

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U.S. Department of Energy
Office of Science
Office of Nuclear Physics**

Isotope Production

Funding Opportunity Number: DE-FOA-0000517

Announcement Type: Amendment

CFDA Number: 81.049

Amendment Posted:	July 7, 2011
ISSUE DATE:	May 13, 2011
Letter-of-Intent Due Date:	Not Applicable
Pre-application Due Date: (Pre-applications are required)	June 17, 2011, 11:59 PM Eastern Time
Application Due Date:	August 5, 2011, 11:59 PM Eastern Time September 26, 2011, 11:59 PM Eastern Time

The purpose of this amendment is to notify potential applicants of the change in the Application Due Date from August 5, 2011 to September 26, 2011 due to delays in the review of Pre-applications submitted on June 17, 2011.

NOTE: REQUIREMENTS FOR GRANTS.GOV

Where to Submit: Applications must be submitted through Grants.gov to be considered for award. You cannot submit an application through Grants.gov unless you are registered. Please read the registration requirements carefully and start the process immediately. Remember you have to update your CCR registration annually. If you have any questions about your registration, you should contact the Grants.gov Helpdesk at 1-800-518-4726 to verify that you are still registered in Grants.gov.

Registration Requirements: There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). Use the Grants.gov Organization Registration Checklist at <http://www.grants.gov/assets/OrganizationRegCheck.pdf> to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants, who are not registered with CCR and Grants.gov, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

IMPORTANT NOTICE TO POTENTIAL APPLICANTS: When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e. Grants.gov registration).

Questions: 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. Part VII of this Funding Opportunity Announcement (FOA) explains how to submit other questions to the Department of Energy (DOE).

Application Receipt Notices

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of four e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. The titles of the four e-mails are:

- Number 1 - Grants.gov Submission Receipt Number
- Number 2 - Grants.gov Submission Validation Receipt for Application Number
- Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number
- Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number

Questions regarding the content of the FOA 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

https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Modifications: Notices of any modifications to this FOA will be posted on Grants.gov and the FedConnect portal. You can receive an email when a modification or an FOA 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>.

All applications should be in a single PDF file.

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PART I – FUNDING OPPORTUNITY DESCRIPTION

GENERAL INQUIRIES ABOUT THIS FOA SHOULD BE DIRECTED TO:

Technical/Scientific Program Contact:

Program Manager: Dr. Marc Garland, Office of Nuclear Physics

Phone: 301-903-9576

Fax : 301-903-3833

E-Mail: marc.garland@science.doe.gov

STATUTORY AUTHORITY

Public Law 95-91, US Department of Energy Organization Act

Public Law 109-58, Energy Policy Act of 2005

APPLICABLE REGULATIONS

U.S. Department of Energy Financial Assistance Rules, codified at 10 CFR Part 600

U.S. Department of Energy, Office of Science Financial Assistance Program Rule, codified at 10 CFR Part 605

SUMMARY:

The Office of Nuclear Physics (NP), Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications for domestic production of stable and radioactive isotopes to support research in a wide variety of fields such as medicine, physics, biology, chemistry, agriculture, ecology, materials science, and national security.

The goal of this Funding Opportunity Announcement is to enhance the availability of stable and radioactive isotopes to support research applications. When establishing priorities for program awards, the Office of Nuclear Physics considers guidance from the Nuclear Science Advisory Committee on Isotopes (NSAC-I) as documented in the following two reports:

Compelling Research Opportunities using Isotopes, NSAC Isotopes Subcommittee, April 23, 2009 (http://www.er.doe.gov/np/nsac/docs/NSACI_Final_Report_Charge1.pdf)

Isotopes for the Nation's Future A Long Range Plan, NSAC Isotopes Subcommittee, August 27, 2009 (http://www.er.doe.gov/np/nsac/docs/NSACI_II_Report.pdf)

A companion Program Announcement to DOE Laboratories (LAB 11-517) will be posted on the Office of Science Grants and Contracts web site at: <http://www.science.doe.gov/grants/>.

