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PROGRAM INFORMATION, INSTRUCTIONS, AND REQUIREMENTS

DEPARTMENT OF ENERGY SOLICITATIONS
FOR THE
SMALL BUSINESS INNOVATION RESEARCH
AND
SMALL BUSINESS TECHNOLOGY TRANSFER PROGRAMS

PROGRAM INFORMATION, INSTRUCTIONS, AND REQUIREMENTS

1. DESCRIPTION OF PROGRAMS

1.1 INTRODUCTION

This document describes two solicitations under which small businesses are invited to submit grant applications to two separate Department of Energy (DOE) programs: the Small Business Innovation Research (SBIR) program and the Small Business Technology Transfer (STTR) program. These annual solicitations, the twenty-third for SBIR and the twelfth for STTR, are issued pursuant to the Small Business Innovation Development Act of 1982 (Public Law 97-219), Small Business Innovation Research Program Reauthorization Act of 2000 (Public Law 106-554), the Small Business Research and Development Act of 1992 (Public Law 102-564), and the Small Business Technology Transfer Program Reauthorization Act of 2001 (Public Law 107-50). Small businesses with strong research capabilities in science or engineering in any of the technical topic areas described in this document are encouraged to participate. The solicitations offer opportunities for manufacturing-related projects in accordance with President Bush's Executive Order 13329, "Encouraging Innovation in Manufacturing."

The solicitations are presented in a single document because the two programs are very similar. *The major difference is that STTR grants **must** involve substantial cooperative research collaboration between the small business and a single research institution (defined in Section 2.9).* However, it should be noted that the SBIR program also permits substantial collaboration between the small business and other organizations, including research institutions. The difference is that in SBIR, the collaboration is optional, while *in STTR, the collaboration is required and must be cooperative in nature*. **In the remainder of the guidelines, *italics* will be used to identify information that pertains *exclusively* to the *STTR* program.**

The objectives of these programs include increasing private sector commercialization of technology developed through DOE-supported R&D, stimulating technological innovation in the private sector, and improving the return on investment from federally-funded research for economic and social benefits to the nation. DOE will support high-quality research or research and development (R&D) on advanced concepts concerning important mission-related scientific or engineering problems and opportunities that are likely to lead to significant public benefit if the research is successful.

1.2 THREE-PHASE PROGRAMS

These solicitations are for Phase I grant applications only, but this document describes some aspects of Phase II grants as reference information.

Phase I: Phase I grant awards from these competitions will be made during fiscal year 2005 to small businesses, in amounts up to $100,000. The duration of Phase I will be nine months. Phase I is to evaluate, insofar as possible, the scientific or technical merit and feasibility of ideas that appear to have commercial potential. The grant application should concentrate on research that will contribute to proving scientific or technical feasibility of the approach or concept. Success in DOE Phase I is a prerequisite to further DOE support in Phase II.

Phase II: Phase II is the principal R&D effort, and only DOE Phase I grantees will be eligible to compete for subsequent Phase II continuation of their Phase I projects. Phase II awards are expected to be made during fiscal year 2006 to small businesses with approaches that appear sufficiently promising as a result of the Phase I effort. Phase II grant awards are expected to be in amounts up to $750,000 and cover a period of up to 24 months. Funds will be allocated over a two-year period. Second year funding will be contingent on the demonstration of adequate progress. It is anticipated that one-third to one-half of Phase I awardees will receive Phase II awards, depending on Phase I results and availability of funds. Instructions for preparing a Phase II grant application will be provided to all Phase I grantees through a posting on the SBIR/STTR Website. Phase I grantees will be advised of its availability via email sent during the Phase I period of performance. The work proposed for Phases I and II, assuming that it proceeds successfully, should be suitable in nature for subsequent progression to Phase III.

Phase III: Under Phase III, it is intended that non-SBIR capital be used by the small business to pursue commercial applications of the R&D. That is, the SBIR/STTR funding pays for research or R&D meeting DOE objectives identified by the DOE (Phases I and II); non-SBIR capital provides follow-on developmental funding to meet commercial objectives (Phase III). Additionally, under Phase III, Federal agencies may award non-SBIR/STTR funded follow-on grants or contracts for (1) products or processes that meet the mission needs of those agencies, or (2) further research or R&D. The competition for SBIR/STTR Phase I and Phase II awards satisfies any competition requirement of the Armed Services Procurement Act, the Federal Property and Administrative Services Act, and the Competition in Contracting Act. Therefore, an agency that wishes to fund an SBIR/STTR Phase III project is not required to conduct another competition in order to satisfy those statutory provisions. As a result, in conducting actions relative to a Phase III SBIR/STTR award, it is sufficient to state for purposes of a Justification and Approval pursuant to FAR 6.302-5 that the project is a SBIR/STTR Phase III award that is derived from, extends, or logically concludes efforts performed under prior SBIR/STTR funding agreements and is authorized under 10 U.S.C. 2304(b)(2) or 41 U.S.C. 253(b)(2).

1.3 PHASE II COMMERCIAL COMMITMENT AND PHASE III FOLLOW-ON FUNDING

An important goal of these programs is the commercialization of DOE-supported research or R&D. Following the start of Phase I, awardees whose research or R&D has identifiable potential to meet market needs are encouraged to seek commitments from private sector or Federal non-SBIR/STTR funding sources for both Phases II and III. (See Evaluation Criterion 3 in Section 4.3.) **The commitments should be obtained prior to the Phase II grant application submission**. The commitment for Phase III may be made contingent on the DOE-supported research or R&D meeting some specific technical objectives in Phase II, which, if met, would justify funding to pursue further development for commercial purposes in Phase III.

1.4 ELIGIBILITY

Only small businesses, as defined in Section 2.3, are eligible to receive SBIR/STTR awards. Joint ventures as defined in Section 2.8 are also permitted, provided the entity created also qualifies as a small business in accordance with the definition in Section 2.3. **Wholly owned subsidiaries are not eligible to apply;** however, their parent company may apply as long as the parent, subsidiaries included, qualifies as a small business.

The research or R&D must be performed in the United States for both Phases I and II. "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.

