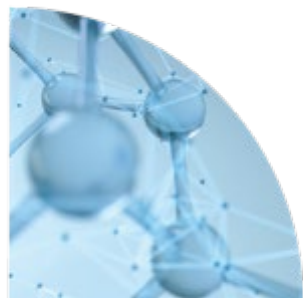




Overview of the DOE SBIR/STTR Proposal Preparation Process

Jenny C. Servo, Ph.D.
Dawnbreaker

July 18, 2023



AGENDA

- Locating needed resources
- What should I do when the Topics are released
- Important dates
- Do I have to wait until the Funding Opportunity Announcement is released to start working on my proposal
- What does it take to be successful with DOE?



A futuristic server room with glowing blue lights and data patterns. The room is filled with server racks on both sides, and the ceiling is illuminated by a grid of lights. The overall atmosphere is high-tech and digital.

Locating Needed Resources



Primary Resource

- About
- Funding Opportunities
 - Closed FOAs
- Applicant Resources
- Awardee Resources
- Partnering Resources
- Frequently Asked Questions
- Research Areas & Impact
- Awards
- SBIR/STTR Phase III Success Stories
- Outreach
- Foreign Risk Management
- Reporting Fraud

Contact the DOE SBIR/STTR Programs Office

Address
U.S. Department of Energy
SC-29/Germantown Building
1000 Independence Ave., SW
Washington, DC 20585

Phone

Funding Opportunities

Fiscal Year		
FY25 (Future)	FY24 (Current)	FY23 (Closed)

2024

Phase I	Release 1	Release 2
Topics Issued	Monday, July 10, 2023	Monday, November 6, 2023
Document	Phase I Release 1 Topics	
Phase 0 Application Assistance (free for first time applicants) starts	Monday, July 10, 2023	Monday, November 6, 2023
Topic Webinar, week of	ASCR and BES Topics (1-15) Tuesday, July 18, 2023 Register	Monday, November 13, 2023*
	BER and FES Topics (16-25) Wednesday, July 19, 2023 Register	
	HEP and NP Topics (26-36) Wednesday, July 26, 2023 Register	
FOA Issued	Monday, August 7, 2023	Monday, December 11, 2023
Document		
FOA Webinar	Friday, August 11, 2023*	Friday, December 15,

DOE SBIR/STTR Topics Document

- The DOE is unique in that its topics are released a month **BEFORE** the solicitation is released.
 - **Download Topics document TODAY!**
- The solicitation is called a **Funding Opportunity Announcement (FOA)**
- The topics are organized by Office
 - There are nine offices participating in the current topics document



DOE SBIR/STTR Topics Document

- The topics document states IF, you can submit an SBIR or STTR proposal in response to a topic.
- The topics document indicates the award ceiling on each topic
- A contact's name is provided for each subtopic
- The topics document may be updated from time to time
- You must respond to a Topic and a Subtopic





U.S. Department of Energy

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

Topics

FY 2024

Phase I

Release 1

July 10, 2023

- Office of Advanced Scientific Computing Research
- Office of Basic Energy Sciences
- Office of Biological and Environmental Research
- Office of Fusion Energy Sciences
- Office of High Energy Physics
- Office of Nuclear Physics

