

U.S. Department of Energy (DOE) Office of Fusion Energy Sciences (FES) Notice of Opportunity: INFUSE Public-Private Research Partnership Program FY 2023 Request for Assistance (RFA).

A. Overview

To support fusion energy innovation by companies working to develop fusion energy, DOE-FES will provide fiscal year 2023 funds for partnership awards to assist applicants seeking access to the world-class unique expertise and capabilities available across U.S. DOE national laboratories and accredited universities. The objective of INFUSE is to accelerate research to develop innovative fusion energy in the private sector.

DOE-FES will accept research and development applications that focus on applied research and development and activities supporting the eventual commercialization of fusion energy in the following general topic areas:

- Enabling technologies
- Materials
- Diagnostics
- Modeling and simulation
- Unique fusion experimental capabilities
- Activities to support eventual fusion commercialization

B. Eligibility Requirements and Certifications

Eligible Requester: The purpose of the partnership program is to accelerate the development of fusion energy in the U.S. Accordingly, eligibility is limited to private companies incorporated in the United States of America.

- An eligible requester is a business that is organized according to the laws of any of the 50 states, the District of Columbia, or any U.S. territory or possession. Products embodying intellectual property developed under the assistance must be substantially manufactured in the United States.
- U.S. organized/incorporated requesters with foreign ownership, control, or influence are permitted, but required to sign a DOE-Standard Cooperative Research and Development Agreement (CRADA) that may require further negotiation at DOE's discretion only. The transfer of technology and data resulting from the work done under a DOE-FES Award by any recipient to a foreign entity will be subject to U.S. Government export control laws and regulations. The full RFA application must clearly state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate.

Entities not incorporated in the U.S., whether for-profit or otherwise, are not eligible to apply for an award. All work under an INFUSE award must be performed in the U.S. However, applicants may request a waiver of this requirement on the INFUSE Corporate Information Form that is submitted with the full RFA application. This may be required for diagnostic calibrations and installations on international facilities or other justified reasons. This should be noted by checking the waiver box on the form, provide a brief description and enter the percentage of project work performed outside the U.S.

Foreign Affiliation: U.S. incorporated subsidiaries of foreign entities, whether for-profit or otherwise, are eligible to participate in the INFUSE program if they meet the standards established in [2 CFR 910.124](#), which are incorporated by reference into this announcement, and require that the entity's participation be in the economic interest of the U.S. The assistance award will be executed with the U.S. subsidiary which shall be responsible for the terms and conditions of the contract. All cost share must be contributed by the U.S. subsidiary.

Company Principal Investigator (PI): A company PI is the individual responsible for the preparation, conduct, and administration of the INFUSE RFA. To be eligible, a PI must be a technical staff member and primary employee of an eligible U.S. based company at the time of award and during the conduct of the proposed research. Primary employment means that no less than 20 hours per week is spent in the employment of the applicant company during the conduct of the project and no more than 19 hours per week spent in the employment of another organization. The PI is responsible for ensuring compliance of the company to INFUSE policy, including Conflict of Interest, during the RFA process.

Cost-Share Certifications: All companies must certify that they will provide the required 20 percent or more cost-share upon selection for a partnership award consistent with the requirements outlined in Section D.

Standard CRADA Certifications (DOE laboratory partner only): For requesters planning on partnering with a DOE laboratory, they must also certify that they will accept one of the standardized DOE Cooperative Research and Development Agreements (CRADAs), which govern intellectual property and other terms related to working with DOE laboratories. Details of these standardized CRADAs are available on the INFUSE [website](#). Requesters who are owned, controlled, or influenced by a foreign government, agency, firm, or corporation, as per DOE Policy 485.1A, will be required to sign the DOE Standard CRADA if partnering with a DOE laboratory. The transfer of technology and data resulting from the work done under an award by any recipient to a foreign entity will be subject to U.S. Government export control laws.

- [INFUSE Small Business Award CRADA](#) (Small Business/Non-Profit Award Requesters with no foreign influence)
- [DOE-Standard CRADA](#) (Large businesses and those with foreign influence)

Although it is anticipated that award recipients will sign a non-negotiable CRADA as described above, factors including but not limited to, the scope of work of the application and the requester's foreign affiliations/ownership, may result in the negotiated use of alternate CRADA provisions at DOE's discretion. DOE-FES is committed to reducing the processing time needed for laboratory partnership awards; therefore, terms and conditions in the INFUSE Small Business Award CRADA or DOE-Standard CRADA will not be negotiated except in extreme cases at DOE's discretion only.

