

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



U. S. Department of Energy

Idaho Operations Office

Fiscal Year 2023 Distinguished Early Career Program

**Funding Opportunity Announcement:
DE-FOA-0002734**

**Announcement Type: Initial – September 30, 2022
Amendment 001- October 20, 2022**

CFDA Number: 81.121

Application Due Date: November 3, 2022, at 7:00 PM ET

Amendment 001: This amendment is an administrative amendment to update the FOA as follows:

- Part IV, Section C.19: Removal of the 5-page limit language for the Vitae.

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Checklist for Avoiding Common Errors:

Item	Issue
Page Limits	Strictly followed throughout application, including particular attention to: - Research Narrative - Career Objective Statement - Endorsement Letter - Data Management Plan(s) (DMPs)
Protected Personally Identifiable Information	None present in the application
Project Abstract	Name of applicant, Principal Investigator (PI), PI's institutional affiliation(s),
Budget	Use current negotiated indirect cost and fringe benefit rates
Budget Justification (attached to budget)	Justify all requested costs
Current and Pending Support	Ensure complete listing of all activities including brief abstract of scope of work for all items listed, regardless of source of funding
Certifications and Assurances	- Ensure that signatures are completed for both sections of the certifications and assurances documentation
R&R Other Project Information	- If marking proprietary information, clearly mark the sections where proprietary information is in the narrative or other documents using the procedure outlined in the funding opportunity announcement. - If marking 'yes' to international collaboration, list all institutions and countries.
Data Management Plans (DMP)	- If referring to an experiment's DMP, describe the relationship to the proposed research - Include a DMP even if no experimental data is expected

LIST OF ACRONYMS

CFR	Code of Federal Regulations
CTD	Crosscutting Technology Development
DECP	Distinguished Early Career Program
DMP	Data Management Plan
DOE	Department of Energy
FC R&D	Fuel Cycle Research and Development
FFATA	Federal Funding and Transparency Act
FOA	Funding Opportunity Announcement
FFRDC	Federally Funded Research and Development Center
FSRS	FFATA Subaward Reporting System
FWP	Field Work Proposal
HBCU	Historically Black Colleges and Universities
IHE	Institution of Higher Education
M&TE	Measuring and Test Equipment
MSI	Minority-serving Institution
NE	Office of Nuclear Energy
NEAMS	Nuclear Energy Advanced Modeling and Simulation
NEET	Nuclear Energy Enabling Technologies
NRC	Nuclear Regulatory Commission
NSUF	Nuclear Science User Facilities
OMI	Other Minority Institution
PI	Principal Investigator
PIE	Post-irradiation Examination
QA	Quality Assurance
QOZ	Qualified Opportunity Zone
R&D	Research and Development
SAM	System for Award Management
SMR	Small Modular Reactor

PART I – FUNDING OPPORTUNITY DESCRIPTION

General inquiries about this Funding Opportunity Announcement (FOA) should be directed to Andrew Ford at fordaj@id.doe.gov. Questions about the application system should be sent to NEUP@inl.gov.

A. SUMMARY

The Distinguished Early Career Program (DECP) is the Department of Energy Office of Nuclear Energy's (DOE-NE) most prestigious award for faculty members beginning their independent careers. The intent of the program is to provide stable support at a sufficient level and duration to enable awardees to develop careers, not only as outstanding researchers, but also as educators demonstrating commitment to teaching, learning, and dissemination of knowledge. DOE-NE encourages all eligible applicants, especially women, members of underrepresented minority groups, and persons with disabilities, to apply.

This FOA is soliciting distinguished early career applications that provide a clear research and education plan that highlights the applicant's research and educational strengths, the research and education vision to support the development of the faculty member, research infrastructure, curriculum, and research outcomes that will advance the applicant's research focus while training the next generation of nuclear energy professionals. Applications should focus on DOE-NE mission areas.

The extraordinary characteristic that places the DOE-NE Early Career Award into a Distinguished category is the truly integrated nature of excellence in research, education, and leadership. The applicant must demonstrate excellence in all three categories, including the vision to accomplish all in an integrated plan over the course of a career horizon.

Excellence in research can be demonstrated by exceptional publications, presentations, invited seminars, research awards and prestigious funding. Excellence in education can be demonstrated by the creation of new courses, curricula, national presentations, innovative teaching methods and teacher engagement. Excellence in leadership can be demonstrated through scholarly service and extraordinary efforts to break new ground in interactions with industry, national labs, international entities, professional groups, and community groups. This could include participation in journal reviews, editorships, national conference program committees, society executive committees, working groups, advisory committees, traditional news media op eds, etc. All examples cited are only for illustrative purposes and are not all inclusive.

Integration of Research and Education - All applications should describe an integrated path that will lead to a successful career as an outstanding researcher, educator, and contributor to the broader nuclear energy community. DOE-NE recognizes that there is no single approach to an integrated research and education plan but encourages all applicants to think creatively about the reciprocal relationship between the proposed research and education activities and how they may inform each other in their career development as both outstanding researchers and educators. These plans should reflect the proposer's own disciplinary and educational interests and goals, as well as the needs and context of their organization. Because there may be different expectations

within different disciplinary fields and/or different organizations, a wide range of research and education activities may be appropriate for this program.

DOE-NE's mission is to advance nuclear energy science and technology to meet U.S. energy, environmental, and economic needs. NE has identified the following goals to address challenges in the nuclear energy sector, to help realize the potential of advanced technology, and to leverage the unique role of the Government in spurring innovation:

1. Enable continued operation of existing U.S. nuclear reactors;
2. Enable deployment of advanced nuclear reactors; and
3. Develop advanced nuclear fuel cycles and spent nuclear fuel management options.

All applications submitted under this FOA must demonstrate a strong tie to the mission. NE conducts crosscutting nuclear energy research and development (R&D), and associated infrastructure support activities, to develop innovative technologies that offer the promise of dramatically improved performance for its mission needs, as stated above, while maximizing the impact of DOE resources.

NE strives to promote integrated and collaborative research conducted by national laboratories, universities, industry, and international partners in conjunction with NE's programs, and to deploy innovative nuclear energy technologies to the market to meet the strategic goals and optimize the benefits of nuclear energy. NE funds research activities, through both competitive and direct mechanisms, as required to best meet those goals. This approach ensures a balanced R&D portfolio and encourages new nuclear power deployment with creative solutions to the universe of nuclear energy challenges. NEUP supports university-based infrastructure and R&D in key NE program-related areas: Fuel Cycle Research and Development (FC R&D), Reactor Concepts (RC) Research, Development and Demonstration (RD&D), and Nuclear Energy Advanced Modeling and Simulation (NEAMS). Nuclear Energy Enabling Technologies Crosscutting Technology Development (NEET CTD) supports national laboratory and university-led crosscutting research. By establishing the Nuclear Science User Facilities (NSUF) in 2007, DOE-NE opened up no-cost access to world-class nuclear research facilities such as material test reactors, beam lines, and post-irradiation examination facilities to researchers from U.S. universities, industry, and national laboratories.

B. MAJOR NE FUNDED RESEARCH PROGRAMS

B.1 Fuel Cycle Research and Development (FC R&D) Program

The mission of the FC R&D program is to develop used nuclear fuel management strategies and technologies to support meeting the Federal Government responsibility to manage and dispose of the nation's commercial used nuclear fuel and high-level waste and to develop sustainable fuel cycle technologies and options that improve resource utilization and energy generation, reduce waste generation, enhance safety, and limit proliferation risk.

