

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



U. S. Department of Energy

Idaho Operations Office

**2011 Nuclear Energy Enabling Technologies (NEET) –
Reactor Materials**

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PART I – FUNDING OPPORTUNITY DESCRIPTION

A. STATEMENT OF OBJECTIVES

NUCLEAR ENERGY ENABLING TECHNOLOGIES PROGRAM

Background

The Department of Energy, Office of Nuclear Energy's (DOE-NE's) Nuclear Energy Enabling Technologies (NEET) Program will conduct crosscutting research and develop innovative technologies that offer the promise of dramatically improved performance for advanced reactors and fuel cycle concepts.

DOE-NE funds mission-specific activities through investigator-initiated and directed research mechanisms within its research and development (R&D) activities. These efforts are the key mechanisms in NE's R&D portfolio to encourage new nuclear power deployment with creative solutions to the universe of nuclear energy challenges and questions.

DOE-NE conducted a workshop in July 2010 seeking public input on the research topics proposed for the NEET program. The research inputs for each of the crosscut areas of the NEET program have been documented in a Workshop report. This report, along with other NE information, can be obtained from the web page, <http://www.nuclear.gov>.

NEET – Reactor Materials Program

Through an open, competitive solicitation process, DOE is seeking applications from industry, universities, and national laboratories to conduct R&D in support of the NEET Crosscutting Reactor Materials Program as described below.

The NEET Crosscutting Reactor Materials program seeks applications for truly advanced materials development. Successful completion of awards will provide piping, structural, or clad materials that dramatically improve performance over traditional materials used in terrestrial and space reactors and in the nuclear fuel cycle. Specific goals may include:

- Improvement in mechanical performance by a factor of 5-10 over traditional materials
- Increase in maximum operating temperature of greater than 200 C over an 80 year lifetime
- Increased radiation tolerance to beyond 300 dpa

Such performance would enable significantly improved safety, performance and reliability for future advanced reactor and fuel cycle designs. However, such improved performance cannot be at the expense of other properties or performance.

There are many conceptual routes for material design that may be considered, including composition, microstructure, and fabrication methods. For metals and alloys, some potential concepts may include (but are not limited to):

- *Optimized alloy composition*
- *Engineered microstructures*
- *Age-tempered microstructures*
- *Combinations of all of the above*

Other, more radical concepts may also be explored to enable even greater performance. While non-metallic materials may also create new challenges in fabrication or licensing, their impact via improved properties may justify the development costs (even over an extended period). While the number of options available is nearly limitless, some ideas may include (but are not limited to):

- *Bi-metallic layers*
- *Metal/Ceramic composites*
- *Ion-beam or surface modified alloys*

Applications are requested that describe innovative materials concepts, concept advantages, concept limitations, and key development needs. Successful applications will describe truly innovative materials that offer the potential for revolutionary gains in reactor and fuel cycle performance. Materials that can be applied to multiple reactor designs, components, and concepts will be given preference over materials restricted to a single reactor concept, component, or coolant.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

- DOE anticipates awarding cooperative agreements under this funding opportunity announcement (See Section VI.B.4 Statement of Substantial Involvement).

B. ESTIMATED FUNDING

- The Department expects to fund approximately \$7 million in awards.

C. MAXIMUM AND MINIMUM AWARD SIZE

- Ceiling (i.e., the maximum amount for an individual award, including both Federal and Recipient cost share, made under this announcement): \$1 million total up to 3 years. Project duration can be up to 3 years. Project progress will be evaluated at the mid-term to determine if funding will continue within the 3-year period.
- Floor (i.e., the minimum amount for an individual award made under this announcement): \$ None specified.

D. EXPECTED NUMBER OF AWARDS

- DOE anticipates making 8-12 awards under this announcement depending on the size of the awards.

E. ANTICIPATED AWARD SIZE

- While the maximum award size (i.e., the ceiling) is anticipated to be \$1 million, DOE anticipates that awards will be in the \$500,000 to \$850,000 range.

