



U.S. Department of Energy

CALL FOR PROPOSALS (CFP) NO. NEUP-002-11

For Integrated Research Projects Proposals

**By Battelle Energy Alliance (BEA)
on behalf of the
U.S. Department of Energy's Office of Nuclear Energy**

ISSUE DATE: February 18, 2011

PROPOSAL DUE DATE: March 30, 2011

BEA POINT-OF-CONTACT: Dr. Marsha Lambregts

TELEPHONE NO.: (208) 526-1336

FACSIMILE NO.: (208) 526-8076

E-MAIL: Marsha.Lambregts@inl.gov

1. **INTRODUCTION**

This solicitation is a Call for Proposals (CFP) for Integrated Research Projects (IRP) by the Department of Energy's (DOE) Office of Nuclear Energy (NE) Nuclear Energy University Programs (NEUP).

The primary mission of NE is to advance nuclear power as a resource capable of meeting the Nation's energy, environmental, and national security needs by resolving technical, cost, safety, proliferation resistance, and security barriers through research, development, and demonstration as appropriate.

NEUP's goal is to support outstanding, cutting-edge, and innovative research and development (R&D) at United States (U.S.) universities through the following:

- ◆ Administering NEUP R&D awards to support NE's goal of integrating R&D at universities, national laboratories, and industry/utilities to revitalize nuclear education and support NE's programs;
- ◆ Attracting the brightest students to the nuclear professions and supporting the Nation's intellectual capital in nuclear engineering and relevant nuclear science, such as Health Physics, Nuclear Materials Science, Radiochemistry, and Applied Nuclear Physics;
- ◆ Improving university and college infrastructures for conducting R&D and educating students; and,
- ◆ Supporting NE's goal of facilitating the transfer of knowledge from an aging nuclear workforce to the next generation of workers.

This CFP includes a set of mandatory requirements and evaluation criteria that will factor into the selection of successful proposals.

The primary point of contact for questions regarding this solicitation is [Dr. Marsha Lambregts](#) of the NEUP Integration Office. However, all technical scope questions must be submitted through the question and answer feature located in the CFP section of the NEUP website accessible via its home page located at www.neup.gov.

In preparation for this IRP CFP and other planned NEUP fiscal year (FY) 2011 solicitations, a NEUP workshop was held on July 27-28, 2010, in Rockville, Maryland. Outcomes of this workshop were captured as proceedings and are available at the www.neup.gov website. This workshop product is an important source of background information. Applicants are encouraged to read and become familiar with these documents before responding to the solicitation or entering data on the online proposal submittal system. Also, a pre-solicitation set of information describing the scope of work and other information was posted online and distributed in December 2010 to assist potential applicants in preparing to respond to this CFP.

NOTE: All information and instructions required to respond to this CFP are accessible at www.neup.gov. Applicants who have participated in previous NEUP solicitations using the online system may use the same log-in credentials to enter the secure NEUP website beginning at 8 a.m. MST on February 18, 2011, and ending at 5 p.m. MDT on March 30, 2011. Offerors requiring new credentials can create an account as needed. Offerors **MUST** submit their proposal(s) electronically through the NEUP website. **NO** hard copy proposals will be accepted.

2. INTEGRATED RESEARCH PROJECTS SUMMARY DESCRIPTION

NE, through NEUP, has established a new approach for supporting program-directed research at U.S. universities. IRPs are three-year awards for projects that focus on a specific NE programmatic area of investigation. The intent of the effort is to engage the university community on larger research projects designed to benefit from the involvement of multiple universities, as well as industry/utility and national laboratory partners.

Proposals may include a combination of evaluation capability development, research program development, experimental work, and computer simulations. Proposals must include a designated lead university and at least one other university, and are encouraged to include one or more industry/utility partners that may receive funding support from the project. Proposals may also include one or more national laboratories that may receive project funding support.

No more than 15 percent of the project funds provided by the government can go to non-university participants, including all government-funded national laboratory and industry/utility partner shares combined. If an industry/utility partner is provided government funds under this project, the industry/utility partner will be required to augment those funds by providing a cost-share consistent with Energy Policy Act (EPAc) 2005 guidelines (i.e., 80 percent government – 20 percent industry). Additional credit will be given to proposals that include minority serving institutions (e.g., Historically Black Colleges and Universities (HBCU), Hispanic serving, Tribal serving) as well as significant, unfunded collaborations with international institutions.

In FY 2011, NE is expecting to accept proposals for two IRPs: one on advanced thermal reactor concepts and a second on aging of spent fuel in storage as described below:

Advanced Thermal Reactor Concept (up to \$2.5 million/year for three years – up to \$7.5 million total)

NE's research into advanced reactor technologies offers the promise of improved economics, higher efficiency energy production, and more robust nonproliferation characteristics over existing reactor designs.

NE seeks a university developed design for an advanced high temperature, thermal neutron spectrum reactor concept such as a fluoride salt-cooled or other technology, which will be proven through analysis and experimentation. The advanced high temperature reactor design to be proposed should represent a promising approach capable of moving nuclear reactor

technology beyond the light water-cooled, helium-cooled, and sodium-cooled concepts now being investigated through NE's existing nuclear reactor and fuel cycle research and development programs. It should also incorporate robust nonproliferation features. Approaches to evaluating the concept should be coupled to a comprehensive research plan for addressing key issues related to development and commercialization of the advanced high temperature reactor concept.