The program's vision is that by mid-century, strategies and technologies for the safe, long-term management and eventual disposal of U.S. commercial used nuclear fuel, and any associated fuel

cycle technologies that enhance the accident tolerance of light water reactors and enable sustainable fuel cycles, are demonstrated, and deployed. Together, these technologies and solutions support the enhanced availability, affordability, safety, and security of nuclear-generated electricity in the United States.

Current challenges include the development of high burn-up fuel and cladding materials to withstand irradiation for longer periods of time with improved accident tolerance; simplified materials recovery technologies; waste management technologies including storage, transportation, and disposal; proliferation risk reduction methods; and processes and tools to evaluate and communicate sustainable fuel cycle system options.

FC R&D Points of Contact (POC) Table

Program POC	Program Area	Contact
Frank Goldner	Advanced Fuels / Accident Tolerant Fuels	Frank.Goldner@nuclear.energy.gov
Kenneth Kellar	Advanced Fuels / Advanced Reactor Fuels	Kenneth.Kellar@nuclear.energy.gov
Stephen Kung	Material Recovery and Waste Form Development – Aqueous Separation and Molten Salt Separations	Stephen.Kung@nuclear.energy.gov
Kimberly Gray	Material Recovery and Waste Form Development – Waste Form and Off-gas	Kimberly.Gray@nuclear.energy.gov
Sue Lesica	Materials R&D	Sue.Lesica@nuclear.energy.gov

B.2 Reactor Concepts Research, Development, and Demonstration (RC RD&D) Program

The RC RD&D Program conducts RD&D on existing and advanced reactor designs and technologies to enable industry to address technical challenges with maintaining the existing fleet of nuclear reactors, and to promote the development of a robust pipeline of advanced reactor designs and technologies, and supply chain capabilities. Program activities are designed to address technical, cost, safety, and security issues associated with the existing commercial light water reactor fleet and advanced reactor technologies, such as small modular reactor (SMR) and microreactor designs, fast reactors using liquid metal coolants, and high-temperature reactors using gas or liquid salt coolants.

RC RD&D POC Table

Program POC	Program Area	Contact
Savannah Fitzwater	Light Water Reactor Sustainability (LWRS) – Physical Security	Savannah.Fitzwater@nuclear.energy.gov

Program POC	Program Area	Contact
Bill Walsh	LWRS – Plant Modernization and Risk Informed Systems Analysis	William.Walsh@nuclear.energy.gov
Sue Lesica	LWRS – Materials R&D	Sue.Lesica@nuclear.energy.gov
Jason Marcinkoski	LWRS – Flexible Plant Operation and Generation	Jason.Marcinkoski@nuclear.energy.gov
Diana Li	Microreactor Program and High Temperature Gas Reactor	Diana.Li@nuclear.energy.gov
Matt Hahn	High Temperature Gas Reactor	Matt.Hahn@nuclear.energy.gov
Brian Robinson	Molten Salt Reactor (MSR) and Sodium Fast Reactor (SFR)	Brian.Robinson@nuclear.energy.gov
Janelle Eddins	Advanced Reactor Regulatory Development	Janelle.Eddins@nuclear.energy.gov
Melissa Bates	Advanced Small Modular Reactor RD&D	Melissa.Bates@nuclear.energy.gov
Savannah Fitzwater	Advanced Reactor Safeguards	Savannah.Fitzwater@nuclear.energy.gov

B.3 Nuclear Energy Advanced Modeling and Simulation (NEAMS) Program

The mission of the NEAMS Program is to accelerate early-stage development of advanced reactor concepts and enable improved economics of new and existing designs by providing leading-edge computational tools to U.S. industry. The primary program objective is to develop and deploy these predictive tools and methods to industry, academia, and Government, including the Nuclear Regulatory Commission (NRC), for research, analysis, design, and regulatory acceptance of advanced reactor and fuel cycle systems. These advanced computational tools employ scalable simulation methods on high-performance computing architectures, in combination with a science-based, mechanistic approach to physics modeling, to allow scientists and engineers to better understand reactor materials properties and coupled phenomena in nuclear energy systems. Consequently, these tools span length scales from atomic to mesoscale to engineering scale, and time scales from picoseconds to seconds to days. These tools are currently being used to move certain advanced reactor concepts forward to commercialization in several keyways, including design optimization, which is required to fully realize the economic and technological advantages of those concepts. NEAMS capabilities also support development of advanced nuclear fuels, design and analysis of nuclear fuel experiments, and expansion of NRC confirmatory analysis capabilities in the advanced reactor area.

NEAMS POC Table

Program POC	Program Area	Contact
Dave Henderson	NEAMS	David.Henderson@nuclear.energy.gov

B.4 Nuclear Energy Enabling Technologies Crosscutting Technology Development (NEET CTD)

The NEET CTD program conducts R&D in crosscutting technologies that directly support and enable the development of new and advanced reactor designs and fuel cycle technologies. These technologies will advance the state of nuclear technology, improve its competitiveness, and promote continued contribution to meeting our nation's energy and environmental challenges. The activities undertaken in this program complement those within the RC RD&D and FC R&D programs and support the DOE-NE mission. (See Part I A). The knowledge generated through these activities will allow DOE-NE to address key challenges affecting nuclear reactor and fuel cycle deployment with a focus on crosscutting innovative technologies.

NEET-CTD POC Table

Program POC	Program Area	Contact
Dan Nichols	Advanced Sensors and Instrumentation	Daniel.Nichols@nuclear.energy.gov
Dirk Cairns-Gallimore	Advanced Materials and Manufacturing Technologies	Dirk.Cairns-Gallimore@nuclear.energy.gov
Becky Onuschak	Cyber Security	Rebecca.Onuschak@nuclear.energy.gov
Jason Marcinkoski	Integrated Energy Systems	Jason.Marcinkoski@nuclear.energy.gov

B.5 Nuclear Science User Facilities (NSUF)

DOE-NE funds access to world-class capabilities to facilitate the advancement of nuclear science and technology. This mission is supported by providing access, at no cost to the user, to state-of-the-art experimental irradiation testing and post-irradiation examination (PIE) facilities, as well as technical assistance, including the design and analysis of reactor experiments. This unique model is best described as a distributed partnership with each facility bringing exceptional capabilities and expertise to the relationship, including reactors, beamlines, state-of-the-art instruments, hot cells and, most importantly, expert technical and scientific assistance. Together, these capabilities and people create a nation-wide infrastructure that allows the best ideas to be proven using the most advanced capabilities. Through NSUF, researchers and their collaborators are building on current knowledge to better understand the complex behavior of materials and fuels under irradiation.

NSUF POC Table

Program POC	Program Area	Contact
Melissa Bates	NSUF	Melissa.Bates@nuclear.energy.gov

Past university research can be found at neup.gov.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

DOE anticipates awarding grants under this FOA.

B. ESTIMATED FUNDING

DOE anticipates that, subject to the availability of future year appropriations, a total of \$2,500,000 in current fiscal year funds will be used to support awards under this FOA. Awards are fully funded in the first project year.

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

C. MAXIMUM AND MINIMUM AWARD SIZE

The total number of awards will depend on the number of meritorious applications and the availability of appropriated funds. The ceiling and floor for this FOA are the same. The maximum award for the DECP is \$625,000 over five years.