SUPPLEMENTARY INFORMATION:

Background:

Includes:

- *The Frontiers of Nuclear Science—a Long Range Plan*, DOE/NSF Nuclear Science Advisory Committee, December, 2007 (<http://www.er.doe.gov/np/nsac/docs/Nuclear-Science.High-Res.pdf>)
- *Workshop on the Nation's Needs for Isotopes: Present and Future*, August, 2008 (http://www.er.doe.gov/np/program/docs/Workshop%20Report_final.pdf)
- *Advancing Nuclear Medicine Through Innovation*, National Academy of Sciences (2007), National Academies Press (<http://dels.nas.edu/Report/Advancing-Nuclear-Medicine-Through-Innovation-2007/11985>)

Program Objective:

The mission of the Office of Nuclear Physics Isotope Development and Production for Research and Applications (IDPRA) Program is to develop, produce and distribute stable and radioactive isotope products that are in short supply. Many isotopes are high-priority commodities of strategic importance for the Nation and are essential for energy, medical and national security applications, and basic research. A goal of the program is to make critical isotopes more readily available to meet domestic U.S. needs. Community-sponsored studies and workshops have identified a number of stable and radioactive isotopes in short supply that are needed by the research and applied sciences communities.

The IDPRA Program is steward of the Isotope Production Facility (IPF) at Los Alamos National Laboratory (LANL), the Brookhaven Linear Isotope Producer (BLIP) facility at BNL, and hot cell facilities for processing isotopes at ORNL, BNL and LANL. The Program also coordinates and supports isotope production at a suite of university, national laboratory, and federal accelerator and reactor facilities throughout the Nation to promote a reliable supply of domestic isotopes.

The availability of isotopes for research is crucial for U.S. scientists to remain at the forefront of scientific advances and discoveries in fields whose research relies upon the use of stable and radioactive isotopes. Recognizing that a number of stable and radioactive isotopes needed by the research community are in short supply, the Office of Nuclear Physics solicits applications from universities, national laboratories and private companies for cost-effective and efficient technologies for producing, processing, recycling and distributing research isotopes in demand and in short supply. Successful applications will facilitate an increased supply of research isotopes and complement the existing portfolio of isotopes produced and distributed by the IDPRA Program. Note that these applications are not intended for the development of isotope production techniques, but for the production of research isotopes applying established production approaches. For the research and development of alternative or improved isotope production techniques, please contact Dr. Dennis Phillips at dennis.phillips@science.doe.gov.

As identified in the referenced NSAC-I documents, the following are examples of isotopes of potential interest to this FOA and their related research activities:

Medicine, pharmaceuticals, and biology

- Alpha therapy: Ac-225, At-211, Pb-212
- Diagnostic dosimetry for proven therapeutic agents: Cu-64, Y-86, I-124, Pb-203
- Diagnostic tracer: Zr-89
- Therapeutic: Cu-67

Physical science and engineering

- Nuclear physics and astrophysics: Cf-252
- Permanent atomic electric dipole measurement: Ra-225
- Heavy element physics and chemistry: Po-209, Th-229, Th-232, Pa-231, U-232, Np-237, Cm-248, Bk-247
- Neutron detectors, electric dipole measurement, low temperature physics: He-3
- Isotope dilution mass spectrometry: Np-236, Pu-236, Pu-244, Am-243, Th-229
- Double beta decay: Ge-76
- Spikes for mass spectrometers: Pb-202, Pb-203, Pb-205, Bi-206, Po-210
- Worldwide weight standard: Si-28
- Radioisotope power sources: Pm-147, Cm-244
- Mössbauer spectroscopy: Co-57, Sn-119m, Ni-67, Dy-161, etc.

Note: The significant need for Mo-99 production is recognized. However, development of new production modalities for this isotope is currently being pursued under programs sponsored by National Nuclear Security Administration (NNSA). Thus, applications for production of Mo-99 are excluded from this call.