Intellectual Property Management Plan Certifications (U.S. Institution of Higher Education partner only): For requesters planning on partnering with a U.S. Institution of Higher Education, they must certify that the team has negotiated and established an Intellectual Property Management Plan for the management and disposition of intellectual property arising from INFUSE assistance awards prior to submission. Requesters who are owned, controlled, or influenced by a foreign government, agency, firm, or corporation must also address any potential Export Control issues in this plan. As part of the RFA process, every applicant must submit a completed and signed Intellectual Property Management Plan with their RFA. Institutions of Higher Education will be separately bound by their commitments in the Intellectual Property Management Plan, which governs the relationship between all members of the INFUSE team, and the terms and conditions of any resulting grant, which governs the relationship between the Institution of Higher Education and DOE.

Conflict of Interest Certification: Applicants must be aware of and disclose any potential conflicts of interest in their RFA application resulting from an applicant's employee(s) or owner(s) having a direct relationship with the proposed partnering research institution. During the RFA application process, all prospective applicants must certify there is no Conflict of Interest (COI) in collaborating with the proposed partnering institution and partnering institution PI. If there is a prior relationship with the partnering institution or PI, the company should submit a statement disclosing this relationship and a justification as to how this relationship does not constitute COI.

C. Partnership Award Details

Topics: DOE-FES will accept applications that focus on applied research and development and activities supporting the eventual commercialization of fusion energy in the following general topic areas:

- Enabling technologies
- Materials science
- Diagnostics
- Modeling and simulation, including but not limited to:
 - Physics, engineering and/or materials modeling/simulation
 - Plant costing (e.g., models focused on cost to build a fusion plant and cost drivers for a fusion plant or essential subcomponents/systems, such as tritium processing)
 - Technoeconomic modeling focused on cost-of-electricity or other products (e.g., process heat) for fusion plants
- Unique fusion experimental capabilities
- Activities to support eventual fusion commercialization including but not limited to:
 - Accident and safety analysis in support of eventual licensing
 - Public engagement, including energy and environmental justice
 - Fuel supplies
 - Advanced manufacturing
 - Waste disposition and recycling

Note that applications applicable to isotope production or fission energy will not be considered for award unless there is a clear indication that the focus of the underlying technology supports fusion energy.

Eligible Partners: Companies may propose to partner with one of the 17 DOE national laboratories or any U.S. Institution of Higher Education with unique expertise or capability relevant to their proposed research that is not available in the private sector. Only one primary partnering institution is permitted per RFA. A certified Record of Discussion with the partnering institution is required as part of the application process as described in Section E below.

For Laboratory Partners: The laboratory PI must be a technical staff member and employee of the partnering laboratory. The laboratory PIs must have the necessary expertise, time, and resources to perform the work in an effective manner. The laboratory PI must perform a minimum 25 percent of the laboratory scope. The participating laboratory cannot subcontract out more than 25 percent of the work. The U.S.-registered company must agree to terms and conditions within either a standard or SBIR DOE CRADA and execute a negotiated agreement before work can commence as described in Section B above. Upon selection, DOE funding is provided directly to the partnering laboratory utilizing existing M&O contracts.

For U.S. Institution of Higher Education Partners: The U.S. Institution of Higher Education PI must be an employee of the partnering institution and eligible to apply for Office of Science grants under the [Continuation of Solicitation for the Office of Science Financial Assistance Program](#) Funding Opportunity Announcement (FOA) consistent with their institution's internal policy. The PIs must have the necessary expertise, time, and resources to perform the work in an effective manner, and the scope of work must be executable with existing personnel and in a timely manner consistent with the intent of the INFUSE program. The partnering institution cannot subcontract out more than 25 percent of the work and DOE national laboratories cannot be included as subcontractors. INFUSE requires every company-Institution of Higher Education RFA team to negotiate and establish an Intellectual Property Management Plan for the management and disposition of intellectual property arising from INFUSE assistance awards and submit a completed and signed copy of this plan with their application as described in Section B above. Upon selection of an INFUSE award, funding is provided directly to the partnering Institution of Higher Education utilizing a grant mechanism through the FOA mentioned above using the scope of work and budget estimate directly from the awarded RFA. University partners are not required to contribute any cost share. The private company must provide 20% cost share using non-federal funds as indicated in Section D below.