Additional Notes

Requested funding may vary year-by-year to accommodate the real and expected needs of the proposed research. The average DEC award supports the Principal Investigator (PI), research staff under the PI's direction (including postdocs and graduate students), equipment (including fabrication), and other necessary costs (materials, supplies, and travel).

D. EXPECTED NUMBER OF AWARDS

DOE anticipates up to 4 awards under this FOA. The exact number of awards will depend on the number of meritorious applications and the availability of appropriated funds.

E. ANTICIPATED AWARD SIZE

DOE expects the typical award size to be around \$625,000 over five years.

F. PERIOD OF PERFORMANCE

DOE anticipates making awards with a project period of 5 years.

G. TYPE OF APPLICATION

DOE will only accept new applications under this FOA.

PART III – ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

In accordance with 2 CFR 910.126 - Competition, eligibility for award is restricted to eligible individuals from U.S. Institutions of Higher Education (IHE), in accordance with information described in Part III C of this FOA.

The act of submitting an application implies that the submitting institution has checked, confirmed, and certifies that the PI is eligible, as outlined in Part III C.

Institutions of Higher Education

Applications must be submitted through a U.S. academic institution. An employee with a joint appointment between a university and a DOE national laboratory can apply through the IHE if the IHE pays the applicant's salary and provides their benefits.

B. COST SHARING

Cost sharing is not required.

C. ELIGIBLE INDIVIDUALS

Eligible individuals with the skills, knowledge, and resources necessary to carry out the proposed research as a PI are invited to work with his/her organizations to develop an application for assistance. Individuals from underrepresented groups, those with disabilities, and people from all geographic and economic backgrounds, are encouraged to apply.

In addition, DOE-NE strives to ensure energy justice and is fully committed to broadening the inclusion and contribution of those communities that have been historically underserved within its programs. Eligible PIs from minority-serving institutions (MSIs), Historically Black Colleges and Universities (HBCUs), or institutions located in overburdened and underserved communities are highly encouraged to apply to this FOA.

Information on Minority Serving Institutions (MSI) can be found at <https://www2.ed.gov/about/offices/list/ope/itudes/eligibility.html#tips>. This information predominately covers institutions that have been awarded grants through the Department of Education and does not include all institutions that may meet the definition of an MSI. This resource is not an exhaustive list of minority-serving institutions.

For purposes of identifying MSIs in NE's application system, NE is using a directory based off of 2020 U.S. Department of Education data compiled by Rutgers University's Center for MSIs, which can be found here: <https://www2.ed.gov/about/offices/list/ope/itudes/2022eligibilitymatrix.xlsx>. This list is also not an exhaustive list of MSIs but will be used as a starting point for auto-identifying MSIs.

If applicants believe that their institution qualifies as an MSI and is not listed, please contact neup@inl.gov with an explanation for how the university meets the conditions of being considered an MSI.

PIs of early career awards funded by other Federal agencies or entities are not eligible.

Proposed research for this submission must have a scope different from any non-early career federally funded award.

PIs must be untenured assistant professors on the tenure track and no more than seven years beyond their doctorate. PIs must be in the eligible position as of the last day of January 2023. There can be no co-PIs or collaborators.

Note: Limited circumstances may require use of national laboratory facilities if major facilities are not available on the applicant's campus. The costs associated with the use of national laboratory facilities may be covered as part of this application. If national laboratories are used, then field work proposal (FWP) and authorization letter are required.

Extensions to eligibility will be considered for individuals, who have had a major life event requiring an extended absence (3 months or longer) from the workplace including, but not limited to, active military service, an absence due to personal disability, or an absence covered by the Family and Medical Leave Act. Verification stating validity of requests for extended eligibility must be made by including in the application a letter signed by the dean, research vice president, or equivalent official as of the application deadline. The request for an eligibility extension will be evaluated as part of the application assessment.

The eligibility requirements improve the quality of applications submitted and encourage those who are strong candidates to submit applications to the program.

PIs must adhere to the respective eligibility standards below:

- The PI must be an **untenured** assistant professor on the tenure track and no more than seven years beyond his/her doctorate at a U.S. academic institution as of the last day of January 2023.
- The PI must be employed in the eligible position as of the last day of January 2023.

NOTE: Procurement regulations require that applications submitted to this DECP FOA will be awarded to the IHE listed and will not be transferred to another institution if the PI changes institutions. DOE reserves the right to confirm that the candidate has a tenure-track appointment during the review process and/or during award negotiation.

D. LIMITATIONS ON SUBMISSIONS

Only one application on behalf of a PI may be submitted to this FOA. A PI may not submit an application to more than three DOE-NE DECP FOAs.

Applicants can only be awarded one DOE-NE DECP award. Applicants are not eligible for award if the applicant has already been awarded other Federal early career awards.

Research objectives for this opportunity must be distinct from current or past funded DOE-NE projects that the applicant has participated in as a lead PI, co-PI, or collaborator.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE

Electronic applications and instructions are available at [NEUP website](https://www.NEUP.gov). To access these materials, (1) go to www.NEUP.gov, (2) select “Sign In” from the top right hand corner of the screen, (3) enter your user credentials, (4) select “Applications” from the menu, and (5) click on “Create New Application” for the type of application you are creating.

Paper copies of the application package can be requested at:

INR Integration Office
Attn: Pamela Rich
PO Box 1625 MS 3730
Idaho Falls, Idaho 83415

Telephone: 208-526-4854
Fax: 208-526-1844

B. DOCUMENT FORMAT REQUIREMENTS

All non-budget documentation (use templates where provided) is to be prepared using standard 8.5” × 11” paper with 1-inch margins (top, bottom, left, right), using a font size no smaller than Times New Roman 11-point. This is a requirement for all pages included in the document (i.e., table of contents, references, etc.). The preferred file format is Adobe Portable Document Format (PDF) for all documents except for spreadsheets. All spreadsheets are to be uploaded in Excel file format to the online application. Do **NOT** lock any cells in the spreadsheet.

Applicants must comply with all pertinent page limitations. Any text (including references and data tables) in a document that does not adhere to the requirements listed above (except graphics, graphs, charts, and equations) will be removed from the document and will not be reviewed. DOE reserves the right to dismiss applications that violate formatting requirements. Signature blocks must be signed by the designated official.

Documents should be saved using the document naming suggestion at the bottom of each document description. The tracking ID will automatically be generated by the application system and can be found at the top of the application form under “Tracking ID.”

DOE reserves the right to dismiss applications, which it deems, after initial review, to lack enough detail for reviewers to adequately judge technical merit. Applications submitted with corrupted, incomplete, or incorrect files may be dismissed without further review.

C. CONTENT AND FORM FOR APPLICATIONS

C.1 Interim Conflict of Policy for Financial Assistance

a. Policy

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy) can be found at [Financial Assistance Letter No. FAL 2022-02 | Department of Energy](#). This policy is applicable to all non-Federal entities applying for, or that receive, DOE funding by means of a financial assistance award (e.g., a grant, cooperative agreement, or technology investment agreement) and, through the implementation of this policy by the entity, to each Investigator who is planning to participate in, or is participating in, the project funded wholly or in part under the DOE financial assistance award. DOE's interim COI Policy establishes standards that provide a reasonable expectation that the design, conduct, and reporting of projects funded wholly or in part under DOE financial assistance awards will be free from bias resulting from financial conflicts of interest or organizational conflicts of interest. The applicant is subject to the requirements of the interim COI Policy and within each application for financial assistance, the applicant must certify that it is, or will be by the time of receiving any financial assistance award, compliant with all requirements in the interim COI Policy. The applicant must flow down the requirements of the interim COI Policy to any subrecipient non-Federal entities.