1.5 RESTRICTIONS

1.5.1 Restrictions on Submitting Applications

a. Choice of Topic and Subtopic – Each grant application must be submitted to only one topic and, within it, to only one subtopic as described in the Technical Topics section. DOE will **not** assign a topic and/or subtopic to grant applications; this must be done by the applicant. When a grant application has relevance to more than one subtopic, the **applicant must decide** which subtopic is the most relevant and submit the grant application under that subtopic only.

b. Responsiveness – To be considered responsive, a grant application must fall within the description of the subtopic, and also satisfy any conditions contained in the introductory section of that topic. **The language in both the topic introductions and the subtopics should be taken literally. Applications that do not directly address the subtopic statement will be declined for non-responsiveness, and will not be peer reviewed.**

c. Duplicate Applications – Duplicate grant applications, even if submitted to different topics and/or subtopics, will be rejected without review. The application with the latest transmission time will be accepted for evaluation.

d. Multiple Applications – There is no limit on the number of **different** grant applications a small business may submit, even to the same subtopic.

e. Similar Applications – Similar grant applications in which some of the tasks overlap (e.g., the same technology used for different purposes), may be submitted. However, **no more than one** such similar grant application will be funded as a result of these solicitations. If a grant application has tasks which overlap with those in another grant application, the applicant must so indicate by answering “Y” for yes on Question #6 on the grant application cover page, Appendix A, and by providing the information required by Section 3.3.4.

f. Grant Applications Being Considered for Other Funding – If a grant application submitted in response to these solicitations contains a significant amount of essentially equivalent work as one that has been previously funded by, has been submitted to, or is about to be submitted to, another Federal agency, or to another DOE program, the applicant must so indicate by answering "Y" for yes for Question #6 on the grant application cover page, Appendix A, and by providing the information required by Section 3.3.2.i.

In the event the same or similar work is selected for funding by two or more agencies, the agencies, in consultation with the applicant, will determine the awarding agency.

1.5.2 Restrictions on the Principal Investigator

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 the 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.**

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 (average) 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. In addition, the PI is expected to devote to the project a considerable part of his or her time. "Considerable" means at least 195 hours for both SBIR and STTR Phase I projects, **or** a minimum of five hours per week for the duration of the project. Applicants must state the duration of the project in weeks, if the project is to be completed in less than nine months, in order to make clear that this requirement is fully met. Also, the source of the PI's compensation for work on the project must be the small business. 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 will be required to sign a statement certifying adherence to these requirements.

1.5.3 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 (see also Section 3.3.1.c) 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). 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.

To be awarded a SBIR grant, a minimum of two-thirds or 67% of the research or analytical effort must be carried out by the small business applicant during Phase I; correspondingly, a maximum of one-third or 33% of the effort may be allocated to consultants or subcontractors. (In Phase II, up to one-half of the effort may be allocated to consultants or subcontractors).

To be awarded a STTR grant, at least 40% of the research or analytical effort must be allocated to the small business, and at least 30% of the effort must be allocated to a single research institution (as defined in Section 2.9). (The same requirement is applicable for both Phase I and Phase II.)

Grant applications that include a substantial amount of cooperative research collaboration with a single research institution can be considered for funding in both programs, thereby increasing the chances of winning an award. The required dollar amount for the research institution (RI) depends on the amount of material, equipment, and supplies in the budget. However, it is unlikely that STTR requirements can be satisfied unless the subcontract for the RI is at least $20,000. Applicants can indicate their interest in being considered for both programs by checking the appropriate box on the grant application cover page, Appendix A. **If you choose to be considered in both programs, prepare the grant application to meet the requirements of the SBIR program.** It is understood that because some requirements differ for the two programs adjustments may be required after the grant application is selected for award. These adjustments will be addressed during the negotiation period before the grant begins.

1.5.4 Restrictions on the Management of SBIR/STTR Projects

The small business, not a subcontractor *(including the research institution in STTR)*, must exercise management direction and control of the performance of the SBIR or STTR funding agreement. Regardless of the proportion of the work or funding of each of the performers under the grant, the small business is the primary grantee with overall responsibility for the grant's performance. It is recommended that all agreements between the small business and any subcontractor *(including the research institution collaborating in an STTR project)*, including any business plan concerning agreements and responsibilities between the parties, or for the commercialization of the resulting technology, reflect the controlling position of the small business during the performance of Phase I and/or Phase II.

1.6 SUPPORT FROM NATIONAL LABORATORIES, UNIVERSITIES, AND OTHER RESEARCH INSTITUTIONS

1.6.1 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 Section 2.9). 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 National Laboratory Collaboration Opportunities is available on our Web page at http://www.science.doe.gov/sbir/collaboration/collaboration.htm. 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, see the Federal Laboratory Consortium (FLC) Website at http://www.federallabs.org, or contact the FLC Locator:

Mr. Sam Samuelian
950 N. Kings Highway, Suite 208
Cherry Hill, NJ 08034
Phone: (856) 667-7727
FAX: (856) 667-8009
E-mail: ssamuelian@utrsmail.com

1.6.2 Assurance of Need for a Federal Laboratory Subcontract

If an application is selected for award under the SBIR program that includes a subcontract to a Federally-owned, contractor-operated lab (such as Argonne National Laboratory), the SBIR office will require the awardee to complete a Certification for Using a National Laboratory as a Subcontractor form. This form will be provided to the awardee with the award notification.

1.6.3 DOE User Facilities

The Department of Energy operates a number of specialized facilities to enable scientists to carry out experiments that could not be done in the laboratories of individuals. These facilities include, but are not limited to, synchrotron radiation light sources (Advanced Light Source, National Synchrotron Light Source, Advanced Photon Source, and Stanford Synchrotron Radiation Laboratory), high-flux neutron sources (High Flux Beam Reactor, Intense Pulsed Neutron Source, High Flux Isotope Reactor, and Neutron Scattering Center), electron-beam microcharacterization centers (Center for the Microanalysis of Materials, Electron Microscopy Center, Shared Research Equipment Program, and National Center for Electron Microscopy), particle and ion accelerators (Relativistic Heavy Ion Collider, Continuous Electron Beam Accelerator Facility, Argonne Tandem Linac Accelerator System, Lawrence Berkeley National Lab 88-Inch Cyclotron, Holifield Radioactive Ion Beam Facility, the Bates Linear Accelerator Center at MIT), and other specialized facilities (Surface Modification & Characterization Research Center, Combustion Research Facility, James R. MacDonald Laboratory, Pulse Radiolysis Laboratory, and Materials Preparation Center).

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 Phases 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. Additional details on program dedicated user facilities may be found at the following Websites: http://www.sc.doe.gov/bes/BESfacilities.htm for facilities supported by the Office of Basic Energy Sciences, http://www.sc.doe.gov/ober/facilities.html for facilities supported by the Office of Biological and Environmental Research. Information on other laboratory facilities which may be available on a case-by-case basis may be obtained through the FLC Locator or directly from the DOE laboratory involved.