Funding and Period of Performance: INFUSE partnership awards are not financial awards made directly to applicants. Awards provide funding to a DOE national laboratory or institution of higher education in order to help eligible private-sector companies overcome critical scientific and technological challenges in the pursuit of fusion energy. In the majority of cases, DOE-FES anticipates making single year awards with a value of between \$100k - 350k and a duration of 12 months. However, DOE-FES will entertain requests of up to \$750k in total value and/or duration of 24 months for work deemed to be of critical value to the company. (These amounts do not include the cost share). In all cases, a 20 percent cost-share is required, calculated based on the full project cost (where the full project cost is defined as the sum of the government share and the private partner share) as described in Section D below. Teams should include a table with their active and completed INFUSE awards.

Terms and Conditions: Products embodying intellectual property developed with INFUSE Program assistance must be substantially realized or manufactured in the United States. Awardees will be the sole recipient of technology transferred to them as a result of this award work. Any transfer of technology to foreign entities requires specific authorization under federal export control laws and regulations including 10 CFR Part 810.

D. Cost-Share

Cost-share of no less than 20 percent is required. Allowable cost-share includes: (a) cash; (b) personnel costs; (c) the value of a service, other resource, or third party in-kind contribution determined in keeping with the cost principles in [2 CFR 200](#), (d) indirect costs or facilities and administrative costs. Company cost-share must be at least 20 percent of the total project cost (i.e., $\text{company cost} / (\text{company cost} + \text{federal cost}) \geq 20$ percent). Lack of adequate cost share results in immediate rejection of the RFA and removal from the review process.

Cost-share contributions must be reasonable, allowable, and allocable under the applicable Federal cost principles. In addition, cost-sharing must be verifiable upon submission of the full application. Awardees will be required to maintain detailed records of all project costs claimed as cost-sharing, including in-kind costs. Such records are subject to audit.

Requesters may use funding or property received from state or local governments to meet the cost-share requirement, as long as the funding was not provided to the state or local government by the Federal Government.

The following sources may NOT be used by the requester to meet its cost-share obligations, including, but not limited to: revenues or royalties from the prospective operation of an activity beyond the project period; proceeds from the prospective sale of an asset of an activity; federal funding or property (e.g., Federal grants, equipment owned by the Federal Government); or expenditures that were reimbursed under a separate Federal Technology Office. For example, Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) funding cannot be used to provide in-kind or direct cost-share. Small businesses with SBIR/STTR funding can make a request for assistance under the DOE-FES partnership program, however, funds awarded by SBIR/STTR cannot be used to meet the program's cost-share requirements.

Requesters may not use the same cash or in-kind contributions to meet cost-share requirements for more than one project (RFA).

Cost share will not be included in any resulting grant awards made to U.S. Institutions of Higher Education. Requesters planning to partner with an Institution of Higher Education must ensure that their application properly describes the planned cost sharing.

E. Submitting a Request for Assistance (RFA)

Instructions: The details of the RFA submission process may be found on the INFUSE website at infuse.ornl.gov. All RFAs must be submitted electronically before the published deadline by the company and submitted as a package on the INFUSE SharePoint site. All submissions are timestamped and certified by the submitters login account to be complete and accurate. E-mailed RFAs are not accepted.

Proprietary Information: Please do not provide any proprietary information in the request or in supporting documentation or resumes.

Number of Requests: A single institution may submit up to five RFA's total across any of the topics identified in the RFA call.

Technical Narrative: A Technical Narrative template is provided on the INFUSE public website. The technical narrative has a 10-page maximum excluding references, up to three resumes, and two appendices:

- Appendix 1: IMAGES AND TABLES: Maximum 2-page appendix for images and tables. Any pages in excess are truncated and discarded.
- Appendix 2: PROMOTING INCLUSIVE AND EQUITABLE RESEARCH (PIER) PLAN. All applications must provide a Promoting Inclusive and Equitable Research (PIER) Plan as an appendix to the research proposal narrative. The PIER plan should describe the activities and strategies of the applicant to promote equity and inclusion as an intrinsic element to advancing scientific excellence in the research project within the context of the proposing institution and any associated research group(s). Plans may include, but are not limited to: strategies of your

institution (and collaborating institutions, if applicable) for enhanced recruitment of undergraduate students, graduate students, and early-stage investigators (postdoctoral researchers, and others), including individuals from diverse backgrounds and groups historically underrepresented in the research community; strategies for creating and sustaining a positive, inclusive, safe, and professional research and training environment that fosters a sense of belonging among all research personnel; and/or training, mentoring, and professional development opportunities¹. Plans may incorporate or build upon existing diversity, equity, accessibility, and inclusion efforts of the project key personnel or applicant institution(s), but should not be a re-statement of standard institutional policies or broad principles. The complexity and detail of a PIER is expected to increase with the size of the research team and the number of personnel to be supported.

