



U.S. DEPARTMENT OF **ENERGY**

FINANCIAL ASSISTANCE FUNDING OPPORTUNITY ANNOUNCEMENT

Small Business Innovation Research (SBIR)
Small Business Technology Transfer (STTR)

FY 2013 Phase II Release 2

Funding Opportunity Number: DE-FOA-0000880
Announcement Type: **AMENDMENT 1**

CFDA Number: 81.049

AMENDMENT ISSUED: March 1, 2013

Issue Date: February 27, 2013

Application Due Date: April 17, 2013 by 11:59 pm EDT

Amendment 1:

The following statement was removed from page 18: "Although there is no page limitation, the application should be written succinctly using the outline below."

Please note that the Project Narrative must not exceed 20 pages or 10,000 words of text.

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Proprietary Notice Update: The procedure for identifying Proprietary Data contained in your application has recently changed. Please follow the instructions provided in PART IV, C. and PART VIII D. of this announcement regarding the marking of the data considered proprietary.

ELIGIBLE APPLICANTS: Only currently active DOE SBIR or STTR Phase I grantees are eligible to apply to this U. S. Department of Energy Phase II Funding Opportunity Announcement (FOA).

Applicants 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 download software page at http://www.grants.gov/help/download_software.jsp

REGISTRATIONS

A. Required Registrations

There are several one-time actions you must complete in order to submit an application in response to this Announcement (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the System for Award Management (SAM), and register with Grants.gov). Those applicants not registered with SAM and/or Grants.gov must understand that it may take up to 44 days to complete these requirements. It is suggested that you begin the registration process well before 44 days.

Applicants must obtain a DUNS number at <http://fedgov.dnb.com/webform>.

Applicants must register with the System for Award Management (SAM) at <http://www.sam.gov/>. If you had an active registration in the Central Contractor Registry (CCR), you should have an active registration in SAM. More information about SAM registration for applicants is found at: https://www.sam.gov/sam/transcript/Quick_Guide_for_Grants_Registrations_v1.7.pdf.

Applicants must register with Grants.gov. There are 3 steps to this process.

1. The Authorized Organizational Representative (AOR) must register at: <https://apply07.grants.gov/apply/OrcRegister>
2. An email is sent to the E-Business (E-Biz) POC listed in SAM. The E-Biz POC must approve the AOR registration using their MPIN from their SAM registration.
3. AOR verifies that registration was completed at: http://grants.gov/applicants/applicant_profile.jsp.

More information about the above steps is provided at: http://www.grants.gov/applicants/organization_registration.jsp.

Applicants must register with FedConnect at www.fedconnect.net. If an award is made, the full and binding version of the assistance agreement between your institution and DOE will be posted to FedConnect.

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

All SBIR/STTR applicants are required to complete the U. S. Small Business Administration (SBA) company registration process prior to submitting an SBIR or STTR application. You may complete the SBA Company Registration by going to <http://sbir.gov/registration>. Completed registrations will receive a unique small business Control ID and .pdf file to be used for SBIR or STTR submissions at any of the 11 participating agencies. Please refer to PART IV, Section C 2.c.5.j for guidance on where to attach this form within your application.

During the registration process, small businesses have the opportunity to review the basic rules on eligibility based on the recently issued size rule. Because these issues can get complex, the SBA created additional resources to help understand the new size rules and company registry, including a checklist to quickly determine eligibility and an FAQ with answers to most frequently asked questions.

Additionally, the SBA has put together a compliance guide to help understand the necessary certifications needed and provides numerous examples on various ownership and control requirements.

Please note, if you are a sole proprietor and do not have an Employer Identification Number (EIN), also known as a Federal Tax Identification Number, you may use your social security number for this purpose. If you have never submitted a Phase I SBIR or STTR application and do not possess a DUNS number, you may also use your social security number as an alternate option.

B. DOE Office of Science Portfolio Analysis and Management System (PAMS)

Many functions for grants and cooperative agreements with the DOE Office of Science are performed in the Portfolio Analysis and Management System (PAMS), which is available at <https://pamspublic.science.energy.gov>.

Letters of Intent are submitted through PAMS. Formal grant applications are submitted through grants.gov, which will transfer the application into PAMS. This solicitation is available through grants.gov, fedconnect.net, and PAMS. You will receive various notifications from PAMS during the application receipt and review process. Additional functionalities will be added to PAMS in the near future.

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

To access PAMS, you may use Internet Explorer, Firefox, Google Chrome, or Safari browsers.

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 the "Having Trouble Logging In?" page.

Register to Your Institution:

- 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. (Hint: If your institution has an acronym, such as ANL for Argonne National Laboratory or UCLA for the Regents of the University of California, Los Angeles, you may 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, 9AM – 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 should reference the Funding Opportunity Number listed on the cover page of this Funding Opportunity Announcement.

C. Questions

Questions relating to the registration process, system requirements, or how an application form works must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov.

D. Application Preparation and Submission

Applicants must download the application package, application forms and instructions, from Grants.gov at <http://www.grants.gov/>
(Additional instructions are provided in Section IV A of this FOA.)

E. 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. Remember you have to update your SAM registration annually. If you have any questions about your registration, you should contact the Grants.gov Helpdesk at 1-800-518-4726 to verify that you are still registered in Grants.gov.

IMPORTANT NOTICE TO POTENTIAL APPLICANTS: When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e., Grants.gov registration).

All applications should be in a single PDF file.

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PART I – FUNDING OPPORTUNITY DESCRIPTION

STATUTORY AUTHORITY

Public Law 95-91, US Department of Energy Organization Act
Public Law 112-81, SBIR/STTR Reauthorization Act of 2011
Public Law 109-58, Energy Policy Act of 2005

APPLICABLE REGULATIONS

U.S. Department of Energy Financial Assistance Rules, codified at 10 CFR 600
U.S. Small Business Administration Small Business Size Regulations, codified at 13 CFR 121

SUMMARY

The Department of Energy (DOE) invites only DOE SBIR/STTR Phase I Release 2 Awardees from FY 2012 to submit Phase II grant applications to this Funding Opportunity Announcement.

The purpose of Phase II is to perform the research and development required to meet the DOE objectives stated in the topic of the Phase I Funding Opportunity Announcement (FOA). In addition, it is intended that the small business grantee would be in a position to pursue commercial applications of the R&D at the end of Phase II. In many cases, Phase II results in a prototype product or a working process that can be demonstrated to a potential investor or customer (either in the private sector or in the Federal government, including the Department of Energy).

This FOA is supplemental to the FY 2012 SBIR/STTR Phase I Release 2 FOA (DE-FOA-0000628); therefore, general information already provided in the FY 2012 FOA also applies to this Phase II process.

