

**DEPARTMENT OF ENERGY (DOE)
SMALL BUSINESS INNOVATION RESEARCH (SBIR)
SMALL BUSINESS TECHNOLOGY TRANSFER (STTR)**



FY 2024 PHASE I RELEASE 2

**FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER:
DE-FOA-0003202**

**FOA TYPE: AMENDMENT 000002
CFDA NUMBER: 81.049**

Amendment 000002: This amendment updates Fast-Track cybersecurity self-assessment link on Page 49. Updated Project Narrative Pages 26, 29, 47.

Amendment 000001: This amendment updates Fast-Track cybersecurity self-assessment: Updated Cybersecurity Self-Assessment Page 49 and Updated Review of Risk Page 68

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| FOA Issue Date: | January 18, 2024 |
| Submission Deadline for Letters of Intent: | February 2, 2024 5:00PM Eastern Time |
| Submission Deadline for Applications: | March 12, 2024 11:59PM Eastern Time |

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UPDATES AND REMINDERS

RECOMMENDATION

The Department of Energy (DOE) Office of Science (SC) encourages you to register in all systems as soon as possible. You are also encouraged to submit letters of intent (LOIs) and applications well before the deadline.

NOTE: Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration/update process immediately as the processing time to complete a registration/update currently may take weeks to months. This includes address and expired registration updates. If entities have technical difficulties with the UEI validation or SAM registration process they should utilize the HELP feature on SAM.gov. SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: [GSAFSD Tier 0 Knowledge Base - Validating your Entity](#).

PROMOTING INCLUSIVE AND EQUITABLE RESEARCH (PIER) PLAN

All new and renewal applications must provide a Promoting Inclusive and Equitable Research (PIER) Plan as an appendix to the project narrative. Please read the instructions in [Section IV](#) and the associated review criteria in [Section V](#).

CYBERSECURITY SELF-ASSESSMENT – FOR FAST-TRACK APPLICATIONS ONLY

DOE has added a new Phase II application requirement. Applicants must include a cybersecurity self-assessment with their Fast-Track application. Information on this new requirement is contained in [Section IV](#).

NEW REQUIREMENTS FOR BIPARTISAN INFRASTRUCTURE LAW (BIL) FUNDED TOPICS

Fast-Track applications to BIL funded topics will have different PIER plan requirements (see section IV.E.2.) and award terms and conditions (see section II.H.). BIL funded topics were highlighted in the topics document.

PROTECTING YOUR TRADE SECRETS, COMMERCIAL AND FINANCIAL INFORMATION

The requirements for marking protected information have changed. You can no longer use the proprietary data markings you have used in previous applications. Please refer to [Section VIII](#) for details.

NEW APPLICATION GUIDE

A newly developed online application guide is available at:

<https://pamsexternalhelp.science.energy.gov/pages/viewpage.action?pageId=103186436>

FOREIGN RELATIONSHIPS DISCLOSURE FORM

The SBIR/STTR Extension Act of 2022 requires each small business concern to disclose ties to foreign relationships with its application for a Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) award. Please refer to [Section IV](#) for details.

INTERAGENCY FORMATS FOR CURRENT AND PENDING SUPPORT AND BIOGRAPHICAL SKETCHES

Interagency common instructions for preparing current and pending support and biographical sketches are being developed. The Science Experts Network Curriculum Vitae (SciENcv) system at <https://www.ncbi.nlm.nih.gov/sciencv/> will be updated to support the forthcoming common instructions and formats. When interagency common formats and instructions are promulgated, their use will be required. SC strongly encourages all researchers to use the online SciENcv system to ensure that their documents are prepared in the appropriate format with the least inconvenience.

REPORTING AND ADMINISTRATIVE REQUIREMENTS

DOE is implementing enhanced reporting requirements for applications and awards. Reporting and administrative requirements, including but not limited to those pertaining to other sources of support and potential conflicts of interest or commitment, are subject to change before the Federal award date. The terms and conditions of award will specify changed requirements: Applicants have the right to reject any proposed awards. Terms and conditions may be modified at the time of an award modification: Recipients have the right to reject such modifications and allow an award to expire.

GRANTS.GOV WORKSPACE

Applications submitted through Grants.gov at <https://www.Grants.gov> must be submitted through a “Workspace,” or through an applicant’s system-to-system software. Workspace permits members of a team to simultaneously work on their application in an online collaborative environment. Application forms may exist as both online webforms and downloadable forms. More information is available at <https://www.grants.gov/web/grants/applicants/workspace-overview.html>.

WHERE TO SUBMIT

Applications must be submitted through Grants.gov to be considered for award. You cannot submit an application through [Grants.gov](#) unless you are registered. Please read the registration requirements carefully and start the process immediately. See [Section VIII](#) of the FOA for more information.

WHERE TO FIND THE TOPICS

To download the FY 2024 Phase I Release 2 Topics in a searchable PDF file, please visit the DOE SBIR/STTR website by clicking on the following link:

<https://science.osti.gov/sbir/Funding-Opportunities>.

DON'T FAIL THE INITIAL REVIEW

The number one reason applications are declined without merit review is applicants fail to submit a letter of intent or to submit required documents as specified [Section IV](#). Also, be sure not to exceed the maximum award budget associated with an individual topic.

PHASE I PRINCIPAL INVESTIGATOR MEETING

Phase I Principal Investigators are expected to attend a DOE SBIR/STTR Phase I Principal Investigator Meeting. This two-day meeting will be held in the DC metro area. Applicants may include the registration cost (\$250) and Principal Investigator travel in their Phase I budget and, if necessary, registration cost (\$250) and travel expenses for a person from the small business representing the commercialization interests of the company to attend the DOE SBIR/STTR Phase I Principal Investigator Meeting.

GET ASSISTANCE WITH YOUR APPLICATION

If you are applying for a DOE SBIR or STTR grant for the first time, you may be able to get assistance with completing your Phase I application through DOE's Phase 0 assistance program. [Learn more](#).

SC STATEMENT OF COMMITMENT

The DOE SC is fully and unconditionally committed to fostering safe, diverse, equitable, and inclusive work, research, and funding environments that value mutual respect and personal integrity. SC is committed to advancing belonging, accessibility, justice, equity, diversity, and inclusion across the portfolio of activities we sponsor. SC's effective stewardship and promotion of safe, accessible, diverse, and inclusive workplaces that value and celebrate the diversity of people, ideas, cultures, and educational backgrounds across the country and that foster a sense of belonging in our scientific community is foundational to delivering on our mission. We are committed to promoting people from all backgrounds, including individuals and communities that were historically underrepresented and minoritized in science, technology, engineering, and math (STEM) fields and the activities we sponsor in recognition of our responsibility to serve the public. We also recognize that harnessing a broad range of views, expertise, and experiences drives scientific and technological innovation and enables the SC community to push the frontiers of scientific knowledge for U.S. prosperity and security. Discrimination and harassment undermine SC's ability to achieve its mission by reducing productivity, discouraging, or inhibiting talent retention and career advancement, and weakening the integrity of the SC enterprise overall. SC does not tolerate discrimination or harassment of any kind, including

sexual or non-sexual harassment, bullying, intimidation, violence, threats of violence, retaliation, or other disruptive behavior at institutions receiving SC funding or other locations where activities funded by SC are carried out. All applicants and collaborators should familiarize themselves with the SC Statement of Commitment available at <https://science.osti.gov/SW-DEI/SC-Statement-of-Commitment>.

UPDATING YOUR PORTFOLIO ANALYSIS AND MANAGEMENT SYSTEM (PAMS) PROFILE

All applicants are encouraged to update their profiles in the PAMS website at <https://pamspublic.science.energy.gov> regularly, at least annually, to ensure SC has your most up to date information. The PAMS profile now requires that individuals provide responses to the demographic related fields. SC strongly encourages personnel at applicant and recipient institutions, including Principal Investigators (PIs), Co-PIs, and other Key Personnel, to provide their demographic information. By providing your demographic information, you are assisting with SC's continued commitment to advancing diversity, equity, inclusion and accessibility in its business practices. Alternatively, for information you wish not to disclose, please select, "Do not wish to provide." Your individual demographic information will not be shared with peer reviewers and the information in your PAMS profile is protected by the requirements established in the Federal Privacy Act of 1974. Aggregate, anonymized demographic information may be shared with confidential review committees who are charged to evaluate the quality and efficacy of SC's business practices. For example, summary statistics of all applicants to or award selections from a particular SC FOA may be reviewed by a Committee of Visitors.

PORTABLE DOCUMENT FORMAT (PDF) GENERATION

The project narrative in an application must be one single machine-readable PDF file that contains the DOE Title Page, project narrative, all required appendices, and other attachments. This single PDF file may not be scanned from a printed document and must be attached in Field 8 on the Grants.gov form. This must be a plain PDF file consisting of text, numbers, and images without editable fields, signatures, passwords, redactions, or other advanced features available in some PDF-compatible software. The project narrative will be read by SC staff using the full version of Adobe Acrobat: Please ensure that the narrative is readable in Acrobat. If combining multiple files into one research narrative, ensure that a PDF portfolio or binder is not created. If creating PDF files using any software other than Adobe Acrobat, please use a "Print to PDF" or equivalent process to ensure that all content is visible in the project narrative. Once a project narrative has been assembled, please submit the combined project narrative file through a "Print to PDF" or equivalent process to ensure that all content is visible in one PDF file that can be viewed in Adobe Acrobat. Review your submission to ensure that blank pages are not present.

Checklist for Avoiding Common Errors:

| Item | Issue |
|---|--|
| Applications | Submitted in Grants.gov. Do not submit applications in PAMS or FedConnect. |
| Grants.gov Submission | <p>Ensure that applications are submitted under the correct Opportunity Number.</p> <p>Standard Form (SF)-424 Research and Related (R&R):</p> <ul style="list-style-type: none"> - Attach nothing to field 20 - Attach nothing to field 21 <p>SF-424 Research and Related Other Project Information form:</p> <ul style="list-style-type: none"> - Attach the abstract to field 7 - Attach the project narrative, with all appendices, to field 8 - Attach nothing to field 9 - Attach nothing to field 10 - Attach nothing to field 11 |
| Letters of Intent (LOIs) | <ul style="list-style-type: none"> - Submit your LOI in PAMS. - Do not submit your LOI in Grants.gov. - Do not attach your LOI to the SF-424 Research and Related (R&R) form. - Follow the instructions in Section IV for the preparation of an LOI. |
| Page Limits | <p>Strictly followed throughout application, including particular attention to:</p> <ul style="list-style-type: none"> - Project narrative |
| Personally Identifiable Information | None present in the application |
| Project Narrative | Composed of one PDF file including all appendices (bibliography, facilities, equipment, PIER) |
| Project Summary / Abstract | Name of 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 |
| Biographical Sketches | Follow page limits strictly and do not include list of collaborators. Attach the biographical sketch to the Senior/Key Person Profile (Expanded) Form. |
| Current and Pending Support | Ensure complete listing of all activities, regardless of source of funding. Attach the current and pending support to the Senior/Key Person Profile (Expanded) Form. |

| Item | Issue |
|--|---|
| Data Management Plans (DMP) | <ul style="list-style-type: none"> - If referring to an experiment's DMP, describe the relationship to the proposed research. - Include a DMP even if no experimental data is expected. |
| Promoting Inclusive and Equitable Research (PIER) Plan | PIER Plans are required for new and renewal applications. |

Section I – FUNDING OPPORTUNITY DESCRIPTION

GENERAL INQUIRIES ABOUT THIS FOA SHOULD BE DIRECTED TO:

TECHNICAL/SCIENTIFIC PROGRAM CONTACT:

Please refer to the appropriate DOE Program Manager listed after each subtopic in the accompanying DOE SBIR/STTR Topics document located on the DOE SBIR/STTR Programs website at <https://science.osti.gov/sbir/Funding-Opportunities>. Administrative Contact (questions about budgets and eligibility):

Carl Hebron, (301) 903-5707, SBIR-STTR@science.doe.gov

STATUTORY AUTHORITY

Section 646 of Public Law 95-91, U.S. Department of Energy Organization Act
Section 9 of the Small Business Act (15 U.S.C. § 638); Public Law 117-58, also known as the Bipartisan Infrastructure Law (BIL)

APPLICABLE REGULATIONS

Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, codified at 2 CFR 200 U.S. Department of Energy Financial Assistance Rules, codified at 2 CFR 910 Size and Eligibility Requirements for the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs, codified at 13 CFR 121.701 et seq.

SUMMARY

This FOA describes two distinct funding opportunities for DOE: the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs for Fiscal Year (FY) 2024. Both Phase I and Fast-Track grant opportunities are included in this FY 2024 Phase I Release 2 competition.

I.A. PHASE I

Phase I grants resulting from this competition will be made during FY 2024 to small businesses with maximum award sizes of \$200,000 or \$250,000. Refer to the individual topic for its respective maximum award size (a proposal submitted that exceeds the maximum award size for the respective topic will be declined without review). The period of performance will depend on the scope of the effort but will not exceed 12 months. Please note that the Phase II grant application will be due approximately 9.5 months after the grant start date. This will be the only opportunity to submit a Phase II application for a Phase I award made under this FOA. Grantees that select a Phase I period of performance of 9 months or less will be able to complete their Phase I project prior to submission of their Phase II grant application. Grantees that select a Phase I longer than 9 months will be able to continue research and development (R&D) after

their Phase II application is submitted but will not be able to utilize these results in the preparation of their Phase II application.

Phase I is to evaluate, insofar as possible, the scientific or technical merit and feasibility of ideas that appear to have commercial potential and/or substantial application in support of DOE mission research. The grant application should concentrate on research that will contribute to proving scientific or technical feasibility of the approach or concept. Success in a DOE Phase I is a prerequisite to further DOE support in Phase II.

Only awardees issued Phase I grants under this FOA are eligible to submit a Phase II application under the corresponding FY 2025 Phase II FOA, i.e., FY 2025 Phase II Release 2.

Approximately 40% of Phase I awardees submitting a Phase II application will receive a Phase II award. Instructions and eligibility requirements for submitting Phase II grant applications will be posted at a later date on the internet at <https://www.grants.gov/>.

I.B. FAST-TRACK (COMBINED PHASE I AND PHASE II)

Fast-Track grants are opportunities to expedite the decision and award of SBIR and STTR Phase I and II funding for scientifically meritorious applications that have a high potential for commercialization. Fast-Track incorporates a submission and review process in which both Phase I and Phase II grant applications are combined into one application and submitted and reviewed together. The Project Narrative portion of a Fast-Track application must specify clear, measurable goals and milestones that should be achieved prior to initiating Phase II work. If these milestones are not met in Phase I, authorization to proceed to Phase II may not be provided and the grant will discontinue following Phase I efforts. The work proposed for Fast-Track, assuming that it proceeds, should be suitable in nature for subsequent progress to non-SBIR/STTR funding in Phase III.

For a specific R&D effort, applicants may submit either a Phase I application or a Fast-Track application, but not both. If both Phase I and Fast-Track applications are submitted, the application with the most recent submission date and time to Grants.gov will be evaluated. An individual application may be made only to either the traditional Phase I or to the Fast-Track. A project selected for Fast-Track funding which fails to meet its objectives may not later apply for Phase II funding.

Fast-Track grant awards resulting from this competition will be made during FY 2024 to small businesses with maximum award sizes of \$1,300,000 or \$1,850,000 depending on the topic. Please refer to the topic descriptions under the FOA found on the DOE SBIR/STTR website at <https://science.osti.gov/sbir/Funding-Opportunities> to determine the maximum award size for each topic. The period of performance under Fast-Track will depend on the scope of the effort but will not exceed 36 months.

Grant opportunities are announced pursuant to the Small Business Innovation Development Act of 1982 (Public Law 97-219), the Small Business Research and Development Enhancement Act

of 1992 (Public Law 102-564), the SBIR/STTR Reauthorization Act of 2011 (Public Law 112-81), and the SBIR/STTR Extension Act of 2022 (Public Law 117-183). Small businesses (see definition in [Section III](#)) with strong research capabilities in science or engineering are encouraged to apply. Some topics may seek manufacturing-related innovations in accordance with Executive Order 13329, “[Encouraging Innovation in Manufacturing](#).”

I.C. SBIR/STTR PROGRAM OBJECTIVES

The objectives of the SBIR/STTR programs include increasing private sector commercialization of technology developed through DOE-supported research and development (R&D), stimulating technological innovation in the private sector, encouraging participation by women-owned and minority-owned small businesses, and improving the return on investment from Federally funded research for economic and social benefits to the nation. DOE will support high-quality research or R&D on innovative concepts concerning important mission-related scientific or engineering problems and opportunities that have high potential for commercialization. The DOE SBIR/STTR Programs do not support either basic science or demonstration projects.

Other than different eligibility requirements (see [Section III](#)), the major difference between the SBIR and STTR programs is that STTR grants must involve substantial cooperative research collaboration between the small business and a single Research Institution (see definitions in [Section VIII](#) at the end of this FOA). However, it should be noted that the SBIR program also permits substantial collaboration between the small business and other organizations, including Research Institutions. The difference is that in SBIR, the collaboration is optional, while in STTR, the collaboration is required and must be cooperative in nature.

An important goal of the SBIR/STTR programs is the commercialization of DOE-supported research or R&D. Following the start of Phase I, DOE encourages its awardees to begin thinking about and seeking commitments from private sector or Federal non-SBIR/STTR funding sources in anticipation of Phases II and III. The commitments should be obtained prior to the Phase II grant application submission. The commitment for Phase III may be made contingent on DOE-supported research or R&D meeting some specific technical objectives in Phase II, which if met, would justify funding to pursue further development for commercial purposes in Phase III. For Phase I applicants, more details will be provided in the Phase II FOA.

Under Phase III, it is intended that non-SBIR/STTR funds be used by the small business to pursue commercial applications of the R&D. That is, the non-SBIR/STTR Federal funding pays for research or R&D meeting DOE mission-related objectives identified by DOE Phases I and II; non-SBIR/STTR capital provides follow-on developmental funding to meet commercial objectives for Phase III. Additionally, under Phase III, Federal agencies may award non-SBIR/STTR funded follow-on grants or contracts to Phase I and Phase II awarded projects for (1) products or processes that meet the mission needs of those agencies, or (2) further research or R&D. The competition for SBIR/STTR Phase I and Phase II awards satisfies any competition requirement of the Federal Property and Administrative Services Act, and the Competition in Contracting Act. Therefore, an agency that funds an SBIR/STTR Phase III project is not required to conduct another competition in order to satisfy those statutory provisions.

The receipt of earlier Phase funding does not represent any commitment or obligation to fund a later Phase.

I.D. DIVERSITY, EQUITY, INCLUSION, AND ACCESSIBILITY

The Federal SBIR/STTR Programs statutory purposes include fostering and encouraging participation in innovation and entrepreneurship by women and socially or economically disadvantaged persons. Diversity, Equity, Inclusion, and Accessibility (DEIA) is a cornerstone to effectively advancing the U.S. research and scientific innovation enterprise. Effective stewardship and promotion of diverse and inclusive research environments and workplaces that value and celebrate a diversity of people, ideas, cultures, and educational backgrounds is foundational to delivering on the DOE SBIR/STTR mission.

The Department of Energy's SBIR/STTR Programs collaborates with the Department of Energy Office of Science's Office of Scientific Workforce Diversity, Equity, and Inclusion to advance organizational best practices for promoting DEIA in our business practices for awarding and managing competitive research. For more information on our work to advance DEIA, visit <https://science.osti.gov/sbir/About/Diversity-Equity-and-Inclusion>.

I.E. TECHNOLOGY TRANSFER OPPORTUNITY

A Technology Transfer Opportunity (TTO) is an opportunity for small businesses, in the course of an SBIR/STTR award, to leverage technology that has been developed at a participating DOE Research Institution. Please refer to the [Topics](#) document associated with this FOA. The TTO will be described in a particular subtopic and additional information may be obtained by using the link in the subtopic to the DOE Research Institution that has developed the technology. Typically, the technology was developed with DOE funding of either basic or applied research at a DOE Research Institution and is currently available for licensing. The level of technology maturity will vary, and applicants are encouraged to investigate what work has been done prior to submitting an application.

Those selected for award under a TTO subtopic, will be able to perform research and development of the technology during their Phase I or Phase II grants under the Government Use License. Please note that these are NOT commercial rights allowing an awardee to license, manufacture, or sell, but only rights to perform research and development during the performance of the award.

In addition, the DOE Research Institution will provide the grantee, prior to the start of its Phase I grant, with a no-cost, six-month option to license the technology. A written statement certifying that the small business and Research Institution have executed at least an option to license any patents owned by the Research Institution related to the TTO topic will be required after notification of selection of an award. It will be the responsibility of the small business to demonstrate adequate progress towards commercialization and to negotiate an extension to the option or convert the option to a license with the Research Institution. A copy of the option agreement template will be available at the Research Institution's website owning the TTO. A small business' failure to maintain suitable commercialization rights (at least an option to a

license) could result in delayed work, deferment or removal from the program.

SECTION II – AWARD INFORMATION

II.A. TYPE OF AWARD INSTRUMENT

DOE anticipates awarding grants under this FOA.

II.B. ESTIMATED FUNDING

Approximately \$65,000,000 is expected to be available for new awards under this FOA. Funding for all awards and future budget periods are contingent upon the availability of funds appropriated by Congress for the purpose of this program and the availability of future-year budget authority, and Congressional authorization of the SBIR/STTR programs.

II.C. MAXIMUM AND MINIMUM AWARD SIZE

Phase I Ceiling (i.e., the maximum amount for an individual award made under this FOA): \$200,000 or \$250,000 for SBIR and STTR grants. Refer to the individual topic for its respective maximum award size.

Fast-Track Ceiling (i.e., the maximum amount for an individual award made under this FOA): \$1,300,000 or \$1,850,000 for SBIR and STTR grants. Refer to the individual topic for its respective maximum award size.

Floor (i.e., the minimum amount for an individual award made under this FOA): N/A

II.D. EXPECTED NUMBER OF AWARDS

DOE anticipates making approximately 260 awards under this FOA. SBIR and STTR awards are subject to the availability of appropriated funds and this FOA does not obligate DOE to make any awards under Phase I or Fast-Track.

II.E. ANTICIPATED AWARD SIZE

The anticipated median Phase I award will be approximately \$200,000.

II.F. PERIOD OF PERFORMANCE

DOE anticipates making Phase I awards that will have a period of performance of 6 to 12 months with a start date of July 22, 2024.

Please note that applications for Phase II are due approximately 9.5 months after the grant start date. DOE permits periods of performance greater than 9 months to provide funding during the gap between Phase I and Phase II awards.

Fast-Track: DOE anticipates making awards that will have period of performances of up to 36 months with the project beginning on July 22, 2024.

II.G. TYPE OF APPLICATION

DOE will accept new Phase I and Fast-Track applications under this FOA.

II.H. BIPARTISAN INFRASTRUCTURE LAW (BIL) FUNDED AWARDS

Awards issued under this FOA will be funded with either base appropriations or funds appropriated by the Infrastructure Investment and Jobs Act (IIJA), more commonly known as the Bipartisan Infrastructure Law (BIL). Please refer to the [Topics](#) document associated with this FOA to see the specific topics/subtopics that will be BIL funded.

BIL is a once-in-a-generation investment in modernizing and upgrading American infrastructure to enhance U.S. competitiveness, drive the creation of good-paying union jobs, tackle the climate crisis, and ensure strong access to economic, environmental, and other benefits for disadvantaged communities. BIL appropriates more than \$62 billion to the U.S. Department of Energy (DOE) to invest in American manufacturing and workers; expand access to energy efficiency and clean energy; deliver reliable, clean, and affordable power to more Americans; and demonstrate and deploy the technologies of tomorrow through clean energy demonstrations.

DOE's BIL investments will support efforts to build a clean and equitable energy economy that achieves a zero-carbon electricity system by 2035, and to put the United States on a path to achieve net-zero emissions economy-wide by no later than 2050 to benefit all Americans. Applications submitted under BIL Funded topics/subtopics, identified in the [Topics](#) Document are subject to the BIL requirements listed below.

Notice of Bipartisan Infrastructure Law–Specific Requirements

Be advised that special terms and conditions apply to projects funded by the BIL relating to:

- Reporting, tracking, and segregation of incurred costs;
- Reporting on job creation and preservation;
- Publication of information on the internet;
- Access to records by Inspectors General and the Government Accountability Office;
- Requiring all of the iron, steel, manufactured goods, and construction materials used in the infrastructure activities of applicable projects are produced in the United States;
- Ensuring laborers and mechanics employed by contractors or subcontractors on BIL-funded projects are paid wages equivalent to prevailing wages on similar projects in the area;
- Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- Certification and registration.

Recipients of funding appropriated by the BIL must comply with requirements of all applicable federal, state, and local laws, regulations, DOE policy and guidance, and instructions in this

FOA. Recipients must flow down the requirements to subrecipients to ensure the recipient's compliance with the requirements.

Reporting requirements will be identified on the Federal Assistance Reporting Checklist, attached to the award agreement. Additional reporting requirements apply to BIL-funded projects. DOE may require specific data collection to track progress toward key departmental goals: ensuring justice and equity, investing in the American workforce, boosting domestic manufacturing, reducing greenhouse gas emissions, and advancing a pathway to private sector deployment. Examples of data that may be collected include:

- New manufacturing production or recycling capacity
- Jobs data, including:
 - Number and types of jobs provided, wages and benefits paid
 - Workforce demographics, including local hires
 - Efforts to minimize risks of labor disputes and disruptions
 - Contributions to training; employee certificates and training credentials; ratio of apprentice- to journey-level workers employed · Number of trainings completed, trainees placed in full-time employment, or number of trainings with workforce partnerships involving employers, community-based organizations, or labor unions
- Justice and Equity data, including:
 - Minority Business Enterprises, minority-owned businesses, woman-owned businesses, and veteran-owned businesses acting as vendors and subcontractors for bids on supplies, services, and equipment
 - Value, number, and type of partnerships with MSIs
 - Stakeholder engagement events, consent-based siting activities
 - Data Relevant to the Justice40 Initiative
 - Other relevant indicators from the Promoting Inclusive and Equitable Research (PIER) Plan
- Number and type of energy efficient and clean energy equipment installed
- Funding leveraged, follow-on-funding, intellectual property generation and utilization

II.I. JUSTICE40 INITIATIVE

The Justice40 initiative, established by E.O. 14008 “Tackling the Climate Crisis at Home and Abroad,” January 27, 2021, sets a goal that 40% of the overall benefits of certain federal investments flow to disadvantaged communities. Pursuant to E.O. 14008 and the Office of Management and Budget’s Interim Justice40 Implementation Guidance M-21-28 and M-23-09, DOE recognizes disadvantaged communities as defined and identified by the White House Council on Environmental Quality’s Climate and Economic Justice Screening Tool (CEJST), located at <https://screeningtool.geoplatform.gov/>. DOE’s Justice40 Implementation Guidance is located at <https://www.energy.gov/sites/default/files/2022-07/Final%20DOE%20Justice40%20General%20Guidance%20072522.pdf>.

Section III – ELIGIBILITY INFORMATION

III.A. ELIGIBLE SBIR AND STTR APPLICANTS

SBIR/STTR program eligibility requirements are in place to ensure that the funds go only to small, independent United States (U.S.) businesses. The regulations, 13 CFR 121, include restrictions about (1) the type of firm, (2) its ownership structure, and (3) the firm's size in terms of the number of employees.

The purpose of the requirement regarding type of firm is to target the awards to firms with an economic interest in developing the idea or research into a commercial application. The purpose of the ownership requirement is to limit the program to independent firms controlled by U.S. citizens or permanent resident aliens as a way of maximizing the likelihood that the funding will stimulate innovative activity within the U.S. economy. The purpose of the size restriction (number of employees of the firm and its affiliates) is to limit program funding to small business concerns with a unique capacity for innovation, which are more likely to be constrained by lack of access to such funding.

OWNERSHIP AND CONTROL

A majority (more than 50%) of your firm's equity (e.g., stock) must be directly owned and controlled by one of the following:

1. One or more individuals who are citizens or permanent resident aliens of the U.S. Each individual you include as part of the eligible majority ownership of your company must be either a citizen or permanent resident alien of the U.S. The term "individual" refers only to actual people—it does not refer to companies or other legal entities of any sort. "Permanent resident alien" refers to an alien admitted to the U.S. as a lawful permanent resident by the U.S. Citizenship and Immigration Services.;
2. Other for-profit small business concerns (each of which is more than 50% directly owned and controlled by individuals who are citizens or permanent resident aliens of the U.S.); or
3. A combination of (1) and (2) above.

SMALL BUSINESS CONCERN (SBC)

An SBC is one that, at the time of award for both Phase I and Phase II SBIR/STTR awards, meets all of the following criteria (time of award is the date when the grant is signed by Grants/Agreements Officer, and DOE anticipates that this date will be at or around the grant start date listed in [Section II](#), Period of Performance, of this FOA):

- Organized for profit, with a place of business located in the U.S., which operates primarily within the U.S. or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor;
- Is in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the form is a joint venture, there can be no more than 49% participation by foreign business entities in the joint venture;
- Meets the Ownership and Control requirements stated above; and

- Has, including its affiliates, not more than 500 employees and meets the other regulatory requirements found in 13 CFR 121. Business concerns, other than investment companies licensed, or state development companies qualifying under the Small Business Investment Act of 1958, 15 U.S.C. 661, et seq., are affiliates of one another when either directly or indirectly, (a) one concern controls or has the power to control the other; or (b) a third-party/parties controls or has the power to control both. Control can be exercised through common ownership, common management, and contractual relationships. The term “affiliates” is defined in greater detail in 13 CFR 121. The term “number of employees” is defined in 13 CFR 121.

ADDITIONAL INFORMATION

A joint venture, as defined in [Section VIII](#), may apply, provided the entity created also qualifies as an SBC at the time of the award.

An SBC may be owned by venture capital operating companies, hedge funds, or private equity firms only under the following circumstances:

1. An SBC may be majority owned by one or more other concerns (including a venture capital operating company, hedge fund, or private equity firm) that qualify as a small business that is majority owned and controlled by individuals who are citizens or resident aliens of the U.S.
2. Any firm may own 50% or less of an SBC so long as it does not have the power to control the SBC.

SBIR ONLY:

DOE has not elected to make a portion of its SBIR awards to SBCs that are majority-owned by multiple venture capital operation companies, hedge funds, or private equity firms under 15 U.S.C. § 638(dd)(1); this agency decision does not affect the statement above that an SBC may be majority owned by one or more other concerns (including a venture capital operating company, hedge fund, or private equity firm) that qualify as a small business that is majority owned and controlled by individuals who are citizens or resident aliens of the U.S.

If a size determination of your firm is conducted, you may be asked to show proof of ownership.

Further information on eligibility for the SBIR/STTR programs is available from the Small Business Administration at <https://www.sbir.gov/faqs/eligibility-requirements>.

SBC’s submitting to both the SBIR and STTR programs must meet eligibility requirements of both SBIR and STTR applicants. If an application is submitted to both programs but fails to meet the eligibility requirements for one of the programs, it will only be considered for the one program for which it does meet the eligibility requirements.

There are two eligibility requirements associated with prior progress from Phase I to II (Phase I to Phase II Transition Rate Benchmark) and from Phase II to Phase III (Commercialization Rate Benchmark):

- To be eligible to submit a DOE Phase I SBIR or STTR application, the applicant must meet the Phase I to Phase II Transition Rate Benchmark as required by the SBIR/STTR Reauthorization Act of 2011. The Transition Rate Benchmark applies only to SBIR and STTR Phase I applicants that have received more than 20 Phase I awards over the past five fiscal years, excluding the most recently completed fiscal year. For these companies, the benchmark establishes a minimum number of Phase II awards the company must have received for a given number of Phase I awards received during the five-year time period in order to be eligible to receive a new Phase I award. This requirement does not apply to companies that have received 20 or less Phase I awards over the five-year period.
- The Commercialization Rate Benchmark applies only to SBIR and STTR Phase I applicants that have received more than 15 Phase II awards during the past 10 fiscal years, excluding the two most recently completed fiscal years. For these companies, this benchmark establishes the minimum levels of commercialization activity a company must have achieved to-date that result from its Phase II awards from this 10-year period of time. SBCs are encouraged to update commercialization results for their prior SBIR/STTR awards at SBIR.gov to ensure accuracy in assessing the Commercialization Rate Benchmark.

On June 1 of each year, SBIR/STTR awardees registered on SBIR.gov are assessed to determine if they meet the benchmark requirements. Companies that fail to meet the transition rate benchmark on June 1, 2023 are not eligible to submit a Phase I application during the period June 1, 2023 through May 31, 2024.

The Transition Rate is calculated as the total number of SBIR and STTR Phase II awards a company received during the past five fiscal years divided by the total number of SBIR and STTR Phase I awards it received during the past five fiscal years, excluding the most recently completed year. The benchmark minimum Transition Rate is currently 0.25.