1.7 AGREEMENTS WITH RESEARCH INSTITUTIONS AND OTHER SUBCONTRACTORS

1.7.1 Property and Commercialization Rights Agreements

It is in the best interest of the small business, when collaborating with a research institution or other subcontractor, 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. *For STTR awards only, the small business and the research institution must certify that this agreement has been completed. This certification will be requested by the Contract Specialist after award selection, but before the grant is signed.* A model agreement, which may be found at http://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 United States and the small business with respect to both intellectual property rights and any rights to carry out follow-on research.

1.7.2 Cooperative Research and Development Agreements

SBIR/STTR grant recipients who have chosen a DOE laboratory as a subcontractor may be required to implement a Cooperative Research and Development Agreement (CRADA). CRADAs are collaborative

research agreements between DOE laboratories and their partners, and are approved by the appropriate DOE Operations Office. *In many cases, the CRADA could be used as a vehicle for the property and commercialization rights agreement required by the STTR program (Section 1.7.1).*

Immediately after the applicant small business is notified that it has been chosen for an SBIR/STTR grant award, the company should contact the laboratory to determine if a CRADA will be required. If the DOE laboratory requires a CRADA, no work may be initiated by the laboratory under the grant until the CRADA has been approved.

Implementation of a CRADA begins with project definition and milestones, and leads to a statement of work. Standard terms and conditions, with a total of 60 options to provide maximum flexibility, are available from the laboratory for use by partners and laboratories. A streamlined, short-form CRADA document that can reduce the need for legal review is also available.

1.7.3 Work-for-Others Agreements

"Work-for-Others" agreements are used by DOE national laboratories when performing tasks that are less cooperative in nature than tasks that require a CRADA (i.e., the work is directed by the primary contractor rather than being fully collaborative). Nonetheless, it is recommended, even when operating under a work-for-others agreement, that the small business negotiate a written agreement for the disposition of intellectual property that laboratory employees may develop during the course of their work for the grantee.

1.7.4 When to Negotiate these Agreements

It is recommended that small business applicants to the SBIR/STTR programs attempt, to the maximum extent practicable, to negotiate these agreements before submitting the grant application. It is during this period that the small business will have maximum leverage in conducting negotiations. If satisfactory terms cannot be agreed upon at this time, the small business still would have the option of finding an alternative research institution or subcontractor. Once the grant application has been submitted to the DOE, and subsequently reviewed and selected for award, the small business may be locked-in to the subcontractor identified in the grant application. Also, after selection for award, there would only be a short time available for conducting these negotiations before the grant would begin.

1.8 CONTACT WITH DOE

General questions about the DOE SBIR/STTR programs may be submitted via email: sbir-sttr@science.doe.gov or by telephone (301) 903-1414. Requests to be added to the notification list for future DOE SBIR/STTR solicitations should be forwarded to the SBIR/STTR Program office as mentioned above, by calling the DOE SBIR/STTR hotline on (301) 903-5707, or by submitting your request on-line at www.science.doe.gov/sbir, click on “Join Mailing List.” For reasons of competitive fairness, communications with DOE personnel regarding this solicitation are limited to non-technical matters and to clarifying specific language in the solicitation. Further interpretations of the narrative descriptions of the technical topics will not be provided. However, the staff of DOE national laboratories, universities, or other research institutions may provide assistance, or may even enter into an agreement to participate in a grant application, as described in Section 1.6.

No information on grant application status will be available until the final selections have been made (approximately four months after the closing date of the solicitation). However, if a grant application acknowledgment via email, with an assigned grant application number, is not received from DOE within four

weeks of the closing date December 13, 2004, the applicant should telephone (301) 903-1414 or email sbir-sttr@science.doe.gov immediately.

1.8.1 Written Feedback

Feedback is very important. Reviewer comments will be provided to all awardees automatically with the award notification. Unsuccessful applicants may request a debriefing **within 30 days after the announcement of the final selections.** The small business will be provided with written information pertinent to DOE's evaluation of the grant application. The identity of reviewers or their affiliation will not be disclosed.

2. DEFINITIONS

The following definitions apply for purposes of this solicitation:

2.1 RESEARCH OR RESEARCH AND DEVELOPMENT

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.

2.2 INNOVATION

Something new or improved, having marketable potential, including (1) development of new technologies, (2) refinement of existing technologies, or (3) of new applications for existing technologies.

2.3 SMALL BUSINESS

A small business is one that at the time of award of Phase I (and of Phase II, if awarded):

(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 percent participation by foreign business entities in the joint venture;

(3) is at least 51 percent owned and controlled by one or more individuals who are citizens of, or permanent resident aliens in, the United States, except in the case of a joint venture, where each entity to the venture must be 51 percent owned and controlled by one or more individuals who are citizens of, or permanent resident aliens in, the United States; and

(4) has, including its affiliates, not more than 500 employees and meets the other regulatory requirements found in 13 CFR Part 121. Business concerns, other than investment companies licensed, or state development

companies qualifying under the Small Business Investment Act of 1958, 15 U.S.C. 661, et seq., are affiliates of one another when either directly or indirectly, (a) one concern controls or has the power to control the other; or (b) a third-party/parties controls or has the power to control both.

Control can be exercised through common ownership, common management, and contractual relationships. The term “affiliates” is defined in greater detail in 13 CFR 121.3-2(a). The term “number of employees” is defined in 13 CRF 121.3-2(t).

Business concerns include, but are not limited to, any individual (sole proprietorship), partnership, corporation, joint venture, association, or cooperative. Further information may be obtained by contacting the Small Business Administration Size District Office at http://www.sba.gov/size/.

2.4 SOCIALLY AND ECONOMICALLY DISADVANTAGED SMALL BUSINESS

A socially and economically disadvantaged small business is one:

a. that is at least 51 percent owned by (i) an Indian tribe or a native Hawaiian organization, or (ii) one or more socially and economically disadvantaged individuals; and,

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: Black 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).

Related information requested in Appendix D, "Application Checklist," is provided to the Small Business Administration for statistical purposes and is not considered in the evaluation of grant applications or award of grants.

2.5 WOMAN-OWNED SMALL BUSINESS

A woman-owned small business is a small business that is at least 51 percent owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

Related information requested in Appendix D, "Application Checklist," is provided to the Small Business Administration for statistical purposes and is not considered in the evaluation of grant applications or award of grants.

2.6 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.

2.7 HISTORICALLY UNDERUTILIZED BUSINESS ZONE (HUBZONE)

A small business concern meeting the following criteria:

1. 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)(l) 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 percent of the state median household income or with an unemployment rate of not less than 140 percent of the statewide average, based on U.S. Department of Labor recent data; or
   c. Lands within the boundaries of federally recognized Indian reservations.