If a conflict arises, this Phase II FOA will govern.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

DOE anticipates awarding grants under this Funding Opportunity Announcement (FOA).

B. ESTIMATED FUNDING

Approximately \$90 Million is expected to be available for awards under this FOA contingent on the availability of appropriated funds. DOE is under no obligation to pay for any costs associated with preparation or submission of applications. DOE reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in response to this FOA.

C. MAXIMUM AND MINIMUM AWARD SIZE

Ceiling (i.e., the maximum amount for an individual award made under this FOA): \$1,000,000.

Floor (i.e. the minimum amount for an individual award made under this FOA): \$1.00

D. EXPECTED NUMBER OF AWARDS

DOE anticipates making approximately 90 awards under this FOA depending on the size of the awards.

E. ANTICIPATED AWARD SIZE

The average award size for the SBIR program in FY 2012 was \$985,820 and for the STTR program was \$967,940

F. PERIOD OF PERFORMANCE

DOE anticipates making awards that will run for up to 24 months over two budget periods. The first budget period, anticipated to begin in August 2013, will cover a period of 12 months. Funding for the 2nd budget period will be contingent on the demonstration of adequate progress, evaluation of programmatic priorities, and availability of funds.

G. TYPE OF APPLICATION

DOE is accepting renewal (Phase II) applications under this FOA. Renewal (Phase II) applications are requests for additional funding for a period subsequent to that provided by a current award or Phase I award. Renewal applications compete with all other applications and must be submitted by an established due date/deadline. In preparing a renewal application, applicants should assume that reviewers will not have access to previous applications. The application should be developed fully, as though the applicant is applying for the first time. The application must include

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all the information required for a new project, plus the Project Narrative section should discuss the results from the applicable prior Phase I work.

PART III - ELIGIBILITY INFORMATION

A. ELIGIBLE SBIR AND STTR APPLICANTS

Only currently active DOE SBIR or STTR Phase I grants awarded under FY 2012 SBIR/STTR Phase I Release 2 FOA (DE-FOA-0000628) are eligible to apply to this DOE Phase II Funding Opportunity Announcement (FOA).

Only United States small business concerns (SBCs) are eligible to submit SBIR applications. Joint ventures, as defined in "Appendices/Reference Material," may apply, provided the entity created also qualifies as a small business. A small business concern is one that, at the time of award for both Phase I and Phase II SBIR/STTR awards, meets all of the following criteria:

1. Is organized for profit, with a place of business located in the United States, which operates primarily within the United States or which makes a significant contribution to the United States economy through payment of taxes or use of American products, materials or labor;
2. 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 business entities in the joint venture;
3. Be a concern which is more than 50% directly owned and controlled by one or more individuals (who are citizens or permanent resident aliens of the United States), other business concerns (each of which is more than 50% directly owned and controlled by individuals who are citizens or permanent resident aliens of the United States), or any combination -- (except in the case of a joint venture);

Has, including its affiliates, not more than 500 employees and meets the other regulatory requirements found in 13 C.F.R. Part 121. Further information may be obtained by contacting the Small Business Administration Size District Office at <http://www.sba.gov/size/>.

5. Small business concerns that are majority-owned by multiple venture capital operating companies, hedge funds, or private equity firms, or any combinations of these are not eligible for funding under this FOA.
6. SBC's submitting to both the SBIR and STTR programs must meet eligibility requirements of both SBIR and STTR applicants.

B. OTHER ELIGIBILITY REQUIREMENTS

The research or R&D must be performed in the United States. United States" means the 50 states, the territories and possessions of the United States, the Commonwealth of Puerto Rico, the Trust Territory of the Pacific Islands, and the District of Columbia. Non-U.S. citizens are eligible to perform work on SBIR/STTR projects provided he/she is legally empowered to work in the U.S. at the time that an award is made.

1. Restrictions on Submitting Applications

Applications for Phase II funding should be submitted during this current review cycle and may be submitted to either the SBIR or STTR program regardless of which program (SBIR or STTR) your Phase I award was granted. However, the respective minimum level of effort requirements, i.e., small business participation, must be met. Please refer to "Restrictions on the Level of Small Business Participation" below.

2. Restrictions on the Level of Small Business Participation

SBIR - 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, excluding any purchased or leased equipment, materials, and supplies (whether purchased by the applicant or a subcontractor), must be allocated to the small business.

STTR - 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, which must be explained and approved by the DOE Program Manager. Accordingly, at least 40 percent of the total funding requested on the budget form, excluding any purchased or leased equipment, materials, and supplies (whether purchased by the applicant, the research institution, or a subcontractor), must be allocated to the small business, and at least 30 percent must be allocated to a single research institution.

A [Level-of-Effort worksheet](#) is provided to assist in calculating the analytical effort for the project.

3. Restrictions on the Principal Investigator (PI)

- a. **General PI Requirements and Restrictions** - The Principal Investigator (PI) is the key individual designated by the applicant to direct the project. The PI must be knowledgeable in all technical aspects of the grant application and be capable of leading the research effort. Because DOE's evaluation of the grant application is critically dependent on the qualifications of the PI, changes in the PI that are made after award selection are strongly discouraged. Requests for PI changes will be closely scrutinized and may cause delays in grant execution.

In addition, the PI must devote a minimum of 520 hours to the project or at least 5 hours per week if the project is less than 24 months in duration. If the project is less than 24 months in duration, applicants must state in the Performance Schedule of the Project Narrative the duration of the project in weeks, in order to make clear that this requirement is fully met. If the application is selected for funding, the PI may be required to sign a statement certifying adherence to all PI requirements.

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 PI may be required to sign a statement certifying adherence to these requirements. Non-U.S. citizens are eligible to perform work on SBIR/STTR projects provided he/she is legally empowered to work in the U.S. at the time that an award is made.

- b. Additional PI Restrictions when submitting to SBIR Only - To be awarded a SBIR grant, the applicant must meet the general requirements and the PI's primary employment must be with the small business 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 small business during the conduct of the project and no more than 19 hours per week spent in the employment of another organization.
 - c. Additional PI Restrictions when submitting to STTR Only – to be awarded a STTR grant, the applicant must meet the general requirements and the PI's primary employment may be with the small business or the research institution. However, the small business must still provide technical control and oversight of the project. If the PI is employed by the research institution, his/her primary employment must be with the research institution in order to qualify under STTR. If the PI is employed by the small business, his/her primary employment must be with the small business. The PI must be listed and funds must be requested on the budget submitted from the entity that is the primary employer of the PI.
4. Restrictions on the Level of Small Business Participation

For both SBIR and STTR, 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 purchased or leased equipment, materials, and supplies (whether purchased by the applicant, a research institution, or by any other subcontractor).