The Commercialization Rate is calculated as the total revenues and additional investment to-date that have resulted from Phase II awards received during the past ten fiscal years, excluding the two most recently completed fiscal years, divided by the total number of such Phase II awards OR the total number of patents resulting from these Phase II awards divided by the total number of Phase II awards. The Commercialization Rate minimums are currently set at \$100,000 for total revenue/investment and 0.15 for number of patents per Phase II awards. SBA calculates the individual company Transition and Commercialization Rates using SBIR and STTR award information across all Federal agencies reported on www.sbir.gov. Companies that fail to meet these benchmarks are notified directly by the SBA. More information on the Transition Rate and Commercialization Rate requirements is available at www.sbir.gov.

In accordance with 2 CFR 910.126, Competition, eligibility for award is restricted to SBC's as described above.

INCREASED MINIMUM PERFORMANCE STANDARDS

Effective April 1, 2023, an SBC that received or receives more than 50 Phase II awards during the consecutive period of 10 fiscal years preceding the most recent 2 fiscal years ("covered period"), must have an average of \$250,000 of aggregate sales and investments per Phase II

award received during such covered period. An SBC that received or receives more than 100 Phase II awards during the consecutive period of 10 fiscal years preceding the most recent 2 fiscal years ("covered period") must have an average of \$450,000 of aggregate sales and investments per Phase II award received during such covered period.

The SBA is charged with implementation of the increased minimum performance standards. Each SBC that is subject to an increased minimum performance standard must submit to the SBA supporting documentation evidencing that all covered sales of the SBC were properly used to meet the increased minimum performance standard. Covered sales are defined at 15 U.S.C. § 638(qq)(3)(B)(iii)(II).

There are consequences of failure to meet the increased minimum performance standards, including prohibition against receiving more than 20 total Phase I awards and Phase II awards from each agency during the 1-year period beginning on the date on which such determination is made.

III.A.1. Participation By Federally Funded Research and Development Centers

1. Authorization for non-DOE/NNSA FFRDCs

The Federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The use of an FFRDC must be consistent with its award and must not place the FFRDC in direct competition with the private sector.

2. Authorization for DOE/NNSA FFRDCs

The cognizant DOE Contracting Officer must authorize in writing the use of a DOE/NNSA FFRDC on the proposed project and this authorization should be submitted with the application, if available. The following wording is acceptable for this authorization.

“Authorization is granted for the (insert name) National Laboratory and its Contractor to participate in the proposed project entitled _____. The work proposed for the National Laboratory Contractor is consistent with or complementary 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.”

Failure to obtain such approval in a timely manner may delay the project if a grant is awarded, as work may not be performed by the FFRDC until DOE Contracting Officer approval is provided.

III.A.2. Responsibility

A successful applicant will be the responsible authority regarding the settlement and satisfaction

of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and the FFRDC.

CONFLICTS OF INTEREST

Applicants must be aware of potential conflicts of interest in the event their SBIR or STTR application includes a subcontract to a research institution (e.g., National Laboratory, University, etc.) and the applicant's employee(s)/ownership is (are) also an employee(s) of the research institution. A potential conflict of interest can also arise when an applicant obtains a license or option license for a TTO from a National Laboratory Contractor and the applicant subcontracts to the same National Laboratory Contractor for work to be performed in commercializing the TTO. The subcontracted work might either be a Strategic Partnership Project (SPP) or a Cooperative Research and Development Agreement (CRADA).

Any conflict of interest related to a subcontracted effort with DOE or its contractors shall be addressed prior to award by providing (to DOE) a statement from the DOE Contracting Officer at the Laboratory Site Office, that he/she confirmed that the National Laboratory Contractor is aware of the ownership (or dual employment) and that the National Laboratory Contractor has conducted a conflict review in accordance with its approved conflict procedures. A similar statement should be obtained from the Sponsored Program Office or similar business office in the event the subcontract is with a university or other research institution.

In addition, the recipient shall provide to DOE prior to award, a document detailing how it will exercise both financial and managerial control over the project and how the recipient will isolate the Research Institution employee(s) from influencing control of the project.

III.B. COST SHARING

Cost sharing under this FOA is not required. However, any commercial contribution will be considered as part of the evaluation.

III.C. OTHER ELIGIBILITY REQUIREMENTS

All funded research or R&D must be performed in the U.S. for both Phases I and II, except under exceptional circumstances, for which an explanation must be submitted to DOE and an approval, if made, has been conveyed in writing by DOE. "U.S." means the 50 states, the territories, and possessions of the U.S., the Commonwealth of Puerto Rico, the Republic of the Marshall Islands, the Federated States of Micronesia, the Republic of Palau, and the District of Columbia. Non-U.S. citizens are eligible to perform work on SBIR/STTR projects provided they are legally empowered to work in the U.S. at the time that an award is made and throughout the duration of the project. That is, a foreign national working on an SBIR/STTR project must NOT be an illegal alien and must be an immigrant alien or a foreign national visiting the U.S. on an approved visa.

In exceptional circumstances, where expertise or facilities do not exist in the U.S. to perform the R&D, applicants may propose to perform R&D outside the U.S. in their application. In these situations, the applicant must clearly justify the need for foreign R&D including details of

domestic experts and facilities that were contacted to make this determination. No pre-approval of foreign R&D will be granted in advance of the application. DOE will make a determination on whether performance of R&D outside the U.S. is justified as part of the application review process. Insufficient justification may result in declination of the application.

None of the employees or owners of the applicant small business may be paid as consultants. None of the employees or owners of the applicant small business may be employees of a subcontractor, except when the subcontractor is a research institution. Consultants must not be employees of any proposed subcontractor. Please note, a person listed on the budget form (Section A - Key/Senior Person or Section B - Other Personnel) as an employee of the SBC is required to be either (a) an owner of the business, (b) paid using a W-2 form, or (c) possess an Internal Revenue Service Form SS-8 determination that the person is an employee. Persons receiving a 1099 (and not possessing an employee determination using Form SS-8) are to be treated as independent contractors and should be listed on the budget form in Section F - Other Direct Costs.

An applicant may be required to submit proof that its personnel may legally perform work on this project before a new, continuation, or transition award is made.

Applicants must include all mandatory documents described in [Section IV](#). Failure to include mandatory documents will result in the declination of the application during initial review.

III.D. SUBMITTING LETTERS OF INTENT

A single Letter of Intent (LOI) is required for each application and must be received through PAMS by the deadline printed on the cover of this FOA. Only those applicants for which an LOI has been received by the due date are eligible to submit an application under this FOA. DOE uses LOIs to identify reviewers. Therefore, applicants are requested to submit an LOI only when there is serious intent for submission of an application.

Applicants are limited to submitting a total of 10 different LOIs under this FOA and each LOI must be uniquely responsive to the topic and subtopic to which it is submitted. Duplicate LOIs (those containing essentially similar abstracts) will not be accepted to this FOA, only the last submission will be accepted. If more than 10 LOIs are received under this FOA, only the last 10 LOIs received will be accepted. Please refer to [Section IV](#) for LOI content guidance.

III.E. RESTRICTIONS ON SUBMITTING APPLICATIONS

III.E.1. Choice of Topic and Subtopic

Each LOI and application must be submitted to only one topic, including a Technology Transfer Opportunity topic, if applicable, and, within the topic, to only one subtopic. DOE will not assign a topic and/or subtopic to applications; this must be done by the applicant. When an application has relevance to more than one subtopic within a topic, the applicant must decide which subtopic is the most relevant and submit the application under that subtopic only. Each grant application must fall within the description of the subtopic and also satisfy any conditions contained in the

introductory section of that topic. Applications that do not directly address the subtopic statement will not be peer reviewed. The language in both the topic introductions and the subtopics should be taken literally. Applications with a topic and subtopic that do not match the LOI are subject to administrative declination.

III.E.2. Responsiveness

Applications will be evaluated for responsiveness by DOE technical program experts to ensure that they (1) meet stated FOA requirements described in [Section III](#) and [Section IV](#), (2) identify a topic and subtopic, (3) contain sufficient information for a meaningful technical review, (4) are for research or for research and development, (5) do not duplicate other previous or current DOE-funded work, and (6) are consistent with program area mission, policies, and other strategic and budget priorities. Applications failing to pass this initial review will be declined without further review.

III.E.3. Submitting to both SBIR and STTR Programs

Applications that include at least 30%, but not more than 33%, of cooperative research collaboration with a single research institution may be considered for funding in both SBIR and STTR programs. Applicants may indicate their interest in being considered for both SBIR and STTR programs by selecting the appropriate box under “Program Type” on the “SBIR/STTR Information” form.

III.E.4. Submitting to both the Phase I and Fast-Track Program

If two applications (Phase I or Fast-Track) proposing substantively the same work are submitted to different topics or subtopics, the application with the most recent submission date and time to Grants.gov will be evaluated.

III.E.5. Duplicate Applications

Duplicate or substantially similar applications, even if submitted to different topics and/or subtopics, will be rejected without review. That is, the application with the latest Grants.gov submission date and time will be the only version considered for evaluation.

III.E.6. Multiple Applications

Applicants are limited to submitting a total of 10 different applications under this FOA and each application must be uniquely responsive to the topic and subtopic to which it is submitted. If more than 10 applications are received under this FOA, only the last 10 applications received will be considered for evaluation.

III.E.7. Classified Applications

Classified applications are not accepted under the DOE SBIR/STTR Programs and will be appropriately destroyed. Applications that have a probability of resulting in classified work will

be administratively declined. Applicants are expected to comply with the following clause, which will be included in any grant awarded:

- 1) This award is intended for unclassified, publicly releasable research. You will not be granted access to classified information. DOE/NNSA does not expect that the results of the research project will involve classified information. Under certain circumstances, however, a classification review of information originated under the award may be required. The Department may review research work generated under this award at any time to determine if it requires classification.
- 2) Executive Order 13526 (75 Fed. Reg. 707 (January 5, 2010)) states that basic scientific research information not clearly related to the national security shall not be classified. Nevertheless, some information concerning (among other things) scientific, technological, or economic matters relating to national security or cryptology may require classification. If you originate information during the course of this award that you believe requires classification, you must promptly:
 - a. Notify the DOE Project Manager and the DOE Award Administrator;
 - b. Submit the information by registered mail directly to the Director, Office of Classification and Information Control, SO-10.2; U.S. Department of Energy; P.O. Box A; Germantown, MD 20875-0963, for classification review.
 - c. Restrict access to the information to the maximum extent possible until you are informed that the information is not classified, but no longer than 30 days after receipt by the Director, Office of Classification and Information Control.
- 3) If you originate information concerning the production or utilization of special nuclear material (i.e., plutonium, uranium enriched in the isotope 233 or 235, and any other material so determined under section 51 of the Atomic Energy Act) or nuclear energy, you must:
 - a. Notify the DOE Project Manager and the DOE Award Administrator;
 - b. Submit the information by registered mail directly to the Director, Office of Classification and Information Control, SO-10.2; U.S. Department of Energy; P. O. Box A; Germantown, MD 20875-0963 for classification review within 180 days of the date the recipient first discovers or first has reason to believe that the information is useful in such production or utilization; and
 - c. Restrict access to the information to the maximum extent possible until you are informed that the information is not classified, but no longer than 90 days after receipt by the Director, Office of Classification and Information Control.
- 4) If DOE determines any of the information requires classification, you agree that the Government may terminate the award with consent of the recipient in accordance with 2 CFR 200.340(a)(3). All material deemed to be classified must be forwarded to the DOE, in a manner specified by DOE.
- 5) If DOE does not respond within the specified time periods, you are under no further obligation to restrict access to the information.

III.F. RESTRICTIONS ON THE LEVEL OF SMALL BUSINESS PARTICIPATION – PHASE I

For both SBIR and STTR Programs, there are requirements on the amount of the research or analytical effort that must be performed by the small business in order to be selected for and to receive a grant. The research or analytical effort is defined as the total requested funding minus

the cost of any work performed by a consultant, a DOE National Laboratory contractor, and any other subcontractor, including TABA. Please refer to the [Level of Effort & Max Funding Worksheet](#) on the DOE SBIR/STTR Programs home page, under Application Resources to assist you in assuring the application is in compliance.

III.F.1. SBIR Restrictions on Level of Small Business Participation

To be awarded an SBIR Phase I grant, a minimum of two-thirds or 67% of the research or analytical effort must be carried out by the applicant during Phase I; correspondingly, a maximum of one-third or 33% of the effort may be performed by an outside party such as consultants or subcontractors.

III.F.2. STTR Restrictions on Level of Small Business Participation

To be awarded an STTR Phase I grant, at least 40% of the research or analytical effort must be performed by the applicant, and at least 30% of the effort must be performed by a single research institution.

III.G. RESTRICTIONS ON THE LEVEL OF SMALL BUSINESS PARTICIPATION – FAST-TRACK

III.G.1. SBIR Restrictions on Level of Small Business Participation

Under Fast-Track, to be awarded an SBIR Phase I grant, a minimum of two-thirds or 67% of the research or analytical effort must be carried out by the small business applicant during Phase I; correspondingly, a maximum of one-third or 33% of the effort may be performed by an outside party such as consultants or subcontractors. During the Phase II portion of the Fast-Track, at least 50 percent of the research or analytical effort must be performed by the small business. Accordingly, at least 50 percent of the total funding requested on the budget form must be allocated to the small business.

III.G.2. STTR Restrictions on Level of Small Business Participation

STTR awards will be made to small businesses for cooperative R&D to be conducted jointly with a research institution. At least 40 percent of the work must be performed by the small business, and at least 30 percent of the work must be performed by a single research institution. The research institution must be the same as that used in the Phase I research, except under very unusual circumstances, for which an explanation must be submitted to the DOE and an approval, if made, will be conveyed in writing by the DOE. Accordingly, at least 40 percent of the total funding requested on the budget form must be allocated to the small business, and at least 30 percent must be allocated to a single research institution.

III.H. GENERAL REQUIREMENTS AND RESTRICTIONS ON THE PI

The Principal Investigator (PI) is the key individual designated by the applicant to direct the project. Only one PI is acceptable per project. **Co-PIs are not allowed and should not be**

proposed. The PI must be identified by name at time of application, knowledgeable in all technical aspects of the application, and be capable of leading the research effort. The PI must be primarily employed by either the small business (SBIR or STTR) or Research Institution (STTR only) by the start date of the project period. DOE's evaluation of the application is critically dependent on the qualifications of the PI. Any changes in the PI that are made after award selection are strongly discouraged and must be pre-approved by DOE. Requests for PI changes will be closely scrutinized and may cause delays in grant execution.

A Phase I PI is required to devote to the project a considerable part of his or her time. "Considerable" means a minimum average of three hours per week for the duration of the project for both SBIR and STTR Phase I projects. The number of PI hours must be reported in the budget justification. The SF-424 (R&R) Project Narrative must state the duration of the project in weeks. In order to ensure appropriate technical guidance for the project, only one PI will be accepted per project. Before a grant is awarded, the applicant will be required to sign a statement certifying adherence to these requirements.

A Fast-Track PI is required to devote to the Phase II project a minimum average of five hours per week for the duration of the Phase II project. For example, a two-year project, lasting 104 weeks, would require a commitment of 520 hours. The SF 424 (R&R) Project Narrative must state the duration of the project in weeks, if the project is to be completed in less than two years, in order to demonstrate that this requirement is fully met in order to ensure appropriate technical guidance for the project, only one PI will be accepted per project. Processing of applications that include co-PIs may be delayed while the error is corrected by the applicant. Before a grant is awarded, the applicant will be required to sign a statement certifying adherence to these requirements.

III.H.1. Additional PI Restrictions when submitting to SBIR Program Only

To be awarded a SBIR grant, the applicant must meet the general requirements and the PI's primary employment must be with the applicant 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 during the conduct of the project and no more than 19 hours per week spent in the employment of another organization.

III.H.2. Additional PI Restrictions when submitting to STTR Program Only

To be awarded a STTR grant, the applicant must meet the general requirements and the PI's primary employment may be with the applicant or the research institution. However, the applicant must still provide technical control and oversight of the project. **If the PI is employed by the research institution, his or her primary employment (at least 20 hours per week) must be with the research institution in order to qualify under STTR and the research institution must provide at least 30% of the research effort. The PI's hours must be budgeted under the organization of his or her primary employment.**

III.H.3. PI Restrictions when submitting to both SBIR and STTR Programs

Applicants submitting to both programs must adhere to the PI restrictions set forth. Therefore, if the PI is employed by the applicant, the applicant is eligible to submit to both programs. However, in cases where the PI is employed by the research institution, the application will only be considered under the STTR Program.

III.I. RESTRICTIONS ON THE MANAGEMENT OF SBIR/STTR PROJECTS

All SBIR and STTR funding agreements are made with the applicant regardless of the proportion of the work or funding of each of the performers (small business, research institution, subcontractor, etc.) under the grant. As the grantee, the applicant has the overall responsibility of the project, including financial management and the direction and control of the performance. For STTR projects, where the PI is employed by the research institution, the applicant will maintain the overall supervision of the project, while the PI will manage the research portion of the project.

All agreements between the applicant and any subcontractor (including the research institution collaborating in an STTR project) are required to reflect the controlling management position of the applicant during the performance of the Phase I and/or Phase II project. This includes, but is not limited to, any business plan concerning agreements and responsibilities between the parties or for the commercialization of the resulting technology or regarding assignments from a DOE National Laboratory Contractor for a Technology Transfer Opportunity.

Section IV – APPLICATION AND SUBMISSION INFORMATION

IV.A. ADDRESS TO REQUEST APPLICATION PACKAGE

Application forms and instructions are available at Grants.gov. To access these materials, go to <https://www.Grants.gov>, select “Search Grants”, and then enter the Catalog of Federal Domestic Assistance (CFDA) number (81.049) and/or the FOA number shown on the cover of this FOA. Select the “Apply” button to access the application package.

Applications submitted through www.FedConnect.net will not be accepted. Applications may not be submitted through PAMS at <https://pamspublic.science.energy.gov>.

IV.B. LETTER OF INTENT (LOI) AND PRE-APPLICATION

IV.B.1. Letter of Intent (LOI)

A letter of intent (LOI) is required and must be submitted by the SBC to PAMS and is due by the date printed on the cover of this FOA. Please visit <https://science.osti.gov/sbir/Applicant-Resources/Letter-of-Intent> for an example. Only those applicants that submit an LOI to PAMS which is received by DOE by the due date are eligible to submit an application under this FOA.

As described in the detailed instructions about how to submit an LOI to PAMS in [Section VIII](#) of this FOA, you will complete predefined fields and attach your technical abstract.

Your LOI designation must be the same for your LOI and your full application. You cannot designate your LOI as “Phase I” and then subsequently designate your full application as “Fast-Track.”

Your technical abstract should sufficiently describe your technology and application. The abstract in the LOI should not exceed 500 words and two pages, and it must provide sufficient technical depth to allow DOE to assign technical reviewers for your application. Please note that your abstract should not contain any proprietary information.

The technical abstract in the LOI will be used by DOE Program Managers to determine the number of independent scientific and engineering experts that may be required to conduct the application reviews process identified in [Section V](#). Therefore, the innovation described in the LOI technical abstract, and the application should be substantially the same. Substantial changes in the proposed innovation from that described in the technical abstract may result in declination of the application during initial review.

DOE will not provide a letter of encouragement in response to your LOI. Feedback will only be provided to those applicants where the proposed R&D described in the LOI appears to be nonresponsive to the selected topic and subtopic. DOE anticipates providing this feedback within three weeks of the LOI deadline. LOIs must be submitted by eligible small business applicants only. LOIs will not be accepted from research institutions or other partners.

The LOI must be machine-readable. Do not submit a scanned image of a printed document.

Collaborative Proposals: Each small business applicant in a collaborative proposal must submit an LOI.

Please visit the DOE SBIR/STTR Programs website under “[Applicant Resources](#)” for an LOI example.

LOI SUBMISSION

LOIs are created in the software system of your choice and must be submitted electronically through the DOE SC Portfolio Analysis and Management System (PAMS) website <https://pamspublic.science.energy.gov/>. You cannot draft or edit an LOI in PAMS. Do not submit an LOI through [FedConnect](#) or [Grants.gov](#).

LOIs may be submitted by a user at the SBC with the “Submit to DOE” privilege in PAMS.

IV.B.2. Pre-application

Not applicable.

IV.C. GRANTS.GOV APPLICATION SUBMISSION AND RECEIPT PROCEDURES

Applications in response to this FOA must be submitted through Grants.gov. Detailed instructions for registering in and using Grants.gov are in [Section VIII](#) of this FOA.

IV.D. CONTENT AND APPLICATION FORMS (PHASE I ONLY)

For detailed application, forms, and other applicant information, please see [our online application guide](#) located on the DOE SBIR/STTR Programs Office website under “Preparing a DOE SBIR/STTR Phase I Grant Application” at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>. If there are any inconsistencies between the information provided in the FOA and the “Instructions for Completing a DOE SBIR/STTR Phase I Grant Application,” the information contained in the FOA prevails.

For questions regarding the preparation of an application, you may call the DOE SBIR/STTR Operations Support Staff at (301) 903-5707 or via email at sbir-sttr@science.doe.gov.

Please note, you may only use the following UTF-8 characters when naming your application attachments: A-Z, a-z, 0-9, underscore (_), hyphen (-), space (), and period (.). You must limit the file name to 50 or fewer characters. Attachments that do not follow this rule may cause the entire application to be rejected or cause issues during processing. Each attached file must have a unique filename (for example, don’t use “budget justification” for both the total budget justification and a subaward budget justification).

IV.D.1. SF-424 (R&R), Application for Federal Assistance

Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 17 is available on the DOE Financial Assistance Forms Page at <https://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms> under Certifications and Assurances¹. Applicants are bound by their representations and certifications in SAM.gov.

TYPE OF SUBMISSION (FIELD 1)

Select the checkbox for “Application” for an initial submission. Select the checkbox for “Changed/Corrected Application” if submitting an updated version of an application. Do not submit pre-applications via Grants.gov: Do not select the checkbox for “Pre-application.”

IDENTIFYING NUMBERS (FIELD 4)

Do not enter anything in Field 4a. Do not enter anything in Field 4b. If submitting an updated version of an application, you may enter the previous Grants.gov Tracking ID in Field 4c, though this is not required.

UEI AND EIN NUMBERS (FIELDS 5 AND 6)

The Uniform Entity Identifier (UEI) and Employer Identification Number (EIN) fields on the SF-424 (R&R) form are used in PAMS to confirm the identity of the individual or organization submitting an application.

- Enter the UEI as a 12-digit alpha-numerical sequence.
- Enter the EIN as a nine-digit number.
- Do not use hyphens or dashes.
- SC does not use the 12-digit EIN format required by some other agencies.
- Applications will not be rejected if an applicant’s system-to-system service uses a 12-digit EIN format or inserts hyphens or dashes in an EIN.

TYPE OF APPLICATION (FIELD 8)

Select new application for Phase I.

This FOA does not support Renewal, Resubmission, Continuation, or Revision options.

Please answer “yes” to the question “Is this application being submitted to other agencies?” if substantially similar, identical, or closely related research objectives are being submitted to another Federal agency. Indicate the agency or agencies to which the similar objectives have been submitted.

¹ No separate form or submission is required for the Certifications and Assurances.

DESCRIPTIVE TITLE OF APPLICANT’S PROJECT (FIELD 11)

Please ensure that the Project Title in field 11 of the SF-424 is identical to the title listed on your Project Narrative cover page and the title listed in our LOI. The project title must be the same as submitted in your LOI; applications not meeting this requirement may be administratively declined.

PROPOSED PROJECT (FIELD 12)

Use 07/22/2024 as the proposed project start date.

ESTIMATED PROJECT FUNDING (FIELD 15)

The amount listed in section a. “Total Federal Funds Requested” must match the total amount listed in section k. “Total Costs and Fee” on the Research and Related Budget form.

Do not attach pre-applications to Field 20 of the SF-424(R&R) form or letters of intent to Field 21 of the SF-424(R&R) form.

Notice: By signing the SF-424, you are certifying that the statements contained in the SF-424 and all other documents submitted as part of your application are true, complete, and accurate to the best of your knowledge. DOE relies on your certification and all documents submitted as part of your application which includes all mandatory, required, and optional information identified in this FOA. Further, DOE relies on all information that you voluntarily provide which was not requested in this FOA. All information and documents provided by you materially affects the decision to make an award even if the information is not listed as a review criterion in [Section V](#) of this FOA.

IV.D.2. Research and Related Other Project Information

Complete questions in fields 1 through 6 of the SF-424 Research and Related Other Project Information form. If the answer to question 3 is “Yes”, you must identify proprietary information with a legend on the first page of your attached Project Narrative document and on each page that contains proprietary information in accordance with instructions provided in [Section VIII](#). Failure to comply may result in DOE’s inability to treat such information as proprietary and may delay the grant process.

Note regarding question 1:

Applicants that plan to include human subjects as part of their research, should be aware that there are requirements that must be met for this type of research to be federally funded. Please refer to the following webpage to learn about these requirements: <https://science.osti.gov/ber/human-subjects>.

Note regarding question 4.a. and 4.b.:

If any environmental impact, positive or negative, is anticipated, indicate “yes” in response to question 4.a., “potential impact – positive or negative - on the environment.” Disclosure of the impact should be provided in response to question 4.b. First indicate whether the impact is positive or negative and then identify the area of concern (e.g., air, water, exposure to radiation, impacts to endangered species or historic properties, etc.). Should the applicant have any uncertainty, they should check “yes.”

DOE understands the phrase in field 4.a., “potential impact ... negative” to apply if the work described in the application could potentially have any of the impacts listed in (1) through (5) of 10 CFR 1021, Appendix B, Conditions that Are Integral Elements of the Classes of Action in Appendix B. (<https://www.ecfr.gov>)

Additionally, for actions which could have any other adverse impacts to the environment or have any possibility for adverse impacts to human health (e.g., use of human subjects, Biosafety Level 3-4 laboratory construction/operation, manufacture or use of certain nanoscale materials which are known to impact human health, or any activities involving transuranic or high level radioactive waste, or use of or exposure to any radioactive materials beyond de minimis levels), applicants should indicate a “negative” impact on the environment.

Lastly, 1) if there would be extraordinary circumstances (i.e., factor or circumstance that could increase the level of significance of environmental effects normally associated with the proposed action) (10 CFR 1021.410 (b)(2)), 2) if the work is connected to other actions with potentially significant impacts (10 CFR 1021.410 (b)(3), or 3) if the work is related to other nearby actions with the potential for cumulatively significant impacts (10 CFR 1021.410 (b)(3)), applicants should indicate a “negative” impact on the environment.

The bulk of your application will consist of files attached to the Research and Related Other Project Information form. The files must comply with the following instructions:

PROJECT SUMMARY/ABSTRACT (FIELD 7 ON THE FORM)

The Project Abstract and Summary must contain a summary of the proposed activity suitable for dissemination to the public. This document must not include any proprietary or sensitive business information as DOE may make it available to the public. The Project Abstract and Summary must not exceed one page. Save this information in a file named “Summary.pdf,” and click on “Add Attachment” to attach it.

The purpose of the Project Abstract and Summary is to communicate the overall sense of the combined Phase I and Phase II project, not every step of the work plan or every accomplishment.

Statements of future applications or benefits belong in the section on Commercial Applications

and Other Benefits. Do not use acronyms, abbreviations, first-person references, or any proper names (including the name of the small business, any subcontractors or institutions, or any trade or product name) in the body of the summary.

The header must include:

- Company Name
- Project Title
- Principal Investigator
- Topic number/Subtopic letter, e.g. C58-12b

The body must include:

- Statement of the problem or situation that is being addressed in your application. Describe the problem or situation being addressed—be sure that the DOE interest in the problem is clear, but not in such a way that implies that any services or products are being provided for the direct benefit of DOE rather than for the advancement of a public purpose. (Typically, one to three sentences).
- General statement of how this problem is being addressed. This is the overall objective of the Phase I project. How is this problem being addressed? What is the overall project approach? (Ideally, two to four sentences).
- What is to be done in Phase I? (Typically, three to four sentences).
- Commercial Applications and Other Benefits (limited to the space provided). Summarize the future applications or public benefits if the project is carried over into Phase II or Phase III and beyond. Do not repeat information already provided above.
- Key Words - Provide listing of key words that describe this effort.
- Summary for Members of Congress: (layperson's terms, two sentences, and maximum 100 words). DOE notifies members of Congress of grants in their districts. Therefore, please provide, in clear and concise layperson's terms, a very brief (100 words or less) summary of the project, suitable for use in a press release from DOE or a Congressional office. The summary should address the relevant problem (why is this project necessary and why did it merit DOE funding?) and the anticipated solution (what does the project hope to accomplish and how will it address the problem?). Two examples of appropriate summaries are provided below
 - *“The next generation “atom smashers” will require dipole magnets of very high magnetic field. This proposal will explore innovative block coil designs that can be used to make magnets shorter and more reliable.”*
 - *“Computer simulation is a crucial step in developing clean nuclear energy generators, but the simulation process is currently so complex and esoteric that new users are discouraged from entering the field. This proposal will simplify the simulation process and the software interface to encourage new investment in nuclear energy.”*

PROJECT NARRATIVE (FIELD 8 ON THE FORM)

The project narrative **must not exceed a page limit of 15 pages** of technical information, including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and

right). The body text font of all main text must not be smaller than 11 point. Merit reviewers will only consider the number of pages specified in the first sentence of this paragraph. Also, sections such as the budget, budget justification, key personnel, and commercialization plan should not be included in the Project Narrative but attached in the appropriate fields for those forms.

The Project Narrative is considered the main portion of the grant application and must specify clear, measurable goals and milestones that should be achieved in Phase I.

Phase I applications must propose research and development required to meet the DOE objectives stated in the technical topic of the FOA and provide sufficient information to convince DOE and members of the research community who review the application that it is worthy of support under the stated evaluation criteria in [Section V](#).

Do not include any websites (URLs) that provide supplementary or additional information that constitutes a part of the application. Merit reviewers are not required to access websites; however, Internet publications in a list of references will be treated identically to print publications. See [Section VIII](#) of this FOA for instructions on how to mark proprietary application information. To attach a Project Narrative, click “Add Attachment.”

The application should be written succinctly using the outline below. To attach a Project Narrative, click “Add Attachment.”

Using the outline below, the Project Narrative must include ALL of the following:

- Cover page – Provide company-specific and project information including company name and address, principal investigator, project title, topic number, and subtopic letter.
- Proprietary Data Legend (Proprietary Application Information – Trade Secrets, Commercial, or Financial Information) – If applicable, if your application contains trade secrets or commercial or financial information, you must include the Notice of Restriction on Disclosure and Use of Data on the first page of your Project Narrative in accordance with guidance under [Section VIII](#) (Proprietary Application Information) of this FOA.
- Identification and Significance of the Problem or Opportunity, and Technical Approach – Define the specific technical problem or opportunity addressed by your application. Provide enough background information so that the importance of the problem/opportunity is clear. Indicate the overall technical approach to the problem/opportunity and the part that the proposed research plays in providing needed results.
- Anticipated Public Benefits – Discuss the technical, economic, social, and other benefits to the public as a whole anticipated if the project is successful and is carried over into Phases II and III. Identify specific groups in the commercial sector as well as the Federal Government that would benefit from the projected results. Describe the resultant product or process, the likelihood that it could lead to a marketable product, and the significance of the market.
- Technical Objectives - State the specific technical objectives for the Phase I research and development.
- Work Plan – This section should be a substantial part of the application. Provide an explicit, detailed description of the Phase I research approach and work to be performed. Indicate what will be done, the qualifications of the team (principal investigator, key personnel,

subcontractors and consultants) to execute the project, where it will be done, and how the work will be carried out.