The Recipient is required to disclose, manage, and report conflicts of interest as per the DOE interim COI Policy. Check the appropriate box on the application form certifying compliance with the COI Policy. If any disclosures need to be made, upload a COI document to the COI disclosure area of the application form.

Name File: 2023 COI Disclosure "Insert Tracking ID #"

C.2 SF-424 Research and Related (R&R)

Applicants shall complete the SF-424, R&R form, available at www.NEUP.gov, and upload a completed PDF copy of the form with the application.

Name File: 2023 SF424RR "Insert Tracking ID #"

C.3 Research and Related Other Project Information

Applicants shall complete items 1–6 on the R&R Other Project Information form available at www.NEUP.gov and upload a completed PDF copy of the form. Items 7-12 will be completed in the application form and do not need to be completed here.

Name File: 2023 R&R Other Project Information "Insert Tracking ID #"

C.4 Project Abstract

The project abstract must contain a summary of the proposed activity and be suitable for dissemination to the public. It should be a self-contained document that identifies the name of the

applicant; the project PI; the project title; a list of major deliverables; the scope and objectives of the project; a description of the project, including major tasks (phases, planned approach, etc.) and 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 DOE-NE may make it available to the public after awards are made.

Name File: 2023 Technical Abstract “Insert Tracking ID #”; 1-page limit (use provided [Template](#) on the application site)

C.5 Project Narrative

The integrated research and education project narrative **must not exceed a page limit of 10 pages** of technical information, including title page, table of contents, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard letter-size (8.5 x 11 inch) paper with 1-inch margins (top, bottom, left, and right). The font must not be smaller than 11-point. Merit reviewers will only consider the number of pages within the specified 10 pages. Unlimited references are allowable at the bottom of the narrative beyond the limited 10-page project narrative described above.

Do not include any internet addresses (URLs) that provide supplementary or additional information that constitutes a part of the application. Merit reviewers are not required to access internet sites; however, internet publications in a list of references will be treated identically to print publications.

Background/Introduction: Explanation of the importance and relevance of the proposed work, as well as a review of the relevant literature.

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

Proposed Research and Methods: Identify the hypotheses to be tested (if any) and details of the methods to be used, including the integration of experiments with theoretical and computational research efforts.

Integration of Research and Educational Activities: Identify the educational aspects of the application and details about the methods and approaches the PI will use to integrate educational activities into overall project activities.

Leadership: Identify potential leadership in your area including, but not limited to, research performance, transformative nature of work proposed, scientific leadership, creative vision, current leadership performance, and potential for leadership in the technical area.

Timetable of Activities: Timeline for all major activities including anticipated milestones and deliverables.

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

There should be no ambiguity about which personnel will perform particular parts of the project, and the time at which these activities will take place.

Name File: 2023 Research Narrative “Insert Tracking ID #”; 10-page limit

C.6 Vitae

Provide a biographical vitae for the PI listed in Section A of the R&R Budget form.

- Contact information.
- Education and Training: Provide institution, major/area, degree, and year for undergraduate, graduate, and postdoctoral training.
- Research and Professional Experience: Beginning with the current position list, in chronological order (newest to oldest), professional/academic positions with a brief description.
- Publications: Provide a complete list of publications. 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 any professional and scholarly activities related to the effort proposed.

Name File: 2023 CV “Last Name of Individual” “Insert Tracking ID #”;

C.7 Career Objective Statement

The applicant will provide a career objective statement that outlines the PI’s research interests and educational priorities and how they align with DOE-NE priorities.

Name File: 2023 Career Statement “Insert Tracking ID #”; 2-page limit

C.8 Endorsement Letter from Academic/Unit Department Head

The applicant will submit an endorsement letter from their respective department head that speaks to the following:

- PI's qualifications.
- Commitment to focus on nuclear energy research/education/service at the department level.

Name File: 2023 Endorsement "Insert Tracking ID #"; 2-page limit

C.9 Capabilities

Provide information on the following, as applicable:

- **Infrastructure Requirements:** The applicant shall identify the infrastructure (e.g., facilities, equipment, instrumentation, and other resources) required to execute the proposed scope of work, including their location, availability, capabilities, and how they will be used in the project. Describe the non-labor (e.g., facilities, equipment, and instrumentation) resources that are available and accessible to the applicant and are required to execute the scope of work. Describe any unique equipment and 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 and how these will be addressed.
- Ability to comply with the required or proposed performance schedule, taking into consideration all existing commercial and governmental business commitments.

See the electronic application submission instructions for document guidance. This FOA allows the applicant to propose the purchase of any needed equipment to conduct the proposed work. If equipment purchases are proposed, describe comparable equipment, if any, already at the institution and explain why it cannot be used.

Name File: 2023 Capabilities "Insert Tracking ID #"; 2-page limit

C.10 Research and Related Budget

Complete the Research and Related Budget form in accordance with the instructions on the form (Activate Help Mode to see instructions) and the following instructions. The applicant must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. The applicant must complete all the mandatory information on the form before the NEXT PERIOD button is activated. You may request funds under any of the categories listed as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this FOA.

Name File: 2023 R&R Budget "Insert Tracking ID #"

C.11 Budget for DOE/NNSA Federally Funded Research and Development Center (FFRDC) Contractor (Required for national Laboratory participants)

If using a DOE/NNSA FFRDC contractor, the FFRDC must provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1A, Administrative (Admin)

Change 1, Work Authorization System dated 05/21/2014. FWP's can be obtained from respective laboratory financial administrators. FFRDCs are permitted to propose costs in accordance with their established DOE contracts (e.g., overhead, fees, etc.).

Name File: 2023 DECP FWP "Insert Tracking ID #"

C.12 Budget Justification

Provide a justification that explains all costs proposed in the budget. The following items of advice are offered to assist in developing a justification:

1. Organize the justification by listing items in the same order as presented on the budget.
2. Ensure that the narrative matches the budget in dollar amounts and language.
3. Explain the line items. If costs are estimated, provide a basis for the estimate. Explain if costs are based on prior experience of similar activities. If a cost is based on the product of two numbers (such as a number of items at a per-item price), ensure that the math is correct.
4. If including an inflationary factor for future budget periods, explain the basis for the inflationary factor.

Provide any other information necessary to justify your budget request. If cost sharing is voluntarily proposed, provide an explanation of the source, nature, amount, and availability of any proposed cost sharing. Provide the details of all personnel (key or other) who will be working on the project, regardless of their source(s) of compensation. Explain their source(s) of compensation if it is not from this project. Include the indirect cost rate agreement as a part of the budget justification.

Name File: 2023 Budget Justification "Insert Tracking ID #"

C.13 Current and Pending Support

Current and pending support is intended to allow the identification of potential duplication, overcommitment, potential conflicts of interest or commitment, and all other sources of support. As part of the application, the principal investigator and each senior/key person at the prime applicant and any proposed subaward level must provide a list of all sponsored activities, awards, and appointments, whether paid or unpaid; provided as a gift with terms or conditions or provided as a gift without terms or conditions; full-time, part-time, or voluntary; faculty, visiting, adjunct, or honorary; cash or in-kind; foreign or domestic; governmental or private-sector; directly supporting the individual's research or indirectly supporting the individual by supporting students, research staff, space, equipment, or other research expenses. All involvement in foreign government-sponsored talent recruitment programs must be identified in current and pending support.