Click on the following link to find a [Level-of-Effort worksheet](#) to assist you in assuring the application is in compliance. Work performed by a consultant, a DOE national laboratory, or any other subcontractor, will be considered as external to the applicant organization when complying with these requirements.

5. Restrictions on the Management of SBIR/STTR Projects

All SBIR and STTR funding agreements are made with the Small Business 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 primary grantee, the small business has the overall responsibility of the project, including financial management and the direction and control of the performance. For STTR projects, even if the principal investigator is from the research institution, the small business must provide overall direction and supervision of the project while the principal investigator will manage the research portion of the project.

It is recommended that all agreements between the small business and any subcontractor (including the research institution collaborating in a STTR project) reflect the controlling management position of the small business during the performance of the Phase I and/or Phase II. 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.

6. Restrictions on Subcontracting and Consultants

Consultants may not be employees of either the small business or any subcontractor. Small business personnel cannot be reimbursed with DOE funding as a consultant or employee of a subcontractor under the project.

C. **PARTICIPATION BY FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTER (FFRDC) CONTRACTORS**

Federally Funded Research and Development Center (FFRDC) contractors are not eligible for an award under this FOA, but they may be proposed as a team member subject to the following guidelines:

1. Authorization for non-DOE/NNSA FFRDCs: The Federal agency sponsoring the FFRDC contractor must authorize in writing the use of the FFRDC contractor on the proposed project and this authorization must be submitted with the application. The use of a FFRDC contractor must be consistent with the contractor's authority under its award and must not place the FFRDC contractor 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 contractor 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 _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory, will not adversely impact execution of the DOE/NNSA assigned programs at the laboratory, and will not place the laboratory in direct competition with the domestic private sector."

Failure to obtain such approval in a timely manner may delay the project if a grant is awarded.

3. Responsibility: The applicant, if successful, 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 contractor.

D. **COST SHARING**

Cost sharing is not required. However, any commercial contributions will be considered as part of the evaluation. See PART IV, Section C, Phase II Funding Commitment (Commercial

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Contribution) [OPTIONAL] and Phase III Follow-On Funding Commitment [OPTIONAL] and PART V, Section A, Merit Review.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE

Application forms and instructions are available at Grants.gov. To access these materials, go to <http://www.grants.gov>, select "Apply for Grants", and then select "Download a Grant Application Package." Enter the CFDA and/or the funding opportunity number located on the cover of this FOA and then follow the prompts to download the application package.

Applications submitted through www.FedConnect.net will not be accepted.

B. LETTER OF INTENT AND PRE-APPLICATION

1. **Letter of Intent**
Not Required

2. **Pre-Application**
Not Required

C. CONTENT AND FORMAT OF APPLICATION

PART IV, of Section C (this Section) describes all the required and optional information that must be included in the grant application package. All of the following components (numbers 1-7) must be included in the grant application package or at least addressed. All of the information provided in response to numbers 1-7 below will be evaluated using the Review Criteria described in Part V, Application Review Information.

You must complete the mandatory forms and any applicable optional forms (e.g. SF-LLL-Disclosure of Lobbying Activities) in accordance with the instructions on the forms and the additional instructions below. Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this FOA.

1. SF 424 (R&R): [MANDATORY]

Complete this form first to populate data in other forms. Identify the Phase I Award Number assigned to the project in the Federal Identifier field (number 4). Complete all the required fields in accordance with the pop-up instructions on the form. 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. The list of certifications and assurances referenced in Field 17 can be found on the [DOE Financial Assistance Forms and Information For Applicants and Recipients](http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms) web page at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>, under Certifications and Assurances.

2. RESEARCH AND RELATED Other Project Information: [MANDATORY]

Complete questions 1 through 6 and attach files. If the answer to question 3 is "Yes", you must identify proprietary information with a legend on the first page of your project narrative and on each page that contains proprietary information in accordance with instructions provided in PART VIII, Sections D, and F. Failure to comply may result in DOE's inability to treat such information as proprietary and may delay the award process.

For fields 7 through 12, the files that are attached must comply with the following instructions:

a. Project Summary/Abstract: (Field 7 on the Form) [MANDATORY]

The project summary/abstract 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 the DOE may make it available to the public. The project summary must not exceed 1 page or 500 words of text. Save this information in a file named "Summary.pdf," and click on "Add Attachment" to attach.

The purpose of the project summary is to communicate the overall sense of the project, not every step of the work plan or every accomplishment in Phase I. 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).

The summary must include:

1. Company name
2. Project Title
3. Principal Investigator
4. Topic number/subtopic letter
5. Statement of the problem or situation that is being addressed. Describe the problem or situation being addressed – be sure that the Department of Energy interest in the problem is clear, but not in such a way that implies that any service 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).
6. General statement of how this problem is being addressed. This is the overall objective of the combined Phase I and Phase II projects. How is this problem being addressed? What is the overall approach of the combined Phase I/Phase II project? (Typically one to two sentences).
7. What was done in Phase I? (Typically two to three sentences).
8. What is planned for the Phase II project? (Typically, two to three sentences).
9. 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 III and beyond. Do not repeat information already provided above.
10. Key Words - Provide listing of key words that describe this effort.

11. Summary for Members of Congress: (layman's terms, two sentences Maximum 50 words). The DOE notifies members of Congress of awards in their districts. Therefore, please provide, in clear and concise layman's terms, a very brief summary of the project, suitable for a possible press release from a Congressional office.

Suggested Format: To ensure that the research need is clear, please state the problem to be addressed in the first sentence. In the second sentence, state what is being done to address the problem.

b. Project Narrative: (Field 8 on the form) [MANDATORY]

The Project Narrative describing your technology is considered the main portion of the grant application and must not exceed 20 pages or 10,000 words of text.

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, commercialization plans should not be included in the Project Narrative but attached in the appropriate fields for those forms.

Phase II grant applications must propose research and development required to meet the DOE objectives stated in the technical topic of the Phase I funding opportunity announcement 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 PART V. The work proposed in Phase II, assuming that it proceeds successfully, should be suitable in nature for subsequent progression into Phase III. To attach a Project Narrative, click "Add Attachment."

The Project Narrative must include ALL of the following using this outline:

Cover page – Provide company-specific and project information including company name and address, principal investigator, project title, topic number, subtopic letter, and grant award number.

Provide a Proprietary Data Legend – if applicable in accordance with the following PART VIII, Sections D.