2. Owned and controlled by one or more U.S. Citizens.

3. 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 Small Business Administration at its Hubzone Contracting Website: https://eweb1.sba.gov/hubzone/internet/general/findout.cfm. Related information requested in Appendix D, "Application Checklist," is provided to the Small Business Administration for statistical purposes and is not considered in the evaluation of grant applications or award of grants.

2.8 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 solicitation, the new entity must qualify as a small business (as defined in Section 2.3). If a joint venture is selected for award, the Contract Specialist from the Contracting Office 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.

2.9 RESEARCH INSTITUTION

A research institution is a U.S. research organization that is:

a. A **non-profit** research institution as defined in section 4(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). Department of Energy FFRDCs include Ames Laboratory, Argonne National Laboratory, Brookhaven National Laboratory, Fermi National Accelerator Laboratory, Idaho National Engineering 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 (NETL), is **not** eligible to act as either a partner or subcontractor in DOE SBIR/STTR projects.

2.10 COMMERCIALIZATION

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.

2.11 CONSULTANT

An individual who provides professional advice or services for a fee.

2.12 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.

3. PREPARATION INSTRUCTIONS AND REQUIREMENTS FOR PHASE I GRANT APPLICATIONS

3.1 GENERAL REQUIREMENTS

Grant applications, submitted to DOE under SBIR/STTR programs, must provide sufficient information to convince DOE, and members of the research community who review the grant application, that the application is responsive to the topic and subtopic under which it is submitted, that the proposed work represents a sound approach to the investigation of an important scientific or engineering question, and that it is worthy of support under the stated criteria. The Phase I grant application should describe self-contained research that will contribute to proving scientific or technical feasibility of the approach or concept. It should be written with the care and thoroughness accorded papers for publication--direct, concise, informative, and free from grammar, typographical, and spelling errors. Illustrations and charts should be clearly labeled and correctly referenced in the text. Promotional and non-project-related discussion detracts from the professional quality of the proposal. The work proposed for Phase I, assuming that it proceeds successfully, should be suitable in nature for subsequent progression to Phases II and III.

Technical reviewers will base their conclusions only on information contained in the 25 pages of the grant application. Do not assume that reviewers are acquainted with the small business, key individuals, or any theory or experiments referred to, but not described. (This includes material in refereed professional journals--those in which the articles have been subjected to peer review, and material referenced on Internet Web pages). Relevant journal articles should be summarized in the grant application. **Information provided via Web links will not be reviewed.**

Specifically excluded from this solicitation are grant applications principally for literature surveys, for compilations of the work of others, for technical assessments, or for technical status surveys. If any of these types of tasks are included in the work plan, the grant (if awarded) may be reduced in proportion to that effort. In addition, grant applications primarily for the development of already proven concepts will be declined, because such efforts are considered the responsibility of the private sector.

Narrative descriptions of the technical topics are provided. Each technical topic is subdivided into a maximum of 4 subtopics, designated by the letters a, b, c, or d. **A grant application must respond to a specific technical topic and, within it, to only one subtopic, as required in Section 1.5.1.b**. For example, an applicant submitting a grant application to topic 4a may not submit the same grant application to any other topic and subtopic.

3.2 25-PAGE LIMITATION

Grant applications are limited to 25 pages, including cover page, technical abstract page, technical proposal, references, resumes, and budget. The checklist and the level of effort worksheet (Appendix D) are not included in the 25-page limitation. **Grant applications containing more than 25 pages will not be considered for review or award. For proportionally spaced fonts, the type can be no smaller than 12 point, and for non-proportionally-spaced fonts, the type can be no smaller than 12 characters per inch (elite). Margins are not to be less than 1 inch (2.5 cm).** The listing of multiple Phase II awards, which may be required by Section 3.3.4, is exempted from the 25-page limitation.

3.3 PHASE I GRANT APPLICATION

All items in this section must be included in your application and covered fully. Applicants should keep in mind that their grant application will be evaluated with respect to the criteria listed in Section 4.2. The application should be written to convince the technical reviewers that each of the criteria has been met to a high degree.

3.3.1 Mandatory Forms

a. Cover Page – Complete the form identified as Appendix A. Detailed instructions are provided. **No other cover page is permitted.**

Both the topic number and subtopic letter must be entered in the appropriate spaces on the cover page. Failure to identify both the topic and subtopic on the cover page will cause the grant application to be declined without further review.

Be sure to select the type of application. You must indicate whether the grant application should be considered for SBIR, STTR, or both programs. For grant applications that are to be considered for both SBIR and STTR,

refer to Section 1.5.3. for guidance with respect to conforming to the separate requirements for the two programs.

Applicants must provide answers to all nine Certifications and Questions. An answer of "Yes" to Certifications 1 through 3 is required to participate in the SBIR/STTR programs. If the DOE learns from any source that any of these certifications were completed fraudulently, appropriate authorities will be notified for possible criminal investigations.

Signatures of the Principal Investigator and the Corporate/Business Authorized Representative are mandatory. Also, for those grant applications that have significant collaboration with a research institution *(including all grant applications to be considered for STTR),* a signature is required from a person authorized to commit the research institution to participate in the project described in the grant application. **Please refer to the rules on how to apply in Section 6.3 for information regarding what constitutes an electronic signature.** If selected for award, the Contracting Officer will verify and confirm participation of all parties.

b. Technical Abstract Page – The Technical Abstract is one of the most important parts of your grant application, and it is essential to complete it correctly. It is the first thing read by either the DOE program manager or by the peer reviewers. In addition, if your grant application is selected for award, the technical abstract is posted on the DOE Website, where we refer potential investors or partners for the technology.

Complete the technical abstract form identified as Appendix B. For uniformity of presentation on the Website, all technical abstracts must contain the following components, in the following order:

i. The problem or situation being addressed (typically one to three sentences). It should be clear to any reader that the problem or situation being addressed is important to the Department of Energy.

ii. How this problem is being addressed, i.e., the overall approach of the combined Phase I/Phase II project (typically one to two sentences).

iii. What is planned for Phase I (typically two to three sentences).

Although Appendix B provides separate boxes for these three components, the technical abstract will be posted on the Website as a single, self-contained paragraph. **Therefore, the technical abstract should flow smoothly from one part to the next.**

A sample technical abstract page is provided as a link in IIPS with the other example forms.