Anatomy of Topics document

Office 

Topic # 

Subtopic letters 

INTRODUCTION TO DOE SBIR/STTR TOPICS	7
COMMERCIALIZATION	7
TECHNOLOGY TRANSFER OPPORTUNITIES	7
PROGRAM AREA OVERVIEW: OFFICE OF ADVANCED SCIENTIFIC COMPUTING RESEARCH....	10
C57-01 ACCELERATING THE DEPLOYMENT OF ADVANCED SOFTWARE TECHNOLOGIES.....	11
a. Deployment of ASCR-Funded Software.....	12
b. Integration of ASCR-Funded Libraries.....	13
c. Other	13
C57-02 HPC CYBERSECURITY.....	14
a. Strengthening Isolation between HPC Users.....	15
b. Other	15
C57-03 DIGITAL-TWIN CAPABILITIES FOR SCIENCE NETWORK INFRASTRUCTURES	15
a. Network Simulation Tools.....	16
b. Other	17
C57-04 TECHNOLOGY TO FACILITATE THE USE OF NEAR-TERM QUANTUM COMPUTING HARDWARE	18
a. Software for Calibration, Characterization, and Control of Quantum Processors	18
C57-05 ARTIFICIAL INTELLIGENCE TOOLS FOR CATALYZING INTERDISCIPLINARY SCIENCE	18
a. Interdisciplinary Training and Interfaces	19
C57-06 MIXED INTEGER SOLVER TECHNOLOGY FOR ACCELERATED COMPUTING SYSTEMS.....	20
a. Efficient Distributed Tree Management	20
b. Efficient Linear Program Relaxation Solution	20
c. Other	21
PROGRAM AREA OVERVIEW: OFFICE OF BASIC ENERGY SCIENCES.....	22
C57-07 COST-EFFECTIVE CRYOGENIC COOLING SYSTEMS FOR HIGH POWER X-RAY OPTICS.....	22
a. Development of Cost-Effective, Compact, Closed-Loop, Cryogenic Systems for Cooling of High-Power X-Ray Optics	23
b. Other	23
C57-08 THERMAL AND COLD NEUTRON BEAM TRANSPORT TECHNOLOGY FOR SCATTERING INSTRUMENTATION AT PULSED AND CONTINUOUS NEUTRON SOURCES	24
a. Large-Scale Fabrication of Super-Mirror Reflection Surfaces for Neutron Guides, Mirrors, Polarizers and Filters.....	24
b. Other	24
C57-09 SOFTWARE TOOLS AND DATA MOVEMENT SYSTEMS SOLUTIONS FOR HIGH BRIGHTNESS X-RAY SOURCES	25
a. Machine-Guided Visualization Tool to Explore and Coalesce Multi-Channel and Multi-Modal Nanoscale Imaging Data	25
b. Efficient High-Performance Data Transfer Over ESnet for Massive-Scale Data Analytics	26
c. Other	27
C57-10 SPIN-POLARIZED AND TIME-RESOLVED ELECTRON BEAM SOURCE FOR ELECTRON MICROSCOPY.....	28
a. Development of a Commercially Viable Spin-Polarized and Time-Resolved Electron Gun from a GaAs Emitter	28





[Return to Table of Contents](#)

PROGRAM AREA OVERVIEW: OFFICE OF BASIC ENERGY SCIENCES

The Office of Basic Energy Sciences (BES) supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels in order to provide the foundations for new energy technologies and to support Department of Energy (DOE) missions in energy, environment, and national security. The results of BES-supported research are routinely published in the open scientific literature.

A key function of the program is to plan, construct, and operate premier scientific user facilities that enable the development and characterization of novel chemical and materials systems across scales. This is accomplished through support for facilities providing diverse X-ray and neutron scattering capabilities, as well as unique instrumentation for nanoscience at five Nanoscale Science Research Centers. These national resources are available free of charge to all researchers based on the quality and importance of proposed nonproprietary experiments, and at cost recovery for meritorious proprietary work. For additional information on BES user facilities, [click here](#). The link to each facility webpage leads to detailed descriptions of the experimental instruments and facilities and the listing of available experimental techniques.

A major objective of the BES program is to promote the transfer of the results of its basic research and advance the use of its world-leading tools to enable the development and demonstration of technologies important to DOE missions in areas of energy efficiency, renewable energy resources, emission reduction from the use of fossil fuels, mitigation of the adverse impacts of energy production and use, and future nuclear energy sources. To that end, the DOE's Office of Technology Transitions provides the [Laboratory Partnering Service](#) to help researchers discover and partner with DOE's [national laboratories](#). The DOE SBIR/STTR site under applicant resources also contains a [resource](#) to explore collaboration with the national laboratories.

The SBIR/STTR program represents one important mechanism by which the BES program augments its system of university and laboratory research programs and integrates basic science, applied research, and development activities within the DOE. The BES program is currently interested in receiving applications on the following set of technical topics. For additional information regarding the Office of Basic Energy Sciences programs, [click here](#).

C57-07 COST-EFFECTIVE CRYOGENIC COOLING SYSTEMS FOR HIGH POWER X-RAY OPTICS

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,100,000
Accepting SBIR Applications: YES	Accepting STTR Applications: YES

In support of DOE's high-brightness X-ray light sources, grant applications are being solicited for the development of technologies that support cost-effective cryogenic cooling of high-power X-ray optics. X-ray mirrors and crystals in the most demanding beamline applications must maintain their ideal shapes to nanometer tolerances under high-power-density illumination. Mitigating thermal distortion is therefore a significant challenge for X-ray instrumentation. Silicon mirror substrates and monochromator crystals are widely used in X-ray beamlines due to their relatively high thermal conductivity and ability to achieve polished, sub-nm surface roughness values. Yet it is their temperature-dependent coefficient of thermal expansion that is most compelling for their application in high power X-ray optics. Near 125 K, the coefficient of thermal

Anatomy of a Topic

- The Office releasing the topic is in the box
- There are hyperlinks in the Office description which provides background information

The topics are in bold – in this case C57-07. The content in the blue box it indicates that they are accepting both SBIR and STTR applications

- DOE refers to proposals as applications, as you will be submitting an application package

The amount of the Phase I award is noted - \$200K
The topic description specifies what all subtopics MUST do

- Don't ignore the Topic description



[Return to Table of Contents](#)

expansion crosses zero, meaning that cryogenically cooled silicon optics can operate with significant heat loads but without problematic levels of thermal distortion.