The project should be focused on the design and development of an advanced high temperature, thermal neutron spectrum reactor concept. The project should include an integrated evaluation program utilizing both in-reactor and non-reactor testing at a university, laboratory or other available U.S. test or research reactor to derive performance and safety information on neutronics, thermal hydraulics, and structural compatibility. The proposed reactor concept should be novel but allow for adequate evaluation by the end of the three-year period of performance. It is expected that the team will utilize a cadre of experimental facilities to demonstrate critical technologies. The university consortium chosen shall produce a report that describes design, fabrication, operation, and approaches for commercialization of the proposed reactor design. In addition the report should describe technical, economic and regulatory steps necessary to commercialize the proposed thermal reactor design in the near term. Proposals should be for a period of three years and a total cost not to exceed \$7.5 million.

Accelerated Aging of Used Nuclear Fuel in Storage (up to \$1.5 million/year for 3 years – up to \$4.5 million total)

With the recent decision not to pursue Yucca Mountain as a geologic repository, used nuclear fuel (UNF) will be required to remain in storage for longer periods of time than had previously been envisioned. The present regulatory basis for dry cask storage is 60 years. DOE believes that longer storage schemes may be possible. The regulatory requirements address key safety-significant aspects of UNF storage systems such as structural, thermal, containment, radiation shielding, and criticality safety performance, as well as related operational requirements pertaining to UNF handling and retrievability. In addition, transportation will eventually be necessary, so the UNF must meet the regulatory requirements for transportation at the end of the storage period.

This IRP is focused on the resolving issues associated with extended storage of UNF, with specific concern being the long-term behavior of high burnup UNF (>45 gigawatt-days/metric ton). Issues that need to be addressed include long-term integrity of the fuel cladding, maintaining the fuel assembly configuration, and canister integrity. The fuel cladding must be protected against degradation that leads to gross ruptures; the fuel assembly support brackets, spacers, etc. must function to prevent significant fuel deformation, such as bowing; and the canister must not leak. Examples of the issues to be addressed include the following long-term degradation mechanisms:

- Hydride diffusion and embrittlement
- Creep
- Corrosion
- Stress corrosion cracking

- Accelerated degradation due to marine environment (e.g., salty air)
- Degradation of Concrete

Funding will support one project focused on the R&D of accelerated aging techniques to better understand these long-term degradation mechanisms from a significantly shortened testing timeframe. Proposed accelerated aging techniques must be novel, but developed enough to allow initial operations in a laboratory by the end of the three-year period of performance. The product of this research could eventually inform the technical basis that provides the technical justification for extended storage. Proposals should be for a period of three years and a total cost not to exceed \$4.5 million.

The above IRPs will foster unique scientific collaboration that will be critical to success, and must be backed by a meaningful and sustained investment. Funding will be competitively awarded to the IRPs selected based on a 50:50 combination of external peer-review and internal relevancy review as detailed by this CFP. IRP progress will be monitored and guided by an associated NE advisory panel with final approval held by the Assistant Secretary for Nuclear Energy or his designated Source Selection Official (SSO).

3. ESTIMATED FUNDING

The NEUP planning estimates have previously identified up to \$12.0 million to be available in FY 2011 to fund the two multi-year IRP awards under this CFP pending final program determination. However, it must be emphasized that the overall Federal funding profile is highly uncertain for FY 2011 and thus, funding of awards under this solicitation at \$12.0 million should be considered a “best case” condition that may be subject to reduction depending on the outcome of final Congressional appropriations for the NE program. The actual level of funding in each research area will depend on the availability of funds within the FY 2011 appropriation for the DOE NE R&D programs.

4. ELIGIBILITY INFORMATION

Any proposal submitted in response to this CFP must be submitted by a designated lead U.S. university or college that is required to team with at least one additional university partner. In addition, collaborations between universities and industry/utilities or national laboratories are permitted. Any number of universities may team together on the proposal and share the funding at their discretion. No more than 15 percent of the project funds provided by the government can go to non-university participants, including all government-funded national laboratory and industry/utility partner shares combined. If an industry/utility partner is provided government funds under this project, the industry/utility partner will be required to augment those funds by providing a cost-share consistent with Energy Policy Act (EPAct) 2005 guidelines. Partnering with minority serving institutions such as HBCUs, Hispanic serving institutions, and Tribal serving institutions is encouraged. The following link provides the current list of minority serving institutions:

<http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>.

Funding is for faculty, staff and students at U.S. universities only. Foreign faculty, staff and students at U.S. universities are allowed to participate in projects. While collaborations with foreign organizations are allowed, these participants are not eligible for funding under this

CFP. Their role must be focused on fundamental research and they must not be a denied party or a party that requires an export license.