Because the technical abstract may be made public by the DOE (regardless of whether the grant application is selected for award), **do not include proprietary information on this page.**

Statements of future applications or public benefits belong in the section on Commercial Applications and Other Public 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 Department 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 (maximum 2 sentences, 50 words), suitable for a possible press release from a Congressional office.

c. Budget – Complete the Grant Application Budget form, Appendix C, for the Phase I effort only, including costs for all parties. No other budget form is permitted and no alterations shall be made by the applicant.

i. **Under SBIR Phase I, a minimum of two-thirds of the research or analytical effort must be performed by the proposing firm. (In Phase II, the minimum is one-half.)** ***For STTR, Phases I and II, a minimum of 40% of the research or analytical effort must be performed by the small business, and at least 30% of the work must be performed by a single research institution. You may not use two research institutions to meet the 30% requirement.*** 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, the research institution, or any other subcontractor). For grant applications that are to be considered for both SBIR and STTR, refer to Section 1.5.3 for guidance with respect to conforming to the separate requirements for the two programs. A worksheet is provided that will automatically calculate the percent of the research and analytical effort allocated to each participant. Applicants are encouraged to contact the SBIR/STTR office if there are questions about this worksheet (301-903-0569).

ii. Although there is no absolute cap on indirect costs, grant applications will be evaluated for overall economy and value to DOE.

iii. All employee labor costs of the applicant must be included in Section A of the budget form and all key employees of the applicant participating in the Phase I project must be identified by name. **None of the small business personnel can also be consultants or employees of a subcontractor.**

iv. The principal investigator must spend a minimum of 195 hours, or at least five hours per week, on the project (see Section 1.5.2).

v. Use Section B of the budget form to identify consultants. Consultants are not employees of either the small business or any subcontractor *(including the research institution for STTR)*. Consultant costs are **not** considered part of the small business's research or analytical effort (Section 3.3.1.c.i).

vi. Equipment budgets may be included under Phase I (and Phase II). Equipment to be leased or purchased by the small business should be listed in sections C and D and will be carefully reviewed relative to need and appropriateness for the research or R&D proposed. 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 $5000 per unit or more.

vii. Travel funds, Section E, must be justified and related **to the needs of the project**. Please provide a written justification on the “Budget Explanation Page”. 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.**

viii. In Section F, include only items which are to be acquired from outside the small business. Identify the research institution, if any, on line F5 and any other subcontractors on line F6. On line F6, identify separately the amount of subcontract work to be performed by each subcontractor. A detailed budget for each subcontract should be provided to the applicant by the proposed subcontractor, supported by a "Budget Explanation Page", and included with the application. In particular, the amount of any equipment, materials, and supplies to be purchased or leased by each subcontractor must be identified on the “Budget Explanation Page” and the Level of Effort Worksheet (Appendix D).

ix. Phase I (and Phase II) grants may include a profit or fee for the small business, and this amount should appear on line J. It's normally 7% or less.

x. The total Federal cost of the project (line I plus line J) should equal the amount of Federal funds requested and cannot exceed $100,000 in Phase I. Any commercial and/or in-kind contribution to the project should be described in the text of the proposal (see section 3.3.2.d) but not reflected on the budget page.

xi. Tuition expenses are allowable if requested from a subcontractor, such as a university, as long as the amount requested for tuition is reasonable and comparable to what a student would be paid for performing research during the grant period.

xii. The government will only pay allowable costs. These are available on the Web at http://www.arnet.gov/far/loadmainre.html or a copy may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954. Telephone: 202-512-1800. Fax: 202-512-2250.

Note: If your application is accepted for award, the contracting office may need additional supporting information. That office will provide you with specific instructions regarding the information to be submitted.

d. Checklist, Statistical Information, and Level of Effort Worksheet – Complete the Checklist in Appendix D. **The Checklist and Level of Effort Worksheet will not be counted in the 25-page limitation of the grant application.** Read this checklist carefully to assure that a submission is not declined for administrative or budgetary reasons which could have been prevented.

Be sure to complete the statistical information at the bottom of the Checklist. This information is required by the Small Business Administration for statistical purposes **and will play no role in the grant application evaluation process.**

3.3.2 Technical Proposal

a. 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.

b. Anticipated Public Benefits – Discuss the technical, economic, social, and other benefits to the public as a whole anticipated if the project is successful and is carried over into Phases II and III. Identify specific groups in the commercial sector as well as the Federal Government that would benefit from the projected results. Describe the resultant product or process, the likelihood that it could lead to a marketable product, and the significance of the market.

c. Technical Objectives – State the **specific** technical objectives of the Phase I effort, including the questions it will try to answer to determine the feasibility of the proposed approach.

d. Phase I Work Plan – **Provide an explicit, detailed description of the Phase I research approach and work to be performed**. Indicate what will be done, by whom (small business, subcontractors, research institution, or consultants), where it will be done, and how the work will be carried out. **If applicant is making**

a commercial or in-kind contribution to the project, please describe in detail here. The Phase I effort should attempt to determine the technical feasibility of the proposed concept which, if successful, would provide a firm basis for the Phase II grant application.

Relate the work plan to the objectives of the proposed project. Discuss the methods planned to achieve each objective or task explicitly and in detail. **This section should be a substantial portion of the total grant application**.

Phase I Performance Schedule – Briefly describe the important milestones and the estimated percentage of time for completing each task described in the work plan.

e. Related Research or R&D – Demonstrate knowledge of key recent work conducted by others in the specific area of the proposed project. If not already addressed in Sections 3.3.2.a, or 3.3.2.d., describe significant research that is directly related to the grant application, including any conducted by the Principal Investigator or by the applicant organization. Describe how it relates to the proposed effort and any planned coordination with outside sources. Applicants should be or become familiar with the references provided following each topic description.

f. Principal Investigator and other Key Personnel – The Principal Investigator (PI) must be knowledgeable in all technical aspects of the grant application and be capable of leading the research effort. A resume of the PI, including a list of publications (if any), must be included. It is important that the requirements described in Section 1.5.2 concerning the PI be met explicitly. Also identify other key senior personnel involved in the Phase I effort including information on directly related education and experience. List relevant publications by key personnel.

g. Facilities/Equipment – Describe available equipment and physical facilities necessary to carry out the Phase I effort. Items of equipment to be leased or purchased must be described and justified in this section. 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 $5000 or more per unit. 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 Contract Specialist prior to project completion for the procedure to follow.

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 certify regarding the availability and cost of facilities/equipment and any associated technician cost; a copy of this certification must be submitted as part of the grant application.