F. PERIOD OF PERFORMANCE

- DOE anticipates making awards that will run up to 3 years. Work must be completed according to the terms and conditions of the award.

G. TYPE OF APPLICATION

- DOE will accept only new applications under this announcement.

PART III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

- In accordance with 10 CFR 600.6(b), eligibility for award is restricted to domestic for-profit companies, non-DOE FFRDC, DOE National Laboratories, domestic universities and non-profit research organizations, except 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

- For proposals led by domestic for-profit companies, the cost share must be at least 20% of the total allowable costs for research and development projects (i.e., 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) and must come from non-Federal sources unless otherwise allowed by law. (See 10 CFR 600 for the applicable cost sharing requirements.)
- For applications led by US non-profit educational institutions / universities. cost sharing is encouraged but not required.

C. Other Eligibility Requirements

- **Federally Funded Research and Development Center (FFRDC) Contractors**

FFRDC contractors. FFRDC contractors may be proposed either as a lead (prime) or as a team member on another entity's application subject to the following guidelines:

Authorization for non-DOE/NNSA FFRDCs. The Federal agency sponsoring the FFRDC contractor must authorize in writing the use of the FFRDC contractor on the proposed project and this authorization must be submitted with the application. The use of a FFRDC contractor must be consistent with the contractor's authority under its award.

Authorization for DOE/NNSA FFRDCs. The cognizant contracting officer for the FFRDC must authorize in writing the use of a DOE/NNSA FFRDC contractor on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization.

"Authorization is granted for the **Fillin 1: [Name]** Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory, will not adversely impact execution of the DOE/NNSA assigned programs at the laboratory

Value/Funding. If the FFRDC contractor is proposed as a team member on another entity's application (e.g., as a subawardee) the value of, and funding for, the FFRDC contractor portion of the work will not normally be included in the award to a successful applicant.

Usually, DOE/NNSA will fund a DOE/NNSA FFRDC contractor through the DOE field work proposal system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

Cost Share. The applicant's cost share requirement will be based on the total cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

Responsibility. If the FFRDC contractor is proposed as a team member on another entity's application (e.g., as a subawardee) the applicant, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and the FFRDC contractor.

- **National Laboratory Contractors:**

A DOE/NNSA National Laboratory Contractor is eligible to apply for funding under this announcement if its cognizant contracting officer provides written authorization and this authorization is submitted with the application. (This is not required for the National Energy Technology Laboratory since it is a Government Owned/Government Operated (GOGO)). If a DOE/NNSA National Laboratory Contractor is selected for award, the proposed work will be authorized under the DOE work authorization process and performed under the laboratory's M&O contract. The following wording is acceptable for the authorization:

"Authorization is granted for the **Fillin 1: [Name]** Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory and will not adversely impact execution of the DOE/NNSA assigned programs at the laboratory."

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

B. LETTER OF INTENT

- **Letter of Intent.** Letters of intent are requested.

Letter of Intent. Submission of the letter of intent is **highly encouraged**. Letters of intent must be submitted by the date and time specified in Part IV, Paragraph E.1. No FAX or mail submission of the letter of intent will be accepted.

Submit your letter of intent to NEET-RM426@id.doe.gov.

The letters of intent file must be no longer than one (1) page in length when printed using standard 8.5" X 11" paper with 1 inch margins (top, bottom, left, right), using a font size not smaller than Arial 11 point. This letter should include the name of the applicant, the title of the

project, the name of the Project Director/Principal Investigator(s), and a brief abstract. Letters of intent will be used by DOE to organize and expedite the merit review process. Failure to submit such letters will not negatively affect a responsive application submitted in a timely fashion.

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

A maximum of three separate applications for different distinct projects may be submitted from each entity. If more than three applications are submitted from an entity, only the first three received will be evaluated for award. For each application, the following applies:

You must complete the mandatory forms and any applicable optional forms (e.g., Disclosure of Lobbying Activities (SF-LLL)) 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 (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. 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 17 can be found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm under Certification and Assurances.