5. COST SHARING

For the purposes of cost sharing, the proposed activities of the IRP are divided into two types

- Basic and applied research and development (R&D)
- Technology demonstration and deployment (D&D)

Industry/utility partners are required to provide a minimum of 20% cost share for R&D and a minimum of 50% cost share for D&D activities. This cost share will be based on the portion of the IRP budget proposed by each industry/utility partner. For all other non-Federal entities, cost sharing is encouraged, but not required for R&D, and a minimum of 20% is required for D&D activities. All entities must include required cost share in their proposed budgets. All cost shared funding must come from non-Federal sources unless otherwise permitted by law. The Contracting Officer may accept contributions that meet the criteria set forth in 10 CFR 600.30.

These cost sharing requirements are consistent with the Energy Policy Act (EPAcT) of 2005, Sec. 988. D&D falls under the category of “demonstration and commercial application” specified in EPAcT 2005, Sec. 988. However, there is no expectation that an IRP would commercialize the energy technology it may develop, but would assist in the deployment of that technology through transfer to industry, which would perform the commercial applications.

6. IRP DEVELOPMENT REQUIREMENTS

6.1. OVERVIEW

Proposed IRPs should take a holistic, systems approach to science and technology, and will act as an integrator of basic and applied R&D. The scientific problems to be addressed by the IRPs are inherently interdisciplinary. IRPs require personnel with varied skills and expertise in areas that may include physics, chemistry, computer science, materials science, and engineering, among other possible areas.

In addition, it will be critical for IRP research teams to understand, in depth, the potential NE needs in order to implement a sustainable and viable technology. This will be a true collaboration between the NE R&D programs and IRPs; which must combine exceptional skill and creativity in energy technology research with cutting-edge expertise in the specific problems to be addressed, either by including researchers specializing in this field or developing strong partnerships and working relationships with the individuals and institutions, governmental and non-governmental, that have been engaged in research on these or related problems. IRPs are also expected to develop enabling technologies to facilitate and accelerate this research.

6.2. EQUIPMENT AND OPERATION

Allowable costs include those necessary to purchase research equipment and instrumentation required to execute the proposed project. No new construction (new buildings or major modifications to existing buildings) or major multi-use equipment procurements will be allowed as part of sub-contracts awarded as a result of this CFP. If equipment is to support multiple projects, its cost shall be appropriately allocated across each supported project.

IRPs may develop agreements with respect to access to major scientific instrumentation, including DOE user facilities, on an as-needed basis rather than as an integral component of initial IRP requests and budget since funding at DOE user facilities is determined and administered separately from this CFP.

6.3. TECHNICAL CAPABILITIES AND INSTRUMENTATION

IRPs must include all technical capabilities considered necessary by the applicant to implement their proposed approach, including experimental and computational tools. In order to carry out the proposed research program, IRPs shall develop core capabilities in or have access to the full range of synthetic, characterization, manipulation, and computational capabilities. A portion of the research may be devoted to developing new technological capabilities for overcoming challenges that cannot be addressed with currently available technologies and instrumentation. Research capabilities and resources to be accessed outside of IRPs should be clearly identified.

6.4. MANAGEMENT

DOE recognizes that effective management of scientific facilities, programs, and projects is critical to research success and its overall contribution to the NE R&D mission. IRPs must have well-designed management plans for their establishment and execution, to include research, technology development, resources (both personnel and physical resources), and scientific data. Management plans should include provisions for coordination with other basic and applied R&D activities supported by the Department. IRP management structure must enable empowered scientist-managers to execute quick decisions to shape the course of research. In addition, each IRP will be monitored and guided by an associated NE advisory panel, whose membership will be composed of DOE-NE program personnel and their designated technical liaisons at the national laboratories. IRP execution shall be periodically reported and monitored for continued project funding.

Key elements for successful IRP management include:

- a clear lead university with strong scientific leadership and central location for the IRP;
- to the extent that there is geographic distribution of the IRP participants, a clear commitment to applying state-of-the-art technology and frequent virtual meetings to enable meaningful long distance collaboration; and most importantly,

- a clear organization and management plan for achieving the collaborative and synergistic goals of a IRP and “infusing” a culture of empowered central research management throughout the IRP.

IRPs will be subject to regular and rigorous peer review of their scientific program and their management structure, policies, and practices. See also Section 8.3.4.2 provisions.

6.5. STAFFING

IRP research programs should be led by internationally-recognized scientists or engineers. IRP consortiums may be composed of diverse institutions including academia, national laboratories, non-profit research institutes, and industry/utilities. IRP research teams should strive to achieve the synergies that arise when individuals with forefront expertise in different methodologies, technologies, disciplines, and areas of content knowledge tackle a problem together, overcoming impasses by attacking the issue from fresh angles and discovering novel solutions.

6.6. QUALITY ASSURANCE AND INFORMATION MANAGEMENT

Applicants should have sound quality assurance plans for all aspects of the proposed IRP programs. National and international standards for quality assurance for the different categories of experimentation to be carried out by the IRP should be identified and plans for qualifying for International Organization for Standardization (ISO) and/or other certifications should be described in the application, as appropriate.

6.7. DELIVERABLES / BENCHMARKS

IRPs are expected to have deliverables or benchmarks that help focus the objectives of the research to the proposed goals they are addressing and include the ability to respond to program direction.