As it is the intent of this FOA to enhance the availability of stable and radioactive isotopes to support research applications, applications will be selected that cost-effectively address shortages and unavailability by increasing production and expanding the suite of isotopes currently available. Pre-applications should identify any necessary startup costs (e.g., equipment such as gloveboxes) and routine production costs (the batch cost of the isotopes should also be identified). Routine isotope production will be driven by demand. Sales of isotopes produced as a result of this FOA can be through the IDPRA Program or by the applicant institution or company. If an institution or private company chooses to take advantage of the IDPRA business infrastructure and sell isotopes through IDPRA, IDPRA will provide the institution's or company's cost of production and sell the isotopes to customers at a price determined by IDPRA.

Applications that include opportunities for the education and training of personnel in fields of isotope production (e.g., nuclear and radiochemistry, targetry, and enrichment) are encouraged.

Collaboration

Collaborative research projects with other institutions, such as universities, industry, non-profit organizations, and Federally Funded Research and Development Centers (FFRDCs), including the DOE National Laboratories, are encouraged under this FOA. Applications submitted from different institutions, which are directed at a single research activity, should clearly indicate they are part of a proposed collaboration and contain a brief description of the overall research project. However, each application must have a distinct scope of work and a qualified principal investigator who is responsible for the research effort being performed at his or her institution. If a university is part of a proposed collaboration, the university must submit a separate application that meets all the essentials stated above. It is highly recommended to include on the first page of the application narrative a simple table listing every collaborating institution/PI and the amount of funding requested by each. Further information on preparation of collaborative applications may be accessed via the Internet at: <http://www.sc.doe.gov/grants/colab.asp>.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT.

DOE anticipates awarding grants under this Funding Opportunity Announcement (FOA).

B. ESTIMATED FUNDING.

It is anticipated that a total of up to \$1,000,000 of funds will be available in FY 2012. The number, duration and size of awards will depend on the number of applications selected for award, and the actual amount of funds available in FY 2012. Multiple year funding is expected. Applications may request project support for up to three years, with out-year support contingent on the availability of funds, duration of establishing production capability, progress of the work, and programmatic needs.

DOE is under no obligation to pay for any costs associated with preparation or submission of applications. DOE reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in response to this FOA.

C. MAXIMUM AND MINIMUM AWARD SIZE.

See B. Estimated Funding Section Above

D. EXPECTED NUMBER OF AWARDS.

See B. Estimated Funding Section Above

E. ANTICIPATED AWARD SIZE.

See B. Estimated Funding Section Above

F. PERIOD OF PERFORMANCE.

See B. Estimated Funding Section Above

G. TYPE OF APPLICATION.

DOE will accept new applications under this FOA.

PART III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS.

All types of domestic entities are eligible to apply as the lead institution, 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.

A companion Program Announcement to DOE Laboratories (LAB 11-517) will be posted on the SC Grants and Contracts web site at: http://www.science.doe.gov/grants/LAB11_517.html.

B. COST SHARING.

Cost sharing is not required.

C. OTHER ELIGIBILITY REQUIREMENTS.

N/A

PART 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 a Grant Application Package". Enter the CFDA and/or the funding opportunity number located on the cover of this FOA and then follow the prompts to download the application package.

B. LETTER OF INTENT AND PREAPPLICATION.

1. Letter of Intent.

Letter of Intent not required.

2. Pre-application.

Pre-applications are REQUIRED and must be received by June 17, 2011. Pre-applications referencing FOA: DE-FOA-0000517 should be submitted via E-mail to the following address: luisa.romero@science.doe.gov. Please include "Pre-application for FOA: DE-FOA-0000517" in the subject line.

General guidance on pre-applications is provided at <http://www.sc.doe.gov/grants/preapp.asp>. For this FOA, the pre-application must include (1) the title of the proposal, (2) the name(s) and institution(s) of the principal investigator(s) and any collaborators, (3) a description of any scope of work required to establish production capability, (4) a description of the scope of work for routine production (including details on the method of production), (5) cost and schedule information for items 3 and 4, (6) identification of production facilities to be used, and (7) an expression of interest by authorized personnel from the production facilities and from any collaborators. The pre-application should be no more than ten (10) pages, excluding the expression(s) of interest (item 7).