For every activity, list the following items:

- The sponsor of the activity or the source of funding
- The award or other identifying number
- The title of the award or activity. If the title of the award or activity is not descriptive,

add a brief description of the research being performed that would identify any overlaps or synergies with the proposed research.

- The total cost or value of the award or activity, including direct and indirect costs and cost share. For pending proposals, provide the total amount of requested funding.
- The award period (start date – end date).
- The person-months of effort per year being dedicated to the award or activity

If required to identify overlap, duplication of effort, or synergistic efforts, append a description of the other award or activity to the current and pending support.

Details of any obligations, contractual or otherwise, to any program, entity, or organization sponsored by a foreign government must be provided on request to either the applicant institution or DOE. Supporting documents of any identified source of support must be provided to DOE on request, including certified translations of any document.

The information may be provided in the format approved by the National Science Foundation (NSF), which may be generated by the Science Experts Network Curriculum Vitae (SciENcv), a cooperative venture maintained at <https://www.ncbi.nlm.nih.gov/sciencv/>, and is also available at <https://www.nsf.gov/bfa/dias/policy/nsfapprovedformats/cps.pdf>. The use of a format required by another agency is intended to reduce the administrative burden to researchers by promoting the use of common formats.

Each current and pending support disclosure must be signed and dated and include the following certification statement:

I, [Full Name and Title], certify to the best of my knowledge and belief that the information contained in this Current and Pending Support Disclosure Statement is true, complete, and accurate. I understand that any false, fictitious, or fraudulent information, misrepresentations, half-truths, or omissions of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (18 U.S.C. §§ 1001 and 287, and 31 U.S.C. 3729-3733 and 3801-3812). I further understand and agree that (1) the statements and representations made herein are material to DOE's funding decision, and (2) I have a responsibility to update the disclosures during the period of performance of the award should circumstances change which impact the responses provided above.

If the fillable PDF NSF format is used, the individual must still include a signature, date, and a certification statement using the language included in the paragraph above. If the online version is used in SciENcv, a signature, date, and a certification statement must be attached until the SciENcv website automatically attaches a certification statement.

Definitions:

Current and pending support – (a) All resources made available, or expected to be made available, to an individual in support of the individual's RD&D efforts, regardless of (i) whether the source is foreign or domestic; (ii) whether the resource is made available through the entity

applying for an award or directly to the individual; or (iii) whether the resource has monetary value; and (b) includes in-kind contributions requiring a commitment of time and directly supporting the individual's RD&D efforts, such as the provision of office or laboratory space, equipment, supplies, employees, or students. This term has the same meaning as the term Other Support as applied to researchers in NSPM-33: For researchers, Other Support includes all resources made available to a researcher in support of and/or related to all of their professional RD&D efforts, including resources provided directly to the individual or through the organization, and regardless of whether or not they have monetary value (e.g., even if the support received is only in-kind, such as office/laboratory space, equipment, supplies, or employees). This includes resource and/or financial support from all foreign and domestic entities, including but not limited to, gifts provided with terms or conditions, financial support for laboratory personnel, and participation of student and visiting researchers supported by other sources of funding.

Foreign Government-Sponsored Talent Recruitment Program. An effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at U.S. research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to U.S. entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

Senior/key personnel – an individual who contributes in a substantive, meaningful way to the scientific development or execution of a research, development and demonstration (RD&D) project proposed to be carried out with DOE award.

If the same or similar research application has been submitted to an early career program at another agency or foundation, that application must be included as a pending application, with a required explanation of the similarities and/or differences with the current DECP application. Additionally, if the application submitted to the other agency results in an accepted award, then the application submitted under this FOA is no longer eligible.

Name File: 2023 Current and Pending Support “Insert Tracking ID #”

C.14 Letter of Authorization for DOE/NNSA FFRDCs (Required for all national laboratory participants listed on the application regardless of funding level or tier)

The cognizant contracting officer for the FFRDC must authorize in writing the use of

DOE/NNSA FFRDC and non-DOE/NNSA FFRDC contractors 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 Fill-in 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, and will not place the laboratory in direct competition with the domestic private sector.”

NOTE: Individual Letters of Authorization may be submitted, if all FFRDC/non-FFRDC management has been notified of all submissions, and all participants are identified, may be submitted as a blanket permission. Identification of participants by name is to be included in the body or as a separate list.

Name File: 2023 DECP CO Authorization “Insert Tracking ID #”

C.15 Project/Performance Site Locations

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

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

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

Name File: 2023 Project/Performance Sites “Insert Tracking ID #”

C.16 Disclosure of Lobbying Activities (SF-LLL)

If any 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, you must complete and submit Standard Form- LLL, “Disclosure Form to Report Lobbying.”

Name File: 2023 SF-LLL “Insert Tracking ID #”

C.17 Certification and Assurances

Applicants must complete and attach the Certifications and Assurances form found on the DOE Financial Assistance Forms Page at: <http://energy.gov/management/downloads/certifications-and-assurances-use-sf-424>.

Name File: 2023 Cert & Assurances “Insert Tracking ID #”

C.18 Data Management Plan (DMP)

This plan must be submitted for awarded project within 90 days of award. Not required for full application submission.

Provide a DMP that:

1. Should describe whether and how data generated in the course of the proposed research will be shared and preserved. If the plan is not to share and/or preserve certain data, then the plan must explain the basis of the decision (for example, cost/benefit considerations, other parameters of feasibility, scientific appropriateness, or limitations discussed in #4). At a minimum, DMPs must describe how data sharing and preservation will enable validation of results, or how results could be validated if data are not shared or preserved.
2. Should provide a plan for making all research data displayed in publications resulting from the proposed research open, machine-readable, and digitally accessible to the public at the time of publication. This includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible to the public in accordance with the principles stated above. This requirement could be met by including the data as supplementary information to the published article, or through other means. The published article should indicate how these data can be accessed.
3. Should consult and reference available information about data management resources to be used in the course of the proposed research. In particular, DMPs that explicitly or implicitly commit data management resources at a facility beyond what is conventionally made available to approved users should be accompanied by written approval from that facility.
4. DMPs must protect confidentiality, personal privacy, Personally Identifiable Information, and U.S. national, homeland, and economic security; recognize proprietary interests, business confidential information, and intellectual property rights; avoid significant negative impact on innovation, and U.S. competitiveness; and otherwise, be consistent with all applicable laws, regulations, and DOE orders and policies. There is no requirement to share proprietary data.

Name File “FY 2023 DMP “Insert Tracking ID #” 2-page limit

C.19 Summary of Required Forms/Files

Name of Document	Format	Signature Required
Conflict of Interest Statement Certification Conflict of Interest Disclosure (if applicable)	PDF	

Name of Document	Format	Signature Required
SF-424 R&R	Form	Yes
Research and Related Other Project Information	Form	
Project Summary/Abstract	PDF	
Project Narrative	PDF	
Career Objective Statement	PDF	
Department Head Endorsement Letter	PDF	Yes
Vitae	PDF	
Capabilities (2 pages)	PDF	
SF-424 (R&R) Lead Budget Form	Form	
Budget for DOE National Laboratory Contractor or FFRDC, if applicable	PDF	Yes
Budget Justification	PDF	
Current and Pending Support	PDF	Yes
Authorization for DOE/NNSA FFRDCs, if applicable	PDF	Yes
Project/Performance Site Location	PDF	
SF-LLL Disclosure of Lobbying Activities	PDF	Yes
Certifications and Assurances	Form	Yes

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, the following:

- Point of contact information
- 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
- Environmental information

E. SUBMISSION DATES AND TIMES

E.1 Application Due Date

The application due date is printed on the cover of this FOA.