2. Other Project Information

Complete questions 1 through 5 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 will 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 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, 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). **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. To attach a Project Narrative, click “Add Attachment.”

The project narrative must include:

- Project Objectives: This section will provide a clear, concise statement of the specific objectives/aims of the proposed project.
- Merit Review Criterion Discussion: The section will be formatted to address each of the merit review criterion and sub-criterion listed in Part V.A. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERION AND SUB-CRITERION.
- Relevance and Outcomes/Impacts: This section will explain the relevance of the effort to the objectives in the program announcement and the expected outcomes and/or impacts.
- 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. While the Department of Energy's preference is to have only one PI specified, this decision is solely the responsibility of the applicant; having multiple PIs specified will not affect the selection for award of applications submitted in response to this Funding Opportunity Announcement.

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 will, 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.

- Biographical Sketch Appendix:
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 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.

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 Appendix:

Provide the following information in this section. This appendix will not count in the project narrative page limitation:

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. 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 5 years. Also, list the names and current organizational affiliations of your graduate students and postdoctoral associates.

Other Attachments (Field 12 on the form):

If you need to elaborate on your responses to questions 1-5 on the “Other Project Information” document, attach a file in Field 12.

Budget for DOE National Laboratory or Federally Funded Research and Development Center (FFRDC) Contractor, if applicable. If a DOE National Laboratory Contractor or an FFRDC contractor is to perform a portion of the work, you must provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1 Work Authorization System. This order and the DOE Field Work Proposal form are available at http://management.energy.gov/business_doe/business_forms.htm. Use the Contractor or FFRDC name as the file name (up to 10 letters) and attach to the R&R Other Project Information form in Field 12 – Add Attachments.

Environmental Checklist

You must complete the environmental checklist at <http://www.id.doe.gov/PSD/FAFormsGuidance.html>. Save the checklist in a single file named “Env.pdf” and click on “Add Attachments” in Field 12 to attach.

3. RESEARCH AND RELATED BUDGET (TOTAL FED + NON-FED)

Complete the Research and Related Budget (Total Fed & Non-Fed) 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 announcement (See PART IV.G.).

Budget Justification (Field K on the form).

Provide the required supporting information for the following costs (See R&R 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 (Total Fed + Non-Fed) FORM

Budgets for Subawardees, other than DOE National Laboratory and FFRDC Contractors.

You must provide a separate cumulative R&R budget for each subawardee that is expected to perform work estimated to be more than \$150,000 or 50 percent of the total work effort (whichever is less). Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET (Total Fed + Non-Fed) FORM and e-mail it to each subawardee that is required to submit a separate budget. After the Subawardee 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 subawardee’s name as the file name.

5. DISCLOSURE OF LOBBYING ACTIVITIES (SF-LLL)

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."

6. AWARDEE POINT OF CONTACT DATA INPUT SHEET

Complete the attached contact data input sheet.

7. CONFLICT OF INTEREST STATEMENT (REQUIRED FOR NATIONAL LABORATORIES, DOE AND NON-DOE FFRDCS APPLICANTS AND SUBAPPLICANTS)

Conflicts of interest may exist due to previous efforts performed by the Labs or assistance provided in program direction and other mission related activities. Accordingly, for each applicant or (or subapplicant) that is a National Laboratory or DOE and/or Non-DOE FFRDCs, identify any potential conflicts of interest, fully explain the conflict, whether you feel it is significant or not, along with your rationale, and, if significant how you will avoid, neutralize, or mitigate the potential conflict.

8. SUMMARY OF REQUIRED FORMS AND 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
Budget for DOE National Laboratory Contractor or FFRDC, if applicable	PDF	Field 12
Environmental Checklist	PDF	Field 12
RESEARCH AND RELATED BUDGET (Total Fed + Non-Fed)	Form	N/A
Budget Justification	PDF	Field K
R&R SUBAWARD BUDGET (Total Fed + Non-Fed) ATTACHMENT(S) FORM , if applicable	Form	N/A
SF-LLL Disclosure of Lobbying Activities , if applicable	Form	N/A
AWARDEE POINT OF CONTACT DATA	PDF	N/A

INPUT SHEET		
CONFLICT OF INTEREST STATEMENT, if applicable	PDF	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

- Letters of Intent must be received by February 28, 2012, not later than 8:00 PM Eastern Time.

