployment and usefulness of wide-area synchrophasor data.

C. Desirability to select projects for award that represent a diversity of technology concepts and applications, technical approaches or geographic locations.

B. REVIEW AND SELECTION PROCESS

1. Merit Review

Applications Subject to Merit Review

- Applications that pass the initial review will be subjected to a merit review in accordance with the guidance provided in the "Department of Energy Merit Review Guide for Financial Assistance." This guide is available under Financial Assistance, Regulations and Guidance at <http://www.management.energy.gov/documents/meritrev.pdf>.

2. Selection

Selection Official Consideration

- The Selection Official will consider the merit review recommendation, program policy factors, and the amount of funds available.

3. Discussions and Award

Government Discussions with Applicant

- The Government may enter into discussions with a selected applicant for any reason deemed necessary, including but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR part 600; and/or (4) special terms and conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

Selection and Award Date

- DOE anticipates notifying applicants selected for award by the end of July 2009 and making awards by the end of August 2009.

Section VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

1. Notice of Selection

Selected Applicants Notification

- DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Section IV.G with respect to the allowability of pre-award costs.)

2. Notice of Award

Notice of Award

A Notice of Financial Assistance Award or Assistance Agreement issued by the contracting officer is the authorizing award document. It normally includes either as an attachment or by reference: (1) Special Terms and Conditions; (2) Applicable program regulations, if any; (3) Application as approved by DOE/NNSA.; (4) DOE assistance regulations at 10 CFR part 600; (5) National Policy Assurances To Be Incorporated As Award Terms; (6) Budget Summary; and (7) Federal Assistance Reporting Checklist, which identifies the reporting requirements.

For grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110 the Award also includes the Research Terms and Conditions located at <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp>.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR part 600 (See: <http://ecfr.gpoaccess.gov>). Grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110 are subject to the Research Terms and Conditions located on the National Science Foundation web site at <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp>.

2. Special Terms and Conditions and National Policy Requirements

Special Terms and Conditions and National Policy Requirements. The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at

http://management.energy.gov/business_doe/business_forms.htm.

The National Policy Assurances To Be Incorporated As Award Terms are located at DOE

http://management.energy.gov/business_doe/business_forms.htm.

Intellectual Property Provisions. The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at

http://www.gc.doe.gov/financial_assistance_awards.htm.

Statement of Substantial Involvement

STATEMENT OF SUBSTANTIAL INVOLVEMENT

RECIPIENT'S RESPONSIBILITIES. The Recipient is responsible for:

Performing the activities supported by this award, including providing the required personnel, facilities, equipment, supplies and services;

Defining approaches and plans, submitting the plans to DOE for review, and incorporating DOE comments;

Managing and conducting the project activities;

Reporting at least quarterly (four times per year) on project cost, schedule and performance;

Alerting DOE management immediately of any substantial change which will seriously disrupt or prevent the completion of the project;

Attending periodic program review meetings and reporting project status;

Submitting technical reports and incorporating DOE comments; and;

Presenting the project results at appropriate technical conferences or meetings as directed by the DOE Project Officer.

DOE RESPONSIBILITIES. DOE is responsible for:

Reviewing all project deliverables and providing approvals/disapprovals and/or feedback to the Recipient in a timely manner.

Reviewing continuation applications and determining whether sufficient progress has been made to continue to the next budget period or phase of the project.

Recommending alternate approaches or redirection of the work based upon its interrelationship with other projects;

Conducting periodic site visits and program review meetings to ensure adequate progress is being made and that the work accomplishes the program and project objectives. Recommending alternate approaches to the work or shifting work emphasis, if needed;

Promoting and facilitating technology transfer activities, including disseminating program results through presentations and publications; and

Serving as scientific/technical liaison between Recipients and other program or industry staff.

C. REPORTING

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. For a sample Checklist, see <http://management.energy.gov/documents/DOEF46002PolicyVersion.pdf>.

Section VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at <http://www.compusearch.com/products/fedconnect/fedconnect.asp>. DOE/NNSA will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. DOE/NNSA cannot answer these questions.

B. AGENCY CONTACT

Name:	Erin Kirchoff
E-mail:	Erin.Kirchoff@netl.doe.gov
FAX:	304-285-4683
Telephone (Optional):	304-285-4753

Section VIII - OTHER INFORMATION

A. MODIFICATIONS

Notices of any modifications to this announcement will be posted on Grants.gov and the FedConnect portal. You can receive an email when a modification or an announcement message is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon after release of the FOA as possible to ensure you receive timely notice of any modifications or other announcements. More information is available at <http://www.fedconnect.net> and <http://www.compusearch.com/products/fedconnect/fedconnect.asp>.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. COMMITMENT OF PUBLIC FUNDS

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. PROPRIETARY APPLICATION INFORMATION

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in an application only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the application which are to be restricted:

"The data contained in pages [*Insert pages*] of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government's right to use or disclose data obtained without restriction from any source, including the applicant."

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:

"The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation."

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See "Notice of Right to Request Patent Waiver" in paragraph G below.)

Rights in Technical Data. Normally, the government has unlimited rights in technical data created under a DOE agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as specifically negotiated in a particular agreement to satisfy DOE's own needs or to insure the commercialization of technology developed under a DOE agreement.

Program Covered Under Special Protected Data

Special Protected Data Statutes. This program is covered by a special protected data statute. The provisions of the statute provide for the protection from public disclosure, for a period of up to 1 year from the development of the information, of data that would be trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. Generally, the provision entitled, Rights in Data Programs Covered Under Special Protected Data Statutes (10 CFR 600 Appendix A to Subpart D), would apply to an award made under this announcement. This provision will identify data or categories of data first produced in the performance of the award that will be made available to the public, notwithstanding the statutory authority to withhold data from public dissemination, and will also identify data that will be recognized by the parties as protected data.

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER

Applicants may request a waiver http://www.gc.doe.gov/documents/gc62_advance.pdf of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784 <http://www.gc.doe.gov/documents/patwaivclau.pdf>.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a waiver.

H. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES

Eligible activities under this program include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.