Applicants are encouraged to transmit their applications well before the deadline. Modifications to the application are not allowed after the application due date.

E.2 Late Submissions

Applicants are responsible for submitting to DOE any/all required submissions specified in this FOA, including applications, statements of work, and any modifications or withdrawals thereto, by the date/time specified in the FOA.

Any required FOA submittal, modification, or withdrawal received at the Government office designated in the FOA after the exact time specified for receipt of that submittal is “late” and will not be considered.

A late modification of an otherwise successful submittal or application that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the required electronic submission, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes such that the required submittal cannot be received at the Government office designated for receipt of the submittal by the exact time specified in the FOA, and urgent Government requirements preclude amendment of the FOA, the time specified for receipt of the required submittal will be deemed to be extended to the same time of day, as specified in the FOA, on the first work day on which normal Government processes resume.

Applications and other submittals may be withdrawn by written notice (sent electronically to NEUP@inl.gov) received at any time before the exact time set for receipt of that submittal. A required submittal may be withdrawn in person by an applicant or its authorized representative, if, before the exact time set for receipt of that submittal, the identity of the person requesting withdrawal is established and the person signs a receipt for the submittal.

If electronic applications cannot be submitted, applicants can contact:

INR Integration Office
Attn: Pamela Rich
PO Box 1625 MS 3730
Idaho Falls, Idaho 83415

Telephone: 208-526-4854
Fax: 208-526-1844

F. INTERGOVERNMENTAL REVIEW

This program is not subject to Executive Order 12372, “Intergovernmental Review of Federal Programs.”

G. FUNDING RESTRICTIONS

Funding for all awards is contingent upon the availability of funds appropriated by Congress for the purpose of this program in current and future fiscal years.

G.1 Prohibition related to Foreign Government-Sponsored Talent Recruitment Programs

a. Prohibition

Persons participating in a *Foreign Government-Sponsored Talent Recruitment Program of a Foreign Country of Risk* are prohibited from participating in projects selected for federal funding under this FOA. Should an award result from this FOA, the recipient must exercise ongoing due diligence to reasonably ensure that no individuals participating on the DOE-funded project are participating in a *Foreign Government-Sponsored Talent Recruitment Program of a Foreign Country of Risk*. Consequences for violations of this prohibition will be determined according to applicable law, regulations, and policy. Further, the recipient must notify DOE within five (5) business days upon learning that an individual on the project team is or is believed to be participating in a foreign government talent recruitment program of a foreign country of risk. DOE may modify and add requirements related to this prohibition to the extent required by law.

b. Definitions

- 1. Foreign Government-Sponsored Talent Recruitment Program.** An effort directly or indirectly organized, managed, or funded by a foreign government to recruit science and technology professionals or students (regardless of citizenship or national origin, and whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to physically relocate to the foreign state for the above purpose. Some programs

allow for or encourage continued employment at U.S. research facilities or receipt of Federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to U.S. entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

2. **Foreign Country of Risk.** DOE has designated the following countries as foreign countries of risk: Iran, North Korea, Russia, and China. This list is subject to change.

H. COST PRINCIPLES

Costs must be allowable, allocable, and reasonable in accordance with the applicable Federal cost principles referenced in 2 CFR part 200, as adopted and amended by 2 CFR part 910. The cost principles for for-profit organizations are in FAR part 31.

I. 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. Recipients must obtain the prior approval of the contracting officer for any pre-award costs that are for periods greater than this 90-day calendar period.

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

J. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS

Where to Submit

Note: Submit applications through www.neup.gov to be considered for award. Submit electronic applications through the "Applications" function at www.neup.gov. For problems with completing the registration process or submitting applications, call 208-526-4854 or email NEUP@inl.gov.

Application Validity Timeframe

By submitting an application in response to this FOA, applicants agree that their applications are valid for at least one year from the date set forth for receipt of applications to this FOA. DOE reserves the right (with concurrence of the applicant) to use the submitted application(s) to make additional awards for up to one year, even after DOE's initial selection announcement has occurred.

PART V - APPLICATION REVIEW INFORMATION

A. CRITERIA

A.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 the award; (2) the information required by the FOA has been submitted; (3) all mandatory requirements are satisfied; (4) the proposed project is relevant to the DOE-NE mission; (5) the proposed project is responsive to the objectives of the FOA (see Part I, Section A.); and (6) the proposed project is not duplicative of programmatic work. Applications that fail to pass the initial review may be eliminated from further consideration.

A.2 Merit Review Criteria

Criterion 1 (33.34%)– Advances the State of Knowledge and Understanding and Addresses Gaps in Nuclear Energy Science and Engineering Research Areas: The technical merit of the proposed research will be evaluated, including the extent to which the project advances the state of knowledge and understanding and addresses gaps in nuclear energy science and engineering research areas. Evaluation will consider how important the proposed project is to advance knowledge and understanding within the topic area and how well the proposed project advances, discovers, or explores creative, original, or potentially transformative concepts that have broader impact.

Criterion 2 (33.33%) – Demonstrates an Integrated Research, Education and Service Plan to Address Broader Impacts to Society: The extent to which the plan advances nuclear energy related research and educational outcomes and the overall integration of the research and educational aspects of the application and addresses societal broader impacts. The extent to which the research and education vision supports the development of the faculty member, research infrastructure, curriculum, and research that will advance the applicant's research focus while training the next generation of nuclear energy professionals. Service impacts can include, but are not limited to, leadership for student, university, and community programs, STEM outreach, and diversity, equity and inclusion efforts.

Criterion 3 (33.33%)– Qualifications and Potential for Leadership Within the Nuclear Energy Community: The extent to which the applicant has the necessary knowledge, skills, and abilities to execute the project, the probability that the PI will be able to provide direct research contributions, the potential for scientific leadership and creative vision, and the potential for leadership in the research and technical area.

B. REVIEW AND SELECTION PROCESS

B.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 outlined in this FOA.

B.2 Program Policy Factors

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

- Degree to which proposed project optimizes/balances/maximizes use of available DOE funding to achieve DOE program goals and objectives, including how projects support DOE research. It may also include research portfolio diversity, geographic distribution and/or how the projects support other complementary efforts that, when taken together, will best achieve program research goals and objectives;
- Application selection may optimize appropriate mix of projects to best achieve DOE research goals objectives;
- Cost/Budget considerations, including availability of funding;
- Extent that the applicant has awards in progress, or not completed (e.g. unsubmitted final report, where applicable, by the milestone due date), from DOE, from a previous year's FOA, or has existing no cost extensions;
- Demonstrated ability of the applicant to successfully complete projects (including relevant prior projects) and do so within budget and within the specified timeframe of the award;
- Applicability across multiple nuclear technologies;
- Potential to enhance U.S. nuclear infrastructure may be given preferential consideration;
- Consistent and conformant work proposed in the application with current DOE-NE Congressional appropriations.
- Applications that have national security concerns;
- Whether the entity is located in an urban and economically distressed area including a Qualified Opportunity Zone (QOZ) or the proposed project will occur in a QOZ or otherwise advance the goals of QOZ. The goals include spurring economic development and job creation in distressed communities throughout the United States;
- Whether the proposed project may directly or indirectly benefit disadvantaged communities or exhibits team member diversity, with participants including but not limited to those from Minority Serving Institutions (e.g., HBCUs/Other Minority Institutions (OMIs)), Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, Veteran Owned Businesses, or members within disadvantaged communities; and
- Satisfaction of the initial review criteria.