2. Application Due Date

Applications must be received by March 29, 2012, 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

- 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 organizations 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. DOE Labs are not authorized to incur or be reimbursed for pre-award costs. Labs should not incur costs, other than Bid and Proposal costs, prior to receipt of a work authorization under DOE O 412.1A, Work Authorization System.

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 (See www.grants.gov/GetStarted). **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).

3. Application Receipt Notices

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of five 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. When the AOR receives email Number 5, it is their responsibility to follow the instructions in the email to logon to IIPS and verify that their application was received by DOE. You will need the Submission Receipt Number (email Number 1) to track a submission. The titles of the five 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
Number 5 - DOE FedConnect Grant Application Received

This email will contain the direct link to the application in FedConnect. The AOR will need to enter their user id and password to access the application.

PART V - APPLICATION REVIEW INFORMATION

A. CRITERIA

1. Initial Review Criteria

- Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) an initial project relevancy review; (3) the information required by the announcement has been submitted; (4) all mandatory requirements are satisfied; and (5) the proposed project is responsive to the objectives of the Funding Opportunity Announcement. Only applications meeting these initial review criteria will be considered during the merit review and award selection decision.

2. Merit Review Criteria

1. Technical Merit of the Proposed Work (50%): The technical section of the application will clearly define what research is being performed and its relationship to the relevant program element(s). This criterion will consider the technical merit of the application including proposed technical objectives and deliverables and the likelihood of achieving them, and the potential contribution to the state of knowledge in reactor and fuel cycle materials science.
2. Appropriateness of the Proposed Method or Approach (25%): This criterion will consider the technical approach and understanding, and project management including the proposed schedule and level of resources and approach for integrating all personnel and resources.
3. Competency of the Proposed Team (25%): This criterion will consider the qualifications and experience and successful performance on related projects of the Principle Investigator and applicant's other key personnel. It will also consider management capabilities to successfully accomplish the project.

3. Other Selection Factors

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

1. Technical diversity of projects; applications will be balanced to optimize the selection of the appropriate mix of applications to best achieve the NEET goals (see list in Part 1 of this FOA).
2. Relevance to agency's programmatic needs.
3. Cost/Budget considerations.

Any of the above factors used will be independently considered by the Selection Official in determining the optimum mix of applications that will be selected for support. These factors, while not indicators of the Application's merit, may be essential to the process of selecting the application(s) that, individually or collectively, will best achieve the program objectives. Such factors are often beyond the control of the Applicant. Each Applicant should recognize that some very good applications might not receive an award because they do not fit within a mix of projects that maximized the probability of achieving the DOE's overall research and development objectives. Therefore, the above factors may be used by the Selection Official to assist in determining which ranked application shall receive DOE funding support.

4. Applications that propose research that can be applied to multiple reactor designs are preferred and will receive additional consideration.

B. REVIEW AND SELECTION PROCESS

1. 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 and Unsolicited Applications." This guide is available under Financial Assistance, Regulations and Guidance at <http://www.management.energy.gov/documents/meritrev.pdf>.

2. Selection

- The Selection Official will consider the merit review recommendation, may consider the Other Selection Factors (e.g., program policy factors), and the amount of funds available.

3. 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/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 will strive to make selections within six to eight months after receipt of applications.
- DOE anticipates having multiple award selection dates.

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

- A Notice of Financial Assistance Award 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.; (4) DOE assistance regulations at 10 CFR part 600, or, for Federal

Demonstration Partnership (FDP) institutions, the FDP terms and conditions; (5) National Policy Assurances To Be Incorporated As Award Terms; (6) Budget Summary; and (7) Federal Assistance Reporting Checklist, which identifies the reporting requirements.