To the extent possible in keeping with the overall purposes of the program, only American-made equipment and products should be purchased with financial assistance provided under both Phase I and Phase II awards.

h. Consultants and Subcontractors

i. **Research Institution –** If the grant application contains substantial collaboration with a research institution *(required for STTR)*, (1) identify the research institution and (2) describe in detail the work to be done by this institution in the Work Plan section. The research institution will be a subcontractor to the small business applicant. A research institution official's electronic signature on

the cover page commits the institution to participate in the project as described in the grant application. If selected for award, participation of the research institution will be verified.

ii. **Other Consultants and 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** and subject to the limitations in Section 3.3.1.c.i. If consultants and/or subcontractors are to be used, this section 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 the consultants and/or subcontractors. The letters must provide a detailed cost estimate 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. If selected for award, the Contracting Officer will verify any subcontractors and/or consultants. Note: Consultants are not employees of either the small business or any subcontractor.

i. Similar Grant Applications, Proposals, or Awards

While it is permissible, with notification in the proposal or grant application, to submit identical proposals or proposals containing a significant amount of essentially equivalent work to more than one federal agency, it is unlawful to enter into contracts or grants in which essentially equivalent efforts are performed. If a grant application contains work that has been previously funded, or is either funded, pending, or about to be submitted to another Federal agency or to the DOE in a separate action, the applicant must provide the following information in the grant application:

- The name, address, and point of contact including telephone number of the agency(s) to which a proposal or grant application was submitted, or will be submitted, or from which an award is expected or has been received.
- The date of submission or the date of award.
- The title of the grant application.
- The name and title of the project manager or Principal Investigator for each proposal or grant application submitted or award received.
- The number and date of the solicitation under which the application or award was received.
- The title of the specific research topic to which the application or award was submitted.

In the event that a proposal or grant application is selected for award by more than one agency, a negotiation will be conducted among the parties to avoid duplication of effort.

3.3.3 Certifications

If selected for an award, applicants may 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**.

a. Principal Investigator Certification
b. Assurance of Compliance
c. Lobbying, Debarment, Suspension, and Other Responsibility Matters and Drug Free Workplace Requirements
d. *Property and Commercialization Rights Agreement Certification*

3.3.4 Addendum: Documentation of Multiple SBIR Phase II Awards

Public Law 102-564 requires that a small business that submits an SBIR Phase I grant application and has already received more than 15 Phase II SBIR awards, as totaled from all Federal agencies with SBIR programs, during the preceding five fiscal years, must document the extent to which it was able to secure Phase III funding to develop concepts resulting from previous Phase II awards. Accordingly, such small business concerns shall submit, for each SBIR Phase II award, the name of the awarding agency, the date of the award, the funding agreement number, the funding amount, the topic or subtopic title, the amount of follow-on funding, the source and the date that the follow-on funding was provided, and the current commercialization status. **This required information will not be counted toward the grant application limitation of 25 pages,** and should be prepared as a separate attachment with the heading "Addendum--Phase II History."

4. METHOD OF SELECTION AND EVALUATION CRITERIA

4.1 INTRODUCTION

Phase I grant applications will be judged on a competitive basis in several stages. All will be screened initially by DOE to ensure that they (1) meet stated solicitation requirements, (2) are responsive to the topic and subtopic entered on the cover page (see definition of responsiveness in Section 1.5.1.b), (3) contain sufficient information for a meaningful technical review, (4) are for research or for research and development, and (5) do not duplicate other previous or current work. Grant applications which fail to pass the initial screening will be declined without further review.

Grant applications found to be in compliance with those requirements will be evaluated technically by scientists or engineers to determine the most promising technical and scientific approaches. Each grant application will be judged competitively against the Phase I evaluation criteria (see Section 4.2) on its own merit. Final decisions will be made by DOE based on the evaluation criteria and consideration of other factors, such as program balance and needs.

4.2 EVALUATION AND SELECTION CRITERIA-PHASE I

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

1. Strength of the Scientific/Technical Approach as evidenced by (1) the innovativeness of the idea and the approach, (2) the significance of the scientific or technical challenge, and (3) the thoroughness of the presentation.

2. Ability to Carry out the Project in a Cost Effective Manner as evidenced by (1) the qualifications of the Principal Investigator, other key staff, and consultants, if any, and the level of adequacy of equipment and facilities; (2) the soundness and level of adequacy of the work plan to show progress toward proving the feasibility of the concept; and (3) the degree to which the DOE investment in the project would be justified by the level of proposed research effort.

3. 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.

The DOE will not fund any grant application for which there is a reservation 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 strong endorsements with respect to at least two of the three criteria. From those grant applications considered candidates for funding, each of the participating DOE program areas will select up to a pre-determined number for funding. (The pre-determined number is proportional to a program area's monetary contribution to the SBIR/STTR programs.) Therefore, grant applications are largely in competition with other grant applications submitted to technical topics from the same DOE technical program area.

4.3 EVALUATION CRITERIA-PHASE II

Detailed instructions regarding Phase II grant application submission will be provided by DOE to all Phase I awardees via email during the conduct of Phase I. A Phase II grant application can be submitted only by a DOE Phase I awardee. It must contain enough information on progress accomplished under Phase I by the time of Phase II grant application submission to evaluate 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 subject area, with equal consideration given to each of the following criteria:

1. 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.

2. 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, 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.

3. 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. The following evidence of commercial potential will also be considered: (a) the small business concern's record of commercializing SBIR, STTR, or other research, (b) Phase II funding commitments from private sector or non-SBIR/STTR Federal funding sources, and (c) Phase III follow-on funding commitments for the subject of the research.

Phase II grant applications will be subject to a technical review process similar to Phase I. Grant applications will be judged against Phase II criteria on a competitive basis.

Final decisions will be made by DOE based on the evaluation criteria and consideration of program balance and needs.

The Phase II funding commitment described above should be an additional 20 percent or more of the Phase II funding requested from the DOE in order to receive full credit. Smaller commitments will receive partial credit. The commitment must be provided either to or by the small business during the Phase II project period. Contributions from international companies are allowed for Phase II non-SBIR/STTR follow-on funding contributions. In-kind contributions are acceptable provided the commitment is in writing, signed by a responsible official, and includes a dollar estimate of its value.

The Phase III follow-on funding commitment must provide that a specific amount of funds (at least one-half of that amount requested from DOE for Phase II) will be made available to or by the small business. Smaller commitments will receive partial credit. The commitment must be **signed** by a person with the authority to make it, indicate **when** the funds will be made available, and contain specific **technical objectives** which, if achieved in Phase II, will make the commitment exercisable by the applicant. The terms cannot be contingent on obtaining a patent because of the length of time that process requires. Commitments by private sector firms to purchase items developed under Phase II are acceptable provided the commitment is in writing, signed by responsible official, and includes a dollar estimate of its value.