Pre-applications must clearly differentiate between any start-up and routine production costs. Start-up costs are associated with activities necessary to establish production capability. Routine production costs are associated with activities related to the production of a batch or quantity of material.

For cost and schedule of start-up, all requirements to establish production capability (e.g., equipment, facility upgrades, labor) must be addressed.

For routine production, the following information must be provided:

- total batch/campaign cost and cost per unit
- labor rates and all applied overheads

- anticipated yields and specific activities
- target material
- production schedule (duration of production campaign, timing of campaigns)
- location of production and processing facilities
- any needed shipping containers (if disposable/non-returnable, should be included in batch/campaign cost)

Pre-applications for production of multiple isotopes should include separate cost and schedule information for each isotope. If this cannot be accommodated within the ten page limit, a separate pre-application should be submitted for each isotope.

As part of the required elements above, the pre-application should address briefly the appropriateness of the proposed method or approach, the competency of the applicant's personnel, the adequacy of the proposed resources, the reasonableness and appropriateness of the proposed budget, and any other factors relevant to the proposed project.

Pre-applications will be screened and pre-applicants will be notified if a formal application is encouraged. Pre-applications will be reviewed for conformity with the guidelines given in this FOA, and suitability with respect to the technical areas and program policy factors specified in the FOA. It is expected that a response to pre-applications will be communicated, by reply email, by July 1, 2011. Note that notification of a successful pre-application is not a guarantee that an award will be made in response to a formal application. **Formal applications will be accepted only from pre-applicants encouraged to submit a formal application.**

C. CONTENT AND FORM OF APPLICATION – SF 424 (R&R).

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 FOA.**

1. SF 424 (R&R).

Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 17 can be found on the DOE Financial Assistance Forms Page at http://www.management.energy.gov/business_doe/business_forms.htm, under Certifications and Assurances.

2. RESEARCH AND RELATED Other Project Information.

Complete questions 1 through 6 and attach files. The files must comply with the following instructions:

Project Summary/Abstract (Field 7 on the Form).

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) (PD/PI), 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 1 page when printed using standard 8.5” by 11” paper with 1” margins (top, bottom, left and right) with font not smaller than 11 point. To attach a Project Summary/Abstract, click “Add Attachment.”

Project Narrative (Field 8 on the Form).

The project narrative **must not exceed 10 pages** of technical information, including 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).

EVALUATORS WILL ONLY REVIEW 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, because the information contained in these sites will not be reviewed. See Part VIII.D for instructions on how to mark proprietary application information.

The page count of **10** does not include the Face Page and Budget Pages, the Title Page, the biographical material and publication information, or any Appendices. However, it is important that the technical information section provide a complete description of the proposed work, because reviewers are not obliged to read the Appendices. Applications exceeding these page limits may be rejected without review. **All applications should be in a single PDF file with the exception of the budgets and Project Summary which must be attached separately as directed in Grants.gov.** The PDF file may also include a few selected publications in an Appendix as background information. In addition, please limit biographical and publication information for the principal investigator and senior personnel to no more than 2 pages each. Letters from collaborators should also be included, if applicable. Each principal investigator should provide an E-mail address. To attach a Project Narrative, click “Add Attachment.”

The application narrative should begin with a cover page that includes: the project title, the Lead PI’s name and complete contact information.

The cover page must also include the following information (this page will not count in the project narrative page limitation):

Applicant/Institution:

Street Address/City/State/Zip:

Principal Investigator:

Postal Address:

Telephone Number:

Email:

Funding Opportunity Announcement Number: DE-FOA-0000517

DOE/Office of Science Program Office: Office of Nuclear Physics

DOE/Office of Science Program Office Technical Contact: Dr. Marc Garland

DOE Grant Number (if Renewal Application):

Is this a Collaboration? If yes, please list ALL Collaborating Institutions/PIs and indicate which ones will also be submitting applications. Also indicate the PI who will be the point of contact and coordinator for the combined research activity.