6.8. RESEARCH INTEGRATION AND COORDINATION

Applicants should describe plans for integrating the results of their fundamental research and technology development with other basic and applied R&D activities supported by the Department, including the work conducted by other IRPs.

If applicants identify essential research and technology capabilities that are beyond the scope of the proposed IRP’s skills and resources then the applicant should demonstrate plans for obtaining these additional capabilities, including collaboration with outside experts.

6.9. COLLABORATION WITH INDUSTRY

When appropriate, IRPs are expected to foster and encourage robust interaction with industry to accomplish the scope of R&D defined by this CFP. Applicants are encouraged to provide information regarding their plans to create a research environment that promotes collaboration with industry/utilities, when appropriate, to enable organizational cognizance of industry/utility readiness, technology transfer, and assisting the transition of developed technologies to industrial development.

6.10. OTHER CONSIDERATIONS

While capital investment in instrumentation and equipment may be included as part of the IRP awards, usage and leverage of existing facilities, including the Department's user facilities, is encouraged. DOE user facilities, including nuclear reactors, light sources, neutron sources, nanoscale science research centers, advanced computational facilities, and other specialized user facilities, are considered foundational resources for a vast range of the scientific user community. As such, they are expected to serve as independent resources for IRPs, when appropriate. Funding for activities at DOE user facilities is managed separately from this CFP and should not be included in IRP budget requests in response to this CFP.

7. QUESTIONS AND CONTACTS

Points-of-contact for each IRP are available on the NEUP website at www.neup.gov; however, all technical scope questions must be submitted through the question and answer feature located in the CFP section of the NEUP website accessible via its home page located at www.neup.gov.

8. BASIS FOR AWARD

8.1. SELECTION METHOD

NEUP will apply a competitive range selection process whereby relevant evaluation factors will be assessed, including cost considerations, to select the successful applicants. The application evaluation and award process will be based on written information, references and independent pre-award assessment actions as outlined within this solicitation. The competitive range selection process will be conducted as follows:

Written Proposals - Offeror shall provide a written proposal, fully compliant with the electronic submittal requirements specified on the NEUP website. NEUP will make a determination as to the responsiveness of each proposal to the solicitation requirements.

Cost Considerations - To assess the cost component of the proposal, NEUP will perform a review of the detailed cost proposal to determine reasonableness of the labor and non-labor costs for performing the proposed work.

NEUP may solicit from available sources, including references and past clients identified by the Offeror, experience and past performance information on an Offeror or key personnel, and consider such information in its evaluation. Offerors are reminded to submit their best

initial proposal as NEUP may award without further discussions. However, if deemed advantageous to the government, a second selection phase may be used wherein a down selected group of proposers would be requested to present an overview of their proposals. If NEUP determines that revised proposals or best and final offers are necessary, NEUP may solicit them from only those Offerors deemed by NEUP (based upon evaluation of current proposals) to have a reasonable chance to be selected for award, (i.e., the competitive range.)

8.2. MANDATORY REQUIREMENTS

Within the submission form, Offeror shall identify nuclear energy-related Federal funding sources by source, project name, monetary amount and length of term received by the Principal Investigator or collaborators currently in place or received within the past three years.

Within the written proposal, Offeror shall address the mandatory (go/no-go) requirements. Only proposals deemed fully compliant with the mandatory requirements shall be eligible for continued evaluation. If an Offeror cannot meet, or does not address compliance with the following mandatory (go/no-go) requirements, its proposal may be considered nonresponsive and in such cases would not be evaluated further. Each Offeror (i.e., lead U.S. university submitting a proposal) is responsible for obtaining the commitment of each of their teaming partners to the mandatory requirements; their submittal of a response to this CFP is indicative of each teaming partner's acceptance of the mandatory requirements. The Offeror is not required to submit formal letters of commitment of their partners as part of their proposal; however, prior to award of any resultant contract, the Offeror must demonstrate that the proposed team has been formed and all teaming partner agreements are finalized.

DOE NEUP IRP CFP Mandatory Requirements

No.	Requirement	Description	Evaluation
1	Commitment to reporting and budget requirements	Commitment to quarterly billing. Commitment to quarterly reporting to NE advisory panel. The quarterly report will provide status and progress information on R&D, deliverables, milestones, schedule and budget. The annual report is due each year within one month of the anniversary of the contract award date. The fourth quarter report is accepted as an annual report, but is required to include a more rigorous level of detail and a section describing the future outlook of the R&D.	Go/No-go
2	10 CFR 851 Worker Safety and Health Program	If offeror proposes work scope to be conducted at a DOE facility, the work performed at DOE facilities shall be conducted in accordance with 10 CFR 851, Worker Safety and Health Program requirements.	Go/No-go
3	Export Control	Each offeror to the CFP and their partners are responsible for their own compliance with all US Export Control regulations in the performance of any work that is funded through the NEUP program. Offerors and partners who are selected to perform work in accordance with this CFP agree to have in place a documented export control process by the time a contract is awarded. Offerors and partners can contact the U.S. Departments of Commerce, State, Energy and Treasury for guidance as to applicable licensing requirements and other restrictions. By participating in this CFP, offerors and partners acknowledge that the work proposed will be subject to all export control regulations that may prohibit or restrict (i) transactions with certain persons, and (ii) the type and level of technologies and services that may be exported. These regulations include, without limitation, the Arms Export Control Act, the Export Administration Act, the International Economic Emergency Powers Act, the Atomic Energy Act and regulations issued pursuant to these including the Export Administration Regulations (EAR) (15 CFR Parts 730-774), the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130), and the Nuclear Regulatory Commission and Department of Energy export regulations (10 CFR Parts 110 and 810). Offerors and partners acknowledge that export control requirements may change and that the export of goods, technical data or services from the U.S. without an export license or other governmental authorization may result in both civil and criminal liability.	Go/No-go
4	Standard Research Subcontract	Offeror must agree to the terms and conditions of a Standard Research Subcontract (available on the NEUP website), without exceptions. If the lead institution has a	Go/No-go