- Link the Work Plan to the Technical Objectives of the proposed project. Discuss methods planned to achieve each objective or task explicitly and in detail. Be sure to address how the research or research and development effort could lead to a product, process, or service if funded beyond Phase I. Show how the management direction and control of the project will be assured. Regardless of the proportion of the work or funding of each of the performers under the grant, the applicant is to be the primary grantee with overall responsibility for its performance.
- Performance Schedule - The Phase I budget period may be less than, but no longer than 12 months. Briefly describe the important milestones to be achieved and the estimated amount of time for completing each task described in the Work Plan. Please be aware that your Phase II application will be due approximately 9.5 months after the project start date. Critical milestones that will be important to include in your Phase II application should be completed in the first 9 months of your project.
- Facilities/Equipment - Describe available equipment and physical facilities necessary to carry out the Phase I effort. Equipment is defined as an article of tangible, nonexpendable, personal property, including exempt property, charged directly to the grant, having a useful life of more than one year and an acquisition cost of \$5,000 per unit or more. Items of equipment to be leased or purchased must be described and justified in this section. Title to equipment purchased under this grant lies with the government. It may be transferred to the grantee where such transfer would be more cost effective than recovery of the property by the government. Grantees wishing to obtain title should contact their contract specialist prior to project completion for the procedure to follow to make such a request. If the equipment, instrumentation, and facilities are not the property of the applicant and are not to be purchased or leased, the source must be identified and their availability and expected costs specifically confirmed in this section. A principal of the organization that owns or operates the facilities/equipment must provide written verification regarding the availability and cost of facilities/equipment and any associated technician cost. Small businesses may get credit for obtaining this equipment as an in-kind Phase II commercial contribution.
- American-Made - To the extent possible in keeping with the overall purposes of the program, only American-made equipment and products should be purchased with the funds provided by the financial assistance under DOE Phase I grants.
- Research Institution (RI) - If the grant application contains formal collaboration with an RI (required for STTR, optional for SBIR), (1) identify the name and address of the institution, the name, phone number, and email address of the certifying official from the RI, and the total dollar amount of the subcontract; (2) describe in detail the work to be done by this RI in the Work Plan section; and (3) provide a detailed cost estimate including costs for labor, equipment, and materials, if any, as well as a specific statement certifying that they have agreed to serve in the manner and to the extent described in the Work Plan section of the grant application” from RIs.

The RI will be considered a subcontractor to the applicant. The RI must provide a Letter of Commitment (LOC) on official letterhead from an authorized representative of the RI which commits the institution to participate in the project as described in the application. The LOC should be attached as an “Other Attachment” in field 12, on the Research & Related Other Project Information form. If selected for a grant, participation of the RI will be verified by

the DOE Contracting Officer.

- Other Consultants and Subcontractors - Involvement of consultants or subcontractors in the project is permitted provided the work is performed in the United States, for exceptions, see [Section III](#) If consultants and/or subcontractors are to be used, this section of the application must identify them by name, identify whether the party is being proposed as a consultant versus as a subcontractor, and should provide Letters of Commitment (LOC) from an authorized representative of the consultants and/or subcontractors. The LOC must provide a detailed cost estimate, including costs for labor, equipment, and materials, if any, for the consultant or subcontractor, as well as a specific statement certifying that the consultant(s) or subcontractor(s) have agreed to serve in the manner and to the extent described in the Work Plan section of the application. Each LOC must be on official letterhead with an authorizing representative's contact information provided and submitted as an "Other Attachment" to the application. If selected for a grant, the DOE Contracting Officer will verify the participation of any subcontractor(s) and/or consultant(s) and will require budget and budget explanations for subcontractors and verification of the rates for consultants.
 - Note: None of the employees or owners of the applicant SBC may be consultants. None of the employees or owners of the applicant SBC may be employees of a Subcontractor except when the Subcontractor is a Research Institution. Consultants must not be employees of any proposed Subcontractor. SBC personnel cannot be reimbursed with DOE funding as a consultant under the project. SBC personnel cannot be reimbursed with DOE funding as an employee of a Subcontractor except when the Subcontractor is a Research Institution under the project. Non-U.S. citizens are eligible to perform work on SBIR/STTR projects provided they are legally empowered to work in the U.S. at the time the award is made.
- Letters of Support [OPTIONAL] - While not a requirement to obtain Phase I funding, applicants are strongly encouraged to submit letters of support from the private sector, which will be considered as part of the evaluation criterion on "Impact." Add as an attachment in field 12, "Other Attachments", on this form.
- Phase II Funding Commitment (Commercial Contribution) [OPTIONAL] - While not a requirement to obtain Phase I funding, applicants are strongly encouraged to submit commitments from the private sector or from non-SBIR/STTR funding sources, which will be considered as part of the evaluation criterion on "Impact." Add as an attachment in field 12, "Other Attachments", on this form.
- Phase III Follow-On Funding Commitment [OPTIONAL] - Applicants are encouraged to submit a Phase III follow-on funding commitment which will be considered as part of the evaluation criterion on Impact. The commitment must be signed by a person with the authority to make it, indicate when the funds will be made available, and contain specific technical objectives which will make the commitment exercisable by the applicant. If the commitment is firm regardless of achievement of technical objectives, it should state so. The commitment may include: (1) third party financing; (2) self-financing (in which case the applicant must demonstrate the ability to provide the Phase III funding); (3) state or local government financing; or (4) federal funding. In-kind contributions are allowed; however, the applicant or donor must estimate the dollar value of any in-kind contribution. The Phase III funding cannot be contingent on obtaining a patent because of the length of time this process requires. The Phase III Commitment must be submitted with the Phase I application

as a separate attachment. Add as an attachment in field 12, “Other Attachments”, on this form. You should also reference it in the technical proposal in the “Work Plan” Section.

- Bibliography & References Cited (Field 9 on this form) - Do not attach a file in this field. Include this information, if any, in the Phase I Project Narrative. Bibliography and References cited count against the Phase I Project Narrative 15 page limit.
- Facilities & Other Resources (Field 10 on this form) - Do not attach a file in this field. Include this information, if any, in the Project Narrative. Facilities and Other Resources information counts against the Phase I Project Narrative 15 page limit.
- Equipment (Field 11 on this form) - Do not attach a file in this field. Include this information, if any, in the Project Narrative. Equipment information counts against the Phase I Project Narrative 15 page limit.

APPENDIX: NEW REQUIREMENT: PROMOTING INCLUSIVE AND EQUITABLE RESEARCH (PIER) PLAN (DOES NOT COUNT TOWARD THE PROJECT NARRATIVE PAGE LIMIT)

In compliance with the Office of Science’s (SCs) Promoting Inclusive and Equitable Research (PIER) Plan requirement, DOE SBIR/STTR has added the PIER Plan requirement to all funding opportunities, beginning in FY 2024. All applications must provide a Promoting Inclusive and Equitable Research (PIER) Plan as an appendix to the research project narrative. The PIER plan should describe the strategies and activities of the applicant to promote diversity, equity, inclusion and/or accessibility as an integrated element of the research and development project within the proposing small business concern. Plans may include, but are not limited to: plans of your small business concern and collaborating institutions (if applicable) to recruit individuals from diverse backgrounds and/or groups historically underrepresented in the research community; plans to contribute to a research and development environment that fosters a safe, positive, accessible and inclusive workplace and/or a sense of belonging among all personnel; training, mentoring and partnering with underrepresented communities; and/or substantial partnering with, or benefits to, a disadvantaged community as defined by the CEJST tool (See Section II.I. Justice40 Initiative for CEJST tool information). Plans may leverage existing diversity, equity, inclusion and accessibility efforts of the applicant small business concern but should not be a statement of broad principles.

Provided as an appendix to the Project Narrative, the PIER Plan should describe the activities and strategies to promote diversity, equity, inclusion, and accessibility in the proposed research project:

- Do not attach a separate file to Field 12 of the Research and Related Other Project Information form.
- This appendix should not exceed a page limit of 3 pages when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). This appendix will not count in the project narrative page limitation.
- PIER Plans are to be evaluated as part of the merit review criterion: Quality and Efficacy of the Plan for Promoting Inclusive and Equitable Research.
- The scope should be integral to and tailored to the research project.
- Applicants are encouraged to focus on areas, including but not limited to:
 - The composition of the project team and partnering institutions.

- The research environment - cultivating respectful, professional and accessible environments.
- Equitable and inclusive implementation of the research project.
- Funds may be requested for execution of the PIER Plan

Additional resources to support PIER Plan development can be found at:

<https://science.osti.gov/sbir/Applicant-Resources/PIER-Plan>

OTHER ATTACHMENTS (FIELD 12)

Note: Field 12 will hold more than one attachment. If you need to elaborate on your responses to questions 1 – 6 on the “Other Project Information” form, provide the information in a single file named “projinfo.pdf.” Click on “Add Attachments” in Field 12 to attach file.

DIGITAL DATA MANAGEMENT PLAN REQUIREMENT (**REQUIRED**)

All SBIR and STTR applicants must select one of the following options for their Data Management Plan (DMP):

Option 1)

The Option 1 DMP is: “It is anticipated that all generated digital data will be protected as SBIR/STTR data and therefore will not be publicly shared during the applicable SBIR/STTR data protection period. If any data generated under this award are published, an effort will be made to also release any related digital data that is not protected SBIR/STTR data.” Applications that select Option 1 must not include publication costs in their budget, as this implies that data will be shared publicly.

Please note that if you do not include a DMP with your application, Option 1 for the DMP will be assumed for your application. However, if you plan to publicly disclose generated digital data, you must provide a DMP under Option 2.

Option 2)

If you plan to publicly disclose technical data during the data protection period or, for data not expected to be asserted as protected SBIR/STTR rights data, please submit a DMP, following the instructions in [Section VIII](#).

DISCLOSURE OF FOREIGN RELATIONSHIPS (**REQUIRED**)

All SBIR and STTR applicants must disclose their foreign relationships as required by the SBIR and STTR Extension Act of 2022. The required form that must be used to disclose these relationships is available here: <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>. Instructions are included on the form. Please note that even if you do not have any foreign relationships, you must complete this form to certify that such relationships do not exist. Failure to include this form may result in declination of your application without review at DOE’s discretion.

ALSO, ATTACH THE FOLLOWING FILES IN FIELD 12:

- SBA Company Registration **(Required)**.
- Authorization for non-DOE/NNSA FFRDCs, if applicable.
- Authorization for DOE/NNSA FFRDCs, if applicable, if available.
- Signed Letter of Funding Commitment, if applicable.
- Phase III Follow-On Funding Commitment, if applicable.
- Signed Letter of Commitment (LOC) from research institution, as applicable. LOC must include name and address of institution, dollar amount of subcontract, and certifying official's name, phone number and email address.
- LOC from consultants, subcontractors or other third parties.
- [Level-of-Effort Worksheet](#) (discussed in [Section III](#)) may be found on the DOE SBIR/STTR Programs website at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>.
- Company Commercialization Report from SBIR.gov for STTR-only applications, if applicable

IV.D.3. Research and Related Senior/Key Person Profile (Expanded)

Complete the Research and Related Senior/Key Person Profile (Expanded) form in accordance with the instructions on the form and the following instructions. Complete this form before the Budget form to populate data on the Budget form.

Principal Investigator and other Key Personnel - The Principal Investigator (PI) is the key individual designated by the applicant to direct the project. Only one PI is acceptable per project. The PI and Key Personnel do not need to be U.S. citizens; however, all work must be performed in the United States. For exceptions, see "Other Eligibility Requirements" in [Section III](#) See "General Requirements and Restrictions on the PI" in [Section III](#)

You must submit this information for the PI and all senior/key personnel who will be identified by name in Section A of the application's budget. List all other personnel who contribute in a substantive, meaningful way to the scientific development or execution of the project, whether or not salaries are requested. Consultants should be included in this "Senior/Key Person Profile (Expanded)" Form if they meet this definition. List individuals that meet the definition of senior/key regardless of what organization they work for. Senior/key personnel must be aware that they are included in the application and must agree to perform the work if awarded. The form will pre-populate with the PI identified on the SF-424(R&R) form. For each senior/key person:

- Complete the required sections in their profile.
- In the "credential" field, enter the person's PAMS username, if known.
- Attach the person's biographical sketch, following in instructions in [Section VIII](#) of this FOA for crafting a biographical sketch.
- Attach the person's current and pending support, following the instructions in [Section VIII](#) of this FOA for crafting current and pending support.

The Senior/Key Person Profile (Expanded) form will support the PI and up to 99 additional senior/key personnel. On the addition of the 99th senior/key person, you will be presented with an

option to upload an additional file with the required information for all other senior/key personnel.

IV.D.4. Research And Related Budget

You must provide a budget for the period of support requested and a cumulative budget for the total project. In accordance with the SBIR/STTR Phase I topic funding allowance, applicants may request funding for up to 12 months, but not less than six months. Any application that proposes less than a 6-month Phase I budget period will be revised upward to six months by DOE.

Complete the Research and Related Budget form in accordance with the instructions on the form and the following instructions. The form will generate a cumulative budget for the total project period. All fields with a red border are required, but you may enter a zero “0” in any field in which funds are not being requested. 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 (See [Section IV](#)). All budget items should be rounded to the nearest dollar and consistent with the budget justification form.

The amount budgeted cannot exceed the Phase I maximum grant amount for the topic. In the event you choose to use your own commercialization vendor, you may exceed the topic amount by up to \$6,500. Please refer to the [TABA section](#) for guidance.

Phase I Principal Investigator meeting: Applicants may include in their Phase I budget a registration fee (\$250) and travel expenses for the Principal Investigator and, if necessary, a registration fee (\$250) and travel expenses for a person from the small business representing the commercialization interests of the company to attend the DOE SBIR/STTR Phase I Principal Investigator Meeting. Attendance by the Principal Investigator is expected. This two-day meeting, held in the DC metro area, will provide opportunities to meet with DOE Program Managers and TABA providers, as well as learn about the DOE SBIR/STTR programs, with an emphasis on the Phase II application. The DOE SBIR/STTR Phase I Principal Investigator Meeting will be held approximately four months after the Phase I period of performance begins. Principal Investigators will be notified of the exact date and venue for the DOE SBIR/STTR Phase I Principal Investigator Meeting approximately eight weeks after the Phase I grant start date by an e-mail from the DOE contractor managing the meeting. The email will contain the URL for the DOE SBIR/STTR Phase I Principal Investigator Meeting website, where participants will be able to register, make lodging reservations, and view the agenda for the meeting.

TECHNICAL AND BUSINESS ASSISTANCE (FORMERLY COMMERCIALIZATION ASSISTANCE)
(SECTION F, FIELD 8, 9, OR 10 [OPTIONAL])

In accordance with the John S. McCain National Defense Authorization Act for Fiscal Year 2019, DOE is able to fund discretionary technical and business assistance (TABA) to all DOE SBIR and STTR Phase I grantees. Phase I award recipients have two options for receiving

TABA: (1) utilize services provided by a DOE vendor or (2) identify their own TABA provider(s).

If you wish to receive TABA from a DOE-funded vendor during Phase I, you do not need to include this expense in your budget. If you are awarded a Phase I grant, you will receive notification from DOE and follow-up contact from a DOE-funded vendor on what services are available to you and how to obtain these services at no cost to your small business.

If you wish to utilize your own TABA provider(s), you are required to include this as one or more subcontracts or consultants in your budget and to provide a detailed budget justification. Phase I applicants may include up to \$6,500 per project. Please note that the TABA does not count toward the maximum grant size listed in [Section II](#); e.g., seeking TABA from your provider could result in a maximum grant in the amount of \$206,500 for topics that specify a maximum award amount of \$200,000. Reimbursement is limited to services received that comply with 15 U.S.C. § 638(q). Only direct costs can be included in the \$6,500 allowed for TABA. Overhead costs associated with TABA must be included in the maximum award amount.

You may propose services in the following areas:

- product sales
- intellectual property protections
 - Patent prosecution costs related to obtaining United States patent protection for subject inventions of this award may be budgeted under TABA. Patent prosecution costs include attorney fees and United States Patent and Trademark Office (USPTO) fees. United States patent protection includes filings with the USPTO related to provisional, Patent Cooperation Treaty (PCT), non-provisional, continuation, and continuation-in-part patent applications. Patent prosecution costs related to foreign patent protection (e.g. foreign attorney, foreign patent office or translation fees) are unallowable.
- market research
- market validation
- development of certifications and regulatory plans
- development of manufacturing plans

Services are defined as acts of assistance in which no goods are exchanged. In some situations, incidental goods, such a report on the services provided, are exchanged. The following examples are provided for clarification:

- **Market Research:** Conducting market research in the planned area of commercialization is a service, and a report describing the finding is typically provided.
- **Advertising:** Developing an advertising strategy or designing advertising campaign materials are services. Paying to place ads or print brochures would not be considered a service.
- **Website Development:** Developing website content is a service.

Third party vendors or a federal entity issuing patents, certifications or regulatory approvals, must be used when spending TABA funds. Vendor(s) may not be the SBIR/STTR applicant or awardee or its research partner or a research institution performing part of the research and development portion of the award.

In the event some or the entire amount listed is not expended on TABA services, the remaining funds cannot be re-budgeted to other project costs. Re-budgeting of these funds for other than TABA services is not allowable.

Additional information is found in [Section VIII](#) of this FOA.

BUDGET JUSTIFICATION (FIELD L ON THE FORM)

Provide supporting information for all proposed costs, including hours and rates for all personnel. Attach a single budget justification file for the entire project period in Field K. **A budget justification template may be found here: <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>.** Provide any other information you wish to submit to justify your budget request. If your organization has an Indirect Cost Rate Agreement (ICRA) in effect with your Cognizant Federal Agency [Defense Contract Audit Agency (DCAA), Department of Health and Human Service's Division of Cost Allocation (DCA), etc.] supporting the indirect rate(s) proposed, please provide this information with your application if the rate agreement (a) is dated no later than 2019 and (b) covers the proposed period of activity. Please note that if you are selected for a grant, additional budget explanation will most likely be required.

Note: All proposed purchase of equipment will be carefully reviewed relative to need and appropriateness for the research or R&D proposed. Although there is no absolute cap on indirect costs, grant applications will be evaluated for overall economy and value to DOE.

- Travel funds must be justified and related to the needs of the project, e.g., travel to DOE Headquarters to meet with the DOE Program Manager. Travel expenses for technical conferences are not permitted unless the purpose of attending the conference directly relates to the project, e.g., to present results of the project. Foreign travel is not normally an appropriate expense. Funds to cover travel expenses outside of the United States are considered an unallowable direct cost unless written approval has been obtained from the DOE Contracting Officer.
- Grant funds may not be used to pay patent prosecution costs and related expenses. See TABA for paying such fees.
- Tuition expenses are allowable only if requested from a research institution or subcontractor that is a university, provided the amount requested for tuition is reasonable and comparable to what a student would be paid for performing research during the grant performance period.
- Any commercial and/or in-kind contribution to the project should be reflected in the project narrative and not included on the budget pages.

Attach a single budget justification file for the entire project period in field L. The file automatically carries over to each budget year.

Additional information is found in [Section VIII](#) of this FOA.

IV.D.5. R&R Subaward Budget Attachment(s) Form

Budgets for Subawards: You must provide a separate R&R budget and budget justification for

each subrecipient. Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET ATTACHMENT(S) FORM and either email it to each subrecipient that is required to submit a separate budget or use the collaborative features of Workspace. After the subrecipient has either emailed its completed budget back to you or completed it within Workspace, attach it to one of the blocks provided on the form. All fields with a red border are required, but you may enter a zero “0” in any field in which funds are not being requested. Use up to 10 letters of the subrecipient’s name (plus.pdf) as the file name (e.g., ucla.pdf or energyres.pdf). Filenames must not exceed 50 characters.

If the project involves more subrecipients than there are places in the SUBAWARD BUDGET ATTACHMENT(S) FORM, the additional subaward budgets may be saved as PDF files and appended to the Budget Justification attached to Field L.

Applicants should consult their local information technology (“IT”) support resources for any necessary assistance in converting the forms downloaded from Grants.gov into plain PDF files that can be combined into one non-Portfolio PDF file (the Budget Justification).

Ensure that any files received from subrecipients are the PDF files extracted from the SUBAWARD BUDGET ATTACHMENT(S) FORM. Errors will be created if a subrecipient sends a prime applicant a budget form that was not extracted from the application package.

Additional budget information for any subrecipient will likely be required if selected for award.

IV.D.6. Project/Performance Site Location(s)

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.

IV.D.7. Disclosure of Lobbying Activities (SF-LLL)

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, “Disclosure Form to Report Lobbying.” Applicants that have never paid 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 do not need to submit this form.

IV.D.8. SBIR/STTR Information Form

Each application must be submitted to a DOE SBIR/STTR Topic and, within the Topic, to only one Subtopic. DOE will not assign a Topic and/or Subtopic to grant applications; this must be done by the applicant. The Topic and Subtopic are also required on page 1 of the Project Narrative.

PHASE I COMMERCIALIZATION PLAN (REQUIRED, FIELD 8)

It is a statutory objective of SBIR/STTR funding that technology developed using these designated taxpayer funds result in some form of benefit for the American people whether it be in the form of taxable revenue, jobs or some other societal or scientific benefit.

Field 8 of the SBIR/STTR Information Form will accept the Commercialization Plan attachment for a Phase I grant application submission after selecting DOE as agency and Phase I as application type.

A brief Commercialization Plan must be included in a Phase I grant application. The Commercialization Plan must not exceed a page limit of 4 pages when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). The body text font of all main text must not be smaller than 11 point. If the Commercialization Plan is not included at the time of application submission, your application will be administratively declined without review.

The Phase I commercialization plan is designed to get you to begin thinking about the commercial potential for the technology and your strategy to bring it to market. If you proceed to submission of a Phase II application, you will be asked to expand upon the ideas presented here providing validation of the information through customer discovery and due diligence in a 15-page commercialization plan.

The Phase I commercialization plan will be evaluated under the “Impact” criterion and should include these elements:

Project Title

You **MUST** include the following statement after your project title:

“(COMPANY NAME HERE) estimates cumulative sales revenues of \$ and cumulative licensing revenues of \$ during the first 10 years of commercialization.”

1. Market Opportunity

Describe the problem and its urgency that will be solved by the product/service resulting from the technology being proposed. Describe your customers and end-users (if different) providing example companies. Describe your competitors and your competitive advantage and/or value proposition. Describe the market opportunity being addressed. If there are opportunities outside DOE and/or multiple opportunities to pursue, describe your time-

phased plan to address. Describe the envisioned business model that will be used to generate revenue.

2. Company/Team

Describe the capabilities of your team as they relate to the commercialization of your technology; there is no need to repeat technical qualifications which are covered adequately elsewhere in your application. If there are gaps in commercialization expertise on your current team, describe your time-phased plans to address (new personnel, consultants, contractors, etc.).

3. Intellectual Property

Describe both the state of the intellectual property that exists in your intended market and plans to protect your intellectual property. Detail the status of patents, trade secrets, and other steps you plan to take to protect your IP.

4. Revenue Forecast

Provide a revenue forecast during the first 10 years of commercialization. We request the forecast be for 10 years because the path and development time required to bring the technology to market will vary - in some cases, commercialization may begin immediately after Phase II award, but in other cases commercialization may not start for many years beyond completion of the Phase II award. In doing so, be realistic and do not assume widespread and immediate adoption of your technology by the entire customer base. If there are opportunities outside the immediate DOE need, describe your time- phased plan to address.

Applicants are encouraged to review the [example Phase I Commercialization Plan](#) on the DOE SBIR/STTR website under “Applicant Resources” at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>.

COMMERCIALIZATION HISTORY (FIELD 9, IF APPLICABLE)

If you have received SBIR/STTR Phase II grants from any Federal agency, then you must provide your company Commercialization History. If you are an SBIR or Both SBIR/STTR applicant, attach your Company Commercialization Report (CCR) from SBIR.gov to Field 9. For STTR-only applications, attach your CCR to Field 12 of the R&R Other Project Information. Please name your CCR document “Commercialization History.pdf”

Applicants must utilize the Company Commercialization Report (CCR) from SBIR.gov to provide their company commercialization history of past SBIR/STTR awards). The CCR allows companies to report funding outcomes resulting from prior SBIR and STTR awards. SBIR and STTR awardees are required by the SBA Policy Directive to update and maintain their organization’s CCR on SBIR.gov. Companies may complete this report by logging into the company’s account on SBIR.gov and starting a new Company Commercialization Report. To complete and include a Company Commercialization Report within your application you should:

1. Log into the company account at <https://www.sbir.gov/>.

2. Navigate to My Dashboard > My Documents to view or print the information currently contained in the Company Registry Commercialization Report.
3. Create or update the commercialization record, from the company dashboard, by scrolling to the “My Commercialization” section, and clicking the create/update Commercialization tab under “Current Report Version”. Please refer to the “Instructions” and “Guide” documents contained in this section of the Dashboard for more detail on completing and updating the CCR. Ensure the report is certified and submitted.
4. Click the “Company Commercialization Report” pdf under the My Documents section of the dashboard to download a pdf of the CCR.
5. For SBIR Applicants including applicants submitting to both SBIR and STTR Programs, the CCR should be attached to Question 8 of the SBIR/STTR Information form. For STTR- only applicants, the CCR should be attached to Question 12 of the Research and Related – Other Project Information Form. The attached document should be titled “Commercialization History.pdf”

IV.D.9. Summary of Required Forms/Files

The table below lists the required forms and the attachments associated with each form. Some of the information must be directly entered onto the forms and other information must be attached to the forms as directed. Please read carefully.

Please note: Applications lacking the following required documentation will be administratively declined without technical review. To assist you in submitting the necessary forms with your application, please refer to the DOE SBIR/STTR Phase I Application Checklist, located on the DOE SBIR/STTR Programs Office website under “Applicant Resources” at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>.

Your application must include the following items:

| Name of Document | Format | Attach to |
|--|---------------|-------------------|
| Application for Federal Assistance, SF-424 Form | Form | |
| Research and Related: Budget Form | Form | |
| Additional Senior Key Persons, if applicable | PDF | Field A. 9 |
| Additional Equipment, if applicable | PDF | Field C. 11 |
| Budget Justification | PDF | Field K |
| Research and Related: Senior/Key Person Profile Form | Form | |
| Biographical Sketch for each person | PDF | Appropriate Block |
| Current & Pending Support for each person, if applicable | PDF | Appropriate Block |
| Research and Related: Other Project Information Form | Form | |
| Project Abstract and Summary | PDF | Field 7 |
| Project Narrative | PDF | Field 8 |

| | | |
|---|------|------------------------------|
| Bibliography and References Cited, if applicable | PDF | Include in Project Narrative |
| Facilities and Other Resources, if applicable | PDF | Include in Project Narrative |
| Equipment, if applicable | PDF | Include in Project Narrative |
| Promoting Inclusive and Equitable Research (PIER) Plan | PDF | Include in Project Narrative |
| Other— Data Management Plan | PDF | Field 12 |
| Other— Disclosure of Foreign Relationships | PDF | Field 12 |
| Other—Level of Effort & Max Funding Worksheet | PDF | Field 12 |
| Other—Letter of Commitment for consultant, sub-award, or research institution, if applicable | PDF | Field 12 |
| Other—Letters of Support, if applicable | PDF | Field 12 |
| Other—SBA Company Registration | PDF | Field 12 |
| Other – Company Commercialization Report from SBIR.gov for STTR-Only applications, if applicable | PDF | Field 12 |
| Authorization for non-DOE/NNSA FFRDCs, if applicable | PDF | Field 12 |
| Authorization for DOE/NNSA FFRDC, if applicable and if available | PDF | Field 12 |
| Research and Related: Sub-award Budget Form, if applicable | Form | |
| Budget Justification for each Sub-award | PDF | Appropriate Block |
| SF-LLL, Disclosure of Lobbying Activities, if applicable | Form | |
| Project/Performance Site Location(s) | Form | |
| SBIR/STTR Information Form | Form | |
| Phase I Commercialization Plan | PDF | Field 8 |
| Company Commercialization Report from SBIR.gov for SBIR or Both SBIR/STTR applications, if applicable | PDF | Field 9 |

IV.E. CONTENT AND APPLICATION FORMS (FAST-TRACK ONLY)

For detailed application, forms, and other applicant information, please see [our online application guide](#) located on the DOE SBIR/STTR Programs Office website under “Preparing a DOE SBIR/STTR Phase I Grant Application” at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>. If there are any inconsistencies between the information provided in the FOA and the “Instructions for Completing a DOE SBIR/STTR Phase I Grant Application,” the information contained in the FOA prevails.

For questions regarding the preparation of an application, you may call the DOE SBIR/STTR Operations Support Staff at (301) 903-5707 or via email at sbir-sttr@science.doe.gov.

Please note, you may only use the following UTF-8 characters when naming your application attachments: A-Z, a-z, 0-9, underscore (_), hyphen (-), space (), and period (.). You must limit the file name to 50 or fewer characters. Attachments that do not follow this rule may cause the entire application to be rejected or cause issues during processing. Each attached file must have a unique filename (for example, don't use "budget justification" for both the total budget justification and a subaward budget justification).

IV.E.1. SF-424 (R&R), Application for Federal Assistance

Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 17 is available on the DOE Financial Assistance Forms Page at <https://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms> under Certifications and Assurances². Applicants are bound by their representations and certifications in SAM.gov.

TYPE OF SUBMISSION (FIELD 1)

Select the checkbox for "Application" for an initial submission. Select the checkbox for "Changed/Corrected Application" if submitting an updated version of an application. Do not submit pre-applications via Grants.gov: Do not select the checkbox for "Pre-application."

IDENTIFYING NUMBERS (FIELD 4)

Do not enter anything in Field 4a. Do not enter anything in Field 4b. If submitting an updated version of an application, you may enter the previous Grants.gov Tracking ID in Field 4c, though this is not required.

UEI AND EIN NUMBERS (FIELDS 5 AND 6)

The Uniform Entity Identifier (UEI) and Employer Identification Number (EIN) fields on the SF-424 (R&R) form are used in PAMS to confirm the identity of the individual or organization submitting an application.

- Enter the UEI as a 12-digit alpha-numerical sequence.
- Enter the EIN as a nine-digit number.
- Do not use hyphens or dashes.
- SC does not use the 12-digit EIN format required by some other agencies.
- Applications will not be rejected if an applicant's system-to-system service uses a 12-digit EIN format or inserts hyphens or dashes in an EIN.

TYPE OF APPLICATION (FIELD 8)

Select new application for Fast-Track.

² No separate form or submission is required for the Certifications and Assurances.

This FOA does not support Renewal, Resubmission, Continuation, or Revision options.

Please answer “yes” to the question “Is this application being submitted to other agencies?” if substantially similar, identical, or closely related research objectives are being submitted to another Federal agency. Indicate the agency or agencies to which the similar objectives have been submitted.

DESCRIPTIVE TITLE OF APPLICANT’S PROJECT (FIELD 11)

Please ensure that the Project Title in field 11 of the SF-424 is identical to the title listed on your Project Narrative cover page and the title listed in our LOI. The project title must be the same as submitted in your LOI; applications not meeting this requirement may be administratively declined.

PROPOSED PROJECT (FIELD 12)

Use 07/22/2024 as the proposed project start date.

ESTIMATED PROJECT FUNDING (FIELD 15)

The amount listed in section a. “Total Federal Funds Requested” must match the total amount listed in section k. “Total Costs and Fee” on the Research and Related Budget form.

Do not attach pre-applications to Field 20 of the SF-424(R&R) form or letters of intent to Field 21 of the SF-424(R&R) form.

Notice: By signing the SF-424, you are certifying that the statements contained in the SF-424 and all other documents submitted as part of your application are true, complete, and accurate to the best of your knowledge. DOE relies on your certification and all documents submitted as part of your application which includes all mandatory, required, and optional information identified in this FOA. Further, DOE relies on all information that you voluntarily provide which was not requested in this FOA. All information and documents provided by you materially affects the decision to make an award even if the information is not listed as a review criterion in [Section V](#) of this FOA.

IV.E.2. Research and Related Other Project Information

Complete questions in fields 1 through 6 of the SF-424 Research and Related Other Project Information form. If the answer to question 3 is “Yes”, you must identify proprietary information with a legend on the first page of your attached Project Narrative document and on each page that contains proprietary information in accordance with instructions provided in [Section VIII](#). Failure to comply may result in DOE’s inability to treat such information as proprietary and may delay the grant process.

Note regarding question 1:

Applicants that plan to include human subjects as part of their research, should be aware that there are requirements that must be met for this type of research to be federally funded. Please refer to the following webpage to learn about these requirements: <https://science.osti.gov/ber/human-subjects>.

Note regarding question 4.a. and 4.b.:

If any environmental impact, positive or negative, is anticipated, indicate “yes” in response to question 4.a., “potential impact – positive or negative - on the environment.” Disclosure of the impact should be provided in response to question 4.b. First indicate whether the impact is positive or negative and then identify the area of concern (e.g., air, water, exposure to radiation, impacts to endangered species or historic properties, etc.). Should the applicant have any uncertainty, they should check “yes.”

DOE understands the phrase in field 4.a., “potential impact ... negative” to apply if the work described in the application could potentially have any of the impacts listed in (1) through (5) of 10 CFR 1021, Appendix B, Conditions that Are Integral Elements of the Classes of Action in Appendix B. (<https://www.ecfr.gov>)

Additionally, for actions which could have any other adverse impacts to the environment or have any possibility for adverse impacts to human health (e.g., use of human subjects, Biosafety Level 3-4 laboratory construction/operation, manufacture or use of certain nanoscale materials which are known to impact human health, or any activities involving transuranic or high level radioactive waste, or use of or exposure to any radioactive materials beyond de minimis levels), applicants should indicate a “negative” impact on the environment.