An application may include technical data and other data, including trade secrets and commercial or financial information that are privileged or confidential, which the applicant does not want disclosed to the public or used by the Government for any purpose other than application evaluation. **To protect such data, your proposal must be marked in the following manner using the three-step process outlined below:**

1. The **Cover Page** of your proposal must contain the notice below (please cut and paste):

“Page(s) [] of this document may contain trade secrets or commercial or financial information that is privileged or confidential and is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance or loan agreement between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.”

2. To further protect such data, **each page** containing trade secrets or commercial or financial information that is privileged or confidential must be specifically identified and marked with text similar to the following (please cut and paste):

“May contain trade secrets or commercial or financial information that is privileged or confidential and exempt from public disclosure.”

3. In addition, **each line or paragraph** containing trade secrets or commercial or financial information that is privileged must be marked with brackets or other clear identification, such as highlighting.

Table of Contents

Significance, Background Information, and Technical Approach

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, if the project is successful and 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.

Degree to which Phase I has Demonstrated Technical Feasibility - Discuss the purpose of your Phase I research, the research carried out, the research findings or results, and your estimate of technical feasibility. In particular, address the degree to which the Phase I objectives have been met.

The Phase II application should include all relevant information concerning the research carried out in Phase I. Technical reviewers are not always the same as used in Phase I, therefore, may not be familiar with the Phase I application.

c. The Phase II Project

1. Technical Objectives - State the specific technical objectives of the Phase II research and development.
2. Work Plan - This section should be a substantial part of the technical application. Provide an explicit, detailed description of the Phase II research approach and work to be performed. Indicate what will be done, by whom (small business, subcontractors, or consultants) where it will be done, and how the work will be carried out.

Link the work plan to the 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 small business is to be the primary grantee with overall responsibility for its performance.

3. Performance Schedule - Phase II projects are typically for 24 months. Please note that the performance period should cover two budget periods of up to 12 months each. Funding for the 2nd budget period will be contingent on the demonstration of adequate progress, evaluation of programmatic priorities, and availability of funds. Please state in this section if the project will be completed in less than 24 months and identify the proposed project length in weeks. Briefly describe the important milestones and the estimated amount of time for completing each task described in the work plan.
4. Facilities/Equipment - Describe available equipment and physical facilities necessary to carry out the Phase II effort. Equipment is defined as an article of tangible, nonexpendable, personal property, including exempt property, charged directly to the award, 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 award 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. Awardees wishing to obtain title should contact their DOE Award Administrator 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 as described below in 5. d.

5. 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 Phase II awards.
 - a. Consultants and Subcontractors (including Research Institutions for STTR)
 - b. Research Institution – If the grant application contains substantial collaboration with a research institution (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 research institution, and the total dollar amount of the subcontract; (2) describe in detail the work to be done by this institution in the Work Plan section; and (3) provided a Budget; (4) Provide 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 research institutions.

The research institution will be considered a subcontractor to the small business applicant. The research institution must provide a letter of commitment on official letterhead from an **authorized representative** of the institution which commits the institution to participate in the project as described in the grant application. The letter should be attached as an “Other Attachment” in field 12, on the Research & Related Other Project Information form. If selected for award, participation of the research institution will be verified by the Contracting Office.

- c. Consultants and Other Subcontractors – Involvement of consultants or subcontractors in the planning and research stages of 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” from an **authorized representative** of the consultants and/or subcontractors. The letters 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 they 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 award, the Contracting Officer will verify the participation of any subcontractors and/or consultants 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 Small Business may be 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. Small business personnel cannot be reimbursed with DOE funding as a consultant or employee of a subcontractor under the project. Non-U.S. citizens are eligible to perform work on SBIR/STTR projects provided he/she is legally empowered to work in the U.S. at the time that an award is made.

d. Phase II Funding Commitment (Commercial Contribution) [OPTIONAL] - While not a requirement to obtain Phase II funding, applicants are strongly encouraged to submit a Phase II commitment from the private sector or non-SBIR/STTR funding sources.

e. Phase III Follow-On Funding Commitment [OPTIONAL] – Applicants are encouraged to submit a Phase III follow-on funding commitment. The commitment must 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 proposing small business 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 contributions. The Phase III commitment must be submitted with the Phase II grant application as a separate attachment. Add as an attachment in field 11, "Other Attachments," on this form. You should also reference it in the technical proposal in the "Work Plan" section.

f. **Bibliography & References Cited** (Field 9 on the form). [DO NOT USE THIS FIELD] READ BELOW.

Include this information, if any, in the project narrative. Do not attach a file in this field.

g. **Facilities & Other Resources** (Field 10 on the form) [DO NOT USE THIS FIELD] READ BELOW

Include this information, if any, in the project narrative. Do not attach a file in this field.

h. **Equipment** (Field 11 on the form) [DO NOT USE THIS FIELD] READ BELOW

Include this information, if any, in the project narrative. Do not attach a file in this field.

i. **Other Attachments** (Field 12 on the form)

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" document, provide the information in a single file named "projinfo.pdf". Click on "Add Attachments" in Field 12 to attach file.

- j. Also, attach the following files. Do not attach these to the SF-424. Please attach to Field 12 of the "Other Project Information" form. See Note above in J. Other Attachments.
 - i. Phase I final technical report [mandatory]. If you requested and were granted a no-cost extension to your Phase I project period, you must attach in Field 12 an interim final technical report [mandatory] on your progress to date.
 - ii. Signed Letter of Phase II Funding Commitment, if applicable
 - iii. Phase III Follow-On Funding Commitment, if applicable
 - iv. Signed Letter of Commitment from Research Institution (for STTR applications).
 - v. Letters of Commitment from consultants, subcontractors or other third parties.
 - vi. [Level-of-Effort Worksheet](http://www.science.energy.gov/sbir/funding-opportunities/application-resources/) (discussed in PART III) located at: <http://www.science.energy.gov/sbir/funding-opportunities/application-resources/>
 - vii. Small Business Administration Company Registry form. See page 3 of this FOA for more information on this required form.

3. RESEARCH AND RELATED Senior/Key Person: [MANDATORY]

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 and all work must be performed in the United States. See "Restrictions on the Principal Investigator" in PART III E., Other Eligibility Requirements.

Beginning with the PI, provide a profile for each senior/key person proposed. Each senior/key person must be aware that he/she is included in the grant application and **must agree** to perform the work if awarded. A senior/key person is any individual who contributes in a substantive, measurable way to the scientific/technical development or execution of the project, whether or not

a salary is proposed for this individual. Subawardees and consultants must be included if they meet this definition. For each senior/key person provide:

a. Biographical Sketch.