		current Blanket Agreement in place with BEA and is awarded a IRP contract in response to this CFP, then the NEUP IRP award will be added to the existing Blanket (i.e. Release or Task Order). If no current Blanket exists, the action will be awarded under a stand-alone Standard Research Subcontract.	
5	Quality Assurance	Each offeror to the CFP and their partners need to implement QA requirements based on a specific scope of work and associated deliverables. Work scope has been reviewed by the TIOs to insure the integrity of R&D products and their usability by NE. In accordance with this review, QA requirements were identified on the QA Requirements Form. Offerors and partners who are selected to perform work in accordance with this CFP agree to adhere to the specified QA requirements through use of university procedures or procedures/templates/guidance provided by NEUP. Offerors shall document acceptance to the QA requirements in the CFP.	Go/No-go
6	Commitment to prepare additional contract elements	Depending on the nature and terms of agreements already in place with BEA, offerors should be prepared to provide the following: University Contract Office Approval, Current Negotiated Rate Agreement, University Travel Policy, Resumes for other degreed individuals, faculty members, and administrators, Forecast of monthly accrual based on best estimate of costs incurred.	Go/No-go

8.3. WRITTEN PROPOSAL

8.3.1. Application Forms

Application forms and instructions are available at www.neup.gov.

8.3.2. Limitation on Number of Lead Applications

A specific university may not submit more than **one** application as the prime applicant for this particular CFP in each of the IRP areas. Upon receipt of the first application from a designated lead university, receipt of any subsequent applications from that university will be deemed non-responsive and rejected without further review. However, there is no limit to the number of applications to which a specific eligible entity may participate as a team member/subcontractor.

8.3.3. IRP Summary/Abstract

The IRP 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, key personnel proposed for the project (e.g., the IRP Director, 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, for collaborative projects, the dollar value of the effort to be performed by each participant over the period of performance and a brief description of the capacity in which the participant will be participating. 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) {single spaced} with font not smaller than Times New Roman 12 point.

It will be up to the applicant to define key personnel and the role they will play in accomplishing the project. Key personnel include such positions as IRP director, project manager, deputy project manager, principal investigator(s), etc, or any other persons having a significant role in the successful outcome of the IRP project. Personnel identified in the application proposal as key personnel will be expected to devote a significant amount of their time toward the project, unless otherwise acceptably justified in the applicant's proposal.

8.3.4. Technical Proposal

8.3.4.1. Project Narrative

The project narrative must not exceed 50 pages, including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left, and right). **EVALUATORS WILL ONLY REVIEW THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE.** A cover page and table of contents must be included at the beginning of the project narrative but neither will count against the page limit. Furthermore, information required to be submitted in the requested appendices are not subject to the project narrative page limit. Headers/footers containing page numbers and project titles/logos may be inserted within the required 1" margins. The font must not be smaller than Times New Roman 12 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 13.1.3 for instructions on how to mark proprietary application information. **The contents of the project narrative are specified in order to ensure that the merit reviewers have the necessary information to conduct proper evaluations.** All project narratives are to include all components of the IRP Management Plan.

8.3.4.1.1. IRP Management Plan

This section must provide a clear, substantive overview of the vision, management, and organization of the proposed IRP. Offeror shall provide a

written narrative addressing its strategy to execute R&D that supports the specified Technical Work Scope. The documentation provided shall include the items specified below:

- Proposal Title
- Technical Work Scope Identification: From the Technical Work Scope Table, as indicated on the original pre-application
- Proposed Scope Description
- Logical path to accomplishing scope including descriptions of tasks
- Milestones and Deliverables
- Type/description of facilities that will be used to execute the scope (N/A is acceptable)
- Schedule: Define timelines for executing the specified work scope
- The roles and responsibilities of each partnering organization in the execution of the work scope
- Unique challenges to accomplishing the work and innovations expected to mitigate such challenges
- Information, data, plans, or drawings necessary to explain the details of Offerors proposal
- Quality Assurance: Describe the applicable QA requirements and how they will be met.

8.3.4.2. Capabilities

Infrastructure Requirements: In a separate document, Offeror shall identify the infrastructure (e.g., facilities, equipment, and instrumentation) required to execute the proposed scope of work. Describe the non-labor (e.g., facilities, equipment, and instrumentation) resources available and accessible to the Offeror and are required to execute the scope of work. Describe any unique equipment and/or existing facilities that are needed, are accessible, and will be used to execute the scope of work. Discuss the adequacy of these resources and identify any gaps. See the electronic proposal submission form for document guidance.