Lastly, 1) if there would be extraordinary circumstances (i.e., factor or circumstance that could increase the level of significance of environmental effects normally associated with the proposed action) (10 CFR 1021.410 (b)(2)), 2) if the work is connected to other actions with potentially significant impacts (10 CFR 1021.410 (b)(3), or 3) if the work is related to other nearby actions with the potential for cumulatively significant impacts (10 CFR 1021.410 (b)(3)), applicants should indicate a “negative” impact on the environment.

The bulk of your application will consist of files attached to the Research and Related Other Project Information form. The files must comply with the following instructions:

PROJECT SUMMARY/ABSTRACT (FIELD 7 ON THE FORM)

The Project Abstract and Summary must contain a summary of the proposed activity suitable for dissemination to the public. This document must not include any proprietary or sensitive business information as DOE may make it available to the public. The Project Abstract and

Summary must not exceed one page. Save this information in a file named “Summary.pdf,” and click on “Add Attachment” to attach it.

The purpose of the Project Abstract and Summary is to communicate the overall sense of the combined Phase I and Phase II project, not every step of the work plan or every accomplishment.

Statements of future applications or benefits belong in the section on Commercial Applications and Other Benefits. Do not use acronyms, abbreviations, first-person references, or any proper names (including the name of the small business, any subcontractors or institutions, or any trade or product name) in the body of the summary.

The header must include:

- Company Name
- Project Title
- Principal Investigator
- Topic number/Subtopic letter, e.g. 12b

The body must include:

- Statement of the problem or situation that is being addressed in your application. Describe the problem or situation being addressed—be sure that the DOE interest in the problem is clear, but not in such a way that implies that any services or products are being provided for the direct benefit of DOE rather than for the advancement of a public purpose. (Typically, one to three sentences).
- General statement of how this problem is being addressed. This is the overall objective of the Fast-Track project. How is this problem being addressed? What is the overall project approach? (Ideally, two to four sentences).
- What is to be done in Phase I and Phase II? (Typically, three to four sentences).
- Commercial Applications and Other Benefits (limited to the space provided). Summarize the future applications or public benefits if the project is carried over into Phase IIA/IIB, Phase IIC or Phase III and beyond. Do not repeat information already provided above.
- Key Words - Provide listing of key words that describe this effort.
- Summary for Members of Congress: (layperson’s terms, two sentences, and maximum 100 words). DOE notifies members of Congress of grants in their districts. Therefore, please provide, in clear and concise layperson’s terms, a very brief (100 words or less) summary of the project, suitable for use in a press release from DOE or a Congressional office. The summary should address the relevant problem (why is this project necessary and why did it merit DOE funding?) and the anticipated solution (what does the project hope to accomplish and how will it address the problem?). Two examples of appropriate summaries are provided below
 - *“The next generation “atom smashers” will require dipole magnets of very high magnetic field. This proposal will explore innovative block coil designs that can be used to make magnets shorter and more reliable.”*
 - *“Computer simulation is a crucial step in developing clean nuclear energy generators, but the simulation process is currently so complex and esoteric that new users are*

discouraged from entering the field. This proposal will simplify the simulation process and the software interface to encourage new investment in nuclear energy.”

PROJECT NARRATIVE (FIELD 8 ON THE FORM)

The project narrative **must not exceed a page limit of 25 pages** of technical information, including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). The body text font of all main text must not be smaller than 11 point. Merit reviewers will only consider the number of pages specified in the first sentence of this paragraph. Please note that the word limit applies to the text in the body of the Project Narrative and does not include words in tables and graphs. Also, sections such as the budget, budget justification, key personnel, and commercialization plan should not be included in the Project Narrative but attached in the appropriate fields for those forms.

The Project Narrative is considered the main portion of the Fast-Track application and must specify clear, measurable goals and milestones that should be achieved in Phase I prior to initiating Phase II work. If these Phase I milestones are not met, authorization to proceed to Phase II may not be provided and the grant will be discontinued following Phase I efforts. The work proposed for Fast-Track, assuming that it proceeds, should be suitable in nature for subsequent progress to non-SBIR/STTR funding in Phase III.

Fast-track applications must propose research and development required to meet the DOE objectives stated in the technical topic of the FOA and provide sufficient information to convince DOE and members of the research community who review the grant application that it is worthy of support under the stated evaluation criteria in [Section V](#).

Do not include any websites (URLs) that provide supplementary or additional information that constitutes a part of the application. Merit reviewers are not required to access websites; however, Internet publications in a list of references will be treated identically to print publications. See [Section VIII](#) of this FOA for instructions on how to mark proprietary application information. To attach a Project Narrative, click “Add Attachment.”

The application should be written succinctly using the outline below. To attach a Project Narrative, click “Add Attachment.”

Using the outline below, the Project Narrative must include ALL of the following:

- Cover page – Provide company-specific and project information including company name and address, principal investigator, project title, topic number, and subtopic letter.
- Proprietary Data Legend (Proprietary Application Information – Trade Secrets, Commercial, or Financial Information) – If applicable. If your application contains trade secrets or commercial or financial information, you must include the Notice of Restriction on Disclosure and Use of Data on the first page of your Project Narrative in accordance with guidance under [Section VIII](#) Proprietary Application of this FOA.

- Identification and Significance of the Problem or Opportunity, and Technical Approach – Define the specific technical problem or opportunity addressed by your application. Provide enough background information so that the importance of the problem/opportunity is clear. Indicate the overall technical approach to the problem/opportunity and the part that the proposed research plays in providing needed results.
- Anticipated Public Benefits – Discuss the technical, economic, social, and other benefits to the public as a whole anticipated if the Phase I and Phase II projects are successful and the project is carried over into Phase III. Identify specific groups in the commercial sector as well as the Federal Government that would benefit from the projected results. Describe the resultant product or process, the likelihood that it could lead to a marketable product, and the significance of the market.
- Technical Objectives - State the specific technical objectives for the Phase I and Phase II research and development.
- Work Plan - This section should be a substantial part of the technical application. Provide an explicit, detailed description of the Phase I and Phase II research approach and work to be performed. Indicate what will be done in each Phase, the qualifications of the team (principal investigator, key personnel, subcontractors and consultants) to execute the project, where it will be done, and how the work will be carried out.
- Link the Work Plan to the Technical Objectives of the proposed project. Discuss methods planned to achieve each objective or task explicitly and in detail. Be sure to address how the research or research and development effort could lead to a product, process, or service in Phase III. Show how the management direction and control of the project will be assured. Regardless of the proportion of the work or funding of each of the performers under the grant, the applicant is to be the grantee with overall responsibility for its performance.
- Performance Schedule - The Performance Schedule should cover three distinct budget periods – Phase I (typically 9 months, but not less than 6 months) and Phase II (Year 1 and Year 2; up to 12 months each). The Phase I budget period may not exceed 9 months; however, the budget period may not be less than 6 months. Any application that proposes less than a 6-month Phase I budget period will be revised upward to 6 months by DOE. Due to the nature of the Fast-Track program, the DOE will not grant any no-cost extensions of work during the Phase I budget period. Funding for the 2nd and 3rd budget periods of Phase II will be contingent on the demonstration of adequate progress as described in the required progress reports, which must be submitted two months prior to the end of each budget period. Progress reports will be evaluated against DOE programmatic priorities and the availability of funds. Funding requests for each of the two budget periods in Phase II should not exceed one-half of the maximum Phase II grant amount as noted in the respective Phase I topics document. Exceptions to this will be allowed but must be thoroughly justified in the accompanying Budget Justification form. Please state in the Performance Schedule section if the project will be completed in less than 33 months. Briefly describe the important milestones to be achieved in each budget period and the estimated amount of time for completing each task described in the Work Plan.
- Facilities/Equipment - Describe available equipment and physical facilities necessary to carry out the Fast-Track effort. Equipment is defined as an article of tangible, nonexpendable, personal property, including exempt property, charged directly to the grant, having a useful life of more than one year and an acquisition cost of \$5,000 per unit or more. Items of equipment to be leased or purchased must be described and justified in this section. Title to

equipment purchased under this grant lies with the government. It may be transferred to the grantee where such transfer would be more cost effective than recovery of the property by the government. Grantees wishing to obtain title should contact their contract specialist prior to project completion for the procedure to follow to make such a request. If the equipment, instrumentation, and facilities are not the property of the applicant and are not to be purchased or leased, the source must be identified and their availability and expected costs specifically confirmed in this section. A principal of the organization that owns or operates the facilities/equipment must provide written verification regarding the availability and cost of facilities/equipment and any associated technician cost. Small businesses may get credit for obtaining this equipment as an in-kind Phase II commercial contribution.

- American-Made—To the extent possible in keeping with the overall purposes of the program, only American-made equipment and products should be purchased with the funds provided by the financial assistance under the Fast-Track grants.
- Research Institution (RI) - If the grant application contains formal collaboration with an RI (required for STTR, optional for SBIR), (1) identify the name and address of the institution, the name, phone number, and email address of the certifying official from the RI, and the total dollar amount of the subcontract; (2) describe in detail the work to be done by this RI in the Work Plan section; and (3) provide a detailed cost estimate including costs for labor, equipment, and materials, if any, as well as a specific statement certifying that they have agreed to serve in the manner and to the extent described in the Work Plan section of the application.

The RI will be considered a subcontractor to the small business applicant. The RI must provide a Letter of Commitment (LOC) on official letterhead from an authorized representative of the RI, which commits the institution to participate in the project as described in the grant application. The LOC should be attached as an “Other Attachment” in field 12, on the Research & Related Other Project Information form. If selected for a grant, participation of the RI will be verified by the DOE contracting officer.

- Other Consultants and Subcontractors - Involvement of consultants or subcontractors in the project is permitted provided the work is performed in the United States. If consultants and/or subcontractors are to be used, this section of the application must identify them by name, identify whether the party is being proposed as a consultant versus as a subcontractor, and should provide Letters of Commitment (LOC) from an authorized representative of the consultants and/or subcontractors. The LOC must provide a detailed cost estimate, including costs for labor, equipment, and materials, if any, for the consultant or subcontractor, as well as a specific statement certifying that the consultant(s) or subcontractor(s) have agreed to serve in the manner and to the extent described in the Work Plan section of the grant application. Each letter must be on official letterhead with an authorizing representative’s contact information provided and submitted as an “Other Attachment” to the application. If selected for a grant, the DOE contracting officer will verify the participation of any subcontractor(s) and/or consultant(s) and will require budget and budget explanations for subcontractors and verification of the rates for consultants.
- Phase II Funding Commitment (Commercial Contribution) [OPTIONAL] - While not a requirement to obtain Phase II funding, applicants are strongly encouraged to submit Fast-Track commitments from the private sector or from non-SBIR/STTR funding sources, which will be considered as part of the evaluation criterion on “Impact”. Add as an attachment in field 12, “Other Attachments”, on this form.

- Phase III Follow-On Funding Commitment [OPTIONAL] - Applicants are encouraged to submit a Phase III follow-on funding commitment, which will be considered as part of the evaluation criterion on Impact. The commitment must be signed by a person with the authority to make it, indicate when the funds will be made available, and contain specific technical objectives, which if achieved in Phase II, will make the commitment exercisable by the applicant. If the commitment is firm regardless of technical objectives achieved, it should state so. The commitment may include: (1) third party financing; (2) self-financing (in which case the applicant must demonstrate the ability to provide the Phase III funding); (3) state or local government financing; or (4) Federal funding. In-kind contributions are allowed; however, the applicant or donor must estimate the dollar value of any in-kind contribution. The Phase III funding cannot be contingent on obtaining a patent because of the length of time this process requires. The Phase III commitment must be submitted with the Phase II application as a separate attachment. Add as an attachment in field 12, “Other Attachments”, on this form. You should also reference it in the technical proposal in the “Work Plan” Section.
- Bibliography & References Cited (Field 9 on this form)- Include this information, if any, in the Fast-Track Project Narrative. Bibliography and References Cited count against the Fast-Track Project Narrative 25-page limit. Do not attach a file in this field.
- Facilities & Other Resources (Field 10 on this form)- Include this information, if any, in the Project Narrative. Do not attach a file in this field.
- Equipment (Field 11 on this form)- Include this information, if any, in the Project Narrative. Do not attach a file in this field.

APPENDIX: NEW REQUIREMENT: PROMOTING INCLUSIVE AND EQUITABLE RESEARCH (PIER) PLAN (DOES NOT COUNT TOWARD THE PROJECT NARRATIVE PAGE LIMIT)

In compliance with the Office of Science’s (SCs) Promoting Inclusive and Equitable Research (PIER) Plan requirement, DOE SBIR/STTR has added the PIER Plan requirement to all funding opportunities, beginning in FY 2024. All applications must provide a Promoting Inclusive and Equitable Research (PIER) Plan as an appendix to the research project narrative. The PIER plan should describe the strategies and activities of the applicant to promote diversity, equity, inclusion, and/or accessibility as an integrated element of the research and development project within the proposing small business concern. Plans may include, but are not limited to: plans of your small business concern and collaborating institutions (if applicable) to recruit and retain individuals from diverse backgrounds and/or groups historically underrepresented in the research community; plans to contribute to a research and development environment that fosters a safe, positive, accessible, and inclusive workplace and/or a sense of belonging among all personnel; and/or training, mentoring and partnering with underrepresented communities. Plans may leverage existing diversity, equity, inclusion and accessibility efforts of the applicant small business concern but should not be a statement of broad principles.

Provided as an appendix to the Project Narrative, the PIER Plan should describe the activities and strategies to promote diversity, equity, inclusion, and accessibility in the proposed research project:

- Do not attach a separate file to Field 12 of the Research and Related Other Project

Information form.

- This appendix should not exceed a page limit of 3 pages when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). This appendix will not count in the project narrative page limitation.
- PIER Plans are to be evaluated as part of the merit review: Quality and Efficacy of the Plan for Promoting Inclusive and Equitable Research.
- The scope should be integral to and tailored to the research project.
- Applicants are encouraged to focus on areas, including but not limited to:
 - The composition of the project team and partnering institutions.
 - The research environment - cultivating respectful, professional and accessible environments.
 - Equitable and inclusive implementation of the research project.
- Funds may be requested for execution of the PIER Plan.

PIER Plans for BIL funded projects must include the following additional information:

- A workforce section of the PIER Plan articulating the future workforce implications of the innovation or a milestone-driven plan for understanding those implications.
 - The workforce section should document the skills, knowledge, and abilities that would be required of workers installing, maintaining, and operating the technology that may be derivative of the applicant's research, as well as the training pathways and its accessibility for workers to acquire the necessary skills, and/or plans to provide workers with above-average wages and benefits (benchmarked to industry and occupation), involve workers in health and safety plans, and make investments in education and training programs.

Additional resources to support PIER Plan development can be found at:

<https://science.osti.gov/sbir/Applicant-Resources/PIER-Plan>

OTHER ATTACHMENTS (FIELD 12)

Note: Field 12 will hold more than one attachment. If you need to elaborate on your responses to questions 1 – 6 on the “Other Project Information” form, provide the information in a single file named “projinfo.pdf.” Click on “Add Attachments” in Field 12 to attach file.

DIGITAL DATA MANAGEMENT PLAN REQUIREMENT (**REQUIRED**)

All SBIR and STTR applicants must select one of the following options for their Data Management Plan (DMP):

Option 1)

The Option 1 DMP is: “It is anticipated that all generated digital data will be protected as SBIR/STTR data and therefore will not be publicly shared during the applicable SBIR/STTR data protection period. If any data generated under this award are published, an effort will be made to also release any related digital data that is not protected SBIR/STTR data.” Applications

that select Option 1 must not include publication costs in their budget, as this implies that data will be shared publicly.

Please note that if you do not include a DMP with your application, Option 1 for the DMP will be assumed for your application. However, if you plan to publicly disclose generated digital data, you must provide a DMP under Option 2.

Option 2)

If you plan to publicly disclose technical data during the data protection period or, for data not expected to be asserted as protected SBIR/STTR rights data, please submit a DMP, following the instructions in [Section VIII](#).

CYBERSECURITY SELF-ASSESSMENT **[REQUIRED]**

All Fast-Track applicants must submit a Cybersecurity Self-Assessment with their application. The purpose of the Cybersecurity Self-Assessment is to evaluate whether the cybersecurity practices of the SBC are sufficient to protect the work being done under the SBIR/STTR award from disclosure. DOE will be using the cybersecurity performance goals (CPGs) issued by Cybersecurity and Infrastructure Security Agency (CISA) as the basis for the cybersecurity self-assessment. Applicants are encouraged to utilize the cybersecurity resources available from CISA (<https://www.cisa.gov/cyber-guidance-small-businesses>) to improve their cybersecurity posture.

Applicants will use the CISA CPG Checklist (<https://science.osti.gov/sbir/Applicant-Resources/Grant-Application-Phase-II> or <https://www.cisa.gov/resources-tools/resources/cisa-cpg-checklist>) to submit their Cybersecurity Self-Assessment. There are 39 CPGs included in the self-assessment. For the DOE Cybersecurity Self-Assessment, Fast-Track applicants are required to complete the following 16 CPGs: 1A, 1B, 2A, 2B, 2D, 2E, 2G, 2H, 2I, 2K, 2L, 2M, 2R, 2S, 2W, and 4A. Applicants may complete the other CPGs, however, they are not required.

DOE will use this information as part of the cybersecurity risk assessment to determine which applicants will be eligible for award. Fast-Track awardees are expected to fully implement the 16 CPGs listed above during the Phase I award period. An updated cybersecurity self-assessment must be submitted in the progress report submitted within 60 days prior to the Phase I award end date to ensure the continuation of Phase II award. DOE reserves the right to conduct a post-award review to verify the accuracy of the self-assessment and the implementation of the 16 CPGs as part of DOE's due diligence in assessing the cybersecurity-related security risks pursuant to 15 USC 638(vv)(2).

DISCLOSURE OF FOREIGN RELATIONSHIPS **(REQUIRED)**

All SBIR and STTR applicants must disclose their foreign relationships as required by the SBIR and STTR Extension Act of 2022. The required form that must be used to disclose these relationships is available here: <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>. Instructions are included on the form. Please note that even if you do not have any foreign relationships, you must complete this form to certify that such relationships do not exist.

Failure to include this form may result in declination of your application without review at DOE's discretion.

ALSO, ATTACH THE FOLLOWING FILES IN FIELD 12:

- SBA Company Registration **(Required)**.
- Authorization for non-DOE/NNSA FFRDCs, if applicable.
- Authorization for DOE/NNSA FFRDCs, if applicable, if available.
- Signed Letter of Funding Commitment, if applicable.
- Phase III Follow-On Funding Commitment, if applicable.
- Signed Letter of Commitment (LOC) from research institution, as applicable. LOC must include name and address of institution, dollar amount of subcontract, and certifying official's name, phone number and email address.
- LOC from consultants, subcontractors or other third parties.
- [Level-of-Effort Worksheet](#) (discussed in [Section III](#)) may be found on the DOE SBIR/STTR Programs website at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>.
- Company Commercialization Report from SBIR.gov for STTR-only applications, if applicable

IV.E.3. Research and Related Senior/Key Person Profile (Expanded)

Complete the Research and Related Senior/Key Person Profile (Expanded) form in accordance with the instructions on the form and the following instructions. Complete this form before the Budget form to populate data on the Budget form.

Principal Investigator and other Key Personnel - The Principal Investigator (PI) is the key individual designated by the applicant to direct the project. Only one PI is acceptable per project. The PI and Key Personnel do not need to be U.S. citizens; however, all work must be performed in the United States. For exceptions, see "Other Eligibility Requirements" in [Section III](#) See "General Requirements and Restrictions on the PI" in [Section III](#)

You must submit this information for the PI and all senior/key personnel who will be identified by name in Section A of the application's budget. List all other personnel who contribute in a substantive, meaningful way to the scientific development or execution of the project, whether or not salaries are requested. Consultants should be included in this "Senior/Key Person Profile (Expanded)" Form if they meet this definition. List individuals that meet the definition of senior/key regardless of what organization they work for. Senior/key personnel must be aware that they are included in the application and must agree to perform the work if awarded. The form will pre-populate with the PI identified on the SF-424(R&R) form. For each senior/key person:

- Complete the required sections in their profile.
- In the "credential" field, enter the person's PAMS username, if known.
- Attach the person's biographical sketch, following in instructions in [Section VIII](#) of this FOA for crafting a biographical sketch.
- Attach the person's current and pending support, following the instructions in [Section VIII](#) of this FOA for crafting current and pending support.

The Senior/Key Person Profile (Expanded) form will support the PI and up to 99 additional senior/key personnel. On the addition of the 99th senior/key person, you will be presented with an option to upload an additional file with the required information for all other senior/key personnel.

IV.E.4. Research And Related Budget

You must provide a separate budget for each period of support requested and a cumulative budget for the total project. In accordance with the SBIR/STTR Topic funding allowance, applicants may request funding of up to combined maximum grant amounts for Phase I and Phase II for up to 36 months. The first budget period should cover a period of 6 to 12 months (Phase I). Funding for the 2nd budget period (Year 1 of Phase II) and the 3rd budget period (Year 2 of Phase II) will be contingent on the demonstration of adequate progress as described in your project milestones, evaluation of DOE programmatic priorities, and submission of the SBIR Funding Agreement Certification – Life Cycle or STTR Funding Agreement Certification – Life Cycle. Funding for all grants and future budget periods are contingent upon the availability of funds appropriated by Congress for the purpose of this program and the availability of future-year budget authority. The amount budgeted for the 1st budget period cannot exceed the Phase I maximum grant amount for the topic, and the amount budgeted for the combined 2nd and 3rd budget periods cannot exceed the Phase II maximum grant amounts.

In the event you choose to use your own commercialization vendor for the 1st budget period, you may exceed the topic amount by up to \$6,500. If you would like to utilize TABA funds for Phase II portion (2nd and 3rd budget period) of the Fast-Track award, you must identify your own TABA services vendor and can exceed the Phase II topic amount by up to \$50,000. Please refer to the [TABA section](#) for guidance.

Complete the Research and Related Budget form in accordance with the instructions on the form and the following instructions. You must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. You must complete all the mandatory information on the form before the NEXT PERIOD button is activated. All fields with a red border are required, but you may enter a zero “0” in any field in which funds are not being requested. 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 (See [Section IV](#)). All budget items should be rounded to the nearest dollar and consistent with the budget justification form. 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 allow ability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this FOA (See [Section IV](#)). Note that foreign travel and participant/trainee costs are typically considered unallowable costs unless approved by the DOE contracting officer.

Phase I Principal Investigator meeting: Applicants may include in their Phase I budget a registration fee (\$250) and travel expenses for the Principal Investigator and, if necessary, a

registration fee (\$250) and travel expenses for a person from the small business representing the commercialization interests of the company to attend the DOE SBIR/STTR Phase I Principal Investigator Meeting. Attendance by the Principal Investigator is expected. This two-day meeting, held in the DC metro area, will provide opportunities to meet with DOE Program Managers and TABA providers, as well as learn about the DOE SBIR/STTR programs, with an emphasis on the Phase II application. The DOE SBIR/STTR Phase I Principal Investigator Meeting will be held approximately four months after the Phase I period of performance begins. Principal Investigators will be notified of the exact date and venue for the DOE SBIR/STTR Phase I Principal Investigator Meeting approximately eight weeks after the Phase I grant start date by an e-mail from the DOE contractor managing the meeting. The email will contain the URL for the DOE SBIR/STTR Phase I Principal Investigator Meeting website, where participants will be able to register, make lodging reservations, and view the agenda for the meeting.

TECHNICAL AND BUSINESS ASSISTANCE (FORMERLY COMMERCIALIZATION ASSISTANCE)
(SECTION F, FIELD 8, 9, OR 10 [OPTIONAL])

In accordance with the John S. McCain National Defense Authorization Act for Fiscal Year 2019, DOE is able to fund discretionary technical and business assistance (TABA) to all DOE SBIR and STTR Phase I grantees. Phase I award recipients have two options for receiving TABA: (1) utilize services provided by a DOE vendor or (2) identify their own TABA provider(s). Fast-Track award recipients have the same two options during the Phase I portion of their award but will need to identify their own TABA provider(s) during the Phase II portion of their application.

If you wish to receive TABA from a DOE-funded vendor during Phase I (1st budget period), you do not need to include this expense in your budget. If you are awarded a Phase I grant, you will receive notification from DOE and follow-up contact from a DOE-funded vendor on what services are available to you and how to obtain these services at no cost to your small business.

If you wish to utilize your own TABA provider(s), you are required to include this as one or more subcontracts or consultants in your budget and to provide a detailed budget justification. Phase I applicants may include up to \$6,500 per project. Fast-Track applicants may include up to \$6,500 during the Phase I portion (first budget period) of their award, and up to \$50,000 during the Phase II portion (second and third budget period) of their award. Please note that the TABA does not count toward the maximum grant size listed in [Section II](#); e.g., seeking TABA from your provider could result in a maximum grant in the amount of \$206,500 for topics that specify a maximum Phase I award amount of \$200,000 and \$1,150,000 for topics that specify a maximum Phase II award amount of \$1,100,000. Reimbursement is limited to services received that comply with 15 U.S.C. § 638(q). Only direct costs can be included in the amounts allowed for TABA. Overhead costs associated with TABA must be included in the maximum award amount.

You may propose services in the following areas:

- product sales
- intellectual property protections

- Patent prosecution costs related to obtaining United States patent protection for subject inventions of this award may be budgeted under TABA. Patent prosecution costs include attorney fees and United States Patent and Trademark Office (USPTO) fees. United States patent protection includes filings with the USPTO related to provisional, Patent Cooperation Treaty (PCT), non-provisional, continuation, and continuation-in-part patent applications. Patent prosecution costs related to foreign patent protection (e.g. foreign attorney, foreign patent office or translation fees) are unallowable.
- market research
- market validation
- development of certifications and regulatory plans
- development of manufacturing plans

Services are defined as acts of assistance in which no goods are exchanged. In some situations, incidental goods, such a report on the services provided, are exchanged. The following examples are provided for clarification:

- Market Research: Conducting market research in the planned area of commercialization is a service, and a report describing the finding is typically provided.
- Advertising: Developing an advertising strategy or designing advertising campaign materials are services. Paying to place ads or print brochures would not be considered a service.
- Website Development: Developing website content is a service.

Third party vendors or a federal entity issuing patents, certifications or regulatory approvals, must be used when spending TABA funds. Vendor(s) may not be the SBIR/STTR applicant or awardee or its research partner or a research institution performing part of the research and development portion of the award.

In the event some or the entire amount listed is not expended on TABA services, the remaining funds cannot be re-budgeted to other project costs. Re-budgeting of these funds for other than TABA services is not allowable.

BUDGET JUSTIFICATION (FIELD L ON THE FORM)

Provide supporting information for all proposed costs, including hours and rates for all personnel. Attach a single budget justification file for the entire project period in Field K. A budget justification template may be found here: <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>. Provide any other information you wish to submit to justify your budget request. If your organization has an Indirect Cost Rate Agreement (ICRA) in effect with your Cognizant Federal Agency [Defense Contract Audit Agency (DCAA), Department of Health and Human Service's Division of Cost Allocation (DCA), etc.] supporting the indirect rate(s) proposed, please provide this information with your application if the rate agreement (a) is dated no later than 2019 and (b) covers the proposed period of activity. Please note that if you are selected for a grant, additional budget explanation will most likely be required.

Note: All proposed purchase of equipment will be carefully reviewed relative to need and appropriateness for the research or R&D proposed. Although there is no absolute cap on indirect costs, grant applications will be evaluated for overall economy and value to DOE.

- Travel funds must be justified and related to the needs of the project, e.g., travel to DOE Headquarters to meet with the DOE Program Manager. Travel expenses for technical conferences are not permitted unless the purpose of attending the conference directly relates to the project, e.g., to present results of the project. Foreign travel is not normally an appropriate expense. Funds to cover travel expenses outside of the United States are considered an unallowable direct cost unless written approval has been obtained from the DOE Contracting Officer.
- Grant funds may not be used to pay patent prosecution costs and related expenses. See TABA for paying such fees.
- Tuition expenses are allowable only if requested from a research institution or subcontractor that is a university, provided the amount requested for tuition is reasonable and comparable to what a student would be paid for performing research during the grant performance period.
- Any commercial and/or in-kind contribution to the project should be reflected in the project narrative and not included on the budget pages.

Attach a single budget justification file for the entire project period in field L. The file automatically carries over to each budget year.

Additional information is found in [Section VIII](#) of this FOA.

IV.E.5. R&R Subaward Budget Attachment(s) Form

Budgets for Subawards: You must provide a separate R&R budget and budget justification for each subrecipient. Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET ATTACHMENT(S) FORM and either email it to each subrecipient that is required to submit a separate budget or use the collaborative features of Workspace. After the subrecipient has either emailed its completed budget back to you or completed it within Workspace, attach it to one of the blocks provided on the form. All fields with a red border are required, but you may enter a zero “0” in any field in which funds are not being requested. Use up to 10 letters of the subrecipient’s name (plus.pdf) as the file name (e.g., ucla.pdf or energyres.pdf). Filenames must not exceed 50 characters.

If the project involves more subrecipients than there are places in the SUBAWARD BUDGET ATTACHMENT(S) FORM, the additional subaward budgets may be saved as PDF files and appended to the Budget Justification attached to Field L.

Applicants should consult their local information technology (“IT”) support resources for any necessary assistance in converting the forms downloaded from Grants.gov into plain PDF files that can be combined into one non-Portfolio PDF file (the Budget Justification).

Ensure that any files received from subrecipients are the PDF files extracted from the SUBAWARD BUDGET ATTACHMENT(S) FORM. Errors will be created if a subrecipient sends a prime applicant a budget form that was not extracted from the application package.

Additional budget information for any subrecipient will likely be required if selected for award.

IV.E.6. Project/Performance Site Location(s)

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.

IV.E.7. Disclosure of Lobbying Activities (SF-LLL)

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying." Applicants that have never paid 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 do not need to submit this form.

IV.E.8. SBIR/STTR Information Form

Each application must be submitted to a DOE SBIR/STTR Topic and, within the Topic, to only one Subtopic. DOE will not assign a Topic and/or Subtopic to grant applications; this must be done by the applicant. The Topic and Subtopic are also required on page 1 of the Project Narrative.

FAST-TRACK COMMERCIALIZATION PLAN (REQUIRED, FIELD 8)

It is a statutory objective of SBIR/STTR funding that technology developed using these designated taxpayer funds result in some form of benefit for the American people whether it be in the form of taxable revenue, jobs or some other societal or scientific benefit.

Your Fast-Track Commercialization Plan narrative must not exceed a page limit of 15 pages of when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). The body text font of all main text must not be smaller than 11 point. This page limit does not include return on investment and net present value worksheets, pro forma worksheet, and Letters of Support, which must be appended to the commercialization plan narrative. Your Fast-Track Commercialization Plan must be uploaded to field 8 as a single document. This information will be evaluated and considered part of the score for the "Impact" criteria discussed in Part V. If the Commercialization Plan is not included at the time of application submission, your application will be administratively declined without review.

The DOE recognizes that each innovation requires a varied strategy to generate returns on invested capital and that no two businesses are exactly alike. Therefore, DOE supports a broad array of commercialization strategies. Each strategy requires varied emphasis on the parts of the plan depending on your innovation and the market landscape. For instance, the strategy and mechanisms for leveraging and protecting intellectual property (IP) vary according to industry and innovation.

The Commercialization Plan is your roadmap for the future and should convey how you plan to generate profits from your innovation. It should represent a compelling vision that describes a unique business opportunity that could be addressed with continued support from Phase II funding. The depth and quality of the analysis within your Commercialization Plan is a critical element of the DOE SBIR/STTR application review.

Please Note: All assumptions and estimates provided should be clearly stated as such and evidence of validation should be provided in a footnote. Where you provide numerical data (e.g. market size, price, etc.) or data about customer needs, market forces, barriers to entry and the like, you should indicate the source of the data using footnotes. Market research reports, articles by experts in trade publications or professional journals, interviews, focus groups, surveys, are among commonly used sources of data.

The following four sections must be addressed in your Commercialization Plan:

1. Market Opportunity

- a) Describe succinctly what product or service you are planning to deliver based on your innovations:
 - Identify your target customer providing generally known examples.
 - Describe the critical needs that your product or service will fulfill for your customer [i.e. these can be current or emerging].
 - How does the target customer(s) currently meet the need that you are addressing and what do they pay to meet the need?
 - What is your customer willing to pay for your product or service? How have you validated this assumption?
 - What features of your product or service will allow you to provide a compelling value proposition? How have you validated the significance of these features? State the value proposition for your product or service.

- b) Address Market Opportunity
 - What is the current size of the broad market you plan to enter? How large is your “niche” market opportunity, in terms of either numbers of customers or revenues? (If you use number of customers, estimate revenues based on the anticipated selling price of your product or service.)
 - Is the target market domestic, international, or both?
 - What are the growth trends for the market and the key market drivers that will affect whether customers will buy your product or service?
 - What barriers to entry exist in this market, which will inhibit sales of your product or service?