Complete a biographical sketch for each senior/key person and attach to the "Attach Biographical Sketch" field in each profile. The biographical information for each person must not exceed 2 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point and must include:

1. Education and Training. Undergraduate, graduate and postdoctoral training, provide institution, major/area, degree and year.
2. Research and Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.
3. 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.
4. Patents, copyrights, and software systems developed may be provided in addition to or substituted for publications.
5. Synergistic Activities. List no more than five (5) professional and scholarly activities related to the effort proposed.

b. Current and Pending Support

Provide a list of all current and pending support (both Federal and non-Federal) for the Project Director/Principal Investigator (PD/PI) and senior/key persons, including subawardees, for ongoing projects and pending applications. For each organization providing support, show the total award amount for the entire award period (including indirect costs) and the number of person-months per year to be devoted to the project by the senior/key person. Concurrent submission of an application to other organizations for simultaneous consideration will not prejudice its review. Save the information in a separate file and attach to the "Attach Current and Pending Support" field in each profile.

4. RESEARCH AND RELATED BUDGET: [MANDATORY]

You must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Applicants may request funding of up to \$1,000,000 for up to 24 months over two budget periods. The first budget period should cover a period of 12 months. Funding for the 2nd budget period will be contingent on the demonstration of adequate progress, evaluation of programmatic priorities, and availability of funds. The amount budgeted for the first 12 month budget period should not exceed \$500,000.

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 for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this FOA (See PART IV, G). Note, however, that foreign travel and participant/trainee costs are typically considered unallowable costs unless approved by the DOE Contracting Officer.

Commercialization Assistance (Section F, Field 8 [Optional])

In accordance with the SBIR/STTR Reauthorization Act, the DOE is able to fund discretionary commercialization assistance to all DOE SBIR and STTR Phase II awardees. Award recipients have two options for receiving commercialization assistance: (1) utilize services provided by a DOE vendor or (2) identify their own commercialization assistance provider.

- a. If you wish to receive commercialization assistance from the DOE vendor, you do not need to include this in your budget. If you are awarded a Phase II grant, you will receive notification from DOE on what services are available and how to obtain these services at no cost to your small business.
- b. If you wish to utilize your own commercialization assistance provider, you are required to include this as a subcontract or consultant in your budget and to provide a detailed budget justification. You may include up to \$5,000 each year (cumulative two year cost not to exceed \$10,000). Please note that the commercialization assistance does not count toward the maximum award size listed in PART II. C.; e.g., seeking commercialization assistance from your provider could result in a maximum award in the amount of \$1,010,000.00. Commercialization assistance costs will not be used to determine compliance with PART III. E. 2. Restrictions on the Level of Small Business Participation. Reimbursement is limited to services received that comply with 15 U.S.C. § 638(q). In the event some or the entire amount listed is not expended on a commercialization assistance services, the remaining funds cannot be re-budgeted to other project costs. Re-budgeting of these funds is not allowable. Commercialization assistance costs in excess of \$5,000 during any budget year are unallowable and will not be reimbursed.

Budget Justification (Field K on the form): [MANDATORY]

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. The file automatically carries over to each budget year. 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), National Institute of Health (NIH), etc.) supporting the indirect rate(s) proposed and dated 2012 to the present, then please provide this information with your application submission Although there is

no absolute cap on indirect costs, grant 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. 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.

With justification, Phase II grant funds may be used to pay up to \$10,000 in patent filing fees and related filing expenses for the first U.S. patent for subject inventions developed under the Phase I or Phase II projects. In the event some or the entire amount listed is not expended on a patent filing, the remaining funds may be budgeted to other allowable project costs.

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 grant performance period.

Grants may include a profit or fee for the small business. Fees are subject to negotiation and rarely exceed 7%.

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.

Complete [Level-of-Effort worksheet](http://science.energy.gov/sbir/funding-opportunities/application-resources/) located at: <http://science.energy.gov/sbir/funding-opportunities/application-resources/>. (Attach in Field 12 – Research & Related Other Project Information)

5. R&R SUBAWARD BUDGET ATTACHMENT(S) FORM: [IF APPLICABLE, Budgets for Subawardees (including research institutions)].

You must provide a separate, cumulative SF 424 (R&R) budget and budget justification for each subawardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total effort (whichever is less). A budget and budget support for all other proposed subcontracts are required and may be submitted in an alternative format.

Note: After the Subawardee has e-mailed its completed SF 424 budget back to you, attach it to one of the blocks provided on the form. Use up to 10 letters of the subawardee's name (plus .xfd)

as the file name (e.g., ucla.xfd or energyres.xfd). Additional budget information for any subawardee will likely be required if selected for award.

6. SBIR/STTR INFORMATION FORM [MANDATORY]

Complete all the required forms in accordance with the pop-up instructions on the form.

For Question 7, the attachment should be in accordance with the following instructions:

Your Commercial Plan cannot exceed 15 pages, excluding Letters of Support. A succinct commercialization plan must be included in your grant application. This information will be evaluated and considered part of the score for the "Impact" criterion discussed in PART V. 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 innovation.
 - 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 significance 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 and 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 capital 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 III follow-on funding?
- (d) Provide an estimate of the DOE return on investment or net present value for this project. This estimate should incorporate the profit before taxes (positive cash flow) for the first 10 years of commercialization and treat the 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 Phase II effort +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 the 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 advantages of this technology vs. alternate technologies that can meet similar market needs.

7. SF-LLL DISCLOSURE OF LOBBYING ACTIVITIES

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."

Summary of Required Forms/Files Your application must include the following documents:

Name of Document	Format	Attach to
SF 424 (R&R)	PDF	N/A
RESEARCH AND RELATED Other Project Information	PDF	N/A
• Project Summary/Abstract	PDF	Field 7
• Project Narrative, including required appendices	PDF	Field 8
• Level-of-Effort Worksheet	PDF	Field 12
• SBA Company Registration	PDF	Field 12
RESEARCH & RELATED Senior/Key Person Profile (Expanded)	PDF	N/A

• Biographical Sketch	PDF	Attach to appropriate block
RESEARCH & RELATED BUDGET	PDF	N/A
• Budget Justification	PDF	Field K
SBIR/STTR Information	PDF	N/A
• Commercialization Plan for Phase II (See Question 7)	PDF	Attach to appropriate block
• Commercialization History, if applicable (See Question 8)	PDF	Attach to appropriate block
DOE Technical and Commercialization Assistance Support (Section F, Field 8, R&R Budget)	PDF	N/A
PROJECT/PERFORMANCE SITE LOCATION(S)	PDF	N/A
SF-LLL Disclosure of Lobbying Activities, if applicable	PDF	N/A