The project narrative must include:

Project Objectives:

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

The Project Narrative comprises the research plan for the project, it should contain enough background material in the Introduction, including review of the relevant literature, to demonstrate sufficient knowledge of the state of the science. The major part of the narrative should be devoted to a description and justification of the proposed project, including details of the method to be used. It should also include a timeline for the major activities of the proposed project, and should indicate which project personnel will be responsible for which activities.

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.

Appendix 1: Biographical Sketch.

Provide a biographical sketch for the project director/principal investigator (PD/PI) and each senior/key person listed in Section A on the R&R Budget form. **Provide the biographical sketch information as an appendix to your project narrative. Do not attach a separate file.** The biographical sketch appendix will not count in the project narrative page limitation. The biographical information (curriculum vitae) for each person must not exceed 2 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point and must include:

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

Research and 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. You may use an abbreviated style such as the *Physical Review Letters* convention for citations (list only the first author). You may also use this convention in the proposal bibliography.

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.

Identification of Potential Conflicts of Interest or Bias in Selection of Reviewers. Provide the following information in this section.

Collaborators and Co-editors: List in alphabetical order all persons, including their current organizational affiliation, who are, or who have been, collaborators or co-authors with you on a research project, book or book article, report, abstract, or paper during the 48 months preceding the submission of this application. For publications or collaborations with more than 10 authors or participants, only list those individuals in the core group with whom the Principal Investigator interacted on a regular basis while the research was being done. Also, list any individuals who are currently, or have been, co-editors with you on a special issue of a journal, compendium, or conference proceedings during the 24 months preceding the submission of this application. If there are no collaborators or co-editors to report, state “None.”

Graduate and Postdoctoral Advisors and Advisees: List the names and current organizational affiliations of your graduate advisor(s) and principal postdoctoral sponsor(s) during the last five years. Also, list the names and current organizational affiliations of your graduate students and postdoctoral associates during the past five years.

Appendix 2: Current and Pending Support.

Provide a list of all current and pending support (both Federal and non-Federal) for the Project Director/Principal Investigator(s) (PD/PI) and senior/key persons, including subawardees, for ongoing projects and pending applications. For each organization providing support, show the total award amount for the entire award period (including indirect costs) and the number of person-months per year to be devoted to the project by the senior/key person. **Provide the Current and Pending Support as an appendix to your project narrative. Do not attach a separate file.** The Current and Pending Support Appendix will not count in the project narrative page limitation.

Appendix 3: Bibliography & References Cited.

Provide a bibliography of any references cited in the Project Narrative. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. Include only bibliographic citations. Applicants should be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the application. In order to reduce the number of files attached to your application, **please provide the Bibliography and References Cited information as an appendix to your project narrative. This appendix will not count in the project narrative page limitation.**

Appendix 4: Facilities & Other Resources.

This information is used to assess the capability of the organizational resources, including subawardee resources, available to perform the effort proposed. Identify the facilities to be used (Laboratory, Animal, Computer, Office, Clinical and Other). 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. Describe other resources available to the project (e.g., machine shop, electronic shop) and the extent to which they would be available to the project. In order to reduce the number of files attached to your application, **please provide the Facility and Other Resource information as an appendix to your project narrative. This appendix will not count in the project narrative page limitation.**

Appendix 5: Equipment.

List major items of equipment already available for this project and, if appropriate identify location and pertinent capabilities. In order to reduce the number of files attached to your application, **please provide the Equipment information as an appendix to your project narrative. This appendix will not count in the project narrative page limitation.**

Appendix 6: Other Attachment.