Any of the above factors may 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. **Applicants should recognize that some**

very good applications might not receive an award because of program priorities and available funding. Therefore, the above factors may be used by the Selection Official to assist in determining which applications shall receive DOE funding support.

B.3 Selection

The Selection Official will consider the findings of the merit review and may consider any of the Program Policy Factors described above.

B.4 Review of Risk

Pursuant to 2 CFR subpart 200.205, DOE will conduct an additional review of the risk posed by applications submitted under this FOA. Such review of risk will include:

- Quality of the application;
- Reports and findings from audits performed under 2 CFR part 200 or OMB Circular A-133; and
- Systems maintained under 2 CFR part 180.

DOE may make use of other publicly available information and the history of an applicant's performance under DOE or other Federal agency awards.

Applicants with no prior performance of DOE awards may be asked to provide information about their financial stability and or their ability to comply with the management standards of 2 CFR part 200.

B.5 Discussions and Award

The Government may enter into discussions with a selected applicant for any reason deemed necessary, including but not limited to the following: (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 2 CFR part 200 as modified by 2 CFR part 910 (DOE Financial Assistance Regulation); 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

It is anticipated that the award selection will be completed by June 2023. It is expected that awards will be made in Fiscal Year 2023.

DOE intends to have projects supported under this FOA begin work as early as August 2023 and no later than October 2023.

PART VI – AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

A.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, Section I 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.

A notice of Federal award, signed by the DOE Contracting Officer, is the authorizing award document for any grants awarded as a result of this FOA. A post-selection/pre-award process will occur prior to issuing the actual award. This process includes such activities as a responsibility review/review of risk posed by the selected applicant, a technical and budget review of the selected applicant's proposed budget, etc. Once approved, the actual award notice will be provided by DOE to the recipient by electronic means.

A.2 Nondisclosure and Confidentiality Agreements Representations

In submitting an application in response to this FOA, the applicant represents that:

1. It does not, and will not, require its employees or contractors to sign internal nondisclosure or confidentiality agreements or statements prohibiting or otherwise restricting its employees or contractors from lawfully reporting waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.
2. It does not, and will not, use any Federal funds to implement or enforce any nondisclosure and/or confidentiality policy, form, or agreement it uses unless it contains the following provisions:
 - a. "These provisions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights or liabilities created by existing statute or Executive order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive Orders and statutory provisions are incorporated into this agreement and are controlling."
 - b. The limitation above shall not contravene requirements application to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

Notwithstanding the provision listed in paragraph (a), a nondisclosure or confidentiality policy form or agreement that is to be executed by a person connected with the conduct of an intelligence or intelligence-related activity, other than an employee or officer of the United States Government, may contain provisions appropriate to the particular activity for which such document is to be used. Such form or agreement shall, at a minimum, require that the person will not disclose any classified information received in the course of such activity, unless specifically authorized to do so by the United States Government. Such nondisclosure or confidentiality forms shall also make it clear that they do not bar disclosures to Congress or to an authorized official of an executive agency or the Department of Justice that are essential to reporting a substantial violation of law.

A.3 Notice of Award

An assistance agreement issued by the Contracting Officer is the authorizing award document. It normally includes, either as an attachment or by reference, the following: (1) special terms and conditions; (2) applicable program regulations, if any; (3) application as approved by DOE; (4) DOE assistance regulations at 2 CFR part 200, as amended by 2 CFR part 910; (5) National Policy Assurances To Be Incorporated As Award Terms; (6) Budget Summary; and (7) Federal Assistance Reporting Checklist, which identifies the reporting requirements.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

B.1 Administrative Requirements

The administrative requirements for DOE grants are contained in 2 CFR part 200, as amended by 2 CFR part 910 (See: <http://ecfr.gov>). Grants made to universities, non-profits, and other entities subject to Title 2 CFR are subject to the Research Terms and Conditions located on the National Science Foundation website at <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp>.

B.1.1 UEI and SAM Requirements

Additional administrative requirements for DOE grants are contained in 2 CFR part 25 (see <https://www.ecfr.gov>). Prime awardees must be registered in the System for Award Management (SAM) before submitting an application and must continue to maintain a SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by DOE under this FOA. Primes and subawardees at all tiers must obtain Unique Entity Identifier (UEI) numbers at and provide the UEI to the prime awardee before the subaward can be issued. The prime will provide this valid EUI in its application. DOE may not make a Federal award to an applicant until the applicant has complied with all applicable UEI and SAM requirements and, if an applicant has not fully complied with the requirements by the time DOE is ready to make the award, DOE may determine that the applicant is not qualified to receive an award and use that determination as a basis for making an award to another applicant.

B.1.2 Subaward and Executive Reporting

Additional administrative requirements necessary for DOE grants to comply with the Federal

Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR part 170 (see <https://www.ecfr.gov>). Prime awardees must register with the new FFATA Subaward Reporting System (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 SAM.

B.1.3 Special Terms and Conditions and National Policy Requirements

The DOE special terms and conditions for use in most grants are located at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms> under Award Terms.

If the Federal share of any Federal award may include more than \$500,000 over the period of performance, post award reporting requirements reflected in 2 CFR part 200, Appendix XII—*Award Term and Condition for Recipient Integrity and Performance Matters*, may also apply to any resultant award made under this FOA.

The National Policy Assurances to be incorporated as award terms are located at <http://www.nsf.gov/bfa/dias/policy/rtc/appc.pdf> and at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms> under Award Terms.

Quality assurance (QA) to be incorporated as award terms (applicable to educational institutions only).

While DOE will normally rely on the institution's QA system, below are general guidelines that those systems should adhere to, as applicable, for the type of work being done. No separate deliverable is required by this provision, unless the institution's existing QA systems are not compliant with these guidelines or in the case that the institution identifies that the work to be performed has any special or unique QA requirements. The DOE has the right of access to the university facilities and records for surveillance or inspection. Any surveillance or inspections will be coordinated with the PI.

- **Test Planning, Implementation, and Documentation (Research Planning)**

- Test methods and characteristics shall be planned and documented, and the approaches and procedures recorded and evaluated. Characteristics to be tested and test methods shall be specified. The test results shall be documented and their conformance to acceptance criteria evaluated.
- Documentation shall be developed to ensure replication of the work. The researcher/developer shall document work methods and results in a complete and accurate manner. The level of documentation shall be sufficient to withstand a successful peer review. Protocols on generation and safeguarding of data and process development from research shall be developed for consistency of R&D work.
- Laboratory notebooks shall be controlled by a university documented procedure/process. Also, the process for development of intellectual property

documentation shall be controlled under university document control procedures/processes.

- If the university identifies any special or unique QA requirements for Test Planning, Implementation, and Documentation, the university shall submit a Test Plan/Research Plan to the funding organization for review and concurrence prior to use.