- c) Describe the channels you would employ to reach the targeted customer.
 - d) What business model will you adopt to generate revenue from your innovation?
 - Will you make and sell? License? Form a strategic alliance with a company already in the industry? Use a different model?
 - Explain why this model makes sense for the market opportunity described.
 - e) If there are potential societal, educational, or scientific benefits beyond commercial considerations that will generate goodwill for your company or the product or service, they should be included here and explained in sufficient detail to convey the significances of the effort.
2. Company/Team
- a) Provide a short description of the origins of the company.
 - b) What type of corporate structure is in place?
 - c) What is the current capitalization and is it sufficient for implementing your Commercialization Plan?
 - d) What is the revenue history for the past three years? What is your anticipated revenue history through Phase II? Provide a table with percentages or sums of operating capital or revenue: product sales, consulting/services, license revenues, research and development grants/contracts, and others.
 - e) What is the current employee count?
 - f) Give a brief description of the experience and credentials of the personnel responsible for taking the innovation to market, clarify how the background and experience of the team enhance the credibility of the Commercialization Plan.
 - g) What specific experience does the team lack and how will this be addressed during the Phase II effort and beyond? From what additional resources do you have commitments to address these limitations e.g., Board of Directors, technical advisors, or retained legal counsel? Please provide details on names, affiliations, and expertise of these resources.
3. Competition/Intellectual Property
- a) Describe currently existing products or services that are found in the patent literature (and if relevant, copyright and trademark literature) or that is emerging from research or R&D, which may be substitutes for your product or service.
 - How does your product or service match up to these substitutes in terms of the needs customers are seeking to meet?
 - Who is developing, making, and selling those products or services and what do you anticipate the competitive landscape to look like when you get to market?

- b) Describe intellectual property (IP) rights you have secured for your technology to date and if any procedures are underway to expand or enhance the protection provided by those rights. Please describe your actions to protect these rights.
 - c) Describe which IP is closest and which is most threatening to your “freedom to operate” and how you are different enough to be able to secure your freedom to operate.
 - d) What other IP will you need to secure rights to make, use, or sell in order to address the market opportunity described above?
4. Finance and Revenue Model
- a) Describe an appropriate staged finance plan given the market opportunity. Outline the level of funding required for each stage along the path to commercialization.
 - What are your costs to complete research and development, product, and production development/design/engineering, and to produce the product or service?
 - What are the costs required to implement your commercialization strategy?
 - How will you access the appropriate funds?
 - b) Provide a table with anticipated costs identifying the anticipated source of each detailing revenues or other operating capita you can devote to these. If there is a shortfall, explain how you will raise or access the appropriate funds. If no additional cash is needed explain why you are confident that is the case.
 - c) Provide specific contacts, leads, previous relationships, and agreements already in place. Are any other commitments in place, which will affect your ability to raise Phase II follow-on funding?
 - d) Provide an estimate of the DOE return on investment or net present value for this project. A template for estimating return on investment is provided at the DOE SBIR/STTR Programs Office website at <http://science.energy.gov/sbir/funding-opportunities/application-resources/>. This estimate should incorporate the profit before taxes (positive cash flow) for the first 10 years of commercialization and treat DOE SBIR or STTR funding as an investment (negative cash flow). Describe the revenue streams (licensing, product sales or other) associated with your Commercialization Plan. When do you anticipate “first revenues” from each stream? When do you expect to reach “break even”?
 - e) Provide annual pro formas for the next five years (two years of the Fast-Track Phase II +3 years’ post Phase II). Income Statements are required. Cash Flow and Balance Sheets may be included if they are considered critical for your strategy. If not included, Cash Flow and Balance Sheets should be available upon request from DOE.

Please Note: You must indicate the assumptions and estimates being made in this part of your application and clearly state the source of data you have used to validate these assumptions or as a basis for making assumptions or estimates. You must also indicate the source for any numerical or other hard data provided, such as market size, price, market drivers, and barriers to entry.

Evaluate the competitive advanced of this technology vs. alternate technologies that can meet similar market needs.

COMMERCIALIZATION HISTORY (FIELD 9, IF APPLICABLE)

If you have received SBIR/STTR Phase II grants from any Federal agency, then you must provide your company Commercialization History. If you are an SBIR or Both SBIR/STTR applicant, attach your Company Commercialization Report (CCR) from SBIR.gov to Field 9. For STTR-only applications, attach your CCR to Field 12 of the R&R Other Project Information. Please name your CCR document “Commercialization History.pdf”

Applicants must utilize the Company Commercialization Report (CCR) from SBIR.gov to provide their company commercialization history of past SBIR/STTR awards). The CCR allows companies to report funding outcomes resulting from prior SBIR and STTR awards. SBIR and STTR awardees are required by the SBA Policy Directive to update and maintain their organization’s CCR on SBIR.gov. Companies may complete this report by logging into the company’s account on SBIR.gov and starting a new Company Commercialization Report. To complete and include a Company Commercialization Report within your application you should:

1. Log into the company account at <https://www.sbir.gov/>.
2. Navigate to My Dashboard > My Documents to view or print the information currently contained in the Company Registry Commercialization Report.
3. Create or update the commercialization record, from the company dashboard, by scrolling to the “My Commercialization” section, and clicking the create/update Commercialization tab under “Current Report Version”. Please refer to the “Instructions” and “Guide” documents contained in this section of the Dashboard for more detail on completing and updating the CCR. Ensure the report is certified and submitted.
4. Click the “Company Commercialization Report” pdf under the My Documents section of the dashboard to download a pdf of the CCR.
5. For SBIR Applicants including applicants submitting to both SBIR and STTR Programs, the CCR should be attached to Question 8 of the SBIR/STTR Information form. For STTR- only applicants, the CCR should be attached to Question 12 of the Research and Related – Other Project Information Form. The attached document should be titled “Commercialization History.pdf”

IV.E.9. Summary of Required Forms/Files

The table below lists the required forms and the attachments associated with each form. Some of the information must be directly entered onto the forms and other information must be attached to the forms as directed. Please read carefully.

Please note: Applications lacking the following required documentation will be administratively declined without technical review. To assist you in submitting the necessary forms with your application, please refer to the DOE SBIR/STTR Phase I Application Checklist, located on the DOE SBIR/STTR Programs Office website under “Applicant Resources” at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>.

Your application must include the following items:

| Name of Document | Format | Attach to |
|--|---------------|------------------------------|
| Application for Federal Assistance, SF-424 Form | Form | |
| Research and Related: Budget Form | Form | |
| Additional Senior Key Persons, if applicable | PDF | Field A. 9 |
| Additional Equipment, if applicable | PDF | Field C. 11 |
| Budget Justification | PDF | Field K |
| Research and Related: Senior/Key Person Profile Form | Form | |
| Biographical Sketch for each person | PDF | Appropriate Block |
| Current & Pending Support for each person, if applicable | PDF | Appropriate Block |
| Research and Related: Other Project Information Form | Form | |
| Project Abstract and Summary | PDF | Field 7 |
| Fast-Track Project Narrative | PDF | Field 8 |
| Bibliography and References Cited, if applicable | PDF | Include in Project Narrative |
| Facilities and Other Resources, if applicable | PDF | Include in Project Narrative |
| Equipment, if applicable | PDF | Include in Project Narrative |
| Promoting Inclusive and Equitable Research (PIER) Plan | PDF | Include in Project Narrative |
| Other— Data Management Plan | PDF | Field 12 |
| Other— Disclosure of Foreign Relationships | PDF | Field 12 |
| Other—Level of Effort & Max Funding Worksheet | PDF | Field 12 |
| Other - Cybersecurity Self -assessment | PDF | Field 12 |
| Other—Letter of Commitment for consultant, sub-award, or research institution, if applicable | PDF | Field 12 |
| Other—Letters of Support, if applicable | PDF | Field 12 |
| Other—SBA Company Registration | PDF | Field 12 |
| Other – Company Commercialization Report from SBIR.gov for STTR-Only applications, if applicable | PDF | Field 12 |
| Authorization for non-DOE/NNSA FFRDCs, if applicable | PDF | Field 12 |
| Authorization for DOE/NNSA FFRDC, if applicable and if available | PDF | Field 12 |
| Research and Related: Sub-award Budget Form, if applicable | Form | |
| Budget Justification for each Sub-award | PDF | Appropriate Block |

| | | |
|---|------|---------|
| SF-LLL, Disclosure of Lobbying Activities, if applicable | Form | |
| Project/Performance Site Location(s) | Form | |
| SBIR/STTR Information Form | Form | |
| Fast-Track Commercialization Plan | PDF | Field 8 |
| Company Commercialization Report from SBIR.gov for SBIR or Both SBIR/STTR applications, if applicable | PDF | Field 9 |

IV.F. SUBMISSIONS FROM SUCCESSFUL APPLICANTS

If selected for a grant, DOE reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Name and phone number of the “Designated Responsible Employee” for complying with national policies prohibiting discrimination (See [10 CFR 1040.5](#))
- Representation of Limited Rights Data and Restricted Software, if applicable
- Representation Concerning Financial Management System
- Consultant documentation/verification of rates
- Environmental, Safety and Health (ES&H) Information

IV.F.1. SBIR/STTR Certifications

If selected for a Phase I or Fast-Track grant, applicants will be required to sign and submit one or more certification forms. These forms will be provided by a DOE contract specialist or DOE grants management specialist during grant negotiation.

IV.F.2. STTR Property and Commercialization Agreements

If selected for a Phase I or Fast-Track STTR grant, an applicant will need to certify that they have a Property and Commercialization Rights Agreement in place with the partnering Research Institution. DOE strongly encourages preparing the Property and Commercialization Rights Agreement immediately upon notice of award selection at the latest. The following hyperlinked documents are provided for information purposes only and are subject to changes and updates prior to grant negotiation:

[Certification for Property and Commercialization Rights Agreement](#)
[Allocation of Intellectual Property Rights and Rights to Carry out Follow-on Research, Development or Commercialization](#)

IV.G. SUBMISSION DATES AND TIMES

IV.G.1. Letter of Intent Due Date

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

You are encouraged to submit your LOI well before the deadline. LOIs may be submitted at any time between the publication of this FOA and the stated deadline.

IV.G.2. Pre-application Due Date

Not Applicable.

IV.G.3. Application Due Date

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

You are encouraged to transmit your application well before the deadline. Applications may be submitted at any time between the publication of this FOA and the stated deadline.

Unsolicited grant applications will not be accepted. Any submission incorporating data affecting the national security will not be accepted for evaluation. Modifications will be accepted if received before the deadline.

IV.G.4. Late Submissions

Delays in submitting LOIs or applications may be unavoidable. DOE has accepted late submissions when applicants have been unable to make timely submissions because of technological disruptions or large-scale natural disasters. Other circumstances will not justify late submissions. Examples of unacceptable justifications are provided below:

- Failure to begin submission process early enough
- Failure to provide sufficient time to complete the process
- Failure to understand the submission process
- Failure to understand the deadlines for submissions
- Failure to satisfy prerequisite registrations
- Unavailability of administrative personnel

Applicants must email the Agency Contact listed in [Section I](#) of this FOA (sbir-sttr@science.doe.gov within 24 hours of the submission deadline) to request a late submission. Applicants may be requested to submit a copy of the current draft of their application including attachments in response to a late submission request.

Requests for late submissions may be accepted at the sole discretion of DOE.

Late applications will only be accepted from applicants that have received permission, and only one such request will be permitted.

IV.H. INTERGOVERNMENTAL REVIEW

This program is not subject to [Executive Order 12372](#)—Intergovernmental Review of Federal Programs.

IV.I. FUNDING RESTRICTIONS

Funding for all awards and future budget periods are contingent upon the availability of funds appropriated by Congress for the purpose of this program and the available future-year budget authority.

IV.I.1. Fee

Grants may include a profit or fee for the applicant. Fees are subject to negotiation and shall not exceed 7% of the total costs (direct and indirect). Profit or fee is not “program income” and shall not be included in field 15.d. of the SF-424 (R&R) application.

Example:

| | |
|---------------------------------|----------------|
| Total direct and indirect costs | = \$186,915.89 |
| Fee (7%) | = \$ 13,084.11 |
| Total | = \$200,000.00 |

The fee applies solely to the small business concern receiving the award and for-profit R&D subcontractors participating in the project. In addition, the grantee may pay a profit/fee to a contractor providing routine goods or non-R&D services in accordance with normal commercial practice.

IV.I.2. Cost Principles

Costs must be allowable, allocable and reasonable in accordance with the applicable Federal cost principles referenced in 2 CFR 200 as modified by 2 CFR 910 (DOE Financial Assistance Regulation).

IV.I.3. Pre-Award Costs

Recipients may charge to an award resulting from this FOA pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 2 CFR 200 as modified by 2 CFR 910 (DOE Financial Assistance Regulation). 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.

IV.I.4. Indirect Costs

Indirect costs are normally a component of a project budget and derive from an applicant’s Indirect Rate(s), established in accordance with its financial management system. Experience has shown that creating and supporting these rates can be one of the most problematic elements of a

budget, and the subsequent negotiation of costs for the project. Applicants are encouraged to be proactive in ensuring that all proposed rates are established in a timely manner and in accordance with applicable cost principles. If you are selected for a grant, establishing the acceptability of your proposed indirect costs, if any, is essential to the review of your budget and may take various forms, including: 1) An Indirect Cost Rate Agreement (ICRA) in effect with your Cognizant Federal Agency, which covers the period of performance of this grant and supports the indirect rate(s) proposed; 2) If no ICRA exists, an Indirect Cost Rate Proposal may be submitted to DOE for evaluation; or 3) indirect rates that have been accepted for estimating purposes by DOE or another Federal agency for the period of performance of this grant.

If you are proposing indirect costs and do not already have an Indirect Cost Rate Agreement with your Cognizant Federal Agency or documentation of rates accepted for estimating purposes by DOE or another Federal agency, it is recommended that you begin preparing an Indirect Cost Rate Proposal to be submitted, upon request, to the DOE contract specialist/grants management specialist who will evaluate your application if you are selected for award. The indirect cost base provided on your indirect cost rate proposal must be consistent with the indirect cost base provided on your Research & Related Budget.

For your convenience in preparing an Indirect Cost Rate proposal, links are provided below to the document titled “Guidance for Indirect Rate Submission”, to the “Simple Indirect Rate Model” in Microsoft Excel format, and to the “Indirect Rate Presentation.”

[Guidance for Indirect Rate Submission](#)

[Simple Indirect Rate Model in Excel Format](#)

[Indirect Rate Presentation](#) (Complete the registration information to view the presentation)

Section V - APPLICATION REVIEW INFORMATION

V.A. CRITERIA

V.A.1. Initial Review Criteria

Applications will be evaluated for responsiveness by DOE technical program experts to ensure that they (1) meet stated FOA requirements described in [Section III](#) and [Section IV](#), (2) identify and are responsive to a topic and subtopic and fully address the research and development opportunity described, (3) contain sufficient information for a meaningful technical review, (4) are for research or for research and development, (5) do not duplicate other previous or current DOE-funded work, (6) are consistent with program area mission, policies, and other strategic and budget priorities, and (7) describe an innovation that is substantially the same as that in the LOI technical abstract. Applications failing to pass this initial review will be declined without further review.

V.A.2. Merit Review Criteria

PHASE I MERIT REVIEW CRITERIA

DOE plans to make selections for Phase I awards from those applications evaluated as most meritorious based on external peer review against established merit review criteria. The first three review criteria are equally weighted and of greater weight than the fourth criterion.

Strength of the Scientific/Technical Approach as evidenced by

- (1) the innovativeness of the idea and the approach,
- (2) the significance of the scientific or technical challenge, and
- (3) the thoroughness of the presentation.

Ability to competently carry out the project as evidenced by

- (1) the qualifications of the PI, other key staff, subcontractors and consultants, if any, and the level of adequacy of equipment and facilities;
- (2) the soundness and level of adequacy of the work plan to show progress toward proving the feasibility of the concept; and
- (3) the degree to which the DOE investment in the project would be justified by the level of proposed research effort.

Impact as evidenced by

- (1) the significance of the technical and/or economic benefits of the proposed work, if successful,
- (2) the likelihood that the proposed work could lead to a marketable product or process,
- (3) the likelihood that the project could attract further development funding after the SBIR or STTR project ends, and
- (4) the appropriateness of the data management plan for the proposed work.

Quality and Efficacy of Promoting Inclusive and Equitable Research (PIER) Plan as evidenced by:

- (1) The suitability of the proposed PIER Plan for the size of the small business concern, proposed project and whether it is integrated into the proposed project,
- (2) Whether the PIER plan is likely to lead to fairly compensated participation and mentoring of individuals from diverse backgrounds in the proposed project, including individuals historically underrepresented in the research community in such a way that leads to direct career pathways,
- (3) Whether the PIER plan includes substantial partnering with, or benefits to, a disadvantaged and/or underrepresented community, and/or
- (4) Whether the PIER Plan is likely to support a sense of belonging among project personnel,

Please refer to [Section VIII](#) of this FOA for guidance on what to include in your Commercialization Plan and Commercialization History.

FAST-TRACK MERIT REVIEW CRITERIA

DOE plans to make selections for Fast-Track awards from those applications evaluated as most meritorious based on external peer review against established merit review criteria. The first three review criteria are equally weighted and of greater weight than the fourth criterion.

Strength of the scientific/technical approach as evidenced by:

- (1) the strength and innovativeness of the overall idea and approach for the combined Phase I/Phase II project,
- (2) the significance of the scientific or technical challenge, and
- (3) the thoroughness of the presentation.

Ability to competently carry out the project as evidenced by:

- (1) the qualifications of the PI, other key staff, consultants and subcontractors, if any, and the level of adequacy of equipment and facilities;
- (2) the soundness and level of adequacy of the work plan to meet the problem or opportunity; and
- (3) the degree to which the DOE investment in the project would be justified by the level of proposed research effort.

Impact as evidenced by:

- (1) the significance of the technical and/or economic benefits of the proposed work, if successful,
- (2) the likelihood that the proposed work could lead to a marketable product or process,
- (3) the likelihood that the project could attract further development funding after the SBIR or STTR project ends, and
- (4) the appropriateness of the data management plan for the proposed work.

Quality and Efficacy of Promoting Inclusive and Equitable Research (PIER) Plan as evidenced by:

- (1) The suitability of the proposed PIER Plan for the size of the small business concern, proposed project and whether it is integrated into the proposed project,
- (2) Whether the PIER plan is likely to lead to fairly compensated participation and mentoring of

individuals from diverse backgrounds in the proposed project, including individuals historically underrepresented in the research community in such a way that leads to direct career pathways,

- (3) Whether the PIER plan includes substantial partnering with, or benefits to, a disadvantaged and/or underrepresented community, and/or
- (4) Whether the PIER Plan is likely to support a sense of belonging among project personnel.

In addition, PIER Plans for BIL funded projects include the following criteria:

- (5) The extent to which the PIER Plan ensures jobs created by this award attract and retain a skilled workforce by providing: prevailing wages and benefits (benchmarked to industry and occupation), worker involvement in health and safety, and education and training investments, and
- (6) The extent to which the PIER Plan articulates the future workforce implications of the innovation or a milestone-driven plan for understanding those implications.

Please refer to [Section VIII](#) of this FOA for guidance on what to include in your Commercialization Plan and Commercialization History.

Fast-Track applications will be evaluated for commercial potential using the Commercialization Plan data (see [Section V](#) for details):

- (1) Market Opportunity,
- (2) Company/Team,
- (3) Competition/Intellectual Property, and
- (4) Finance and Revenue Model.

Each section should be developed with careful analysis of your company's position within the industry and the market opportunity that is enabled by the proposed innovation. Applications that receive poor commercialization potential reviews will not be eligible for funding. The key points required for each section are further described below in [Section V](#).

V.B. REVIEW AND SELECTION PROCESS

V.B.1. Merit Review

Applications will be subject to a detailed technical evaluation by experts, both inside and outside the Government. The DOE will not fund any application for which there are weaknesses identified with respect to any of the three bolded merit review criteria listed above, as determined by the review process. In addition, because the DOE supports only high quality research and development, applications will be considered candidates for funding only if they receive the highest rating with respect to at least two of the three criteria.

V.B.2. Program Policy Factors

The Selection Official may consider any of the following program policy factors in making the selection, listed in no order of significance:

- Ensuring an appropriate balance of activities
- Program balance of funds distribution
- Needs of the technical programs
- The applicant's performance under prior DOE SBIR/STTR awards including timely submittal of all reports
- Availability of funds
- Promoting the diversity of institutions receiving awards
- Promoting institutions not previously funded by a DOE SBIR/STTR award.

V.B.3. Selection

Each technical program area participating in the SBIR/STTR programs is provided a predetermined target number of applications that they may select for funding. The applications that are considered candidates for funding are ranked in order of the highest quality and strongest program relevance based on the results of the evaluation. The Selection Official will consider the findings of the merit review and may consider any of the Program Policy Factors described above and/or the review of risk described below.

V.B.4. Review of Risk

Pursuant to 2 CFR 200.206, DOE will conduct an additional review of the risk posed by applications submitted under this FOA. Such review of risk will include:

- Technical merit of the application,
- Reports and findings from audits performed under 2 CFR 200 and/or 2 CFR 910, and
- Systems maintained under 2 CFR 180.

Further, Fast-Track applications will be subject to a cybersecurity risk assessment pursuant to 15 USC 638 (vv)(2).

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 200.

DOE may incorporate specific award conditions of a programmatic and/or administrative nature if an applicant exhibits one or more high-risk factors under 2 CFR 200.208.

The result(s) of any pre-award review of risk may supersede the results of merit review under 2 CFR 200.205, preventing DOE from selecting an application for award, reversing a selection for award, or requiring the disengagement of specific personnel. The results of any post-award review of risk may result in requiring the disengagement of specific personnel, the imposition of other requirements, or the termination of an award that "no longer effectuates the program goals

or agency priorities” under 2 CFR 200.340(a)(2). 2 CFR 200.206(c). DOE will not share the result(s) of any pre- and post-award review of risk with the applicant/recipient; DOE will share its deciding action in response to any result(s) of the review of risk with the applicant/recipient.

Pursuant to 2 CFR 910.128, the results of any pre-award review of risk are not appealable. Any pre-award decision to not select an application for award, reverse a selection for award, or require the disengagement of specific personnel will be made by the Selection Official or SC Program Official. Pursuant to 2 CFR 910.128, the results of any post-award review of risk may be appealable. Any post-award decision to require the disengagement of specific personnel, the imposition of other requirements, or the termination of an award will be made by the Contracting Officer.

Further, DOE may conduct a review, through Government resources, of the applicant and project personnel with a connection to a foreign country. This includes, but is not limited to, (1) performance of work in, (2) travel to, and (3) awardee personnel’s higher education in a foreign Country, as well as (4) partnerships with international collaborators. As part of the research, technology, and economic security risk review, DOE may contact the applicant and/or proposed project team members for additional information to inform the review.

Pursuant to the SBIR and STTR Extension Act of 2022, DOE will not make an award under the SBIR or STTR program to a small business concern if DOE has determined that

- the small business concern submitting the proposal or application
 - has an owner or covered individual that is party to a malign foreign talent recruitment program;
 - has a business entity, parent company, or subsidiary located in the People’s Republic of China or another foreign country of concern; or
 - has an owner or covered individual that has a foreign affiliation with a research institution located in the People’s Republic of China or another foreign country of concern; and
- the relationships and commitments described above
 - interfere with the capacity for activities supported by DOE to be carried out;
 - create duplication with activities supported by DOE;
 - present concerns about conflicts of interest;
 - were not appropriately disclosed to DOE;
 - violate Federal law or terms and conditions of DOE; or
 - pose a risk to national security.

“Foreign countries of concern” means the People’s Republic of China, the Democratic People’s Republic of Korea, the Russian Federation, the Islamic Republic of Iran, Burma, Eritrea, Pakistan, Saudi Arabia, Tajikistan, and Turkmenistan.

“Covered individual” means an individual who contributes in a substantive, meaningful way to the scientific development or execution of a research and development (R&D) project proposed to be carried out with a R&D award from DOE, i.e. senior/key personnel. DOE may further designate covered individuals during award negotiations or the award period of performance.

“Foreign affiliation” means a funded or unfunded academic, professional, or institutional appointment or position with a foreign government or government-owned entity, whether full-time, part-time, or voluntary (including adjunct, visiting, or honorary).

“Malign foreign talent recruitment program” has the meaning given such term in section 10638 of the Research and Development, Competition, and Innovation Act (division B of Public Law 117–167)

REPORTING OF MATTERS RELATED TO RECIPIENT INTEGRITY AND PERFORMANCE (DECEMBER 2015)

DOE, prior to making a Federal award with a total amount of Federal share greater than the simplified acquisition threshold, is required to review and consider any information about the applicant that is in the designated integrity and performance system accessible through SAM (formerly FAPIIS) (see 41 U.S.C. 2313); The applicant, at its option, may review information in the designated integrity and performance systems accessible through SAM and comment on any information about itself that a Federal awarding agency previously entered and is currently in the designated integrity and performance system accessible through SAM; DOE will consider any written comments by the applicant, in addition to the other information in the designated integrity and performance system, in making a judgment about the applicant’s integrity, business ethics, and record of performance under Federal awards when completing the review of risk posed by applicants as described in §200.206 Federal awarding agency review of risk posed by applicants.

V.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 200 as modified by 2 CFR 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.

V.C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

DOE anticipates sending notice of selection during June 2024. The anticipated grant start date is July 22, 2024.

Section VI – AWARD ADMINISTRATION INFORMATION

VI.A. AWARD NOTICES

This FOA is intended for informational purposes and reflects current planning. If there is any inconsistency between the information contained herein and the terms of any resulting SBIR or STTR grant, the terms of the grant shall control.

VI.A.1. Notice of Selection for Award Negotiation

Applicants Selected for Award Negotiation Notification: DOE will notify applicants selected for award negotiation. This notice of selection for award negotiation is not an authorization for the applicant/recipient to begin performance, nor does it mean award has been made. (See [Section IV](#) with respect to the allowability of pre-award costs.)

Historically, not all selected applicants have received negotiated and finalized awards.

Non-selected Notification: Organizations whose applications have not been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

VI.A.2. Notice of Award

An Assistance Agreement issued by the DOE Contracting Officer is the authorizing award document. It normally includes, either as an attachment or by reference, the following items: (1) Special Terms and Conditions, (2) Intellectual Property Provisions, (3) Federal Assistance Reporting Checklist and Instructions, (4) Budget Pages, (5) The Research Terms and Conditions, available at: https://www.nsf.gov/pubs/policydocs/rtc/rtcoverlay_march17.pdf, and DOE Agency Specific Requirements, available at <https://www.nsf.gov/awards/managing/rtc.jsp>, (6) DOE Assistance Regulations, 2 CFR 200 as amended by 2 CFR 910 at: <https://www.ecfr.gov/>, (7) Application/proposal as approved by DOE, (8) National Policy Assurances to Be Incorporated as Award Terms in effect on date of award at: <https://www.nsf.gov/awards/managing/rtc.jsp>.

TERMS AND CONDITIONS

Sample DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at: <https://science.osti.gov/sbir/Awardee-Resources/Awardee-Documents> under Useful Documents for Awardees.

Sample Intellectual Property Provisions. The SBIR/STTR DOE financial assistance intellectual property provisions applicable are located at: https://science.osti.gov/-/media/sbir/pdf/files/manageapp/general_terms_and_conditions.pdf

NATIONAL POLICY ASSURANCES

The National Policy Assurances To Be Incorporated As Award Terms are located at: <https://energy.gov/management/office-management/operational-management/financial->

[assistance/financial-assistance-forms](#) under Award Terms.

VI.B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

Additional policy provisions applicable to this FOA are included in the list below. Awards made under this FOA are subject to the respective Administrative and National Policy Requirements. The full text of each provision is in [Section VIII](#) of this FOA and may be accessed by navigating to the hyperlinks below:

- [1. Administrative Requirements](#)
- [2. Availability of Funds](#)
- [3. Buy America Requirement for Infrastructure Projects](#)
- [4. Audit Requirements](#)
- [5. Conference Spending \(February 2015\)](#)
- [6. Commitment of Public Funds](#)
- [7. Consequences of Research Misconduct](#)
- [8. Corporate Felony Conviction and Federal Tax Liability Representations \(March 2014\)](#)
- [9. Cost Sharing](#)
- [10. Environmental, Safety and Health \(ES&H\) Performance of Work at DOE Facilities](#)
- [11. Evaluation and Administration by Non-Federal Personnel](#)
- [12. Federal, State, and Local Requirements](#)
- [13. Funding Restrictions](#)
- [14. Government Right to Reject or Negotiate](#)
- [15. Intellectual Property Development under this Program](#)
- [16. Intergovernmental Review](#)
- [17. Logos and Wordmarks](#)
- [18. Matching Funds](#)
- [19. Modifications](#)
- [20. National Environmental Policy Act \(NEPA\) Compliance](#)
- [21. Nondisclosure and Confidentiality Agreements Representations \(June 2015\)](#)
- [22. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment](#)
- [23. Prohibition on Discrimination and Harassment](#)
- [24. Prohibition on Lobbying Activity](#)
- [25. Prohibition Related to Foreign Government-Sponsored Talent Recruitment Programs](#)
- [26. Proprietary Application Information](#)
- [27. Publications](#)
- [28. Registration Requirements](#)
- [29. Subaward and Executive Reporting](#)

VI.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: <https://science.osti.gov/sbir/Awardee-Resources/Awardee-Documents> under Useful Documents for Awardees.

Final technical reports are required for each SBIR or STTR award. DOE will protect final

technical reports containing marked SBIR/STTR data from disclosure during the data protection period. The data protection period extends from the award start date for a period of 20 years. At the end of the data protection period, final technical reports will be released to the public to comply with DOE statutory data dissemination requirements [Atomic Energy Act of 1954, Public Law 83-703; Energy Reorganization Act of 1974, Public Law 93-438; Department of Energy Organization Act of 1977, Public Law 95-91].

Section VII - QUESTIONS/AGENCY CONTACTS

VII.A. QUESTIONS

Questions regarding the content of this FOA must be submitted to the Agency Contact listed below.

Questions regarding DOE SBIR/STTR Topics may be submitted to the contact listed with each subtopic in the Topics document associated with this FOA located on the DOE SBIR/STTR Programs website at <https://science.osti.gov/sbir/Funding-Opportunities>.

Please note: Potential applicants may discuss their grant proposal with the DOE Program Managers as it relates to an SBIR/STTR topic or subtopic and whether the proposal appears to be responsive to the subtopic. The DOE Program Managers will not provide any feedback or guidance designed to provide a competitive advantage or to discuss the quality of a grant proposal and will not discuss or answer questions related to anything other than the technical proposal. Potential applicants may communicate with DOE Program Managers until the FOA closing date.

Questions relating to the Grants.gov registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. DOE cannot answer these questions. Please only contact the Grants.gov help desk for questions related to Grants.gov.

For help with PAMS, click the “PAMS Help” link on the PAMS website, <https://pamspublic.science.energy.gov/>. You may also contact the PAMS Help Desk, which can be reached Monday through Friday, 9:00AM – 5:30 PM Eastern Time. Telephone: (855) 818-1846 (toll free) or (301) 903-9610, Email: sc.pams-helpdesk@science.doe.gov. All submission and inquiries about this FOA should reference the FOA number printed on the cover page. Please contact the PAMS help desk for technological issues with the PAMS system.

VII.B. AGENCY CONTACTS

| | |
|--------------------------------|--|
| Grants.gov Customer Support | 800-518-4726 (toll-free) support@Grants.gov |
| PAMS Customer Support | 855-818-1846 (toll-free) 301-903-9610 sc.pams-helpdesk@science.doe.gov |

VII.C. DOE, OFFICE OF INSPECTOR GENERAL HOTLINE

The Office of Inspector General (OIG) maintains a Hotline to facilitate the reporting of allegations of fraud, waste, abuse, or mismanagement in DOE programs or operations. If you wish to report such allegations, you may call, send a letter, or email the OIG Hotline ighotline@hq.doe.gov. Allegations may be reported by DOE employees, DOE contractors, or the general public. OIG contact information is available at <http://energy.gov/ig/services>.

Section VIII – SUPPLEMENTARY MATERIAL

VIII.A. HOW-TO GUIDES

VIII.A.1. How to Register in PAMS

After you submit your application through Grants.gov, the application will automatically transfer into the Portfolio Analysis and Management System (PAMS) for processing by the DOE SC. Many functions for grants can be done in PAMS, which is available at <https://pamspublic.science.energy.gov>.

You will want to “register to” your application: a process of linking yourself to the application after it has been submitted through Grants.gov and processed by DOE.

You must register in PAMS to submit a pre-application or a letter of intent.

You may use the Internet Explorer, Firefox, Google Chrome, or Safari browsers to access PAMS. Notifications sent from the PAMS system will come from the PAMS email address < PAMS.Autoreply@science.doe.gov >. Please make sure your email server/software allows delivery of emails from the PAMS email address to yours.