If award is made to a DOE Lab, it will be made against their existing prime contract with the DOE through the work authorization system as outlined in DOE O 412.1A. DOE O 481.1C., Work for Others, is not applicable. DOE Labs remain bound by the terms and conditions of their contract with DOE.

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>), except for grants and cooperative agreements made to Federal Demonstration Partnership (FDP) institutions. The FDP terms and conditions and DOE FDP agency specific terms and conditions are located on the National Science Foundation web site at http://www.nsf.gov/awards/managing/fed_dem_part.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

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.

NOTE: With submission of an application and execution of a cooperative agreement award, the lead Offeror agrees that in performance of the cooperative agreement, it will contribute at a minimum 51% of the total effort (measured in dollars).

3. 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.

4. Statement of Substantial Involvement

a. DOE anticipates having substantial involvement during the project period, through technical assistance, advice, intervention, integration with other awardees performing related activities, and technical transfer activities. The recipient's responsibilities are listed in paragraph b and DOE's responsibilities are listed in paragraph c.

b. **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;

(1) Defining approaches and plans, submitting the plans to DOE for review, and incorporating DOE's comments;

(2) Managing and conducting the project activities, including coordinating with a DOE management and operating (M&O) contractor on activities performed under the M&O contract that are related to the project;

(3) Attending a mid-term program review meeting and reporting project status;

(4) Submitting technical reports as stated in the Federal Assistance Reporting Checklist, and incorporating DOE comments; and

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

c. **DOE responsibilities.** DOE is responsible for:

(1) Reviewing in a timely manner project plans, including technology transfer plans, and redirecting the work effort if the plans do not address critical programmatic issues;

(2) Conducting a mid-term review meeting to ensure adequate progress and that the work accomplishes the program and project activities. Redirecting work or shifting work emphasis, if needed;

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

(4) Serving as scientific/technical liaison between awardees and other program or industry staff.

d. There are limitations on recipient and DOE responsibilities and authorities in the performance of the project activities. Performance of the project activities must be within the scope of the Statement of Objectives, the terms and conditions of the Cooperative Agreement, and the funding and schedule constraints.

C. REPORTING

- Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached.

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

Questions regarding the content of the announcement must be submitted via a message rather than as a response through the FedConnect portal. You must register with FedConnect to submit questions. More information is available at <http://compusearch.com/products/fedconnect/fedconnect.asp>. DOE will try to respond to a question within three business days, unless a similar question and answer have already been posted on the website.

Questions relating to the registration process at Grants.gov, 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

Name: Mr. Aaron Gravelle
E-mail: gravelap@id.doe.gov

For questions regarding this FOA, follow procedure at Part VII.A.

PART VIII - OTHER INFORMATION

A. MODIFICATIONS

Notices of any modifications to this announcement will be posted on Grants.gov. You can receive an email when a modification or an announcement message is posted by joining the mailing list for this announcement through the link in Fedconnect. When you download the application at Grants.gov, you can also register to receive notifications of changes through Grants.gov.

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, will 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. UNDERSTANDING COST SHARING REQUIREMENTS

Department-wide cost sharing requirements are established by Section 988 of the Energy Policy Act of 2005 (EPAAct). The DOE Financial Assistance Rules at 10 CFR 600 implement cost sharing requirements (see §600.30, §600.123, §600.224, or §600.313). The FOA requires a minimum of 20% cost sharing by awardees, except for applications led by US non-profit educational institutions/universities. The applicant's cost share requirement will be based on the total cost of the project. FFRDC costs are included as part of government cost share.

In accordance with section 988 (d), Calculation of Amount, when calculating the amount of the non-Federal contribution, the Government:

1. May include the following costs as allowable in accordance with the applicable cost principles:
 - a. Cash;
 - b. Personnel costs;
 - c. The value of a service, other resource, or third party in-kind contribution determined in accordance with the applicable circular of the Office of Management and Budget [Note: In-kind contributions, like any other cost, need to be incurred during the award project period, e.g., cannot give credit for costs incurred prior to the award, including prior development costs, unless otherwise authorized by the applicable cost principles.];
 - d. Indirect costs or facilities and administrative costs; or
 - e. Any funds received under the power program of the Tennessee Valley Authority (except to the extent that such funds are made available under an annual appropriation Act).
2. Shall not include:
 - a. Revenues or royalties from the prospective operation of an activity beyond the time considered in the award;
 - b. Proceeds from the prospective sale of an asset of an activity; or
 - c. Other appropriated Federal funds.