5. CONSIDERATIONS

5.1 AWARDS

SBIR and STTR awards are subject to the availability of funds and this solicitation does not obligate DOE to make any awards under either Phase I or Phase II. For those grant applications selected for negotiation of an award, recipients may incur pre-award costs up to ninety days prior to the effective date of the award, but any pre-award expenditures are made at the recipient's risk. Approval of pre-award costs for periods preceding ninety days prior to the effective date of award by the cognizant DOE Contracting Officer or incurrence by the recipient does not impose any obligation on DOE if an award is not subsequently made, or if an award is made for a lesser amount than the recipient expected.

Phase I – From this solicitation, DOE expects to award approximately 280, fixed obligation Phase I research grants ranging up to $100,000 each to small businesses in fiscal year 2005. Selections of awards will be completed approximately four months after the closing date of the solicitation. At that time, DOE will notify by email all applicants of the results and publicly announce on the SBIR/STTR Website the names of those firms selected for negotiation of an award. Grants are expected to begin late June 2005. The duration of Phase I will be no more than nine months.

Phase II – It is anticipated that one-third to one-half of the Phase I awardees will receive Phase II awards, depending on the results of the Phase I effort and the availability of funds. Phase I awardees may request up to $750,000 for Phase II. The period of performance under Phase II will depend on the scope of the effort, but normally will not exceed 24 months.

Successful Phase II applicants will be issued a grant amendment covering a four-month interim period of performance while the Phase II effort is being negotiated. Should the two parties fail to agree on terms covering the Phase II effort, allowable costs incurred during the four-month interim period will be paid in accordance with Federal and DOE commercial cost principles. (See FAR, Part 31, at http://www.arnet.gov/far/loadmainre.html.

5.2 REPORTS AND PAYMENTS

If awarded, refer to the Federal Assistance Reporting Checklist (included in the official award document) for more detailed instructions regarding the applicable reporting requirements under the award agreement.

Detailed guidance regarding the required contents and format of scientific/technical reports is provided in DOE Directive, DOE G 241.1-1A, entitled, "Guide to the Management of Scientific and Technical Information." This guide can be accessed by selecting the link identified by the directive's title on the DOE Energy Link System (E-Link) Website at: https://www.osti.gov/elink/index.html. If you have any questions using E-Link,

please contact Kathy Waldrop, Office of Scientific and Technical Information, at (865) 576-1223 or by e-mail at 241user@osti.gov.

Payment Procedures – Details of payment procedures will be provided by the DOE Contract Specialist if a grant is issued. Fixed-obligation grants will be issued for Phase I awards. Incremental funding based on satisfactory performance is expected to be disbursed over a 24-month period for Phase II grants. **Do not send invoices to the DOE Headquarters SBIR/STTR program**; use the reimbursement process provided by the Contract Specialist.

5.3 RESEARCH INVOLVING SPECIAL CONSIDERATIONS

If proposed research involves human subjects or vertebrate animals, DOE's policy requires that applicants adhere to 10 CFR 745 "Protection of Human Subjects" and the "Animal Welfare Act" (7 U.S.C. 2131 et seq, 9 CFR Parts 1, 2, and 3) or such later revision of those guidelines as may be published in the Federal Register. DOE requirements for reporting protection of human and animal subjects and related special matters can be found on the Web at: http://www.science.doe.gov/grants/Welfare.html.

If the proposed scientific research involves human subjects or vertebrate animals, attach a note to the application. (The note will not count in the page limit.) If the grant application is selected for award, the SBIR/STTR office will provide information regarding additional approvals which must be obtained prior to award.

5.4 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 years one 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 with the term "Confidential Proprietary Information" and provided appropriate page numbers are inserted into the Proprietary Notice legend printed at the bottom of the cover page (Appendix A). 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 solicitation, 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 grantee for a period of not less than four 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 four-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 protecting its own interests with regard to the retention of intellectual property and commercialization rights. The negotiation of written agreements for assigning these rights is recommended and discussed in Section 1.7.

5.5 NONDISCRIMINATION IN FEDERALLY ASSISTED PROGRAMS

In accordance with Title VI of the Civil Rights Act of 1964, P.L. 88-352, the applicant organization responding to this solicitation must agree to ensure that no person in the United States shall, on the grounds of race, color, national origin, sex, age, or handicap, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity in which the applicant receives Federal assistance from the Department of Energy.

5.6 GRANTEE COMMITMENTS

On award of a grant, the grantee will be required to make certain legal commitments through acceptance of numerous provisions in the Phase I grant. The outline that follows is illustrative of the provisions that will be included in the Phase I grant. This is not a complete list of provisions to be included nor does it contain specific wording of these clauses.

a. Standards of Work – Work performed under the grant must conform to high professional standards.

b. Inspection – Work performed under the grant is subject to government inspection and evaluation at all reasonable times.

c. Examination of Records – The U.S. Comptroller General (or a duly authorized representative) shall have the right to any directly pertinent records of the grantee involving transactions related to this grant.

d. Default – The government may terminate the grant if the grantee materially fails to comply with the terms and conditions of award.

e. Termination – The grant may be terminated in whole or in part at any time by the government, with consent of the grantee; or by the grantee, upon written notification to DOE setting forth the reasons.

f. Disputes – Any dispute concerning the grant which cannot be resolved by agreement shall be decided by the cognizant DOE Contracting Officer with right of appeal.

g. Grant Work Hours – The grantee may not require an employee to work more than eight hours a day or forty hours a week unless the employee is compensated accordingly (e.g., overtime pay).

h. Equal Opportunity – The grantee will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.

i. Affirmative Action for Veterans – The grantee will not discriminate against any employee or applicant for employment because he or she is a disabled veteran.

j. Affirmative Action for Handicapped – The grantee will not discriminate against any employee or applicant for employment because he or she is physically or mentally handicapped.

k. Officials Not to Benefit – No government official shall benefit personally from the grant.

l. Covenant Against Contingent Fees – No person or agency has been employed to solicit or secure the grant upon an understanding for compensation except bona fide employees or commercial agencies maintained by the grantee for the purpose of securing business.

m. Gratuities – The government may terminate the grant if any gratuity has been offered to any representative of the government to secure the grant.

n. Patent Infringement – The grantee shall report each notice or claim of patent infringement based on the performance of the grant.

5.7 ADDITIONAL INFORMATION

a. This solicitation 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.

b. Before issuing an SBIR or STTR award, the government may request the applicant to submit certain organizational, management, personnel, and financial information to assure responsibility of the applicant.

c. Unsolicited grant applications will not be accepted under SBIR/STTR programs in either Phase I or Phase II.

d. Any submission incorporating data affecting the national security will not be accepted for evaluation.