Registering to PAMS is a two-step process; once you create an individual account, you must associate yourself with (“register to”) your institution. Detailed steps are listed below.

CREATE PAMS ACCOUNT

To register, click the “Create New PAMS Account” link on the website <https://pamspublic.science.energy.gov/>.

- Click the “No, I have never had an account” link and then the “Create Account” button.
- You will be prompted to enter your name and email address, create a username and password, and select a security question and answer. Once you have done this, click the “Save and Continue” button.
- On the next page, enter the required information (at least one phone number and your mailing address) and any optional information you wish to provide (e.g., FAX number, website, mailstop code, additional email addresses or phone numbers, Division/Department). Click the “Create Account” button.
- Read the user agreement and click the “Accept” button to indicate that you understand your responsibilities and agree to comply with the rules of behavior for PAMS.
- PAMS will take you to the “Having Trouble Logging In?” page. (If you have been an SC merit reviewer or if you have previously submitted an application, you may already be linked to an institution in PAMS. If this happens, you will be taken to the PAMS home page.)

REGISTER TO YOUR INSTITUTION

To submit to the SBIR/STTR programs, your institution must be a small business or individual.

- Click the link labeled “Option 2: I know my institution and I am here to register to the institution.” (Note: If you previously created a PAMS account but did not register to an

institution at that time, you must click the Institutions tab and click the “Register to Institution” link.)

- PAMS will take you to the “Register to Institution” page.
- Type a word or phrase from your institution name in the field labeled, “Institution Name like,” choose the radio button next to the item that best describes your role in the system, and click the “Search” button. A “like” search in PAMS returns results that contain the word or phrase you enter; you do not need to enter the exact name of the institution, but you should enter a word or phrase contained within the institution name. (If your institution has a frequently used acronym, such as ANL for Argonne National Laboratory or UCLA for the Regents of the University of California, Los Angeles, you may find it easiest to search for the acronym under “Institution Name like.” Many institutions with acronyms are listed in PAMS with their acronyms in parentheses after their names.)
- Find your institution in the list that is returned by the search and click the “Actions” link in the Options column next to the institution name to obtain a dropdown list. Select “Add me to this institution” from the dropdown. PAMS will take you to the “Institutions – List” page.
- If you do not see your institution in the initial search results, you can search again by clicking the “Cancel” button, clicking the Option 2 link, and repeating the search.
- If, after searching, you think your institution is not currently in the database, click the “Cannot Find My Institution” button and enter the requested institution information into PAMS. Click the “Create Institution” button. PAMS will add the institution to the system, associate your profile with the new institution, and return you to the “Institutions – List” page when you are finished.

For help with PAMS, click the “External User Guide” link on the PAMS website, <https://pamspublic.science.energy.gov/>. You may also contact the PAMS Help Desk, which can be reached Monday through Friday, 9:00 AM – 5:30 PM Eastern Time. Telephone: (855) 818-1846 (toll free) or (301) 903-9610, email: sc.pams-helpdesk@science.doe.gov. All submission and inquiries about this FOA should reference the FOA number printed on the cover page.

VIII.A.2. How to Submit Letters of Intent

It is important that the LOI be a single file with extension .pdf, .docx, or .doc. The filename must not exceed 50 characters. The PI and anyone submitting on behalf of the PI must register for an account in PAMS before it will be possible to submit a LOI. **All PIs and those submitting LOIs on behalf of PIs are encouraged to establish PAMS accounts as soon as possible to avoid submission delays.**

Submit Your Letter of Intent:

- Create your LOI outside the system and save it as a file with extension .docx, .doc, or .pdf. Make a note of the location of the file on your computer so you can browse for it later from within PAMS.
- Log into PAMS and click the Proposals tab. Click the “View / Respond to Funding Opportunity Announcements” link and find the current announcement in the list. Click the “Actions/Views” link in the Options column next to this announcement to obtain a dropdown menu. Select “Submit Letter of Intent” from the dropdown.

- On the Submit Letter of Intent page, select the institution from which you are submitting this LOI from the Institution dropdown. If you are associated with only one institution in the system, there will only be one institution in the dropdown.
- Note that you must select one and only one PI per LOI; to do so, click the “Select PI” button on the far-right side of the screen. Find the appropriate PI from the list of all registered users from your institution returned by PAMS. (Hint: You may have to sort, filter, or search through the list if it has multiple pages.) Click the “Actions” link in the Options column next to the appropriate PI to obtain a dropdown menu. From the dropdown, choose “Select PI.”
- If the PI for whom you are submitting does not appear on the list, it means he or she has not yet registered in PAMS. For your convenience, you may have PAMS send an email invitation to the PI to register in PAMS. To do so, click the “Invite PI” link at the top left of the “Select PI” screen. You can enter an optional personal message to the PI in the “Comments” box, and it will be included in the email sent by PAMS to the PI. You must wait until the PI registers before you can submit the LOI. Save the LOI for later work by clicking the “Save” button at the bottom of the screen. It will be stored in “My Letters of Intent” for later editing.
- Enter a title for your LOI.
- To upload the LOI file into PAMS, click the “Attach File” button at the far-right side of the screen. Click the “Browse” (or “Choose File” depending on your browser) button to search for your file. You may enter an optional description of the file you are attaching. Click the “Upload” button to upload the file.
- At the bottom of the screen, click the “Submit to DOE” button to save and submit the LOI to DOE.
- Upon submission, the PI will receive an email from the PAMS system <PAMS.Autoreply@science.doe.gov> acknowledging receipt of the LOI.
- If this FOA requires that LOIs be submitted only by an authorized institutional official, the PI (or the PI’s delegate) will only be able to send the LOI to a user at the PI’s institution with the institutional “submit to DOE” privilege. That user will then apply an institutional countersignature to the LOI when it is sent to DOE.

You are encouraged to register for an account in PAMS at least a week in advance of the LOI submission deadline so that there will be no delays with your submission.

WARNING: The PAMS website at <https://pamspublic.science.energy.gov/> will permit you to edit a previously submitted LOI in the time between your submission and the deadline. If you choose to edit, doing so will remove your previously submitted version from consideration. If you are still editing at the time of the deadline, you will not have a valid submission. Please pay attention to the deadline.

Do not attach LOIs to Field 20 of the SF-424(R&R) form or letters of intent to Field 21 of the SF-424(R&R) form. Doing so will render your application unreadable.

VIII.A.3. How to Register and Submit an Application in Grants.gov

This section provides the application submission and receipt instructions for applications to SC.

Please read the following instructions carefully and completely.

ELECTRONIC DELIVERY

SC is participating in the Grants.gov initiative to provide the grant community with a single site to find and apply for grant funding opportunities. SC requires applicants to submit their applications online through Grants.gov.

HOW TO REGISTER TO APPLY THROUGH GRANTS.GOV

- a. Instructions: Read the instructions below about registering to apply for SC funds. Applicants should read the registration instructions carefully and prepare the information requested before beginning the registration process. Reviewing and assembling the required information before beginning the registration process will alleviate last-minute searches for required information.

Organizations must have an active System for Award Management (SAM) registration which provides a Unique Entity Identifier (UEI), and Grants.gov account to apply for grants. If individual applicants (those submitting on their own behalf) are eligible to apply for this funding opportunity, they need only refer to steps 2 and 3 below.

Creating a Grants.gov account can be completed online in minutes, but SAM registration may take several weeks. Therefore, an organization's registration should be done in sufficient time to ensure it does not impact the entity's ability to meet required application submission deadlines.

Complete organization registration instructions can be found on Grants.gov here:
<https://www.Grants.gov/web/grants/applicants/organization-registration.html>

- 1) *Register with SAM:* All organizations applying online through Grants.gov must register with SAM at <https://www.sam.gov>. Failure to register with SAM will prevent your organization from applying through Grants.gov. SAM registration must be renewed annually. For more detailed instructions for registering with SAM, refer to: <https://www.grants.gov/web/grants/applicants/organization-registration.html>
- 2) *Create a Grants.gov Account:* The next step is to register an account with Grants.gov. Follow the on-screen instructions provided on the registration page.
- 3) *Add a Profile to a Grants.gov Account:* A profile in Grants.gov corresponds to a single applicant organization the user represents (i.e., an applicant) or an individual applicant. If you work for or consult with multiple organizations and have a profile for each, you may log in to one Grants.gov account to access all of your grant applications. To add an organizational profile to your Grants.gov account, enter the UEI (Unique Entity Identifier) for the organization in the UEI field. If you are an individual applicant submitting on your own behalf, you do not need a UEI to add the profile. For more

detailed instructions about creating a profile on Grants.gov, refer to:
<https://www.Grants.gov/web/grants/applicants/registration/add-profile.html>

4) *EBiz POC Authorized Profile Roles*: After you register with Grants.gov and create an Organization Applicant Profile, the organization applicant's request for Grants.gov roles and access is sent to the Electronic Business Point of Contact (EBiz POC)³. The EBiz POC will then log in to Grants.gov and authorize the appropriate roles, which may include the Authorized Organization Representative (AOR) role, thereby giving you permission to complete and submit applications on behalf of the organization. You will be able to submit your application online any time after you have been assigned the AOR role. For more detailed instructions about creating a profile on Grants.gov, refer to:
<https://www.Grants.gov/web/grants/applicants/registration/authorize-roles.html>

5) *Track Role Status*: To track your role request, refer to:
<https://www.Grants.gov/web/grants/applicants/registration/track-role-status.html>

b. **Electronic Signature**: When applications are submitted through Grants.gov, the name of the organization applicant with the AOR role that submitted the application is inserted into the signature line of the application, serving as the electronic signature. The EBiz POC **must** authorize people who are able to make legally binding commitments on behalf of the organization as a user with the AOR role; **this step is often missed and it is crucial for valid and timely submissions.**

HOW TO APPLY TO SC VIA GRANTS.GOV

Grants.gov applicants can apply online using Workspace. Workspace is a shared, online environment where members of a grant team may simultaneously access and edit different webforms within an application. For each FOA, you can create individual instances of a workspace.

Below is an overview of applying on Grants.gov. For access to complete instructions on how to apply for opportunities, refer to:

<https://www.Grants.gov/web/grants/applicants/apply-for-grants.html>

- 1) **Create a Workspace**: Creating a workspace allows you to complete it online and route it through your organization for review before submitting.
- 2) **Complete a Workspace**: Add participants to the workspace to work on the application together, complete all the required forms online or by downloading PDF versions, and check for errors before submission. The Workspace progress bar will display the state of your application process as you apply. As you apply using Workspace, you may click the blue question mark icon near the upper-right corner of each page to access context-sensitive help.

³ Individuals with the EBiz POC role are commonly found in an Office of Sponsored Research or similar institutional business office. Other than small businesses, a PI would usually not have the EBiz POC role.

- a. Adobe Reader: If you decide not to apply by filling out webforms you can download individual PDF forms in Workspace so that they will appear similar to other Standard forms. The individual PDF forms can be downloaded and saved to your local device storage, network drive(s), or external drives, then accessed through Adobe Reader.

NOTE: Visit the Adobe Software Compatibility page on Grants.gov to download the appropriate version of the software at:

<https://www.Grants.gov/web/grants/applicants/adobe-software-compatibility.html>

- b. Mandatory Fields in Forms: In the forms, you will note fields marked with an asterisk and a different background color. These fields are mandatory fields that must be completed to successfully submit your application.
 - c. Complete SF-424 Fields First: These forms are designed to fill in common required fields across other forms, such as the applicant's name, address, and SAM UEI. Once it is completed, the information will transfer to the other forms.
- 3) Submit a Workspace: An application may be submitted through workspace by clicking the Sign and Submit button on the Manage Workspace page, under the Forms tab. Grants.gov recommends submitting your application package *at least 24-48 hours prior to the close date* to provide you with time to correct any potential technical issues that may disrupt the application submission.
 - 4) Track a Workspace: After successfully submitting a workspace package, a Grants.gov Tracking Number (GRANTXXXXXXXX) is automatically assigned to the package. The number will be listed on the Confirmation page that is generated after submission.

For additional training resources, including video tutorials, refer to:

<https://www.Grants.gov/web/grants/applicants/applicant-training.html>

Applicant Support: Grants.gov provides applicants 24/7 support via the toll-free number 1-800-518-4726 and email at support@Grants.gov. For questions related to the specific grant opportunity, contact the number listed in the application package of the grant you are applying for funding.

If you are experiencing difficulties with your submission, it is best to call the Grants.gov Support Center and get a ticket number. The Support Center ticket number will assist SC with tracking your issue and understanding background information on the issue.

TIMELY RECEIPT REQUIREMENTS AND PROOF OF TIMELY SUBMISSION

Proof of timely submission is automatically recorded by Grants.gov. An electronic date/time stamp is generated within the system when the application is successfully received by Grants.gov. The applicant AOR will receive an acknowledgement of receipt and a tracking number (GRANTXXXXXXXX) from Grants.gov with the successful transmission of their application. Applicant AORs will also receive the official date/time stamp and Grants.gov

Tracking number in an email serving as proof of their timely submission.

When SC successfully retrieves the application from Grants.gov, and acknowledges the download of submissions, Grants.gov will provide an electronic acknowledgment of receipt of the application to the email address of the applicant with the AOR role. Again, proof of timely submission shall be the official date and time that Grants.gov receives your application. Applications received by Grants.gov after the established due date for the program will be considered late and may not be considered for funding by SC.

Applicants using unreliable internet connections should be aware that the process of completing the Workspace can take some time. Therefore, applicants should allow enough time to prepare and submit the application before the package closing date.

Grants.gov will provide either an error or a successfully received submission message in the form of an email sent to the applicant with the AOR role attempting to submit the application.

If you do not promptly receive an email from Grants.gov with an agency tracking number, indicating receipt of the application by SC, please contact the Grants.gov Helpdesk at 800-518-4726 (toll-free) or support@Grants.gov immediately. SC will have no records of your attempted submission without the second email from Grants.gov.

VIII.A.4. How to Prepare an Application

APPLICATION PREPARATION

You must submit the application through Grants.gov at <https://www.Grants.gov/>, using either the online webforms or downloaded forms. (Additional instructions are provided in [7., above.](#))

You are required to use the compatible version of Adobe Reader software to complete a [Grants.gov](#) Adobe application package. To ensure you have the [Grants.gov](#) compatible version of Adobe Reader, visit the software compatibility page at <https://www.Grants.gov/web/grants/applicants/adobe-software-compatibility.html>.

You must complete the mandatory forms and any applicable optional forms (e.g., Disclosure of Lobbying Activities (SF-LLL)) in accordance with the instructions on the forms and the additional instructions below.

Files that are attached to the forms must be PDF files unless otherwise specified in this FOA. Attached PDF files must be plain files consisting of text, numbers, and images without editable fields, signatures, passwords, redactions, or other advanced features available in some PDF-compatible software. Do not use PDF portfolios or binders.

Please note the following restrictions that apply to the names of all files attached to your application:

- Please limit file names to 50 or fewer characters
- Do not attach any documents with the same name. All attachments must have a unique name.

- Please use only the following characters when naming your attachments: A-Z, a-z, 0-9, underscore, hyphen, space, period, parenthesis, curly braces, square brackets, ampersand, tilde, exclamation point, comma, semi colon, apostrophe, at sign, number sign, dollar sign, percent sign, plus sign, and equal sign. Attachments that do not follow this rule may cause the entire application to be rejected or cause issues during processing.

RESUBMISSION OF APPLICATIONS

Applications submitted under this FOA may be withdrawn from consideration by using the PAMS website at <https://pamspublic.science.energy.gov>. Applications may be withdrawn at any time between when the applicant submits the application and when DOE makes the application available to merit reviewers. Such withdrawals take effect immediately and cannot be reversed. Please exercise due caution. After the application is made available to merit reviewers, the applicant may contact the DOE program office identified in this FOA to request that it be withdrawn.

After an application is withdrawn, it may be resubmitted, if this FOA is still open for the submission of applications. Such resubmissions will only count as one submission if this FOA restricts the number of applications from an applicant.

Note that there may be a delay between the application's submission in Grants.gov and when it is available to be withdrawn in PAMS. SC will usually consider the last submission, according to its Grants.gov timestamp, to be the intended version. Please consult with your program manager to resolve any confusion about which version of an application should be considered.

IMPROPER CONTENTS OF APPLICATIONS

Applications submitted under this FOA will be stored in controlled-access systems, but they may be made publicly available if an award is made. As such, it is critical that applicants follow these guidelines:

- Do not include information that a non-Federal entity may not openly distribute, whether classified, export control, or unclassified controlled nuclear information. Non-Federal entities are not subject to any restrictions on distributing controlled unclassified information (CUI).
- Do not include sensitive and protected personally identifiable information, including social security numbers, birthdates, citizenship, marital status, or home addresses. Pay particular attention to the content of biographical sketches and curriculum vitae.
- Do not include letters of support from Federal officials.
- Do not include letters of support on Federal letterhead. Letters that are not letters of support (such as letters confirming access to sites, facilities, equipment, or data; or letters from cognizant Contracting Officers) may be on Federal letterhead.
- Clearly mark all proprietary or trade-secret information.
- Applicants should not include the DOE logo or seal in their applications. Use of the DOE logo and seal require permission of DOE as discussed on the DOE website: <https://energy.gov/management/office-management/employee-services/graphics/doe-logo-seal-and-word-mark>.

VIII.A.5. How to Write an Option 2 Data Management Plan

1. DMPs 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 below). 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. DMPs should provide a plan for making all research data displayed in publications resulting from the proposed research digitally 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 in the SC Statement on Digital Data Management (<https://science.osti.gov/sbir/Applicant-Resources/Digital-Data-Management>). 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. DMPs 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. In determining the resources available for data management at SC User Facilities, researchers should consult the published description of data management resources and practices at that facility and reference it in the DMP.
4. DMPs must protect confidentiality, personal privacy, sensitive and protected 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 and regulations. There is no requirement to share proprietary data.

ADDITIONAL DMP GUIDANCE

In determining which data should be shared and preserved, researchers must consider the data needed to validate research findings as described in the Requirements noted above and are encouraged to consider the potential benefits of their data to their own fields of research, fields other than their own, and society at large.

- DMPs should reflect relevant standards and community best practices for data and metadata and make use of community accepted repositories whenever practicable.
- Costs associated with the scope of work and resources articulated in a DMP may be included in the proposed research budget as permitted by the applicable cost principles.

- To improve the discoverability of and attribution for datasets created and used in the course of research, the applicant is encouraged to cite publicly available datasets within the reference section of publications, and the identification of datasets with persistent identifiers such as Digital Object Identifiers (DOIs). In most cases, the SC can provide DOIs free of charge for data resulting from DOE-funded research through its Office of Science and Technical Information (OSTI) [Data ID Service](#).
- The following list of elements for a DMP provides suggestions regarding the data management planning process and the structure of the DMP:
 - Data Types and Sources. A brief, high-level description of the data to be generated or used through the course of the proposed research and which of these are considered digital research data necessary to validate the research findings.
 - Content and Format. A statement of plans for data and metadata content and format including, where applicable, a description of documentation plans, annotation of relevant software, and the rationale for the selection of appropriate standards. (Existing, accepted community standards should be used where possible. Where community standards are missing or inadequate, the DMP could propose alternate strategies that facilitate sharing, and should advise the sponsoring program of any need to develop or generalize standards.)
 - [Sharing](#) and Preservation. A description of the plans for data sharing and preservation. This should include, when appropriate:
 - the anticipated means for sharing and the rationale for any restrictions on who may access the data and under what conditions;
 - a timeline for sharing and preservation that addresses both the minimum length of time the data will be available and any anticipated delay to data access after research findings are published;
 - any special requirements for data sharing, for example, proprietary software needed to access or interpret data, applicable policies, provisions, and licenses for re-use and re-distribution, and for the production of derivatives, including guidance for how data and data products should be cited;
 - any resources and capabilities (equipment, connections, systems, software, expertise, etc.) requested in the research proposal that are needed to meet the stated goals for sharing and preservation. (This could reference the relevant section of the associated research proposal and budget request);
 - cost/benefit considerations to support whether/where the data will be preserved after direct project funding ends and any plans for the transfer of responsibilities for sharing and preservation;
 - whether, when, or under what conditions the management responsibility for the research data will be transferred to a third party (e.g. institutional, or community repository);
 - any other future decision points regarding the management of the research data including plans to reevaluate the costs and benefits of data sharing and preservation.
 - Protection. A statement of plans, where appropriate and necessary, to protect confidentiality, personal privacy, sensitive and protected [personally identifiable information](#), and U.S. national, homeland, and economic security; recognize proprietary interests, business confidential information, and intellectual property rights; and avoid significant negative impact on innovation, and U.S. competitiveness.

- Rationale. A discussion of the rationale or justification for the proposed data management plan including, for example, the potential impact of the data within the immediate field and in other fields, and any broader societal impact.

VIII.A.6. How to Prepare a Biographical Sketch

A biographical sketch is to provide information that can be used by reviewers to evaluate the PI's potential for leadership within the scientific community. Examples of information of interest are invited and/or public lectures, awards received, scientific program committees, conference or workshop organization, professional society activities, special international or industrial partnerships, reviewing or editorship activities, or other scientific leadership experiences.

SC requires the use of 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/>. If an interagency common format for a biographical sketch has been promulgated, that format must be used in an application. 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.

The biographical information (curriculum vitae) must include the following items within its page limit:

- **Education and Training:** Undergraduate, graduate and postdoctoral training, provide institution, major/area, degree and year.
- **Research and Professional Experience:** Beginning with the current position, list professional/academic positions in chronological order with a brief description. List all current academic, professional or institutional appointments, foreign or domestic, at the applicant institution or elsewhere, whether remuneration is received, and, whether full-time, part-time, or voluntary.
- **Publications:** Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically. Patents, copyrights and software systems developed may be provided in addition to or substituted for publications. An abbreviated style such as the Physical Review Letters (PRL) convention for citations (list only the first author) may be used for publications with more than 10 authors.
- **Synergistic Activities:** List no more than five professional and scholarly activities related to the effort proposed.

Requested information may be appended to a biographical sketch, whether produced from a fillable PDF or in SciENCv.

Do not attach a listing of individuals who should not be used as merit reviewers: This information is no longer collected as part of a biographical sketch.

SC strongly recommends the use of SciENCv to reduce administrative burden by allowing the

use of digital persistent identifiers, including the Open Researcher and Contributor ID (ORCID). Biographical sketches must be attached to the Research and Related Senior/Key Person Profile (Expanded) form in an application.

Personally Identifiable Information: Do not include sensitive and protected personally identifiable information including social security numbers, birthdates, citizenship, marital status, or home addresses. Do not include information that a merit reviewer should not make use of.

VIII.A.7. How to Prepare Current and Pending Support

WARNING: These instructions have been significantly revised to require disclosure of a variety of potential conflicts of interest or commitment, including participation in foreign government-sponsored talent recruitment programs.

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. The PI and each senior/key person at the prime applicant and any proposed subaward 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. Internally-provided research support, whether designated as "seed" funding, startup funds, laboratory-directed research and development (LDRD) funding, or any other name, must be disclosed in current and pending support. Include the current application and any application submitted to any source of funding in a list of current and pending support. All sources of support must be disclosed, but for work that is subject to government classification or enforceable non-disclosure agreements, the general area of the research should be described without disclosing sensitive details and the sponsor should be listed as "Government Agency" or "private sponsor." All foreign government-sponsored talent recruitment programs must be identified in current and pending support.

SC requires the use of 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/>. If an interagency common format for current and pending support has been promulgated, that format must be used in an application. 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.

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. 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.

Requested information may be appended to current and pending support, whether produced from a fillable PDF or in SciENcv.

SC strongly recommends the use of SciENcv to reduce administrative burden by allowing the use of digital persistent identifiers, including the Open Researcher and Contributor ID (ORCID). Current and pending support must be attached to the Research and Related Senior/Key Person Profile (Expanded) form in an application.

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.

VIII.A.8. How to Prepare a Research and Related Budget and Justification

The following advice will improve the accuracy of your budget request:

- Funds requested for personnel (senior, key, and other) must be justified as the product of their effort on the project and their institutional base salary.
- Funds requested for fringe benefits must be calculated as the product of the requested salary and, if present, the negotiated fringe benefit rate contained in an institution's negotiated indirect cost rate agreement.
- Funds requested for indirect costs must be calculated using the correct indirect cost base and the negotiated indirect cost rate.
- If a field is required (indicated with either an asterisk or a differently-colored background) and no funds are being requested, enter a zero "0."
- You are encouraged to include the rate agreement used in preparing a budget as a part of the budget justification.
- Do not prepare a budget justification using the expired DOE form F4260.1.

If you are proposing indirect costs and do not already have an Indirect Cost Rate Agreement with your Cognizant Federal Agency or documentation of rates accepted for estimating purposes by DOE or another Federal agency, it is recommended that you begin preparing an Indirect Cost Rate Proposal to be submitted, upon request, to the DOE contract specialist/grants management specialist who will evaluate your application if you are selected for award.

For your convenience in preparing an Indirect Cost Rate proposal, a link to applicant resources, including indirect rate model templates, has been provided below:

<https://science.osti.gov/sbir/applicant-resources/grant-application/>.

Cost sharing or matching funds are not to be included in the Research and Related Budget form. The amount and planned use of these funds can be described in the technical narrative.

Complete the Research and Related Budget form in accordance with the instructions on the form and the following instructions. You must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. You must complete all the mandatory information on the form before the NEXT PERIOD button is activated. You may request funds under any of the categories listed as long as the item and amount are necessary to perform the proposed work, meet all the criteria as allowable under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this FOA (See [Section II C](#). Maximum and Minimum Award Size). Note, however, that foreign travel and participant/trainee costs are typically considered unallowable costs unless approved by the DOE Contracting Officer.

Round all funds to the nearest dollar across all budget documents including the budget justification. The dollar amounts in the budget justification must match the amounts found on the Research and Related Budget form. The Research and Related Budget form is only to be used for funding requested from DOE.

TECHNICAL AND BUSINESS ASSISTANCE (FORMERLY COMMERCIALIZATION ASSISTANCE)
(SECTION F, FIELD 3, CONSULTANT SERVICES) [OPTIONAL]

In accordance with Sec. 854 of the John S. McCain National Defense Authorization Act for 2019, Pub. L. 115-232, DOE is able to fund discretionary technical and business assistance (TABAs) to all DOE SBIR and STTR Phase I awardees. Fast-Track awardees have two options for receiving TABAs during Phase I: (1) utilize services provided by a DOE vendor or (2) identify their own TABA provider(s). During Phase II, awardees must identify their own TABA provider(s).

If you wish to receive Phase I TABA services from a DOE vendor, you do not need to include this in your budget. If you receive a Phase I award, you will receive notification from DOE on what services are available and how to obtain these services at no cost to your SBC.

If you wish to utilize your own TABA provider(s), you are required to include this as one or more subcontracts or consultants in your budget and to provide a detailed budget justification. You may include up to \$6,500 per project during Phase I, and \$50,000 per project during Phase II. The total amount of Phase I assistance that a company may receive during a fiscal year is subject to Small Business Administration policy per the statute. Please note that TABA does not count toward the maximum award size listed in [Section II, C](#); e.g., seeking TABA from your provider could result in a maximum award in the amount of \$1,356,500 for topics that specify a maximum award amount of \$1,300,000.

RESTRICTIONS ON THE LEVEL OF SBC PARTICIPATION. Reimbursement is limited to services received that comply with 15 U.S.C. § 638(q); examples of acceptable services include assistance with:

- product sales
- intellectual property protections
- Patent prosecution costs related to obtaining United States patent protection for subject inventions of this award may be budgeted under TABA. Patent prosecution costs include attorney fees and United States Patent and Trademark Office (USPTO) fees. United States patent protection includes filings with the USPTO related to provisional, Patent Cooperation Treaty (PCT), non-provisional, continuation, and continuation-in-part patent applications. Patent prosecution costs related to foreign patent protection (e.g. foreign attorney, foreign patent office or translation fees) are unallowable.
- market research
- market validation
- development of certifications and regulatory plans
- development of manufacturing plans

Services are defined as acts of assistance in which no goods are exchanged. In some situations, incidental goods, such a report on the services provided, are exchanged. The following examples are provided for clarification:

- Market Research: Conducting market research in the planned area of commercialization is a service, and a report describing the finding is typically provided.
- Advertising: Developing an advertising strategy or designing advertising campaign materials are services. Paying to place ads or print brochures would not be considered a service.
- Website Development: Developing website content is a service.

Third party vendors or a federal entity issuing patents, certifications or regulatory approvals, must be used when spending TABA funds. Vendor(s) may not be the SBIR/STTR applicant or awardee or its research partner or a research institution performing part of the research and development portion of the award.

In the event some or the entire amount listed is not expended on TABA services, the remaining funds cannot be re-budgeted to other project costs. Re-budgeting of these funds to other project costs is not allowable.

Budget Fields

| | |
|--------------------------------|---|
| Section A Senior/Key Person | For each Senior/Key Person, enter the requested information. List personnel, base salary, the number of months that person will be allocated to the project, requested salary, fringe benefits, and the total funds requested for each person. The requested salary must be the product of the base salary and the effort. Include a written narrative in the budget justification that justifies the need for requested personnel. Within the justification, explain the fringe benefit rate used if it is not the standard faculty rate. |
| Section B Other Personnel | List personnel, the number of months that person will be allocated to the project, requested salary fringe benefits, and the total funds |

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| | <p>requested for each person.</p> <p>Include a written narrative in the budget justification that fully justifies the need for requested personnel. Within the justification, provide the number of positions being filled in each category of other personnel.</p> |
| Section C Equipment | <p>For the purpose of this budget, equipment is designated as an item of property that has an acquisition cost of \$5,000 or more and an expected service life of more than one year, unless a different threshold is specified in a negotiated Facilities and Administrative Cost Rate. (Note that this designation applies for proposal budgeting only and differs from the DOE definition of capital equipment.) List each item of equipment separately and justify each in the budget justification section. Do not aggregate items of equipment. Allowable items ordinarily will be limited to research equipment and apparatus not already available for the conduct of the work. General-purpose office equipment is not eligible for support unless primarily or exclusively used in the actual conduct of scientific research.</p> |
| Section D Travel | <p>For purposes of this section only, travel to Canada or to Mexico is considered domestic travel. In the budget justification, list each trip's destination, dates, estimated costs including transportation and subsistence, number of staff traveling, the purpose of the travel, and how it relates to the project. Indicate the basis for the cost estimate (quotes from vendors or suppliers, past experience of similar items, or some other basis). To qualify for support, attendance at meetings or conferences must enhance the investigator's capability to perform the research, plan extensions of it, or disseminate its results. Domestic travel is to be justified separately from foreign travel. Within the budget justification, detail the number of personnel planning to travel and the estimated per-traveler cost for each trip.</p> |
| Section E Participant/Trainee Support Costs | <p>If applicable, submit training support costs. Educational projects that intend to support trainees (precollege, college, graduate and postgraduate) must list each trainee cost that includes stipend levels and amounts, cost of tuition for each trainee, cost of any travel (provide the same information as needed under the regular travel category), and costs for any related training expenses. Participant costs are those costs associated with conferences, workshops, symposia or institutes and breakout items should indicate the number of participants, cost for each participant, purpose of the conference, dates and places of meetings and any related administrative expenses.</p> <p>Indicate the basis for the cost estimate (quotes from vendors or suppliers, past experience of similar items, or some other basis).</p> |
| Section F Other Direct Costs | <ul style="list-style-type: none"> • Materials and Supplies: Enter total funds requested for materials and supplies in the appropriate fields. In the budget justification, indicate general categories such as glassware, and chemicals, including an amount for each category (items not identified under "Equipment"). Categories less than \$1,000 are not required to be itemized. Indicate the basis for the cost |

| | |
|---------------------------|---|
| | <p>estimate (quotes from vendors or suppliers, past experience of similar items, or some other basis).</p> <ul style="list-style-type: none"> • Publication Costs: Enter the total publication funds requested. The proposal budget may request funds for the costs of documenting, preparing, publishing or otherwise making available to others the findings and products of the work conducted under the award. In the budget justification, include supporting information. Indicate the basis for the cost estimate (quotes from vendors or suppliers, past experience of similar items, or some other basis). • Consultant Services: Enter total funds requested for all consultant services. In the budget justification, identify each consultant, the services he/she will perform, total number of days, travel costs, and total estimated costs. Indicate the basis for the cost estimate (quotes from vendors or suppliers, past experience of similar items, or some other basis). • ADP/Computer Services: Enter total funds requested for ADP/Computer Services. Cloud computing costs must be included under this item. The cost of computer services, including computer-based retrieval of scientific, technical and education information may be requested. In the budget justification, include the established computer service rates at the proposing organization if applicable. Indicate the basis for the cost estimate (quotes from vendors or suppliers, past experience of similar items, or some other basis). • Subawards/Consortium/Contractual Costs: Enter total costs for all subawards/consortium organizations and other contractual costs proposed for the project. In the budget justification, justify the details. • Equipment or Facility Rental/User Fees: Enter total funds requested for Equipment or Facility Rental/User Fees. In the budget justification, identify each rental/user fee and justify. Indicate the basis for the cost estimate (quotes from vendors or suppliers, past experience of similar items, or some other basis). • Alterations and Renovations: Enter total funds requested for Alterations and Renovations. In the budget justification, itemize by category and justify the costs of alterations and renovations, including repairs, painting, removal or installation of partitions, shielding, or air conditioning. Where applicable, provide the square footage and costs. • Other: Add text to describe any other Direct Costs not requested above. Enter costs associated with “Other” item(s). Use the budget justification to further itemize and justify. |
| Section G Direct Costs | This represents Total Direct Costs (Sections A through F). |

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| Section H Other Indirect Costs | Enter the Indirect Cost information, including the rates and bases being used, for each field. Only four general categories of indirect costs are allowed/requested on this form, so please consolidate if needed. Include the cognizant Federal agency and contact information if using a negotiated rate agreement. Within the budget justification, explain the use of multiple rates, if multiple rates are used. |
| Section I Total Direct and Indirect Costs | This is the total of Sections G and H. |

Provide supporting information for all proposed costs. Personnel justification must include a brief justification explaining the need for individual personnel and the total hours and hourly rates for each individual. Attach a single budget justification file for the entire project period in Field K. The file automatically carries over to each budget year. Provide any other information you wish to submit to justify your budget request including, but not limited to, any recent audits, clearly defined indirect cost rate bases, and voluntary reductions of indirect rates. If your organization has an Indirect Cost Rate Agreement in effect with your Cognizant Federal Agency [Defense Contract Audit Agency (DCAA), Department of Health and Human Services (DHHS), etc.] supporting the indirect rate(s) proposed and dated within one year of your anticipated award start date, then please provide this information with your application. Although there is no absolute cap on indirect costs, applications will be evaluated for overall economy and value to DOE.