- **Equipment Calibration and Documentation**

The researcher shall specify the requirements of accuracy, precision, and repeatability of measuring and test equipment (M&TE). Depending upon the need for accuracy, precision, and repeatability of M&TE used in research, standard university documented procedures shall be implemented. During the process development stage, and for all R&D support activities, M&TE shall be controlled. The degree of control shall be dependent on the application of the measurement. The university shall have available calibration records documenting instrument calibration to a national standard.

- **Procurement Document Control**

University documented procurement document control procedures/processes shall be implemented, if results of initial research work are expected in the next stage of work, and if the pedigree of materials being used could influence the usefulness of the research work results. Procurement document specifications shall be controlled. For development and support activities, the level of procurement document control shall be applied to support a design basis, i.e., engineering design system criteria. If procurement document control requirements apply, the university shall have a documented procedure/process for control of suspect/counterfeit items (S/CI) and have available for submission for DOE review material pedigree records.

- **Training and Personnel Qualification**

Personnel performing research activities shall be trained per university documented requirements to ensure work is being conducted properly to prevent rework or the production of unacceptable data. The university shall have available—for submission for DOE review—personnel training records.

- **Records**

In many cases, the notebook or journal of the researcher is the QA record. These documents shall be controlled in accordance with university documented procedure/process, e.g., maintain notebook as a controlled document, maintain copies of critical pages or access-controlled filing when not in use to preserve process repeatability and the QA record. Electronic media may be used to record data and shall be subject to documented administrative controls for handling and storage of data. Work activity records shall be maintained by the university and available for DOE review, upon request, within sixty (60) days of completion of the work scope.

- **Data Acquisition/Collection and Analysis**

When gathering data, the researcher shall ensure that the systems and subsystems of the experiment are operating properly. Software systems used to collect data and operate the experiment requires verification that it meets functional requirements prior to collection of

actual data. Data anomalies require investigation. When performing data analysis, define (1) assumptions and the methods used; (2) the results obtained so that independent qualified experts can evaluate how data was interpreted; (3) methods used to identify and minimize measurement uncertainty; (4) the analytical models used; and (5) whether the R&D results have been documented adequately and can be validated.

- **Peer Review**

Peer reviews shall be performed in accordance with peer review best practices as described in Part V. The peer reviews shall be documented and maintained by the university. Peer review documentation and results shall be provided to DOE.

B.1.4 Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at <http://energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>.

B.1.5 Lobby Restrictions

By accepting funds under this award, the applicant agrees that none of the funds obligated on the award shall be expended, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

B.1.6 Corporate Felony Conviction and Federal Tax Liability Representations

In submitting an application in response to this FOA, the applicant represents that:

- It is not a corporation that has been convicted (or had an officer or agent of such corporation acting on behalf of the corporation convicted) of a felony criminal violation under any Federal law within the preceding 24 months.
- It is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

For purposes of these representations the following definitions apply: a corporation includes any entity that has filed articles of incorporation in any of the 50 states, the District of Columbia, or the various territories of the United States (but not foreign corporations). It includes both for-profit and non-profit organizations.

C. REPORTING

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. A sample checklist is available at

<http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms> under Award Forms.

PART VII – QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

Questions regarding the content of this FOA must be submitted to the Agency Contact listed in Part VII, Section B. For clarification on program scope areas, applicants can communicate directly with the Program Points of Contact listed in Part I, Section B. Questions pertaining to items such as application process, eligibility, or application document requirements should be directed to NEUP@inl.gov.

Answers to submitted questions containing information about the FOA or the FOA process that would be necessary for the preparation of applications will be posted to www.NEUP.gov as soon as practical. 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.

Interested parties are encouraged to ask questions as early in the FOA process as possible. Questions and comments concerning this FOA shall be submitted not later than five business days prior to the application due date. Questions submitted after that date may not allow the Government sufficient time to respond.

Questions relating to the registration process, system requirements, how an application form works, or the submittal process, must be directed to NEUP@inl.gov.

B. AGENCY CONTACTS

Name: Mr. Andrew Ford
E-mail: fordaj@id.doe.gov

PART VIII – OTHER INFORMATION

A. AMENDMENTS

Notices of any amendments to this announcement will be posted on www.FedConnect.net and www.Grants.gov and will also be posted as a courtesy on www.NEUP.gov. It is recommended that the website is checked frequently at www.NEUP.gov to ensure timely notice of any amendments or other announcements.

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 anyone other than the Contracting Officer, either explicit or implied, is invalid.

Funding for all awards is contingent upon the availability of funds appropriated by Congress for the purpose of this program.

D. PROPRIETARY APPLICATION INFORMATION

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

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

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

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

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting an application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest (COI) 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. Under the Bayh-Dole Act (35 U.S.C. § 200 et seq.), recipient may elect to retain title to their subject inventions.

Rights in Technical Data. The Government and recipient have 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 ensure the commercialization of technology developed under a DOE agreement.

Copyright. The recipient and subrecipients may assert copyright in copyrightable works, such as software, first produced under the award without DOE approval. When copyright is asserted, the government retains a paid-up nonexclusive, irrevocable worldwide license to reproduce, prepare derivative works, distribute copies to the public, and to perform publicly and display publicly the copyrighted work. This license extends to contractors and others doing work on behalf of the government.

U.S. Manufacturing. On June 8, 2021, in connection with the 100-day review of critical supply chains as directed under E.O. 14017, America's Supply Chains, the DOE Science and Energy Determination of Exceptional Circumstances (S&E DEC) was announced as part of a series of new policy actions to support U.S. job creation and bolster the domestic manufacturing supply chain. As a result, the Intellectual Property Provisions at B.1.4 requires that any products embodying any subject invention or produced through the use of any subject invention will be manufactured substantially in the United States unless the recipient can show to the satisfaction of DOE that it is not commercially feasible.

G. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES

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

H. NO-COST TIME EXTENSIONS

Unilateral no-cost time extensions will NOT be permitted to awards made under this FOA. All no-cost time extensions must provide adequate justification and receive approval from the

Contracting Officer. No-cost time extensions should be requested as soon as the need is identified within the last year of the award.

No-cost time extensions on existing DOE-NE funded projects must be requested between October 1-April 15. Any request outside of this period will need to be substantially justified and receive approval from the Contracting Officer. One no-cost time extension request may be granted for up to 12 months pending review and approval. No-cost time extensions must be submitted prior to the deadline to NEUP@inl.gov.

I. REBUDGET REQUEST

Any rebudget request where the cumulative amount of such change is expected to exceed 10 percent of the total budget as last approved by the Federal awarding agency must be requested in writing (see 2 CFR subpart 200.308). The request must include a detailed budget justification, and an updated budget in the same format for which was included in the original application. Any request for the purchase of equipment exceeding \$5K must be requested in writing to include a valid quote, and justification for purchase.

Budget forms can be found at <https://www.energy.gov/management/downloads/sf-424-research-and-related-budget-rr>

J. CONFERENCE SPENDING

The recipient shall not expend any funds on a conference not directly and programmatically related to the purpose for which the grant was awarded that would defray the cost to the United States government of a conference held by any executive branch department, agency, board, commission, or office for which the cost to the United States government would otherwise exceed \$20,000, thereby circumventing the required notification by the head of any such executive branch department, agency, board, commission, or office to the inspector general (or senior ethics official for any entity without an inspector general), of the date, location, and number of employees attending such conference.