This call allows for the Offeror to propose the purchase of equipment required to conduct the proposed work. Any property acquired under subcontracts resulting from this CFP will be subject to the terms and conditions of the BEA standard research subcontract. This document is available via the NEUP website: www.neup.gov.

8.3.4.3. Technical Expertise and Qualifications:

Offer shall name all teaming partners by name and organization and their proposed roles and responsibilities. For the director, principal investigator and collaborators, the Offeror shall provide a brief vita that lists:

- Contact information;
- Academic and professional credentials;

- Relevant professional history;
- Five recent relevant publications or commensurate professional experiences.
- See the electronic proposal submission form for document guidance.

Submitted individuals (and/or their recipient institutions) must receive at least \$50,000 over the life of the subcontract to be considered a collaborator. Minor contributors—anyone not expected to materially participate in the proposal, such as consultants or national laboratory personnel who are not to be paid more than \$50,000 to participate in the project—should not be listed.

8.3.4.4. Pricing

The Offeror shall use the spreadsheet, “CFP Budget Form example.xls” to provide all pricing information for execution of the proposed scope of work. Note that the required information is for the lead University, as well as for each partner.

Additional pricing information beyond that requested may be provided, but will be used at the discretion of NEUP. The budget form is available via the NEUP website.

Budget worksheets shall contain one worksheet for each consortium member, including national laboratories and industry/utility partners, and a roll up worksheet.

Provide name, phone number, and email address for a single point of contact from the lead university grants and contracting department or equivalent entity.

9. REVIEW AND SELECTION CRITERIA

9.1. INITIAL REVIEW CRITERIA

Prior to the merit review, NEUP will perform an initial review to determine that (1) the applicant is eligible for the award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and, (4) the proposed project is responsive to the objectives of the IRP in question and this CFP.

9.2. MERIT REVIEW CRITERIA

Applications meeting the initial review criteria will then be evaluated by two panels: one Technical Peer Review Panel and one NE Program Relevancy Review Panel, which will review applications using the Technical Peer Review and Relevancy criteria listed below. Following completion of the Review Panel evaluations, a team comprised of Federal officials will review the applications and the Review Panel evaluations, and make award recommendations to the SSO after consideration of program policy and other relevant subjective factors, as appropriate.

NEUP will evaluate and score each Offerors' proposal based on the information submitted in response to this CFP. Points for the technical score will be calculated as specified below:

9.2.1. Technical Peer Review (50%)

Applications will be subjected to formal merit review and will be evaluated against the following four criteria. Included within each criterion are the detailed questions that reviewers will consider in evaluating each criterion.

9.2.1.1. Scientific and/or technical merit of the project (12.5%)

- Does the research proposed directly address the specific need of the appropriate IRP?
- Does the research proposed for the IRP address the described need in an effective and impactful manner?
- Does the application present a balanced and comprehensive program of research that, as needed, supports experimental, theoretical, and computational efforts and develops new approaches in these areas?
- What is the likelihood that the applicant can overcome key scientific challenges and shift research directions in response to promising developments?
- Are the elements of the proposed research appropriately integrated, coordinated, and synergistic?

9.2.1.2. Appropriateness of the proposed method or approach (12.5%)

- Are the strategy and the plan for the development and operation of the proposed IRP, including the need for an IRP approach involving several senior/key personnel, the means for achieving an integrated IRP, and plans for leadership and guidance for the scientific and technical direction, appropriate?
- Does the applicant present a comprehensive management plan for a world-leading program that encourages high-risk, high-reward research and encourages synergisms among investigators, thus demonstrating that the whole is substantially greater than the sum of the individual parts?
- Does the applicant present an organizational structure that delineates the roles and responsibilities of senior/key personnel and describes the means of providing external oversight and guidance for scientific and technical direction and approval of the research program?
- Are the applicant's plans (if any) for education, outreach and training in the proposed IRP appropriate?
- Are the plans (if any) for external collaborations and partnerships reasonable and appropriate?

- Are the roles and intellectual contributions of the IRP Director, Principal Investigator(s), and each senior/key person adequately described and appropriate?
- Does the applicant proposal maximize the use of DOE user facilities and existing equipment?
- How effectively does the proposed research relate to existing and planned research programs at the host institution?
- Are environment, safety and health issues responsibly anticipated and addressed?

9.2.1.3. Competency of the applicant's personnel and adequacy of the proposed resources (12.5%)

- Do the applicant's senior/key personnel have a proven record of research in the disciplines needed for success in this project?
- Is the proposed access to existing research space, instrumentation and facilities at the host institutions and its partners likely to meet the needs of the proposed IRP?
- Is there adequate access to experimental and computational capabilities as needed to ensure successful completion of the proposed research - including access to research capabilities and resources outside of the IRP?
- Do the lead institution and the senior/key personnel for the IRP have proven records of success in project, program, and personnel management for projects of comparable magnitude?
- Do the lead institution and the IRP Director have proven records of success in project, program, and personnel management of diverse teams of science and technical professionals?
- Is the plan for recruiting any additional scientific and technical personnel including new senior staff, students and postdocs reasonable and appropriate?
- Will the IRP leadership have the capability to communicate effectively with scientists of all disciplines?
- Will the IRP Director and senior/key personnel be fully available to the proposed IRP, particularly taking into account their potential involvement in other major projects?
- Does each participating institution possess adequate systems for ensuring environmental, health and safety support and oversight?

