U.S. Department of Energy (DOE) Office of Fusion Energy Sciences (FES) Notice of Opportunity: INFUSE Public-Private Research Partnership Program FY 2027 Request for Assistance (RFA).

A. Overview

To support innovation by companies working to develop fusion energy, DOE-FES intends to provide fiscal year 2027 funds (subject to availability of appropriations) 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 work 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, including design reviews

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. The requester is required to have a SAM.gov Unique Entity ID (UEI) at the time of submission.
- 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. Applicant organizations with a foreign affiliation are encouraged to provide information in Appendix 4 to clearly explain the nature of their presence in the U.S.

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. If the U.S. company is foreign owned, the nature of the role of the PI in the U.S. subsidiary must be described in Appendix 3.

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 (IPMP) 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. A two-week grace period will be allowed for completion of a signed IPMP after the RFA due date. 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.

Conflicts of Interest (COIs): Applicants must be aware of and disclose of real or potential COIs resulting from an applicant's employee(s) or owner(s) having a direct relationship with the proposed partnering research institution. COIs may be financial or organizational. A financial conflict of interest means a situation in which an Investigator or the Investigator's spouse or dependent children has a significant financial interest or financial relationship that could directly and significantly affect the design, conduct, reporting or funding of a project. An organizational conflict of interest means a situation where because of relationships with a parent company, affiliate, or subsidiary organization, the non-Federal entity is unable or appears to be unable to be impartial in conducting a procurement action involving a related organization. Applicants must confirm in the application submission that there is no COI in collaborating with the partnering institution and partnering institution PI. If there is a real or potential COI with the partnering institution or PI, the company should include a statement in the Technical Narrative of the application disclosing the real or potential COI and a justification and/or mitigation plan as to how this COI will be managed.

Reporting:

For **DOE laboratory partners**, the final CRADA report will serve as the INFUSE report. Please follow the Prochaska memo ("CRADA Final Report Guidance memo") in the INFUSE Project Final Reports page if possible. In addition to submitting the report to the site office, it should be emailed to the INFUSE program infuse@ornl.gov. Please note that the INFUSE reports will be posted publicly. Please remove any IP or Export Controlled info from the report. Note that some lab CRADA reports are routinely stamped "CRADA proprietary" if including proprietary information. A sanitized report would be sent to the INFUSE program.

For **University partners**, follow the final reporting requirements in PAMS. Also email the final report to the INFUSE program infuse@ornl.gov

For **all** partners, in addition to the final report, a project summary slide is expected of all awarded projects giving brief information on the technical and business outcomes from the project. The template is available in the "Library" section of the INFUSE web site.

If INFUSE project results are published or presented, the preferred acknowledgement should use the following format:

- This work was funded under the INFUSE program – a DOE SC FES public-private partnership – under CRADA No. XXXX between (name) National Laboratory and (name) company. Or,
- This work was funded under the INFUSE program – a DOE SC FES public-private partnership – under contract no. XXXX between (name) university and (name) company.

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 (sub-topics are representative and not all-inclusive):

- Enabling technologies
    - Magnets and magnet materials for LTSC, HTSC including HFSC
    - Blanket and shielding evaluations, neutronics and volumetric heating
    - Tritium processing and control
    - Target injection, tracking, and engagement technology for IFE
    - Pellet fueling, pumping and disruption mitigation for MFE
    - Plasma heating systems including ICH, ECH, LHCD, helicon and gyrotron sources, Neutral Beam Heating, both positive and negative ion beam
    - Advanced plasma facing components (PFCs) for first wall and divertor applications
    - Advanced In-vessel components (IVCs) like faraday shields and antenna guard armor
    - Remote handling and RAMI
- Materials science
    - Neutron irradiation
    - Material characterization
    - Development of engineered materials, advanced manufacturing applied to fusion systems, joining processes
    - Documentation of physical properties, compilations of government reports and literature surveys
    - Safety analysis involving materials compatibility for both solids and liquids
    - Corrosion and wear, liquid metal embrittlement, tritium permeation
    - Joining processes,
    - Plasma surface interactions involving erosion, redeposition, wall conditioning, dust formation,
    - Waste handling and decommissioning
- Diagnostics
    - Design and/or deployment of plasma diagnostics
    - Design and/or deployment of engineering diagnostics
- Modeling and simulation, including but not limited to:
    - Physics, engineering and/or materials modeling/simulation
    - High-fidelity, exascale simulations
    - Digital twins of fusion facilities
    - Training of AI/ML models with experimental and simulation datasets
    - Surrogate models
    - Technoeconomic modeling
- Unique fusion experimental capabilities
    - Use of facilities at U.S. public institutions to utilize already existing, unique facilities to qualify materials or test engineering concepts
- Activities to support eventual fusion commercialization, including design reviews::
    - Accident and safety analysis in support of eventual licensing
    - Public engagement, perception and technology adoption work
    - Waste disposition and recycling
    - Design reviews of fusion pilot plant designs, essential subcomponents, or complementary systems or subsystems.

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. Consortia composed of eligible partners are also eligible. Consortia composed primarily of national laboratories should follow the instructions for laboratories, and consortia composed primarily of institutions of higher education should follow the instructions for institutions of higher education. 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 15 percent of the laboratory scope. The participating laboratory cannot subcontract out more than 25 percent of the work, except for design reviews, but there must be a clear, well-supported need for a variety of technical expertise. 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 Notice of Funding Opportunity (NOFO) 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. The only exception is design reviews, but there must be a clear, well-supported need for a variety of technical expertise. 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 NOFO 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. For design reviews a higher cost share (of 50% or more) is strongly encouraged.

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 - 500k and a duration of 12 months. However, DOE-FES will entertain requests for higher amounts and a 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. For design reviews a higher cost share (of 50% or

more) is strongly encouraged. 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., company cost / (company cost + federal cost) >/= 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. If the company is foreign owned, in-kind cost share may only be attributed to staff of the U.S. subsidiary.

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 three 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 (limited to two (2) pages each), and up to three appendices:

- Appendix 1 (if necessary): IMAGES AND TABLES. Maximum 2-page appendix for images and tables. Any pages in excess are truncated and discarded.
- Appendix 2 (if necessary): PROJECT DISTINCTION FROM OTHER DOE SUPPORT. Maximum 1 page. Applicants with ongoing DOE funded projects, such as the Milestone-Based Fusion Development program, may apply. Additional justification may be included to explain how the proposed INFUSE project is distinct from other ongoing funded awards.
- Appendix 3 (if necessary): U.S. PRESENCE. Maximum 1 page. Companies with a foreign affiliation must describe the nature of the U.S. presence, including approximate number and type of employees (engineers, technicians, etc.), the location of lab or office space in the U.S. and the nature of the work undertaken there (e.g., research, development, design). The role of the PI in the U.S. company must also be indicated. Applications that do not include this information will be returned without review.

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. All information for review should be placed on a single worksheet (for projects of multiple years additional columns should be added to indicate the cost for each year). 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. INFUSE cannot be used to enhance existing capabilities, only use equipment, facilities and expertise that are already in place. INFUSE cannot be used to develop new facilities or experiments; however, funds can be used to supplement existing diagnostics or cover the cost of new calibrations. Any equipment items over $5k should have an exceptionally strong justification.

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.

Improper Contents of Applications: Do not include information that a non-Federal entity may not openly distribute, whether classified, export control, or unclassified controlled nuclear information.

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 partnering 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 partnering 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 partnering institution adequate for performing the research?
    - Does the proposed work take advantage of unique facilities and capabilities of the partnering 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?