The terms and conditions of the cooperative agreement will include appropriate provisions on cost allowability.

The Federal share shall not be required to be repaid as a condition of award. Royalties should not be used to repay or recover the Federal share, but may be used as a reward for technology transfer activities.

Cost Share is often confused with some form of cost matching. The key to understanding how cost share works is to understand the base from which the cost share percentage is calculated. Cost share percentage is a percentage of the Total Allowable Costs of the project. Note that it is NOT a percentage of the DOE funds, but rather the entire project, including all awardee funds, DOE funds and all FFRDC requirements.

When determining the cost share requirement in dollars, it is first necessary to determine the entire project cost. Initially, no consideration would be given as to where the funds would come from. An applicant would determine that a certain cost (e.g., hours, travel, supplies, etc.) would

be needed to complete the project as proposed in the application. Once the project cost is determined, an applicant can then calculate the cost share requirement by multiplying the cost share percentage by the project cost. The resulting dollar figure would be the dollar requirement that the applicant must provide as cost share.

Below are several examples of how the cost share amount would be calculated:

Example 1

The applicant determines that the following budget requirements are needed to carry out the work described in its proposal to DOE:

Direct Labor	\$100,000
Travel	3,000
Equipment	17,000
Supplies	10,000
Subcontract	20,000
Total Project Cost	\$150,000

A cost share requirement of 20% was specified in the funding announcement.

Cost Share = (cost share percentage) x (**total project cost**)

Cost Share = (20%) x (\$150,000)

Cost Share = \$30,000

The applicant must now identify \$30,000 of \$150,000 as "Cost Share."

The applicant would then request DOE funding in the amount of \$120,000.

DOE Share = \$120,000

Awardee Share = \$30,000

Example 2

The applicant determines that the following budget requirements are needed to carry out the work described in its proposal to DOE:

Direct Labor	\$200,000
Travel	10,000
Equipment	20,000
Supplies	10,000
FFRDC Subcontract	60,000
Total Project Cost	\$300,000

A cost share requirement of 20% was specified in the funding announcement.

Cost Share = (cost share percentage) x (total project cost)

Cost Share = (20%) x (\$300,000)

Cost Share = \$60,000

The applicant must now identify \$60,000 of \$300,000 as "Cost Share".

DOE would pay \$60,000 directly to the FFRDC.

The applicant would then request DOE funding in the amount of \$180,000.

DOE Share = \$180,000 (funds to Awardee) + \$60,000 (FFRDC) = \$240,000

Awardee Share = \$60,000

Note: FFRDC funds are paid directly to the FFRDC by DOE. The work provided by the FFRDC is still considered part of the Total Project Cost; therefore, it is included in the base from which the Awardee cost share is calculated.

In all cases, the applicant must specify the individual costs that make up each part of the total project cost and indicate whether DOE or Non-DOE funds will be used to cover the cost.

The budget from **Example 1** might look something like the following:

		DOE	Non-DOE
Direct Labor	\$100,000	\$70,000	\$30,000
Travel	3,000	3,000	0
Equipment	17,000	17,000	0
Supplies	10,000	10,000	0
Subcontract	<u>20,000</u>	<u>20,000</u>	<u>0</u>
Total Project Cost	\$150,000	\$120,000	\$30,000

The application forms in this funding opportunity announcement will facilitate the identification of funding sources.

ATTACHMENTS

- A. REPORTING REQUIREMENTS CHECKLIST**
- B. AWARDEE POINT OF CONTACT DATA INPUT SHEET**
- C. CONFLICT OF INTEREST STATEMENT**