9.2.1.4. Reasonableness and appropriateness of the proposed budget (12.5%)

- Is the requested budget for developing the proposed IRP appropriate, including realistically estimated costs for existing and new equipment and instrumentation?

- Is the requested operating budget for the proposed IRP reasonable for the planned scientific program?
- Are all subcontracts, travel, student costs and other ancillary expenses adequately justified and estimated?

9.2.2. Relevancy Review (50%)

The Relevancy Review Panel will consider the following program policy and management factors in the selection process:

9.2.2.1. Program Factors (20%)

- Diversity of research activities that will address the scientific challenges and use-inspired research as articulated in the DOE-NE Roadmap;
- Relation of the proposed IRPs to the core research activities within the DOE-NE Fuel Cycle R&D and Reactor Concepts R&D programs;
- Benefits to the government of making awards for distinct technologies and/or approaches.
- The extent to which the proposed project will address basic science, technology, economic, and policy issues hindering the U.S.'s ability to become energy secure and economically strong while being good stewards of the planet by reducing green house gas emissions.

9.2.2.2. Cost Factors (20%)

- The degree to which award of the proposed project optimizes use of the available DOE funding to achieving NE program goals.
- Reasonableness of the proposed project cost. This includes evaluation of the allocation among multiple participating team organizations where applicable, reasonableness of proposed costs for each task and overall project cost and cost-share between government and the team.

9.2.2.3. Collaboration Factors (10%)

- Potential for developing synergies between the proposed IRP and other DOE-NE research activities;
- Extent or degree to which the participation of minority-serving institutions (e.g., HBCU, Hispanic, Tribal Serving) are included in the IRP.

- Extent or degree to which significant, unfunded collaborations with international institutions are included in the IRP.

10. REVIEW AND SELECTION PROCESS

10.1. MERIT REVIEW

Applications that pass the initial review will be subjected to a formal merit review and will be evaluated based on the criteria cited above. NEUP may, as part of the merit review process, schedule face-to-face meetings between representatives of one or more applicants and members of one or more of the merit review panel(s) to allow merit review panel members to obtain answers to their questions or additional information about the contents of applications. Applicants may be required to travel to a designated location for a presentation to one or more of the merit review panels.

10.2. SELECTION

The SSO will consider all relevant objective and subjective information related to the IRP application process, including the merit review panel recommendations, Federal officials' review, program policy and management factors, and the amount of funds available.

10.3. DISCUSSIONS AND AWARD

NEUP may enter into discussions with selected applicants for any reason deemed necessary, including but not limited to: (1) proposed budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) NEUP 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 NEUP will preclude award to the selected applicant.

10.4. COMPETITIVE RANGE

If NEUP determines that revised proposals or best and final offers are necessary, NEUP may solicit them from only those Offerors deemed by NEUP (based upon evaluation of the applications) to have a reasonable chance to be selected for award (i.e., the competitive range).

11. PROPOSAL SUBMITTAL REQUIREMENTS

11.1. PROPOSAL DUE DATE:

The proposal is due by 5:00 p.m. MDT March 30, 2011. Applicants **MUST** submit their responses through the NEUP website using the electronic proposal submission form.

11.2. CFP SCHEDULE

Issue CFP	February 18, 2011
Full Proposals Due	March 30, 2011
Selection Review Completed and Awards Announced	June 22, 2011

11.3. LATE PROPOSALS

Proposals received after the designated date and time (i.e., late) may be retained without opening, with the Offeror notified of this decision. Extension of the proposal due date shall be at the sole discretion of NEUP on behalf of its sponsor, the Department.

11.4. PROPOSAL PACKAGING

Responses must be submitted as specified on the NEUP website to allow technical, pricing, and capabilities to be evaluated separately. The files shall be named as specified on the NEUP website.

11.5. FORMAT AND CONTENT REQUIREMENTS

The following must be completed and submitted to NEUP using the NEUP website (Note: Specified forms are provided at the website).

11.5.1. Technical Proposal

See the electronic proposal submission form for document guidance.

11.5.2. Fully Executed Organizational Conflicts of Interest Certification, Form PROC-3204 (available on the NEUP website).

The Offeror must provide, for itself and all partners, full disclosure of all previous current and planned contract activities where the Offeror is providing assistance on the same or similar matters to any other organization.

11.5.3. Pricing:

Submit core information using the budget spreadsheet and associated guidance provided on the NEUP website. The budget spreadsheet shall be submitted with the file name 11-ID# budget form.xls (example: 11-000 budget form.xls). A copy of the spreadsheet is provided on the NEUP website as CFP Budget Form example.xls.