If you need to elaborate on your responses to questions 1-5 on the “Other Project Information” document, **please provide this information as an appendix to your project narrative. This appendix will not count in the project narrative page limitation.**

Do not attach any of the requested appendices described above as files for fields 9, 10, 11, and 12, instead follow the above instructions to include the information as appendices to the project narrative file (these appendices will not count in the project narrative page limitation).

3. RESEARCH AND RELATED BUDGET.

Complete the Research and Related Budget form in accordance with the instructions on the form (Activate Help Mode to see instructions) and the following instructions. You

must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. You must complete all the mandatory information on the form before the NEXT PERIOD button is activated. You may request funds under any of the categories listed 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 FOA (See PART IV, G).

Budget Justification (Field K on the form).

Provide the required supporting information for the following costs (See R&R Budget instructions): equipment; domestic and foreign travel; participant/trainees; material and supplies; publication; consultant services; ADP/computer services; subaward/consortium/contractual; equipment or facility rental/user fees; alterations and renovations; and indirect cost type. Provide any other information you wish to submit to justify your budget request. **Attach a single budget justification file for the entire project period in Field K.** The file automatically carries over to each budget year.

4. R&R SUBAWARD BUDGET ATTACHMENT(S) FORM.

Budgets for Subrecipients, other than DOE FFRDC Contractors. You must provide a separate cumulative R&R budget for each subrecipients that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (whichever is less). If you are selected for award, you must submit a multi-year budget for each of these subrecipients. Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET ATTACHMENT(S) FORM and e-mail it to each subsubrecipient that is required to submit a separate budget. After the Subsubrecipient has e-mailed its completed budget back to you, attach it to one of the blocks provided on the form. Use up to 10 letters of the subsubrecipient's name (plus.xfd) as the file name (e.g., ucla.xfd or energyres.xfd).

5. 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.

6. 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	Attach to
SF 424 (R&R)	Form	N/A
RESEARCH AND RELATED Other Project Information	Form	N/A
Project Summary/Abstract	PDF	Field 7
Project Narrative, including required appendices	PDF	Field 8
RESEARCH & RELATED BUDGET	Form	N/A
Budget Justification	PDF	Field K
PROJECT/PERFORMANCE SITE LOCATION(S)	Form	N/A
SF-LLL Disclosure of Lobbying Activities, if applicable	Form	N/A

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS.

If selected for award, DOE 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. Letter of Intent Due Date:** Not Applicable
- 2. Pre-application Due Date.**

Pre-applications are REQUIRED and must be received by June 17, 2011. (See part IV.B.2.)

3. Formal Applications.

Formal applications submitted in response to this Funding Opportunity Announcement must be received by ~~August 5, 2011, 11:59 PM Eastern Time~~ **September 26, 2011, 11:59 p.m. Eastern Time**, to permit timely consideration of awards. **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.

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 and 2 CFR 215.

Pre-award Costs. Recipients may charge to an award resulting from this FOA 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 and 2 CFR 215. Recipients must obtain the prior approval of the awarding agency / 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 GRANTS.GOV TO BE CONSIDERED FOR AWARD.

Submit electronic applications through the “Apply for Grants” function at www.Grants.gov. If you have problems completing the registration process or submitting your application, call Grants.gov at 1-800-518-4726 or send an email to support@grants.gov.

2. Registration Process.

You must COMPLETE the one-time registration process (all steps) before you can submit your first application through Grants.gov. We recommend that you start this process at least three weeks before the application due date. It may take 21 days or more to complete the entire process. Use the Grants.gov Organizational Registration Checklists at <http://www.grants.gov/assets/OrganizationRegCheck.pdf> to guide you through the process. IMPORTANT: During the CCR registration process, you will be asked to designate an E-Business Point of Contact (EBIZ POC). The EBIZ POC must obtain a special password called "Marketing Partner Identification Number" (MPIN). When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e., Grants.gov registration).

You cannot submit an application through Grants.gov unless you are registered. Please read the registration requirements carefully and start the process immediately. Remember you have to update your CCR registration annually.