6. SUBMISSION OF GRANT APPLICATIONS

6.1 DEADLINE FOR RECEIPT OF GRANT APPLICATIONS

a. Any grant application received after 5:00 p.m. EST on Monday, December 13, 2004, will be considered late. Late grant applications will not be eligible for award and will be declined without review. The Department takes no responsibility for applications arriving past the deadline.

b. If a grant application acknowledgement email, with an assigned grant application number, is not received from DOE within four weeks following the closing date of this solicitation, the applicant should telephone the SBIR/STTR Program Office promptly at (301) 903-1414.

c. Grant applications may be withdrawn by a written notice sent by email to sbir-sttr@science.doe.gov any time prior to award. The DOE will retain a file copy of the application.

6.2 ELECTRONIC SUBMISSION

Grant applications will only be accepted electronically using the DOE's Industry Interactive Procurement System (IIPS). Applicants will be required to obtain a Dunn and Bradstreet Universal Number (DUNS) in order to apply. To receive a number at no cost, call toll free 1-866-705-5711. If selected for award, applicants will also be required to register in the Central Contractor Registry (CCR) by calling 1-888-227-2423.

Please prepare all the required files in accordance with the instructions provided in this announcement prior to starting the transmission process. It is recommended to submit the entire application package in one IIPS session (i.e., do not logoff before all the files are submitted).

6.3 ELECTRONIC SIGNATURES

Applications submitted through IIPS constitute submission of electronically signed applications. The name of the authorized organizational representative (i.e., the administrative official, who, on behalf of the proposing organization, is authorized to make certifications and assurances or to commit the applicant to the conduct of a project) must be typed in the signature block in all CAPITAL LETTERS on the form to be accepted as an electronic signature. Do not submit scanned copies of signatures.

6.4 HOW TO APPLY USING IIPS

Step 1 – Before applying, you must be a registered user of IIPS. If you have never registered, click on Register and follow the steps in the IIPS User Guide for registering. If you need help, contact the IIPS helpdesk at **1-800-683-0751.** You only have to register once to apply for any DOE funding opportunity.

Step 2 – To find the SBIR/STTR Solicitation, click on the second link on the list of options, "Click here if you would like to browse for existing Acquisition and Financial Assistance opportunities". Scroll down and click on Browse Financial Assistance opportunities. Find the link for DE-FG01-04ER04-33, FY2005 SBIR/STTR Program Solicitation. Click on link.

Step 3 – Go to http://e-center.doe.gov via the Internet.

Step 4 – Log in.

Step 5 – Click on "Create Application."

Step 6 – Questions about IIPS should be directed to the IIPS help desk by calling 1-800-683-0751.

6.4.1 Application Format

The grant application should be submitted as preferably no more than 3 files. More than 3 files may significantly delay processing of your application.

a. Technical Proposal – The main text, including resumes and letters of commitment, of the grant application should be prepared in PDF or Word as one file and pasted in the box labeled "Application/Pre-Application." Any other format will significantly delay the processing of your grant application.

b. Forms – Make sure you use the appropriate forms that are specific to the SBIR and STTR programs. Do not use the DOE Standard Forms. The required forms (Appendices A, B, C, D) are provided as one file at the bottom of the IIPS funding notice. Please complete them as ONE file and paste the file in the box labeled "Attachment 1." **DO NOT CONVERT THE WORD FORMS TO PDF.** We can not open the forms if you do this. If you use the Word Forms, save and submit them as a Word File.

c. Additional Information – Additional information such as "Budget Explanation Page" and Documentation of Multiple SBIR Phase II Awards (if necessary) should be pasted into the boxes labeled "Attachments."

d. Graphics and Figures – Please refrain from using multi-colored and sophisticated graphics and figures. This severely delays electronic processing of applications. Also, some of the technical reviewers may not have the capability of viewing such files.

6.4.2 Modifications and Duplicate Submissions

In the event that duplicate applications are received, the application with the latest transmission time will be accepted.

If you submit a revised application, please type REVISED in the subject field on the IIPS cover page. Also, mark the top of your technical proposal as REVISED.

Modifications to grant applications that are intended to be incorporated into the review/award process will be accepted **if received by the deadline,** and are clearly marked as modifications.

7. SCIENTIFIC AND TECHNICAL INFORMATION SOURCES

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.

7.1 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 telephone for dispatch through regular mail for a nominal fee from:

NTIS
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
1 (800) 553-6847

Phone orders are for microfiche and paper copies only. When available, files for downloading are accessible via the Website.

Rush service (dispatched within 24 hours by an overnight courier) is available for an additional cost. Alternatively, microfiche of unclassified, unlimited DOE reports are available for use by the public free of charge in Government Printing Office depository collections. More than 1,400 public, college, and university libraries around the country are designated as U.S. Depository Libraries. Check with a local public library. Most libraries participate in an inter-library loan service whereby one may request copies of an unavailable publication from another library which has it.

7.2 DOE OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION

The Office of Scientific and Technical Information (OSTI) coordinates the Department-wide Scientific and Technical Information (STI) Program for managing the results of DOE's research and development and related projects. OSTI collects, preserves, and disseminates STI via Web-based information systems. OSTI also makes worldwide scientific and technical information available to DOE's customers and the general public. Potential SBIR applicants may obtain information from the following OSTI sources, available freely via the Web at www.osti.gov or the specific URLs below:

(1) DOE Information Bridge, a searchable Web-based tool with 80,000 full-text DOE R&D reports (see public Website http://www.osti.gov/bridge). Note: Additional content is available to current DOE contractors and grantees via the DOE and DOE contractor version. Those wishing to obtain access should register online at https://www.osti.gov/doebridge/.

(2) Energy Citations Database, containing citations to energy and energy-related disciplines from 1948 to the present, with full-text links where available, is available at http://www.osti.gov/energycitations/

(3) R&D Project Summaries, a Web-based system describing each of 22,000 DOE R&D projects (see Website: http://www.osti.gov/rdprojects).

(4) *E-print Network***:** Research Communications for Scientists and Engineers (http://www.osti.gov/eprints/) provides one-stop browse/search access to more than 13,750 Websites containing e-prints, full text searching of over 400,000 e-print documents indexed from Websites, and deep Web searching across 29 major databases.

(5) EnergyFiles Energy Science and Technology Virtual Library, a digital library of over 500 energy-related databases and other information resources (see Website http://www.osti.gov/EnergyFiles).

(6) Federal R&D Project Summaries (www.osti.gov/fedrnd/) provides enhanced search across more than half-a-million summaries of R&D projects from seven diverse Federal resources.

(7) Science.gov, the FirstGov for SCIENCE Web portal providing authoritative science information from 17 organizations within 12 agencies, available at http://www.science.gov/.

7.3 OTHER SOURCES

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.