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS

If selected for award, DOE reserves the right to request additional or clarifying information including, but not limited to:

1. Indirect cost information;
2. Other budget information;
3. Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See CFR 1040.5);
4. Representations of Limited Rights Data & Restricted Software; if applicable;
5. Commitment Letter from Third Parties Contributing to Cost Sharing, if applicable;
6. Consultant documentation/verification of rates

Certifications and Assurance

By submitting an application in response to this FOA the Applicant certifies that:

- It is **not** a corporation that has been convicted (or had an officer or agent of such corporation acting on behalf of the corporation convicted) of a felony criminal violation under any Federal law within the preceding 24 months,
- It is **not** a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability,
- If the Applicant's financial assistance application is chosen for award and the award is in excess of \$1,000,000, the applicant will, by the end of the fiscal year, upgrade the efficiency of their facilities by replacing any lighting that does not meet or exceed the energy efficiency standard for incandescent light bulbs set forth in Section 325 of the Energy Policy and Conservation Act (42 USC 6295).

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. It includes both for-profit and non-profit organizations.

If selected for an award, applicants will be required to sign and submit one or more of the following certifications. Forms will be provided by the DOE Contract Specialist during award negotiation. The following links are provided for information purposes.

- Funding Agreement Certification – Time of Award available at <http://science.energy.gov/sbir/applicant-and-awardee-resources/>
- Property and Commercialization Rights Agreement Certification at <http://science.energy.gov/sbir/funding-opportunities/application-resources/>
- Contributing to Cost Sharing, if applicable

The applicant further certifies its compliance with the following public policy requirements:

- Animal Welfare as required by the Animal Welfare Act of 7 USC 2131 et seq.
- The Buy American Act of 1933, codified at 41 USC 10 et seq.
- Civil Rights Protections including but not limited to the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, the Rehabilitation Act of 1973, and the Age Discrimination Act of 1975, all of which are regulated by 10 CFR 1040
- Debarment and Suspension, as regulated at 10 CFR 606
- The Drug-Free Workplace Act of 1988 (41 USC 701) as regulated by 10 CFR 607
- The Federal Funding Accountability and Transparency Act (Public Law 109-282) as regulated by 2 CFR 170
- The Fly America Act, codified at 49 USC 40118, which generally requires that travel supported by Federal funds be conducted on US-flag carriers
- Health and Safety Regulations including but not limited to
 - OSHA's guidance at 29 CFR 1910
 - NRC safety regulations at 10 CFR 20
- Human Research Subjects Protection
- Lobbying Prohibitions of 31 USC 1352 and regulated by 10 CFR 601
- Metric System use as encouraged by EO 12770 of July 25, 1991
- The National Environmental Policy Act of 1969
- Non-delinquency on Federal Debt as required by the Federal Debt Collection Procedures Act of 1990, codified at 28 USC 3201
- Seat Belt Use, as required by EO 13043 of April 16, 1997
- Text Messaging While Driving, as required by EO 13513 of October 1, 2009
- Trafficking in Persons, as required by the Trafficking Victims Protection Act of 2000 (codified at 22 USC 7104) and regulated by 2 CFR 175.

E. SUBMISSION DATES AND TIMES

1. Pre-Application Due Date

Pre-applications are not to be submitted.

2. Application Due Date.

Applications must be received by April 17, 2013, not later than 11:59 PM EDT. Modifications will be accepted if received by the due date and deadline time. You are encouraged to transmit your application well before the deadline.

3. Late Submissions

Circumstances outside of an applicant's control may exist that prevent timely submission of applications. An example of such a circumstance could include unexpected downtime of submission systems (grants.gov). In these circumstances, the applicant must contact the Agency Contact listed in PART VII Section B. of this Funding Opportunity Announcement within 24 hours of the submission deadline to discuss the option of a late submission.

There are many circumstances, however, that are not acceptable justifications for late submissions. Examples of unacceptable applicant justifications are provided below.

- Failed to begin submission process early enough. Starting the process prior to the deadline and running out of time is not an acceptable justification for a late submission.
- Failed to understand the submission process. This is outlined in the Funding Opportunity Announcement in PART IV Section C. for applications.
- Failed to understand the date and time for submission. These are stated on the cover page of the Funding Opportunity Announcement.
- Personnel who typically handle submissions at your small business were unavailable (e.g. illness, departure, or unavailability, etc.)
- Failed to satisfy prerequisites for application submission (e.g. acquire DUNS number, update SAM number).

DOE notes that not all requests for late submission will be accepted.

F. INTERGOVERNMENTAL REVIEW

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

G. FUNDING RESTRICTIONS

Funds will be allocated over the two budget periods. Funding for the 2nd budget period will be contingent on the demonstration of adequate progress, evaluation of programmatic priorities, and availability of funds.

Cost Principles: Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600. The Cost Principles for Commercial Organizations may be found at [FAR Part 31](#).

Pre-award Costs: Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar-day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal

cost principles referenced in 10 CFR Part 600. 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 or if the costs are found to be unallowable, unreasonable, or not allocable to this project.

H. OTHER SUBMISSION AND REGISTRATION INFORMATION

Application Receipt Notices

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of four emails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. The titles of the four E-mails are:

Number 1 - Grants.gov Submission Receipt Number

Number 2 - Grants.gov Submission Validation Receipt for Application Number

Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number

Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number

Questions regarding the content of the FOA must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

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 <http://www.fedconnect.net>.

All applications should be in a single PDF file.

PART V - APPLICATION REVIEW INFORMATION

A. CRITERIA

1. Initial Administrative Review Criteria

The SBIR/STTR office will perform an initial review to ensure that the applications meet minimum requirements and include all required forms and documentation as sought in the Funding Opportunity Announcement. If it is determined that the minimum requirements for any application have not been met, the application will be administratively declined and will not undergo a technical evaluation.

2. Merit Review Criteria

The Phase II grant application must contain enough information on progress accomplished under Phase I, by the time of Phase II grant application submission, to enable an evaluation of the project's promise if continued into Phase II.

DOE plans to make selections for Phase II awards from those grant applications judged to have the highest overall merit within their technical program area, with equal consideration given to each of the following criteria:

- a. **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.
- b. **Ability to carry out the project in a cost effective manner** as evidenced by: (1) the qualifications of the Principal Investigator, 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; (3) with regard to the Phase I objectives, the degree to which Phase I has proven feasibility of the concepts; and (4) the degree to which the DOE investment in the project would be justified by the level of proposed research effort.
- c. **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, and (3) the likelihood that the project could attract further development funding after the SBIR or STTR project ends. Phase II applications will be evaluated for commercial potential using the Commercialization Plan data (see PART IV., C. 6. 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 PART V, Section B. "Review and Selection Process."