3. Application Receipt Notices

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of four e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. The titles of the four e-mails are:

Number 1 - Grants.gov Submission Receipt Number

Number 2 - Grants.gov Submission Validation Receipt for Application Number

Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number

Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number

Part V - APPLICATION REVIEW INFORMATION

A. CRITERIA.

1. Initial Review Criteria.

Prior to a comprehensive merit evaluation, DOE will perform an initial review in accordance with 10 CFR 605.10(b) to determine that (1) the applicant is eligible for the award; (2) the information required by the FOA 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.

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following evaluation criteria which are listed in descending order of importance codified at 10 CFR 605.10(d):

1. Scientific and/or Technical Merit of the Project;
2. Appropriateness of the Proposed Method or Approach;
3. Competency of Applicant's Personnel and Adequacy of Proposed Resources; and
4. Reasonableness and Appropriateness of the Proposed Budget.

The evaluation process will include program policy factors such as the relevance of the proposed research to the terms of the FOA and the agencies' programmatic needs. Note that external peer reviewers are selected with regard to both their scientific expertise and the absence of conflict-of-interest issues. Both Federal and non-Federal reviewers may be used, and submission of an application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

B. REVIEW AND SELECTION PROCESS.

1. Merit Review.

Applications that pass the initial review will be subjected to a formal merit review and will be evaluated based on the criteria codified at 10 CFR Part 605.10(d) in accordance with the guidance provided in the "Office of Science Merit Review System for Financial Assistance." This Merit Review System is available at: <http://www.sc.doe.gov/grants/merit.asp>.

2. Selection.

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

3. Government Discussions and Award.

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 605; 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.

DOE is striving to make **awards within 6 months**. The time interval begins on the date applications are due or the date the application is received. It is anticipated that selections will be completed by the winter of 2011 and awards will be made before the end of FY 2012.

Part VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES.

1. Notice of Selection.

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

Organizations whose applications have not been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

2. Notice of Award.

An 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 2 CFR, 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 and 10 CFR Part 605 (See: <http://ecfr.gpoaccess.gov>). Grants and cooperative agreements made to universities, non-profits and other entities subject to Title 2 CFR 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>.

DUNS and CCR Requirements

Additional administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR, Part 25 (See: <http://ecfr.gpoaccess.gov>). Prime awardees must keep their data at CCR current. Subawardees at all tiers must obtain DUNS numbers and provide the DUNS to the prime awardee before the subaward can be issued.

Subaward and Executive Reporting

Additional administrative requirements necessary for DOE grants and cooperative agreements to comply with the Federal Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR, Part 170. (See: <http://ecfr.gpoaccess.gov>). Prime awardees must register with the new FSRS database and report the required data on their first tier subawardees. Prime awardees must report the executive compensation for their own executives as part of their registration profile in the CCR.

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 <http://www.nsf.gov/bfa/dias/policy/rtc/appc.pdf>.

Intellectual Property Provisions.

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

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

C. REPORTING.

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F4600.2, attached to the award agreement.

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS.

Questions regarding the content of the FOA 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 https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf.

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. Applications submitted through FedConnect will not be accepted.

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 cannot answer these questions.

B. AGENCY CONTACT:

GENERAL INQUIRIES ABOUT THIS FOA SHOULD BE DIRECTED TO:

Technical/Scientific Program Contact:

Program Manager: Dr. Marc Garland
Phone: 301-903-9576
Fax : 301-903-3833
E-Mail: marc.garland@science.doe.gov

PART VIII - OTHER INFORMATION

A. MODIFICATIONS.

Notices of any modifications to this FOA 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>.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE.

DOE reserves the right, without qualification, to reject any or all applications received in response to this FOA 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 _____ 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.

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER.

Applicants may request a waiver 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.

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.

I. AVAILABILITY OF FUNDS

Funds are not presently available for this award. The Government's obligation under this award is contingent upon the availability of appropriated funds from which payment for award purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this award and until the awardee receives notice of such availability, to be confirmed in writing by the Contracting Officer