Provide the following types of supporting documents with the budget spreadsheet: published fee schedules for laboratory equipment use, vendor quotes for equipment purchases, catalog prices for materials and supplies, details of the basis of estimate for the proposals budget, indirect rate agreement.

(Applies only to academic partners.) Offeror shall submit a cost proposal on the basis of fully burdened hourly labor rates for each of the labor categories proposed. **All participating organizations' adders shall be in accordance with their current negotiated rate agreement with the Department of Health and Human Services or the Office of Naval Research.** Offerors fully burdened rates shall include, but not be limited to, the following:

- Offerors overhead, e.g., the cost of maintaining places of business, fringe benefits, statutory benefits, other direct and indirect costs (Indirect rate agreement)
- Costs of owning, renting, leasing, operating, and maintaining equipment and services typically required in the staffing support business, e.g., telephones (fixed and mobile), pagers, faxes, office machines (computers, copiers, fax machines, filming equipment, plotters, printers, servers, networks, data ports for customer electronic access, data storage and retrieval systems, filing systems, furniture, developing and maintaining Offerors standards/guides and procedures.
- Costs of normal and customary human resource and department manager functions, e.g., staff oversight, employee performance assessments, awards, promotions, transfers, disciplinary actions, and terminations.
- Costs for routine business mail and express delivery (for delivery within three business days).
- Costs for routine printing jobs.

(Applies only to nonacademic partners). A fully executed Proposal/Certification Form PROC-2120 (available on the NEUP website).

Capabilities: Submit all capabilities information in accordance with the guidance provided on the NEUP website. The required capabilities information and associated guidance is provided on the electronic proposal submission form.

Commitment that the Offeror will comply with the mandatory (go/no-go) requirements identified above, Basis for Award and evidence that Offeror has the capabilities to meet the requirements set forth in the CFP. The commitment is made by checking the Terms and Conditions box located on the electronic proposal submission form available on the NEUP website.

Foreign Ownership Control or Influence over Contractor Representation, Form PROC 2113 (Questionnaire, Certification, Consultant Certification, List of Owners, or Change of Company Name forms), as applicable. Form is available on the NEUP website.

Failure to submit any of the foregoing, at NEUP's discretion, could result in the Offeror being determined non-responsive.

12.SPECIAL CONSIDERATIONS

12.1. OMBUDSMAN PROGRAM:

Offeror is hereby notified that protests relative to this solicitation shall be resolved through BEA's Ombudsman Program (Phone: (208) 526-4513).

13.PROPOSAL INSTRUCTIONS

13.1. INTERPRETATIONS AND EXCEPTIONS

Offerors shall submit proposals on the basis of compliance with the CFP requirements. Any interpretation of the requirements by the Offeror may be considered an exception and treated accordingly (i.e., establish the proposal as non-responsive.) Offerors must obtain NEUP concurrence/clarification regarding its interpretation to classify its proposal as compliant with, or an exception to, the CFP requirements. Any exception must be documented as part of the proposal and priced as an alternative.

If Offeror takes exception to any CFP requirement, either technical or administrative, it shall be so stated in the proposal and formatted as follows: technical exceptions shall be numbered and attached to the technical proposal in a single document; administrative exceptions shall be numbered and attached to the price proposal; and each exception shall be clearly and completely defined.

13.1.1. Rights Reserved by NEUP

NEUP reserves the following rights:

- To accept or reject any proposal with or without prior discussion with the Offeror and to disregard minor irregularities in proposals received.
- To conduct any necessary pre-award survey and analysis to evaluate an Offeror's capabilities to comply with the requirements of this CFP.
- To conduct a pricing audit to facilitate a determination of the reasonableness of proposed pricing.

Offerors are advised that although negotiations and a request for best and final may follow receipt of proposals, award may be made without further discussions on proposals received. Thus, proposals should be submitted initially on the most favorable terms of price, technical compliance, and completeness.

13.1.2. Proposal Validity Period

A proposal shall remain firm for 180 days after the proposal due date, unless otherwise specified by the Offeror.

13.1.3. Proprietary Information:

NEUP prefers that applicants provide a proposal without proprietary information; however, if proprietary data/information is essential to the effective presentation of the applicant's proposal, please adhere to the following:

- If it is possible to do so without degrading the effectiveness of the presentation, place all proprietary data in a separate document as an attachment or appendix to the appropriate proposal volume.
- Each page containing proprietary data must be marked with the following legend, an alternative legend that NEUP specifically agrees to accept, or a statement that the documents are submitted pursuant to a specifically identified written agreement between you and NEUP defining the duties and obligations of the parties relative to the proprietary data: ***"This contains 'proprietary data', furnished under BEA Call for Proposals No. NEUP-002-11, which may be duplicated and used by BEA with the express limitations that the 'proprietary data' may not be disclosed outside BEA and the U. S. Government."*** Contact the Procurement Agent if the legend furnished by BEA is not considered appropriate, must be revised, or should be replaced by a written agreement controlling submittal of proprietary data.

13.1.4. Discrepancies in the Request for Proposal

Should an Offeror find discrepancies in, or omissions from, the CFP, its attachments or related documents, or should Offeror be in doubt as to the meaning of any requirements, Offeror shall notify NEUP and obtain correction or clarification prior to submitting its proposal.