See also Section V for information on the Merit Review Criteria associated with this section.

- Do not attach a separate file.
- This response should not exceed three (3) pages. This appendix will not count in the project narrative page limitation.
- More information about PIER plans is available here:
<https://science.osti.gov/grants/Applicant-and-Awardee-Resources/PIER-Plans/Information-about-PIER-Plans>

¹ Please see additional information at <https://science.osti.gov/SW-DEI/DOE-Diversity-Equity-and-Inclusion-Policies/Q-and-As#definition>

Budget: A budget template is provided on the INFUSE public website. The applicant, in conjunction with the partnering institution, should complete the accompanying budget Excel spreadsheet which shows the anticipated cost of the project including all cost-share contributions. Budget forms must be submitted in Excel format. Word or PDFs documents are not acceptable. Labor contributions of all major researchers including subcontractors should be broken out on an FTE or hourly basis. Any subcontracts should be broken out at the same level of detail as the primary or submitting partner.

Record of Discussion (RoD): As part of the application process, it is mandatory that prospective private-sector applicants identify and contact personnel at the proposed partner institution to establish feasibility prior to submitting an RFA application. Please keep a RoD during this exchange as a way of verifying roles and responsibilities with the partnering institution. The RoD can be a Word or PDF document that consists of dated copies of e-mail correspondence between the private company PI and partnering institution PI or copies of memos or notes dated when created. A one pager is sufficient. The RoD must convey that the project concepts were discussed prior to submission and the parties are in mutual agreement concerning the content of the RFA application. Both the private and partnering institution PIs must sign the RoD. For use of specialized, high-demand facilities, the appropriate partnering institution personnel must also sign the RoD indicating the resource will be available.

Corporate Information Form: A Corporate Information Form is provided. All applicants must complete and submit this form as part of the application process. The Corporate Information Form is used to ensure company eligibility and compliance with all relevant INFUSE policies.

Incomplete Applications: Failure to meet the requirements described above will result in rejection of the RFA with no further review. All RFAs are inspected and validated for complete and accurate information before entering the merit review process.

F. Merit Review Criteria

All complete applications undergo a merit review process consistent with Office of Science policy and will be evaluated in accordance with the following review criteria:

1. SCIENTIFIC AND/OR TECHNICAL MERIT OF THE PROPOSED RESEARCH
 - Has the applicant clearly identified a problem or challenge faced by the company that can be overcome by assistance from host DOE national laboratory or University partner?
 - What is the likelihood of achieving valuable results?
 - Is there a company milestone, technology maturation, or follow-on funding towards the development of fusion energy that will result from successful achievement of this work?
2. APPROPRIATENESS OF THE PROPOSED METHOD OR APPROACH
 - Is the applicant's approach realistic and feasible with respect to scientific and technical considerations?
 - Is the applicant's approach appropriately aligned with the host institution's capabilities?
 - Does the applicant recognize significant potential problems and consider alternative strategies?
3. COMPETENCY OF APPLICANT'S PERSONNEL AND ADEQUACY OF PROPOSED RESOURCES
 - What is the past performance and potential of the company and host institution Principal Investigators (PI)?
 - How well qualified is the research team at the host institution to carry out the proposed research?
 - Are the research environment and facilities available to the designated host institution adequate for performing the research?
 - Does the proposed work take advantage of unique facilities and capabilities of the host institution?
4. REASONABLENESS AND APPROPRIATENESS OF THE PROPOSED BUDGET
 - Are the proposed budget and staffing levels adequate to carry out the proposed research?
 - Is the budget reasonable and appropriate for the scope?
5. QUALITY AND EFFICACY OF THE PROMOTING INCLUSIVE AND EQUITABLE RESEARCH PLAN
 - Is the proposed Promoting Inclusive and Equitable Research (PIER) Plan suitable for the size and complexity of the proposed project and an integral component of the proposed project?
 - To what extent is the PIER Plan likely to lead to participation of individuals from diverse backgrounds, including individuals historically underrepresented in the research community?
 - What aspects of the PIER Plan are likely to contribute to the goal of creating and maintaining an equitable, inclusive, encouraging, and professional training and research environment and supporting a sense of belonging among project personnel?
 - How does the proposed Plan include intentional mentorship and are the associated mentoring resources reasonable and appropriate?