If you are selected for an award, additional budget explanation will most likely be required.

All proposed purchases of equipment will be carefully reviewed relative to need and appropriateness for the research or R&D proposed.

Travel funds must be justified and related to the needs of the project, as in travel to DOE Headquarters to meet with DOE program managers. Travel expenses for technical conferences are not permitted unless the purpose of attending the conference directly relates to the project (e.g., to present results of the project). Foreign travel is not normally an appropriate expense. Funds to cover travel expenses outside of the United States are considered an unallowable direct cost unless concurrence has been obtained by the DOE Program Manager and unless written approval has been obtained from the DOE Contracting Officer.

Tuition expenses are allowable only if requested from a subcontractor that is a university and the amount requested for tuition is reasonable and comparable to what a student would be paid for performing research during the award performance period.

Awards may include a profit or fee for the applicant. Fees are subject to negotiation and shall not exceed 7% of the total award amount. Profit or fee is not “program income” and shall not be included in field 15.d. of the SF 424 (R&R) application. The fee applies solely to the small business concern receiving the award and for-profit R&D subcontractors participating in the project. In addition, the awardee may pay a profit/fee to a contractor providing routine goods or non-R&D services in accordance with normal commercial practice.

Any commercial and/or in-kind contribution to the project should be reflected in the project narrative and not included on the budget pages.

Round all funds to the nearest dollar across all budget documents including the budget justification. The dollar amounts in the budget justification must match the amounts found on the Research and Related Budget form. Cost sharing or matching funds provided by the small business or third parties shall not be included on the Research and Related Budget Form—this form should only include funds being requested from DOE. Cost sharing or matching funds can be included in the budget justification and must be clearly marked as cost sharing or matching funds.

Complete the Level-of-Effort worksheet located at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>. If the Microsoft Excel version is used, it must be converted to PDF before it is attached to the application in Field 12 – Research & Related Other Project Information.

VIII.A.9. How to Prepare a Commercialization Plan (Phase I Only)

PHASE I COMMERCIALIZATION PLAN (REQUIRED, FIELD 8)

It is a statutory objective of SBIR/STTR funding that technology developed using these designated taxpayer funds result in some form of benefit for the American people whether it be in the form of taxable revenue, jobs or some other societal or scientific benefit.

Field 8 of the SBIR/STTR Information Form will accept the Commercialization Plan attachment for a Phase I grant application submission after selecting DOE as agency and Phase I as application type.

A brief Commercialization Plan must be included in a Phase I grant application. The Commercialization Plan must not exceed a page limit of 4 pages of when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). The body text font of all main text must not be smaller than 11 point. If the Commercialization Plan is not included at the time of application submission, your application will be administratively declined without review.

The Phase I commercialization plan is designed to get you to begin thinking about the commercial potential for the technology and your strategy to bring it to market. If you proceed to submission of a Phase II application, you will be asked to expand upon the ideas presented here providing validation of the information through customer discovery and due diligence in a 15-page commercialization plan.

The Phase I commercialization plan will be evaluated under the “Impact” criterion and should include these elements:

Project Title

You **MUST** include the following statement after your project title:

“(COMPANY NAME HERE) estimates cumulative sales revenues of \$ and cumulative licensing revenues of \$ during the first 10 years of commercialization.”

1. Market Opportunity

Describe the problem and its urgency that will be solved by the product/service resulting from the technology being proposed. Describe your customers and end-users (if different) providing example companies. Describe your competitors and your competitive advantage and/or value proposition. Describe the market opportunity being addressed. If there are opportunities outside DOE and/or multiple opportunities to pursue, describe your time-phased plan to address. Describe the envisioned business model that will be used to generate revenue.

2. Company/Team

Describe the capabilities of your team as they relate to the commercialization of your technology; there is no need to repeat technical qualifications which are covered adequately elsewhere in your application. If there are gaps in commercialization expertise on your current team, describe your time-phased plans to address (new personnel, consultants, contractors, etc.).

3. Intellectual Property

Describe both the state of the intellectual property that exists in your intended market and plans to protect your intellectual property. Detail the status of patents, trade secrets, and other steps you plan to take to protect your IP.

4. Revenue Forecast

Provide a revenue forecast during the first 10 years of commercialization. We request the forecast be for 10 years because the path and development time required to bring the technology to market will vary - in some cases, commercialization may begin immediately after Phase II award, but in other cases commercialization may not start for many years beyond completion of the Phase II award. In doing so, be realistic and do not assume widespread and immediate adoption of your technology by the entire customer base. If there are opportunities outside the immediate DOE need, describe your time-phased plan to address.

Applicants are encouraged to review the [example Phase I Commercialization Plan](#) on the DOE SBIR/STTR website under “Applicant Resources” at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>.

VIII.A.9. How to Prepare a Commercialization Plan (Fast-Track Only)

FAST-TRACK COMMERCIALIZATION PLAN (REQUIRED, FIELD 8)

It is a statutory objective of SBIR/STTR funding that technology developed using these

designated taxpayer funds result in some form of benefit for the American people whether it be in the form of taxable revenue, jobs or some other societal or scientific benefit.

Your Fast-Track Commercialization Plan narrative must not exceed a page limit of 15 pages of when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). The body text font of all main text must not be smaller than 11 point. This page limit does not include return on investment and net present value worksheets, pro forma worksheet, and Letters of Support, which must be appended to the commercialization plan narrative. Your Fast-Track Commercialization Plan must be uploaded to field 8 as a single document. This information will be evaluated and considered part of the score for the “Impact” criteria discussed in Part V. If the Commercialization Plan is not included at the time of application submission, your application will be administratively declined without review.

The DOE recognizes that each innovation requires a varied strategy to generate returns on invested capital and that no two businesses are exactly alike. Therefore, DOE supports a broad array of commercialization strategies. Each strategy requires varied emphasis on the parts of the plan depending on your innovation and the market landscape. For instance, the strategy and mechanisms for leveraging and protecting intellectual property (IP) vary according to industry and innovation.

The Commercialization Plan is your roadmap for the future and should convey how you plan to generate profits from your innovation. It should represent a compelling vision that describes a unique business opportunity that could be addressed with continued support from Phase II funding. The depth and quality of the analysis within your Commercialization Plan is a critical element of the DOE SBIR/STTR application review.

Please Note: All assumptions and estimates provided should be clearly stated as such and evidence of validation should be provided in a footnote. Where you provide numerical data (e.g. market size, price, etc.) or data about customer needs, market forces, barriers to entry and the like, you should indicate the source of the data using footnotes. Market research reports, articles by experts in trade publications or professional journals, interviews, focus groups, surveys, are among commonly used sources of data.

The following four sections must be addressed in your Commercialization Plan:

1. Market Opportunity

- a) Describe succinctly what product or service you are planning to deliver based on your innovations:
 - Identify your target customer providing generally known examples.
 - Describe the critical needs that your product or service will fulfill for your customer [i.e. these can be current or emerging].
 - How does the target customer(s) currently meet the need that you are addressing and what do they pay to meet the need?
 - What is your customer willing to pay for your product or service? How have you validated this assumption?

- What features of your product or service will allow you to provide a compelling value proposition? How have you validated the significance of these features? State the value proposition for your product or service.
- b) Address Market Opportunity
- What is the current size of the broad market you plan to enter? How large is your “niche” market opportunity, in terms of either numbers of customers or revenues? (If you use number of customers, estimate revenues based on the anticipated selling price of your product or service.)
 - Is the target market domestic, international, or both?
 - What are the growth trends for the market and the key market drivers that will affect whether customers will buy your product or service?
 - What barriers to entry exist in this market, which will inhibit sales of your product or service?
- c) Describe the channels you would employ to reach the targeted customer.
- d) What business model will you adopt to generate revenue from your innovation?
- Will you make and sell? License? Form a strategic alliance with a company already in the industry? Use a different model?
 - Explain why this model makes sense for the market opportunity described.
- e) If there are potential societal, educational, or scientific benefits beyond commercial considerations that will generate goodwill for your company or the product or service, they should be included here and explained in sufficient detail to convey the significances of the effort.
2. Company/Team
- a) Provide a short description of the origins of the company.
- b) What type of corporate structure is in place?
- c) What is the current capitalization and is it sufficient for implementing your Commercialization Plan?
- d) What is the revenue history for the past three years? What is your anticipated revenue history through Phase II? Provide a table with percentages or sums of operating capital or revenue: product sales, consulting/services, license revenues, research and development grants/contracts, and others.
- e) What is the current employee count?
- f) Give a brief description of the experience and credentials of the personnel responsible for taking the innovation to market, clarify how the background and experience of the team enhance the credibility of the Commercialization Plan.

- g) What specific experience does the team lack and how will this be addressed during the Phase II effort and beyond? From what additional resources do you have commitments to address these limitations e.g., Board of Directors, technical advisors, or retained legal counsel? Please provide details on names, affiliations, and expertise of these resources.

3. Competition/Intellectual Property

- a) Describe currently existing products or services that are found in the patent literature (and if relevant, copyright and trademark literature) or that is emerging from research or R&D, which may be substitutes for your product or service.
- How does your product or service match up to these substitutes in terms of the needs customers are seeking to meet?
 - Who is developing, making, and selling those products or services and what do you anticipate the competitive landscape to look like when you get to market?
- b) Describe intellectual property (IP) rights you have secured for your technology to date and if any procedures are underway to expand or enhance the protection provided by those rights. Please describe your actions to protect these rights.
- c) Describe which IP is closest and which is most threatening to your “freedom to operate” and how you are different enough to be able to secure your freedom to operate.
- d) What other IP will you need to secure rights to make, use, or sell in order to address the market opportunity described above?

4. Finance and Revenue Model

- a) Describe an appropriate staged finance plan given the market opportunity. Outline the level of funding required for each stage along the path to commercialization.
- What are your costs to complete research and development, product, and production development/design/engineering, and to produce the product or service?
 - What are the costs required to implement your commercialization strategy?
 - How will you access the appropriate funds?
- b) Provide a table with anticipated costs identifying the anticipated source of each detailing revenues or other operating capita you can devote to these. If there is a shortfall, explain how you will raise or access the appropriate funds. If no additional cash is needed explain why you are confident that is the case.
- c) Provide specific contacts, leads, previous relationships, and agreements already in place. Are any other commitments in place, which will affect your ability to raise Phase II follow-on funding?
- d) Provide an estimate of the DOE return on investment or net present value for this project. A template for estimating return on investment is provided at the DOE SBIR/STTR Programs Office website at <http://science.energy.gov/sbir/funding-opportunities/application-resources/>. This estimate should incorporate the profit before taxes (positive cash flow) for the first 10 years of commercialization and treat DOE SBIR

or STTR funding as an investment (negative cash flow). Describe the revenue streams (licensing, product sales or other) associated with your Commercialization Plan. When do you anticipate “first revenues” from each stream? When do you expect to reach “break even”?

- e) Provide annual pro formas for the next five years (two years of the Fast-Track Phase II +3 years’ post Phase II). Income Statements are required. Cash Flow and Balance Sheets may be included if they are considered critical for your strategy. If not included, Cash Flow and Balance Sheets should be available upon request from DOE.

Please Note: You must indicate the assumptions and estimates being made in this part of your application and clearly state the source of data you have used to validate these assumptions or as a basis for making assumptions or estimates. You must also indicate the source for any numerical or other hard data provided, such as market size, price, market drivers, and barriers to entry. Evaluate the competitive advanced of this technology vs. alternate technologies that can meet similar market needs.

VIII.A.10. How to View Applications in PAMS

Each Grants.gov application submitted to the DOE SC automatically transfers into PAMS and is subsequently assigned to a program manager. At the time of program manager assignment, the three people listed on the SF-424 (R&R) cover page will receive an email with the subject line, “Receipt of Proposal 0000xxxxxx by the DOE Office of Science.” These three people are the PI (Block 14), Authorized Representative (Block 19), and Point of Contact (Block 5). In PAMS notation, applications are known as proposals, the PI is known as the PI, the Authorized Representative is known as the Sponsored Research Officer/Business Officer/Administrative Officer (SRO/BO/AO), and the Point of Contact is known as the POC.

There will be a period of time between the application’s receipt at Grants.gov and its assignment to a DOE SC program manager. Program managers are typically assigned two weeks after applications are due at Grants.gov: please refrain from attempting to view the proposal in PAMS until you receive an email providing the assignment of a program manager.

Once the email is sent, the PI, SRO/BO/PO, and POC will each be able to view the submitted proposal in PAMS. Viewing the proposal is optional.

Following are two sets of instructions for viewing the submitted proposal, one for individuals who already have PAMS accounts and one for those who do not.

If you already have a PAMS account, follow these instructions:

1. Log in to PAMS at <https://pamspublic.science.energy.gov/>.
2. Click the “Proposals” tab and click “Access Previously Submitted Grants.gov Proposal.”
3. Enter the following information:
 - Proposal ID: Enter the ten-digit PAMS proposal ID, including the leading zeros (e.g., 00002xxxxx). Do not use the Grants.gov proposal number. Use the PAMS number previously sent to you in the email with subject line, “Receipt of Proposal ...”.

- Email (as entered in Grants.gov application): Enter your email address as it appears on the SF424(R&R) Cover Page.
 - Choose Role: Select the radio button in front of the role corresponding to the SF-424 (R&R) cover page. If your name appears in block 19 of the SF-424 (R&R) cover page as the authorizing representative, select “SRO/BO/AO (Sponsored Research Officer/Business Officer/Administrative Officer).” If your name appears in block 14 of the SF424 R&R cover page as the PI, select “Principal Investigator (PI).” If your name appears in block 5 of the SF424 R&R as the point of contact, select “Other (POC).”
4. Click the “Save and Continue” button. You will be taken to your “My Proposals” page. The Grants.gov proposal will now appear in your list of proposals. Click the “Actions/Views” link in the options column next to this proposal to obtain a dropdown list. Select “Proposal” from the dropdown to see the proposal. Note that the steps above will work only for proposals submitted to the DOE SC since May 2012.

If you do not already have a PAMS account, follow these instructions:

1. To register, click the “Create New PAMS Account” link on the website <https://pamspublic.science.energy.gov/>.
2. Click the “No, I have never had an account” link and then the “Create Account” button.
3. You will be prompted to enter your name and email address, create a username and password, and select a security question and answer. Once you have done this, click the “Save and Continue” button.
4. On the next page, enter the required information (at least one phone number and your mailing address) and any optional information you wish to provide (e.g., FAX number, website, mailstop code, additional email addresses or phone numbers, Division/Department). Click the “Create Account” button.
5. Read the user agreement and click the “Accept” button to indicate that you understand your responsibilities and agree to comply with the rules of behavior for PAMS.
6. You will be taken to the Register to Institution page. Select the link labeled, “Option 1: My institution has submitted a proposal in Grants.gov. I am here to register as an SRO, PI, or POC (Sponsored Research Officer, Principal Investigator, or Point of Contact).”
7. Enter the following information:
 - Proposal ID: Enter the ten-digit PAMS proposal ID, including the leading zeros (e.g., 00002xxxxx). Do not use the Grants.gov proposal number. Use the PAMS number previously sent to you in the email with subject line, “Receipt of Proposal ...”.
 - Email (as entered in Grants.gov proposal): Enter your email address as it appears on the SF424(R&R) Cover Page.
 - Choose Role: Select the radio button in front of the role corresponding to the SF-424 (R&R) cover page. If your name appears in block 19 of the SF-424 (R&R) cover page as the authorizing representative, select “SRO/BO/AO (Sponsored Research Officer/Business Officer/Administrative Officer).” If your name appears in block 14 of the SF424 R&R cover page as the PI, select “Principal Investigator (PI).” If your name appears in block 5 of the SF424 R&R as the point of contact, select “Other (POC).”
8. Click the “Save and Continue” button. You will be taken to your “My Proposals” page. The Grants.gov proposal will now appear in your list of proposals. Click the “Actions/Views” link in the options column next to this proposal to obtain a dropdown list. Select “Proposal” from the dropdown to see the proposal.

If you were listed as the PI on a prior submission but you have not previously created an account, you may already be listed in PAMS. If this is the case, you will be taken to the PAMS home page after agreeing to the Rules of Behavior. If that happens, follow the instructions listed above under “If you already have a PAMS account...” to access your Grants.gov proposal.

VIII.A.11. How to Register in Other Systems Before Submitting an Application

SYSTEMS TO REGISTER IN

Applicants must complete a series of registrations and enrollments to submit applications in response to this FOA. Applicants not currently registered with SAM and Grants.gov should normally allow **at least four weeks** to complete these requirements. However, see the note below regarding current SAM registration/update processing times.

NOTE: Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration/update process immediately as the processing time to complete a registration/update currently may take weeks to months. This includes address and expired registration updates. If entities have technical difficulties with the UEI validation or SAM registration process they should utilize the HELP feature on SAM.gov. SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: [GSAFSD Tier 0 Knowledge Base - Validating your Entity](#).

You should start the process as soon as possible.

You may not be able to use your preferred Internet browser: Each system has its own requirements.

Applicants must register with SAM at <https://www.sam.gov/> and obtain a Unique Entity Identifier (UEI). Assistance is available at <https://sam.gov/content/help>.

Applicants must provide a Taxpayer Identification Number (TIN) to complete their registration in www.SAM.gov. An applicant’s TIN is an EIN assigned by the Internal Revenue Service (IRS). In limited circumstances, a Social Security Number (SSN) assigned by the Social Security Administration (SSA) may be used as a TIN. You may obtain an EIN from the IRS at <https://www.irs.gov/businesses/small-businesses-self-employed/apply-for-an-employer-identification-number-ein-online>.

If entities have technical difficulties with the UEI validation or SAM registration process, they should utilize the HELP feature on SAM.gov. SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue.

Do not use a SSN as a TIN.

Obtain a TIN from the IRS using the website listed above.

Applicants must register with FedConnect at www.FedConnect.net. The full, binding version of assistance agreements will be posted to FedConnect.

Recipients must register with the Federal Funding Accountability and Transparency Act Subaward Reporting System at <https://www.ftrs.gov>. This registration must be completed before an award may be made: you are advised to register while preparing your application.

REGISTERING IN GRANTS.GOV

Applicants must register with Grants.gov, following the instructions at <https://www.Grants.gov/web/grants/applicants/registration.html> and described above.

WHERE TO SUBMIT AN APPLICATION

You must submit the application through Grants.gov at www.Grants.gov, using either the online webforms or downloaded forms, or a system-to-system service

Submit electronic applications through the “Apply for Grants” function at www.Grants.gov. If you have problems completing the registration process or submitting your application, call Grants.gov at 1-800-518-4726 or send an email to support@Grants.gov.

Please ensure that you have read the applicable instructions, guides, help notices, frequently asked questions, and other forms of technical support on Grants.gov.

DOE SC PORTFOLIO ANALYSIS AND MANAGEMENT SYSTEM (PAMS)

Applicants must register in the Portfolio Analysis and Management System (PAMS) to submit letters of intent and pre-applications, to view merit reviewer comments, or to take a number of post-award actions.

VIII.B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

VIII.B.1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR 200 as modified by 2 CFR 910 (DOE Financial Assistance Regulations).

VIII.B.2. Availability of Funds

Funds are not presently available for this award. The Government's obligation under this award is contingent upon the availability of appropriated funds from which payment for award purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the DOE Contracting Officer for this award and until the recipient receives notice of such availability, to be confirmed in writing by the DOE Contracting Officer.

VIII.B.3. Buy America Requirement for Infrastructure Projects

Required use of Iron, Steel, Manufacture Products, and Construction Materials Produced in the United States

A. DEFINITIONS

For purposes of the Buy America Requirement, the following definitions apply:

Components are defined as the articles, materials, or supplies incorporated directly into the end manufactured product(s).

Construction Materials are an article, material, or supply—other than an item primarily of iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is used in an infrastructure project and is or consists primarily of non-ferrous metals, plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables), glass (including optic glass), lumber, drywall, coatings (paints and stains), optical fiber, clay brick; composite building materials; or engineered wood products.

Domestic Content Procurement Preference Requirement – means a requirement that no amounts made available through a program for federal financial assistance may be obligated for an infrastructure project unless—

- (A) all iron and steel used in the project are produced in the United States;
- (B) the manufactured products used in the project are produced in the United States; or
- (C) the construction materials used in the project are produced in the United States.

Also referred to as the **Buy America Requirement**.

Infrastructure includes, at a minimum, the structures, facilities, and equipment located in the United States, for: roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal

facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property; and generation, transportation, and distribution of energy—including electric vehicle (EV) charging.

The term “infrastructure” should be interpreted broadly, and the definition provided above should be considered as illustrative and not exhaustive.

Manufactured Products are items used for an infrastructure project made up of components that are not primarily of iron or steel; construction materials; cement and cementitious materials’ aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.

Primarily of iron or steel means greater than 50% iron or steel, measured by cost.

Project – means the construction, alteration, maintenance, or repair of infrastructure in the United States.

Public – The Buy America Requirement does not apply to non-public infrastructure projects. For purposes of this guidance, infrastructure should be considered “public” if it is: (1) publicly owned or (2) privately owned but utilized primarily for a public purpose. Infrastructure should be considered to be “utilized primarily for a public purpose” if it is privately operated on behalf of the public or is a place of public accommodation.

B. BUY AMERICA REQUIREMENT FOR INFRASTRUCTURE PROJECTS (BUY AMERICA REQUIREMENT)

None of the award funds (includes federal share and Recipient cost share) may be used for a public infrastructure project unless:

- (1) all iron and steel used in the project is produced in the United States—this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
- (3) all construction materials⁴ are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America Requirement only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply

⁴ Excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does the Buy America Requirement apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

The Buy America Requirement does not statutorily apply to Prime Recipients that are For-Profit Entities. However, the Buy America Requirement is applicable to a For-Profit Entity if: (1) it is a sub-recipient or sub-awardee under an award that contains the Buy America Requirement term and condition, or (2) it is the Prime Recipient that voluntarily chooses to use domestically sourced iron, steel, manufactured products, and construction materials by stating so in its proposed application containing an infrastructure project. If the For-Profit Entity specifically states that it will comply with the Buy America Requirements in its application and it is selected for an award, its award will contain a Buy America Requirement for Infrastructure Projects term and condition.

The Prime Recipient is responsible for flowing the Buy America Requirement down to all sub-awards, all contracts, subcontracts, and purchase orders for work performed under the proposed infrastructure project, including to For-Profit Entities when the For-Profit Entity is a sub-recipient or sub-awardee.

Recipients must certify or provide equivalent documentation for proof of compliance that a good faith effort was made to solicit bids for domestic products used in the infrastructure project under this award.

Recipients must also maintain certifications or equivalent documentation for proof of compliance that those articles, materials, and supplies that are consumed in, incorporated into, affixed to, or otherwise used in the infrastructure project, not covered by a waiver or exemption, are produced in the United States. The certification or proof of compliance must be provided by the suppliers or manufacturers of the iron, steel, manufactured products and construction materials and flow up from all subrecipients, contractors and vendors to the recipient. Recipients must keep these certifications with the award/project files and be able to produce them upon request from DOE, auditors or Office of Inspector General.

C. DOE SUBMISSION REQUIREMENTS FOR FULL APPLICATION

Within the first two pages of the workplan or project description, applicants must provide a short statement on whether the project will involve the construction, alteration, maintenance and/or repair of infrastructure in the United States. The ultimate determination about whether a project includes infrastructure remains with DOE, but the applicant's statement will assist project planning and integration of the Buy America Requirement, which may impact the project's proposed budget and/or schedule.

D. WAIVERS

In limited circumstances, DOE may waive the application of the Buy America Requirement in an

award where DOE determines that:

- (1) applying the Buy America requirements would be inconsistent with the public interest (Public Interest);
- (2) the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality (Non-Availability); or
- (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent (Unreasonable Cost).

DOE will only process waiver requests after an award has been made and for which the requests have been submitted in accordance with the terms and conditions of the award. Waiver requests must be reviewed by DOE and the Office of Management and Budget's Made in America Office and are subject to a public comment period of no less than 15 calendar days.

DOE or OMB may request additional information for consideration of the waiver. DOE may reject or grant waivers in whole or in part depending on its review, analysis, and/or feedback from OMB or the public. DOE's final determination regarding approval or rejection of the waiver request may not be appealed by a Recipient.

Requests to waive the Buy America Requirement must include the following:

- Waiver type (Public Interest, Non-Availability, or Unreasonable Cost);
- Recipient name and Unique Entity Identifier (UEI);
- Award information (Federal Award Identification Number, Assistance Listing number);
- A brief description of the project, its location, and the specific infrastructure involved;
- Total estimated project cost, with estimated federal share and recipient cost share breakdowns;
- Total estimated infrastructure costs, with estimated federal share and recipient cost share breakdowns;
- List and description of iron or steel item(s), manufactured goods, and/or construction material(s) the recipient seeks to waive from the Buy America Requirement, including name, cost, quantity(ies), country(ies) of origin, and relevant Product Service Codes (PSC) and North American Industry Classification System (NAICS) codes for each;
- A detailed justification as to how the non-domestic item(s) is/are essential to the project;
- A certification that the recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and non-proprietary communications with potential suppliers;
- A justification statement—based on one of the applicable justifications outlined above—as to why the listed items cannot be procured domestically, including the due diligence performed (e.g., market research, industry outreach, cost analysis, cost-benefit analysis) by the recipient to attempt to avoid the need for a waiver. This justification may cite, if applicable, the absence of any Buy America-compliant bids received for domestic products in response to a solicitation; and
- Anticipated impact to the project if no waiver is issued.

The following principles should be incorporated as minimum requirements in waiver request:

- Time-limited: Consider a waiver constrained principally by a length of time, rather than by the specific project/award to which it applies. Waivers of this type may be appropriate, for example, when an item that is “non-available” is widely used in the project. When requesting such a waiver, the recipient should identify a reasonable, definite time frame (e.g., no more than one to two years) designed so that the waiver is reviewed to ensure the condition for the waiver (“non-availability”) has not changed (e.g., domestic supplies have become more available).
- Targeted: Waiver requests should apply only to the item(s), product(s), or material(s) or category(ies) of item(s), product(s), or material(s) as necessary and justified. Waivers should not be overly broad as this will undermine domestic preference policies.
- Conditional: The recipient may request a waiver with specific conditions that support the policies of IJA/BABA and Executive Order 14017.

VIII.B.4. Audit Requirements

Under 2 CFR 910.501, a for-profit recipient that expends \$750,000 or more in a year (including any pre- award costs) under DOE Financial Assistance awards must have an audit made for that year by an independent auditor (regardless of when the expenditures are presented to DOE for reimbursement). In determining whether the \$750,000 threshold is met, recipients should assess the amount of DOE funds expended under the award and shall not include any cost-sharing amounts.

VIII.B.5. Conference Spending (February 2015)

The recipient shall not expend any funds on a conference not directly and programmatically related to the purpose for which the grant or cooperative agreement 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.

VIII.B.6. Commitment of Public Funds

(a) A DOE financial assistance award is valid only if it is in writing and is signed, either in writing or electronically, by a DOE Contracting Officer.

(b) Recipients are free to accept or reject the award. A request to draw down DOE funds constitutes the Recipient’s acceptance of the terms and conditions of this Award.

VIII.B.7. Consequences of Research Misconduct

Research misconduct associated with DOE SBIR/STTR applications or awards may result in

criminal, civil, and/or administrative sanctions, including but not limited to: (1) fines, restitution and/or imprisonment under 18 U.S.C. § 1001; (2) treble damages and civil penalties under the False Claims Act (31 U.S.C. § 3729 et seq.); (3) double damages and civil penalties under the Program Fraud Civil Remedies Act (31 U.S.C. § 3801 et seq.); (4) civil recovery of award funds; (5) suspension and/or debarment from all Federal procurement and non-procurement transactions (FAR subpart 9.4 or 2 CFR part 180); and (6) other administrative penalties including termination of SBIR/STTR awards.

VIII.B.8. Corporate Felony Conviction and Federal Tax Liability Representations (March 2014)

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

- It is **not** a corporation that has been 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.

VIII.B.9. Cost Sharing

For this FOA, cost sharing is defined as contributions made by the applicant to the proposed research and development project described in the technical narrative. Cost sharing is not required. However, any commercial contributions will be considered as part of the evaluation.

VIII.B.10. Environmental, Safety and Health (ES&H) Performance of Work at DOE Facilities

With respect to the performance of any portion of the work under this award which is performed at a DOE-owned or controlled site, the recipient agrees to comply with all state and Federal ES&H regulations, and with all other ES&H requirements of the operator of such site.

Prior to the performance on any work at a DOE-owned or controlled site, the recipient shall contact the site facility manager for information on DOE and site-specific ES&H requirements.

The recipient shall apply this provision to all subrecipients at any tier.

VIII.B.11. Evaluation and Administration by Non-Federal Personnel

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to

conduct routine, nondiscretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign a conflict-of-interest agreement and a certificate of confidentiality prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement. Data contained in successful and unsuccessful applications may be used by the Government for completing studies required by §9 of the Small Business Act, 15 U.S.C. §638, as amended. The results of these studies will be available to the public but will not include information that identifies individual small business applicants.

VIII.B.12. Federal, State, and Local Requirements

With respect to the performance of any portion of the work under this award, the recipient agrees to comply with all applicable local, state, and Federal ES&H regulations. The recipient shall apply this provision to all subrecipients at any tier.

VIII.B.13. Funding Restrictions

Funding for all awards and future budget periods are contingent upon the availability of funds appropriated by Congress for the purpose of this program and the availability of future-year budget authority.

Cost Principles: Costs must be allowable, allocable and reasonable in accordance with the applicable Federal cost principles referenced in 2 CFR 200 as modified by 2 CFR 910 (DOE Financial Assistance Regulation).

Pre-award Costs: Recipients may charge to an award resulting from this FOA pre-award costs that were incurred within the 90-day calendar period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 2 CFR 200 as modified by 2 CFR 910 (DOE Financial Assistance Regulation). Recipients must obtain the prior approval of the DOE 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.

VIII.B.14. Government Right to Reject or Negotiate

DOE reserves the right, without qualification, to reject any or all applications received in response to this FOA and to select any application, in whole or in part, as a basis for negotiation and/or award.

VIII.B.15. Intellectual Property Development under this Program

U.S. COMPETITIVENESS

A primary objective of DOE's multi-billion-dollar research, development and demonstration investments is to cultivate new research and development ecosystems, manufacturing capabilities, and supply chains for and by U.S. industry and labor. Therefore, in exchange for receiving taxpayer dollars to support an applicant's project, the applicant must agree to a U.S. Competitiveness provision requiring 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. Award terms, including the U.S. Competitiveness Provision, are available at <https://www.energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>.

Please note that a subject invention is any invention conceived or first actually reduced in performance of work under an award. An invention is any invention or discovery which is or may be patentable. The recipient includes any awardee, recipient, sub-awardee, or sub-recipient.