3. Other Selection Factors

The Selection Official may consider program balance of funds distribution and needs of the technical programs.

B. REVIEW AND SELECTION PROCESS

1. Merit Review

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

2. 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 grant 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. Selections are made from this ranked list until the program's SBIR/STTR Phase II budget is exhausted. The Selection Official may also consider program balance of funds distribution and needs of the technical programs.

3. Discussions and Award

The Government may enter into discussions with a selected applicant for any reason deemed necessary, including but not limited to: (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 10 CFR part 600; and/or (4) special terms and conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

The DOE anticipates making award decisions by early July 2013.

PART VI - AWARD ADMINISTRATION INFORMATION

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 award, the terms of the award shall control.

1. Notice of Selection

The SBIR/STTR Program will notify all applicants that request funding of the outcomes via email.

2. Notice of Award

An Assistance Agreement issued by the Contracting Officer is the authorizing award document. The initial funding Assistance Agreement normally includes, either as an attachment or by reference: 1. Special Terms and Conditions; 2. General Terms and Conditions for DOE SBIR and STTR grants; 3. Application as approved by DOE; 4. National Policy Assurances to be incorporated as award terms; 5. Budget Summary; 6. Federal Assistance Reporting Checklist and Instructions, and 7. DOE assistance regulations at 10 CFR Part 600.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

1. Administrative Requirements.

The administrative requirements for DOE grants are contained in 10 CFR 600 (See: <http://ecfr.gpoaccess.gov>).

2. DUNS and SAM Requirements

Additional administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR 25 (See: <http://ecfr.gpoaccess.gov>). Prime awardees must keep their data at the System for Award Management (SAM) current at <http://www.sam.gov>. SAM is the government-wide system that replaced the Central Contractor Registry (CCR). If you had an active registration in the CCR, you have an active registration in SAM. Subawardees at all tiers must obtain DUNS numbers and provide the DUNS to the prime awardee before the sub-award can be issued.

3. Sub-Award 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: <http://ecfr.gpoaccess.gov>). Prime awardees must register with the new FSRS

database and report the required data on their first tier sub-awardees. Prime awardees must report the executive compensation for their own executives as part of their registration profile in the System for Award Management (SAM).

4. Terms and Conditions and National Policy Requirements.

If a grant is awarded, the recipient must comply with the terms and conditions in the formal award document provided by the Contracting Officer at the time of award. The National Policy Assurances to be incorporated as award terms are located at the following web address <http://energy.gov/management/downloads/national-policy-assurances-be-incorporated-award-terms>.

C. REPORTING

Reporting requirements are identified on the Federal Assistance Reporting Checklist and Instructions for RD&D Projects, DOE F 4600.2, attached to the award agreement.

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

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.

Questions relating to the PAMS registration process, system requirements, or any technological issues should be directed to the DOE Office of Science PAMS Support Center at 855-818-1845 or 301-903-9610 or sc.pams-helpdesk@science.doe.gov. The PAMS Help Desk hours of operation are 8:30 AM to 5:00 PM Eastern Time, Monday through Friday. The PAMS help desk is closed on Federal holidays and weekends.

Questions regarding the specific program areas and technical requirements may be directed to the technical contacts listed for each program within the FOA or below.

B. AGENCY CONTACT

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

All other questions regarding the DOE SBIR/STTR processing of applications may be directed to:

DOE SBIR/STTR Programs Office
Carl Hebron 301-903-5707
sbir-sttr@science.doe.gov

C. DEPARTMENT OF ENERGY, 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>.

PART VIII - OTHER INFORMATION

A. 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 announcement 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 announcements. More information is available at <http://www.fedconnect.net>.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE

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

C. COMMITMENT OF PUBLIC FUNDS

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. PROPRIETARY APPLICATION INFORMATION – TRADE SECRETS, COMMERCIAL, OR FINANCIAL INFORMATION

An application may include technical data and other data, including trade secrets and commercial or financial information that are privileged or confidential, which the applicant does not want disclosed to the public or used by the Government for any purpose other than application evaluation. **To protect such data, your proposal must be marked in the following manner utilizing the three-step process outlined below:**

1. The **Cover Page** of your proposal must contain the notice below (please cut and paste):

“Page(s) [] of this document may contain trade secrets or commercial or financial information that is privileged or confidential and is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance or loan agreement between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.”

2. To further protect such data, **each page** containing trade secrets or commercial or financial information that is privileged or confidential must be specifically identified and marked with text similar to the following (please cut and paste):

"May contain trade secrets or commercial or financial information that is privileged or confidential and exempt from public disclosure."

3. In addition, **each line or paragraph** containing trade secrets or commercial or financial information that is privileged must be marked with brackets or other clear identification, such as highlighting.

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL

In conducting the merit review evaluation, the Government may seek the advice of qualified nonfederal 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 conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM

1. Property and Commercialization Rights Agreements

When using subcontractors, including Research Institutions, the small business 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 small business, 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 at www.science.doe.gov/sbir/Solicitations/FY%202002/model.htm, may be used or revised through negotiation between the small business and the Research Institution.

The completed agreement should not be submitted with the grant application, but retained by the parties to the agreement. The Federal government will not be a party to any agreement between the small business 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 small business with respect to both intellectual property rights and any rights to carry out follow-on research.

2. Intellectual Property Including Innovations, Inventions, and Patents

- a. **Proprietary Information** – Information contained in unsuccessful grant applications will remain the property of the applicant. The government will retain for three (3) years one electronic file copy of each unsuccessful grant application. Public release of information in

any grant 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 a grant 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 grant application from further consideration and without assuming any liability for inadvertent disclosure.

- b. **Protection of Grant Application Information** – DOE's policy is to use data included in grant 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 grant 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 grant application will be used only for evaluation purposes and will not be further disclosed.

- c. **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 grant applications submitted in response to this FOA, shall remain with the grantee, except that the government shall have the limited right to use such data for government purposes and shall not release such proprietary data outside the government without permission of the recipient for a period of not less than 4 years from delivery of the last deliverable under that agreement (either Phase I, Phase II, or Federally funded SBIR Phase III). Agencies are released from obligation to protect SBIR data upon expiration of the protection period except that any such data that is also protected and referenced under a subsequent SBIR award must remain protected through the protection period of that subsequent SBIR award. However, effective at the conclusion of the 4-year period, the government shall retain a royalty-free license for government use of any technical data delivered under an SBIR/STTR award whether patented or not.
- d. **Copyrights** – With prior written permission of the cognizant DOE Contracting Officer, 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.