As noted in the U.S. Competitiveness Provision, if an entity cannot meet the requirements of the U.S. Competitiveness Provision, the entity may request a modification or waiver of the U.S. Competitiveness Provision. For example, the entity may propose modifying the language of the U.S. Competitiveness Provision in order to change the scope of the requirements or to provide more specifics on the application of the requirements for a particular technology. As another example, the entity may request that the U.S. Competitiveness Provision be waived in lieu of a net benefits statement or U.S. manufacturing plan. The statement or plan would contain specific and enforceable commitments that would be beneficial to the U.S. economy and competitiveness. Examples of such commitments could include manufacturing specific products in the U.S., making a specific investment in a new or existing U.S. manufacturing facility, keeping certain activities based in the U.S. or supporting a certain number of jobs in the U.S. related to the technology. DOE may, in its sole discretion, determine that the proposed modification or waiver promotes commercialization and provides sufficient U.S. economic benefits, and grant the request. If granted, DOE will modify the award terms and conditions for the requesting entity accordingly. More information and guidance on the waiver and modification request process can be found in the DOE Financial Assistance Letter on this topic, available here at <https://www.energy.gov/management/pf-2022-09-fal-2022-01-implementation-doe-determination-exceptional-circumstances-under>. Additional information on DOE's Commitment to Domestic Manufacturing for DOE-funded R&D is available at <https://www.energy.gov/gc/us-manufacturing>.

The U.S. Competitiveness Provision is implemented by DOE pursuant to a Determination of Exceptional Circumstances (DEC) under the Bayh-Dole Act and DOE Patent Waivers. See Subsection entitled 'PATENTS' in this [Section III](#) for more information on the DEC and DOE Patent Waiver.

PROPERTY AND COMMERCIALIZATION RIGHTS AGREEMENTS

When using subcontractors, including research institutions, the applicant is responsible for protecting its own interests with regard to the retention of intellectual property and commercialization rights.

It is in the best interest of the applicant, when collaborating with a research institution or other subcontractors, to negotiate a written agreement for allocating, between the parties, intellectual property rights, and rights to carry out any follow-on research, development, or commercialization.

A model agreement, found on the SBIR/STTR Programs Office website at <https://science.osti.gov/sbir/Awardee-Resources/Awardee-Documents> may be used or revised through negotiation between the applicant and the research institution.

The completed agreement should not be submitted with the application, but retained by the parties to the agreement. The Federal government will not be a party to any agreement between the SBC and any subcontractor, including the STTR research institution. However, applicants are reminded that nothing in such agreements should conflict with any provisions setting forth the respective rights of the U.S. and the SBC with respect to both intellectual property rights and any rights to carry out follow-on research.

INTELLECTUAL PROPERTY INCLUDING INNOVATIONS, INVENTIONS, AND PATENTS PROPRIETARY INFORMATION

Information contained in unsuccessful applications will remain the property of the applicant. The Government will retain for at least three years one electronic file copy of each unsuccessful application. Public release of information in any application submitted will be subject to existing statutory and regulatory requirements, such as the Freedom of Information and Privacy Acts.

If proprietary information is provided in an application that constitutes proprietary technical data, confidential personnel information, or proprietary commercial or financial information, it will be treated in confidence, to the extent permitted by law, provided this information is clearly marked by the applicant in accordance with paragraph D, above, and provided appropriate page numbers are inserted in the Proprietary Notice legend printed on the first page of the Project Narrative.

Applications will not automatically be withheld in their entirety unless justified by the applicant. The Government will limit dissemination of such information to official channels to the extent permitted by law. Any other legend may be unacceptable to the Government and may constitute grounds for removing the application from further consideration and without assuming any liability for inadvertent disclosure.

PROTECTION OF APPLICATION INFORMATION

DOE's policy is to use data included in applications for evaluation purposes only and to protect, to the extent allowed by law, such information from unauthorized use or disclosure.

In addition to Government personnel, scientists and engineers from outside the government may be used in the application evaluation process. The decision to obtain outside evaluation will take into consideration requirements for the avoidance of organizational conflicts of interest and the competitive relationship, if any, between the applicant and the prospective outside evaluator. The

evaluation will be performed under an agreement with the evaluator that the information contained in the application will be used only for evaluation purposes and will not be further disclosed.

RIGHTS IN DATA DEVELOPED UNDER SBIR/STTR FUNDING AGREEMENTS

Rights in technical data, including software developed under the terms of any funding agreement resulting from applications submitted in response to this FOA, shall remain with the awardee, except that the Government shall have the limited right to use such data for Government purposes. DOE will protect properly marked SBIR/STTR data from disclosure from the date the SBIR/STTR award is issued for a period of 20 years in accordance with the most recent SBIR/STTR Intellectual Property Provision available at <https://www.energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>

COPYRIGHTS

The awardee may copyright and publish (consistent with appropriate national security considerations, if any) material developed with DOE support. DOE receives a royalty-free license for the Federal Government and requires that each publication contain an appropriate acknowledgment and disclaimer statement.

PATENTS

SBCs may retain the principal worldwide patent rights to any invention developed with Federal support. The government receives a royalty-free license for Federal use, reserves the right to require the patent holder to license others in certain circumstances, and requires domestic manufacture. Information regarding patent rights is available at 37 CFR 401.14 or the most recent SBIR/STTR Intellectual Property Provision available at <https://www.energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>.

On June 07, 2021, DOE approved a DETERMINATION OF EXCEPTIONAL CIRCUMSTANCES (DEC) UNDER THE BAYH-DOLE ACT TO FURTHER PROMOTE DOMESTIC MANUFACTURE OF DOE SCIENCE AND ENERGY TECHNOLOGIES. In accordance with this DEC, all awards, including sub-awards, under this FOA shall include the U.S. Competitiveness Provision in accordance with [Section III](#) of this FOA. A copy of the DEC can be found at <https://www.energy.gov/gc/determination-exceptional-circumstances-decs>.

Pursuant to 37 CFR § 401.4, any nonprofit organization or small business firm as defined by 35 U.S.C. 201 affected by this DEC has the right to appeal it by providing written notice to DOE within 30 working days from the time it receives a copy of the determination.

DOE may issue and publish on the website above further DEC's prior to the issuance of awards under this FOA. DOE may require additional submissions or requirements as authorized by any applicable DEC.

If applicable, on August 28, 2020, DOE approved a DETERMINATION OF EXCEPTIONAL CIRCUMSTANCES UNDER THE BAYH-DOLE ACT FOR QUANTUM INFORMATION SCIENCE TECHNOLOGIES. In accordance with this DEC, all awards, including sub-awards, under this FOA shall include the U.S. Competitiveness Provision in accordance with [Section III](#) of this FOA. A copy of the DEC can be found at <https://www.energy.gov/gc/determination-exceptional-circumstances-decs>.

With justification, Technical and Business Assistance funds may be used to pay U.S. patent prosecution costs for inventions developed under the Phase I or Phase II projects.

DISTRIBUTION OF INTELLECTUAL PROPERTY AND COMMERCIALIZATION RIGHTS BETWEEN THE SBC AND SUBCONTRACTOR

When using subcontractors, including research institutions, the SBC is responsible for providing that its subcontractors retain all rights provided for the SBC. Large business subcontractors will need to petition DOE to retain title to inventions.

PATENT WAIVER

DOE issued Class Patent Waiver W(C) 2022-03 allowing domestic large business subcontractors providing at least 20% cost share (50% cost share for demonstration activities) to elect to retain title to their subject inventions. Class Patent Waiver W(C) 2022-03 includes a U.S. Competitiveness provision requiring any products embodying or produced through the use of a subject invention first created or reduced to practice in the performance of work under this FOA to be substantially manufactured in the United States. Unless waived by DOE Patent Counsel, a domestic large business is limited to any for-profit entity that does not qualify as a “small business” and is incorporated (or otherwise formed) under the laws of a particular state or territory of the United States and is not owned, controlled, or influenced by a foreign government, agency, firm, corporation, or person.

Large business subcontractors may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this FOA, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784. For more information, see <https://energy.gov/gc/services/technology-transfer-and-procurement/office-assistant-general-counsel-technology-transf-1> .

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 which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

VIII.B.16. Intergovernmental Review

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

VIII.B.17. Logos and Wordmarks

DOE created a logo that recipients may use. The logos and best practices may be found at <https://www.energy.gov/management/pf-2023-19-department-energy-awardee-usage-branding-and-logo-guide>. Information about the DOE logo, seal, and wordmark may be found at <https://www.energy.gov/management/doe-logo-seal-and-word-mark>. Information about the SC logo may be found at <https://science.osti.gov/About/Resources/Logos>.

VIII.B.18. Matching Funds

For this FOA, matching funds are defined as contributions made by the applicant either (1) for research and development costs NOT requested in your budget or (2) other costs associated with commercialization of the proposed innovation.

VIII.B.19. Modifications

Notices of any modifications to this FOA will be posted on Grants.gov and the FedConnect portal. You can receive an email when a modification or an FOA message is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon after release of the FOA as possible to ensure you receive timely notice of any modifications or other FOAs. More information is available at www.FedConnect.net.

VIII.B.20. National Environmental Policy Act (NEPA) Compliance

If the question 4.a. on the “Research and Related Other Project Information” disclosure indicates “potential impact on the environment, negative”, or if DOE’s own review indicates it, DOE may ask the applicant to provide additional information on those impacts in order to prepare an environmental critique/synopsis per 10 CFR 1021.216. Note that this pre-award environmental critique/synopsis process would be separate from the preparation of a NEPA compliance document such as a categorical exclusion (CX), environmental impact statement (EIS,) or an environmental assessment (EA) prepared after selection.

This CX, EIS, or EA process would need to be completed prior to the applicant taking any action on the proposed project that could have adverse environmental effects or that could limit the choice of reasonable alternatives. The three processes would each begin with a request from DOE for an environmental disclosure. If DOE is able to make a CX determination base on that disclosure, that would end the NEPA process. If DOE determines that an EIS or EA is necessary, it would need to be funded by the applicant and at DOE’s discretion also their participation. Note that in most cases, even when “Potential Impact to the Environment” is checked “Yes” on the other Project Information Form, preparation of EISs and EAs is rarely necessary, but DOE has

the expectation that the recipient will disclose the potential, which would serve to initiate dialog with DOE as necessary. The inability to satisfy the NEPA requirements after an award would result in cancellation of the award.

VIII.B.21. Nondisclosure and Confidentiality Agreements Representations (June 2015)

By 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 applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.
 - c. Notwithstanding 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.

VIII.B.22 Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

As set forth in 2 CFR 200.216, recipients and subrecipients are prohibited from obligating or expending project funds (federal funds and recipient cost share) to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications

equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Section 889 of Public Law 115-232, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

See Public Law 115-232, Section 889, 2 CFR 200.216, and 2 CFR 200.471 for additional information.

VIII.B.23. Prohibition on Discrimination and Harassment

All people conducting, supporting, or participating in scientific research under this award must be able to do so on the basis of their abilities and without any unnecessary barriers. Recipients of awards resulting from this FOA are prohibited from engaging in discrimination on any basis prohibited by law, including harassment (sexual or non-sexual) as contained in 10 CFR 1040, 1041, and 1042.

Recipients may contact the DOE's Office of Civil Rights for technical assistance in meeting their institutional requirements under these regulations, including assistance in addressing complaints of discrimination or harassment (<https://www.energy.gov/diversity/title-ix>). The United States Equal Employment Opportunity Commission also makes a number of resources available at <https://www.eeoc.gov/eeoc/publications/index.cfm> to ensure that employees may perform their work without hindrance. Graduate students and post-doctoral researchers are understood to have a dual role as both trainees and employees, in accordance with 2 CFR 200.400 (f).

VIII.B.24. Prohibition on Lobbying Activity

By accepting funds under this award, you agree 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 USC 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

VIII.B.25. 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, 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 United States 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.

VIII.B.26. Proprietary Application Information

Department of Energy (DOE) takes very seriously the confidentiality of all applicants and will treat information submitted in applications, as well as the identity of applicants, as confidential to the fullest extent permissible under Federal law. In order for DOE to protect confidential information, the applicant must also treat the information as confidential and properly mark it as described below. DOE will not be able to protect information that the applicant has released publicly or is in the public domain. For additional information on DOE's Freedom of Information Act (FOIA) regulations, see 10 CFR 1004.

Applicants should not include business sensitive information (e.g., commercial or financial information that is privileged or confidential), trade secrets, proprietary, or otherwise confidential information in their application unless such information is necessary to convey an understanding of the proposed project or to comply with a requirement in the FOA. Applicants are advised to not include any critically sensitive proprietary detail.

If an application includes trade secrets or information that is commercial or financial, or information that is confidential or privileged, it is furnished to the Government in confidence with the understanding that the information shall be used or disclosed only for evaluation of the application. Such information will be withheld from public disclosure to the extent permitted by law, including the FOIA. Without assuming any liability for inadvertent disclosure, DOE will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for merit review of the application or as otherwise authorized by law. This restriction

does not limit the Government's right to use the information if it is obtained from another source.

Applications and other submissions containing confidential, proprietary, or privileged information must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the FOIA or otherwise. The U.S. Government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose.

Information contained in unsuccessful proposals will remain the property of the Applicant. The Federal Government may, however, retain copies of all proposals. Public release of information in any proposal submitted will be subject to existing statutory and regulatory requirements. If proprietary information is provided by an Applicant in a proposal, which constitutes a trade secret, commercial or financial information, it will be treated in confidence, to the extent permitted by law, provided that the proposal is clearly marked by the Applicant as follows:

a) The following legend must appear on the title page of the proposal:

This proposal contains information that shall not be disclosed outside the Federal Government and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than evaluation of this proposal, unless authorized by law. The Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract if award is made as a result of the submission of this proposal. The information subject to these restrictions are contained on all pages of the proposal except for pages [insert page numbers or other identification of pages that contain no restricted information.]

(End of Legend); and

b) The following legend must appear on each page of the proposal that contains information the Applicant wishes to protect:

Use or disclosure of information contained on this sheet is subject to the restriction on the title page of this proposal.

IMPORTANT GUIDANCE FOR COMPANY SUBMITTERS:

As per DOE's FOIA regulations and Department of Justice FOIA guidance, if DOE receives a FOIA request the following general steps will be taken:

- 1) DOE will review the request to determine whether your company's information is subject to the request. Only federal records are subject to FOIA requests. Depending on the circumstances, information submitted by an outside entity may be considered "federal records" for purposes of FOIA.
- 2) If your company information is determined to be a federal record and responsive to a FOIA request, DOE will review what was submitted in order to determine if DOE can make a determination whether the information is legally exempt.
 - a) If DOE determines your information is fully exempt under an exemption and that it will not be released, DOE may not contact you.

- b) If DOE is unable to determine whether the information is exempt under an exemption or is planning on releasing some or all of your information, DOE will first contact you in order for you to have an opportunity to respond and provide additional justification as to why it may be exempt. DOE will do all that it can to work with company submitters to be in compliance with the law and maintain positive relations with company submitters.
- c) It is critical if DOE or DOE's contractors who are processing your FOIA contact you that you respond in a timely manner. DOE is under strict deadlines when processing a FOIA request.

Please ensure this information is consistent with question number three (3) of the Research and Related Other Project Information form.

VIII.B.27. Publications

The recipient is expected to publish or otherwise make publicly available the results of the work conducted under any award resulting from this FOA. Publications and other methods of public communication describing any work based on or developed under an award resulting from this FOA must contain an acknowledgment of SC support. The format for such acknowledgments is provided at <https://science.osti.gov/funding-opportunities/acknowledgements/>. The author's copy of any peer-reviewed manuscript accepted for publication must be announced to DOE's Office of Scientific and Technical Information (OSTI) and made publicly available in accordance with the instructions contained in the Reporting Requirements Checklist incorporated in all Assistance Agreements. Awards made under this FOA are subject to DOE's [Public Access Plan](#). Full-text versions of scientific publications must be made publicly accessible at no charge to readers.

VIII.B.28. Registration Requirements

Additional administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR 25 (See: www.eCFR.gov). Prime recipients must keep their data in SAM current at www.SAM.gov. Subrecipients at all tiers must obtain UEI numbers and provide the UEI to the prime recipient before the subaward can be issued.

VIII.B.29. Subaward and Executive Reporting

Additional administrative requirements necessary for DOE grants and cooperative agreements to comply with the Federal Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR 170. (See: www.eCFR.gov). Prime recipients must register with the new FSRS database at <https://www.fsrs.gov> and report the required data on their first tier subrecipients. Prime recipients must report the executive compensation for their own executives as part of their registration profile in SAM.

VIII.C. REFERENCE MATERIAL

VIII.C.1. Definitions

COMMERCIALIZATION

This concerns the process of developing markets and producing and delivering products for sale (whether by the originating party or by others). As used here, commercialization includes both Government and private sector markets.

CONSULTANT

A consultant is generally an individual who is not using any institutional or organizational facilities and is acting as a direct agent. The individual usually bills by the hour, submitting invoices. Invoices occasionally include additional direct expenses incurred. Consultants are normally subject matter experts and are not directly supervised by the awardee.

COOPERATIVE AGREEMENT

Cooperative agreement means a type of financial assistance used when there will be substantial Federal scientific or programmatic involvement. Substantial involvement means that, after award, scientific or program staff will assist, guide, coordinate, or participate in program activities.

EMPLOYEE

A person listed on the budget form (Section A - Key/Senior Person or Section B - Other Personnel) as an employee of the SBC is required to either (a) be paid using a W-2 form or (b) possess an Internal Revenue Service determination that the person is an employee using Form SS-8. Persons paid by a 1099 (and not possessing an employee determination using Form SS-8) are to be treated as independent contractors and should be listed on the budget form in Section F - Other Direct Costs.

GRANT AGREEMENT

Grant agreement means a legal instrument of financial assistance between a Federal awarding agency or pass-through entity and a non-Federal entity that, consistent with 31 U.S.C. 6302, 6304:

- 1) Is used to enter into a relationship the principal purpose of which is to transfer anything of value from the Federal awarding agency or pass-through entity to the non-Federal entity to carry out a public purpose authorized by a law of the United States (see 31 U.S.C. 6101(3)); and not to acquire property or services for the Federal awarding agency or pass-through entity's direct benefit or use;
- 2) Is distinguished from a cooperative agreement in that it does not provide for substantial involvement between the Federal awarding agency or pass-through entity and the non-Federal entity in carrying out the activity contemplated by the Federal award.

- 3) Does not include an agreement that provides only:
- a) Direct United States Government cash assistance to an individual;
 - b) A subsidy;
 - c) A loan;
 - d) A loan guarantee; or
 - e) Insurance.

GRANTEE

Grantee means the organization or individual awarded a grant agreement by DOE that is responsible and accountable for the use of the funds provided and for the performance of the grant-supported project or activity. The grantee is the entire legal entity even if a particular component is designated in award documents. The grantee is legally responsible and accountable to DOE for the performance and financial aspects of the grant-supported project or activity. Also known as awardee or recipient.

HISTORICALLY UNDERUTILIZED BUSINESS ZONE (HUBZONE) – AN SBC MEETING THE FOLLOWING CRITERIA:

Located in a “historically underutilized business zone” or HUBZone area located in one or more of the following:

- A qualified census tract (as defined in section 42 (d)(5)(c)(i)(1) of the Internal Revenue Code of 1986; or
- A qualified “non-metropolitan county” (as defined in section 143(k)(2)(B) of the International Revenue Code of 1986) with a median household income of less than 80 percent of the state median household income or with an unemployment rate of not less than 140 percent of the statewide average, based on U.S. Department of Labor recent data; or
- Lands within the boundaries of Federally recognized Indian reservations.
- At least 35 percent of its employees must reside in a HUBZone.

To find out if your business is in a HUBZone, use the mapping utility provided by the U. S. SBA at its HUBZone Contracting website at <https://www.sba.gov/hubzone/>.

INNOVATION

Something new or improved that has marketable potential, including (1) development of new technologies, (2) refinement of existing technologies, or (3) new applications for existing technologies.

INTELLECTUAL PROPERTY

The separate and distinct types of intangible property that are referred to collectively as “intellectual property,” including but not limited to: patents, trademarks, copyrights, trade secrets, SBIR/STTR technical data, ideas, designs, know-how, business, technical and research methods, and other types of intangible business assets, and including all types of intangible assets either proposed or generated by an SBC as a result of its participation in the SBIR or

STTR program.

JOINT VENTURE

A joint venture is an association between two or more firms and or individuals to participate jointly in a single business enterprise. There must be a community of interests, a sharing of profits and losses, and, for the purposes of this FOA, the new entity must qualify as a small business. If a joint venture is selected for award, a DOE Contract Specialist will request a signed agreement from the parties involved. The agreement must state which company will negotiate the award and serve as the main point of contact. See 13 CFR 121.103(h) Affiliation based on joint ventures.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The National Environmental Policy Act of 1969 (NEPA). The Long Title describes it as follows: “An Act to establish a national policy for the environment, to provide for the establishment of a Council on Environmental Quality, and for other purposes.” NEPA requires Federal Agencies to assess and consider potential impacts from Federal actions in their decision-making.

POTENTIAL IMPACT ON THE ENVIRONMENT

DOE understands “potential impact on the environment” to apply if the work described in the application could potentially have any of the impacts identified below:

- 1) Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health;
- 2) Require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators);
- 3) Disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment;
- 4) Have the potential to cause significant impacts on environmentally sensitive resources. Environmentally sensitive resources include, but are not limited to:
 - a) Property (such as sites, buildings, structures, and objects) of historic, archeological, or architectural significance designated by a Federal, state, or local government, Federally recognized Indian tribe, or Native Hawaiian organization, or property determined to be eligible for listing on the National Register of Historic Places;
 - b) Federally-listed threatened or endangered species or their habitat (including critical habitat) or Federally-proposed or candidate species or their habitat (Endangered Species Act); state- listed or state-proposed endangered or threatened species or their habitat; Federally-protected marine mammals and Essential Fish Habitat (Marine Mammal Protection Act; Magnuson- Stevens Fishery Conservation and Management Act); and otherwise Federally-protected species (such as the Bald and Golden Eagle Protection Act or the Migratory Bird Treaty Act);
 - c) Floodplains and wetlands, as defined in 10 CFR 1022.4, “Compliance with Floodplain and Wetland Environmental Review Requirements: Definitions,” or its successor;

- d) Areas having a special designation such as Federally- and state-designated wilderness areas, national parks, national monuments, national natural landmarks, wild and scenic rivers, state and Federal wildlife refuges, scenic areas (such as National Scenic and Historic Trails or National Scenic Areas), and marine sanctuaries;
 - e) Prime or unique farmland, or other farmland of statewide or local importance, as defined at 7 CFR 658.2(a), “Farmland Protection Policy Act: Definitions,” or its successor;
 - f) Special sources of water (such as sole source aquifers, wellhead protection areas, and other water sources that are vital in a region); and Tundra, coral reefs, or rain forests; or
- 5) Involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species.

In addition, DOE understands “potential impact on the environment,” to apply if the work described in the application could potentially have any of the impacts identified below:

Any other high consequence impacts to the environment which have any possibility for high consequence impacts to human health (e.g., use of human subjects, Biosafety Level 3-4 laboratory construction/operation, manufacture or use of certain nanoscale materials which are known to impact human health, or any activities involving transuranic or high level radioactive waste or materials or exposure to any radioactive materials beyond de minimis levels) or:

- a) Have extraordinary circumstances (i.e., scientific or related public controversy) related to the significance of environmental effects [see 10 CFR 1021.410(b)(2)];
- b) Are connected to other actions with potentially significant impacts [see 10 CFR 1021.410 (b)(3)]; or
- c) Are related to other nearby actions with the potential for cumulatively significant impacts [see 10 CFR 1021.410 (b)(3)].

RESEARCH OR RESEARCH AND DEVELOPMENT (R&D)

Research or R&D is any scientific or engineering activity which is (1) a systematic, intensive study directed toward greater knowledge or understanding of the subject; (2) a systematic study directed specifically toward applying new knowledge to meet a recognized need; and/or (3) a systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

RESEARCH INSTITUTION

A research institution is one that has a place of business located in the United States, which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor, and is:

- 1) A non-profit institution as defined in section 4(3) of the Stevenson-Wydler Technology Innovation Act of 1980 (that is, an organization that is owned and operated exclusively for scientific or educational purposes, no part of the net earnings, which benefits any private shareholder or individual); or

- 2) A Federally-funded R/R&D center (FFRDC) as identified by the National Science Foundation (NSF) in accordance with the Federal Acquisition Regulation issued in accordance with section 35(c)(1) of the Office of Federal Procurement Policy Act (or any successor regulation). <https://www.nsf.gov/statistics/ffrdclist/>
- A non-profit institution can include hospitals and military educational institutions, if they meet the definition above.
 - Research institutions may include a non-profit college or university.
 - DOE FFRDCs include Ames Laboratory, Argonne National Laboratory, Brookhaven National Laboratory, Fermi National Accelerator Laboratory, Idaho National Laboratory, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, National Renewable Energy Laboratory, Oak Ridge Institute for Science and Education, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Princeton Plasma Physics Laboratory, Sandia National Laboratories, Savannah River National Laboratory, SLAC National Accelerator Facility, and the Thomas Jefferson National Accelerator Facility. DOE-sponsored FFRDC's may be viewed by selecting the Department of Energy under the Sponsoring agency tab at <https://www.nsf.gov/statistics/ffrdclist/>.
 - Research institutions may include government-owned, government-operated facilities. However, the National Energy Technology Laboratory (NETL) may participate as a research institution for all but the following topics and subtopics in this FOA: 25a, 25b, 25c, 25d, 25e, 25f, 26a, 26b, 26c, 26d, 26e, 26f, 27a, 27b, 28a and 28b.

RESEARCH MISCONDUCT

Research misconduct means fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results, but does not include honest error or differences of opinion. 2 CFR 910.132 Research misconduct.

SOCIALLY AND ECONOMICALLY DISADVANTAGED SMALL BUSINESS

A socially and economically disadvantaged small business is one:

- That is at least 51 percent owned by (i) an Indian tribe or a native Hawaiian organization, or (ii) one or more socially and economically disadvantaged individuals; and,
- Whose management and daily business operations are controlled by one or more socially and economically disadvantaged individuals. A socially and economically disadvantaged individual is defined as a member of any of the following groups: African Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian Americans, other groups designated from time to time by the Small Business Administration (SBA) to be socially disadvantaged, or any other individual found to be socially and economically disadvantaged by SBA pursuant to section 8(a) of the Small Business Act, 15 U.S.C. 637(a).

SUBCONTRACT

A subcontract is any agreement, other than one involving an employer-employee relationship, entered into by the recipient of a Federal Government award, calling for supplies or services

required solely for the performance of the original award.

WOMAN-OWNED SMALL BUSINESS

A woman-owned small business is a small business that is at least 51 percent owned by a woman or women who also control and operate it. “Control” in this context means exercising the power to make policy decisions. “Operate” in this context means being actively involved in the day-to-day management.

VIII.C.2. Working with National Labs, Universities, Research Institutions, and Other Subcontractors

DOE USER FACILITIES

DOE operates a number of major scientific user facilities to serve researchers from universities, national laboratories, and industry. These facilities enable the acquisition of new knowledge that often cannot be obtained by any other means. Thousands of researchers collaborate with these facilities and analyze their respective data from the experiments to publish new scientific findings in peer-reviewed journals. These facilities may be found at the following web addresses: <https://science.osti.gov/bes/suf/User-Facilities> and <https://science.osti.gov/ber/Facilities/User-Facilities>.

Potential applicants to the SBIR or STTR programs should consider whether the use of any of these facilities would contribute to the scientific efforts proposed in either Phase I or II. For approved experiments (access to these facilities is through a peer-reviewed system), operating time is available without charge to those scientists whose intent is to publish their results in the open literature. If the investigator wishes to perform proprietary research, the user must pay the full-cost recovery rate for facility usage (in which case, the cost could be charged to the SBIR/STTR project); in return, the facility will treat all technical data generated as proprietary, and the user may take title to any inventions resulting from the research. Information on other laboratory facilities which may be available on a case- by-case basis may be obtained through the Federal Laboratory Consortium Locator or directly from the DOE laboratory involved.

IDENTIFYING INSTITUTIONS

Experts at institutions such as DOE contractor-operated national laboratories, universities, colleges, or other research institutions, may be consulted during the preparation of the application. Any of these institutions may also serve as a subcontractor to SBIR/STTR Phase I or Phase II projects, providing technical expertise, facilities, or equipment. In such cases, the SBC must have the necessary expertise to direct the project.

For STTR, the SBC must conduct cooperative R&D with a research institution (see definition list). An alliance between the SBC and a research institution must be formed before submitting the application. Awards will be awarded to the applicant, which will receive all funding for the project and disperse the appropriate funds to the research institution.

A list of DOE National Laboratories and relevant small business contacts is available at <https://science.osti.gov/sbir/Applicant-Resources/National-Labs-Profiles-and-Contacts>. For help in contacting personnel at other Federal agency laboratories, go to <https://www.federallabs.org>, or contact the FLC Management Support Office by Phone: (856) 667-7727 or email: flcmso@utrs.com.

SCIENTIFIC AND TECHNICAL INFORMATION RESOURCES

Applicants may want to obtain scientific and technical information related to their proposed effort as background or for other purposes. Sources of this information are listed in the references for each technical topic and below references for each technical topic and below (<https://science.osti.gov/sbir/Funding-Opportunities>)

National Technical Information Service – Reports resulting from Federal research and those received from exchange agreements with foreign countries and international agencies are available to the public in both paper copy and microfiche through the National Technical Information Service. They may be ordered electronically from <https://www.ntis.gov/> or by phone at 1-800-553-6847.

DOE Office of Scientific and Technical Information (OSTI) - OSTI is responsible for fulfilling the requirements of the Energy Policy Act of 2005 to maintain "... publicly available collections of scientific and technical information resulting from research, development, demonstration, and commercial application activities supported by the Department." OSTI collects, preserves, and disseminates research results via web-based information systems developed on behalf of DOE.

SBIR and STTR applicants may obtain information from the following OSTI sources, available via the web at <https://www.osti.gov> or at the specific web addresses below.

- Information Bridge (<https://www.osti.gov/bridge>), over 125,000 searchable full-text documents reporting results of DOE-funded research.
- Energy Citations Database (<https://www.osti.gov/energycitations>), over 2 million searchable citations covering disciplines of interest to DOE from 1948 to the present, with links to full-text when available.
- E-print Network offers single-query access to a network of scientific and technical information and communication, searching more than 900,000 manuscripts, scholarly papers, and other scientific documents residing on approximately 35,300 websites and databases worldwide, containing over 5.5 million e-prints in basic and applied sciences.
- DOE R&D Accomplishments (<https://www.osti.gov/accomplishments>), a central forum for information about the outcomes of past DOE R&D.

OTHER RESOURCES

Literature and database searches for abstracts, publications, patents, lists of Federal research in progress, and names of potential consultants in the specific research area can be obtained at good technical libraries (especially those of universities), and from some state organizations.

Science.gov (<https://www.science.gov/>), a web portal providing single-query search of more than

50 million pages of science information and research results from DOE and 11 other Federal science agencies.

Technical Assistance for Application Preparation and Project Conduct - SBCs may wish to contact their local National Institute of Standards and Technology Hollings Manufacturing Extension Partnership (MEP) for manufacturing and other business-related support services.

The MEP works with small and mid-sized companies to help them create and retain jobs, increase profits, and save time and money. The nationwide network provides a variety of services, from business development assistance to innovation strategies to process improvements and the identification of commercialization opportunities. MEP is a nationwide network of locally managed extension centers with over 1,400 technical experts - located in every state. To contact an MEP center, call 1-800-MEP-4- MFG (1-800-637-4634) or visit MEP's website at <https://www.nist.gov/mep>.

USE OF FEDERAL FACILITIES OR PERSONNEL, E.G. NATIONAL NUCLEAR SECURITY ADMINISTRATION (NNSA) PLANTS AND SITES

The SBA may issue a case-by-case waiver to DOE or other Federal Government agency to permit the applicant to use a Federal facility or personnel, after review of the applicable agency's waiver request to the SBA. The applicant must submit to its point of contact at the Federal facility, as soon as possible, before the application due date, a letter from the SBC Official explaining why the SBIR/STTR research project requires the use of the facility or personnel, including data that verifies the absence of non-Federal facilities or personnel capable of supporting the research effort. The applicable agency will provide to the SBA: a) the applicant's explanation and b) agency's statement, signed by the appropriate Government official at the facility, verifying that the facility will be available for the required effort and that the agency will not and cannot fund the use of the facility or personnel for the SBIR/STTR project with non SBIR/STTR money. DOE cannot guarantee that a waiver will be obtained from SBA. A waiver must be obtained before award. Federal facilities designated as Federal (National) laboratories are exempt from this waiver requirement.