- e. **Patents** – Small businesses 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 that anyone exclusively licensed to sell must normally manufacture it domestically. Information regarding patent rights in inventions supported by Federal funding can be found in the Code of Federal Regulations, 37 CFR Part 401.
- f. **Distribution of Intellectual Property and Commercialization Rights Between the Small Business and Subcontractor** – When using subcontractors, including research institutions, the small business is responsible for providing that its subcontractors retain all rights provided for the small business. DOE intends for large business subcontractors to retain title to inventions pursuant to a pending Class Patent Waiver.

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER

Not applicable.

H. 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.

I. 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 Contracting Officer for this award and until the awardee receives notice of such availability, to be confirmed in writing by the Contracting Officer.

J. AUDIT REQUIREMENTS

Under Regulation 10 CFR 600.316, a for-profit recipient that expends \$500,000 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 \$500,000 threshold is met, recipients should assess the amount of DOE funds expended under the award and shall not include any cost-sharing amounts. The audit generally should be made a part of the regularly scheduled, annual audit of the recipient's financial statements. This Audit Program and all compliance supplements (Parts II and III of this guidance) do not apply to financial statement audits. Audits of financial statements are allowable as indirect costs if the recipient normally has financial statement audits. However, DOE is not requiring an audit of financial statements solely to address Regulation 10 CFR 600.316, nor are financial statement audits allowable as direct costs to satisfy the requirements of Regulation 10 CFR 600.316. The "For Profit" Audit Guidance can be found at <http://energy.gov/management/downloads/profit-audit-guidance>.

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APPENDICES/REFERENCE MATERIAL

A. DEFINITIONS

1. **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.
2. **Consultant** – A consultant is an individual who provides professional advice or services for a fee.
3. **Employee** – A person listed on the budget form (Section A—Key/Senior Person or Section B—Other Personnel) as an employee of the small business concern 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.
4. **Historically Underutilized Business Zone (HUBZone)** – A small business concern meeting the following criteria:

Located in a “historically underutilized business zone” or HUBZone area located in one or more of the following:

- a. A qualified census tract (as defined in section 42 (d)(5)(c)(i)(I) of the Internal Revenue Code of 1986; or
- b. 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% of the state median household income or with an unemployment rate of not less than 140% of the statewide average, based on U.S. Department of Labor recent data; or
- c. Lands within the boundaries of federally recognized Indian reservations.
- d. Owned and controlled by one or more U.S. citizens.
- e. At least 35% 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://eweb1.sba.gov/hubzone/internet/general/findout.cfm>.

5. **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.
6. **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 a small business as a result of its participation in the SBIR or STTR program.

7. **Joint Venture** – A joint venture is an association between two or more firms 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 grant and serve as the main point of contact.
8. **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.
9. **Research Institution** – A Research Institution is a U.S. research organization that is:
 - a. A non-profit Research Institution as defined in Section 4. Definitions, (5) of the Stevenson-Wydler Technology Innovation Act of 1980 (i.e., an organization owned and operated exclusively for scientific or educational purposes, no part of the net earnings of which inures to the benefit of any private shareholders or individual), or
 - b. A non-profit college or university, or
 - c. A non-profit medical or surgical hospital, or
 - d. A contractor-operated Federally-funded research and development center (FFRDC), as identified by the National Science Foundation in accordance with the government-wide Federal Acquisition Regulation issued in accordance with section 35(c) (1) of the Office of Federal Procurement Policy Act (or any successor legislation thereto). 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 Technology Center, Stanford Linear Accelerator Center, and the Thomas Jefferson National Accelerator Facility.
 - e. A government-owned, government-operated facility, such as the National Energy Technology Laboratory, is not eligible to act as either a partner or subcontractor in DOE SBIR/STTR projects.
10. **Socially and Economically Disadvantaged Small Business** - A socially and economically disadvantaged small business is one:

- a. That is at least 51% owned by (i) an Indian tribe or a native Hawaiian organization, or (ii) one or more socially and economically disadvantaged individuals; and,
 - b. 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).
11. **Subcontract** – A subcontract is any agreement, other than one involving an employer-employee relationship, entered into by the primary recipient of a Federal Government grant, calling for supplies or services required solely for the performance of the original grant award.
12. **Woman-Owned Small Business** – A woman-owned small business is a small business that is at least 51% 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.

B. WORKING WITH NATIONAL LABS, UNIVERSITIES, RESEARCH INSTITUTIONS, AND OTHER SUBCONTRACTORS

1. DOE User Facilities

The 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: <http://science.energy.gov/bes/suf/user-facilities/> and <http://science.energy.gov/ber/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.

2. 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 grant 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 small business must have the necessary expertise to direct the project.

For STTR, the small business must conduct cooperative R&D with a Research Institution (see definition list). An alliance between the small business and a Research Institution must be formed before submitting the grant application. Grants will be awarded to the small business, which will receive all funding for the project and disperse the appropriate funds to the Research Institution.

A list of DOE National Laboratories is available at <http://science.energy.gov/laboratories/>. Also, inquiries may be made at a local library to locate supporting expertise or facilities from an appropriate university or other Research Institution to assist with the proposed project. For help in contacting personnel at DOE and other Federal agency laboratories, go to www.federallabs.org, or contact the FLC Management Support Office by Phone: (856) 667-7727 or E-mail: flcmso@utrs.com.

C. 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.

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 (NTIS). They may be ordered electronically from <http://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 www.osti.gov or at the specific web addresses below.

1. Information Bridge (www.osti.gov/bridge), over 125,000 searchable full-text documents reporting results of DOE-funded research.
2. Energy Citations Database (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.

3. DOE R&D Project Summaries (<http://www.osti.gov/rdprojects/AdvancedSearchScreen.jsp>), a searchable database of descriptions of approximately 22,000 ongoing or recently completed DOE research projects.
4. E-print Network (www.osti.gov/eprints), which 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.
5. Science Conferences (www.osti.gov/scienceconferences), a portal providing a unified search of 26 Web sites for science and technology conference proceedings and conference papers of interest to DOE.
6. DOE R&D Accomplishments (www.osti.gov/accomplishments), a central forum for information about the outcomes of past DOE R&D.
7. Federal R&D Project Summaries (www.osti.gov/fedrnd), a searchable portal to 750,000 Federal research project summaries at DOE and five other leading science agencies.

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 (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 Proposal Preparation and Project Conduct – SBCs may wish to contact their local National Institute of Standards and Technology (NIST) 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 www.mep.nist.gov.