Grant applications are sought in the following subtopics:

a. Development of Cost-Effective, Compact, Closed-Loop, Cryogenic Systems for Cooling of High-Power X-Ray Optics

This subtopic seeks the development of innovative cryogenic cooling systems for silicon mirrors and crystals that can reach and maintain temperatures close to 125 K. Such systems can improve the quality, stability, resolution, and focusing performance of cutting-edge X-ray beamlines and optical systems. The systems should be compatible with a variety of optic-cooling geometries. Additionally, the systems should be compatible with and easily integrable into new and existing X-ray beamline infrastructure at synchrotron and other X-ray facilities and require minimal maintenance and upkeep. The cost, size, and operational stability are primary concerns driving the need for new and innovative designs and concepts. Important cost and performance requirements include:

- i. The cost of the system once commercialized should be < \$50,000.
- ii. The preferred size of the system should be < 1 m³.
- iii. The system must be capable of delivering > 250 W cooling power at 125 K.
- iv. For vibration considerations of the beamline optics implementation, the coolant transfer lines should be flexible with a minimum bend radius of < 20 cm.

Questions – Contact: Eliane Lessner, Eliane.Lessner@science.doe.gov

b. Other

In addition to the specific subtopic listed above, the Department invites grant applications in other areas that fall within the scope of the topic description above.

Questions – Contact: Eliane Lessner, Eliane.Lessner@science.doe.gov

References:

1. V. Rehn, 1986, "Optics for Insertion-Device Beam Lines," *Proc. SPIE* 582, 238. <https://doi.org/10.1117/12.950935> (May 5, 1986)
2. D. Bilderback, 1986, "The potential of cryogenic silicon and germanium X-ray monochromators for use with large synchrotron heat loads." *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 246, 434. *ScienceDirect*, [https://doi.org/10.1016/0168-9002\(86\)90126-9](https://doi.org/10.1016/0168-9002(86)90126-9) (May 15, 1986)
3. G. Cutler, et al., 2020, "An update on development of a cryogenically cooled-silicon mirror for the Advanced Light Source Upgrade project," *Proc. SPIE* 11491, 114910F. <https://doi.org/10.1117/12.2568101> (August 21, 2020)
4. G. Cutler, et al., 2020, "A cantilevered liquid-nitrogen-cooled silicon mirror for the Advanced Light Source Upgrade," *J. Synchrotron Rad.* 27, 1131. <https://doi.org/10.1107/S1600577520008930> (2020)
5. L. Zhang, et al., 2013, "Thermal deformation of cryogenically cooled silicon crystals under intense X-ray beams: measurement and finite-element predictions of the surface shape." *J. Synchrotron Rad.* 20, 567. <https://doi.org/10.1107/S0909049513009436> (2013)

Anatomy of a Topic

There are more guidelines at the top of this page that relate to the topics' requirements

There are two subtopics on this page

- A letter is used to designate each subtopic. In this case – a and b.

There is a contact to whom you can direct questions

- Best to ask questions as early as possible, because of the holiday season
- Always ask questions about "Other" topics
- The person listed is the Topic Manager

The references are there for a purpose

- Be sure to review them

Should I talk to the Topic Manager?

- If you have questions, you should ask them as soon as possible
 - Send an email in advance and ask to schedule a call
 - Review all the Topic and subtopic information carefully before you have the call
 - The purpose of the call is to seek clarification on questions you have regarding the information provided – so that YOU, and **NOT** the topic author can decide if you can submit a responsive application
 - Listen to webinar recordings



Sample email to Topic Manager



Dear **[Insert Topic Manager Name]**

By way of introduction my name is **[insert name]** and I am **[describe affiliation]**. I have reviewed the current Funding Opportunity Announcement [FOA] and am interested in **Topic#, Subtopic Y**. After reviewing the topic and subtopic carefully, as well as the links and references, I have a few lingering questions that I would like to discuss with you. Would you have time in the next couple of days for a brief, 10-15 minutes phone call? A brief conversation with you will help me determine if I can submit a responsive proposal. Please recommend a time when I may call you.

My questions relate to: **[insert 1 or 2 of your key questions – the following is an example - *technology approaches - are there certain approaches which are of no interest to DOE? what are the performance expectations in Phase I as opposed to Phase II?*]**

Thanks for your consideration of my request.

A futuristic server room with blue lighting and data visualizations. The room is filled with server racks on both sides, and the floor is covered in a grid of glowing blue lines. The ceiling is a complex, grid-like structure with a central light source. The overall atmosphere is high-tech and digital.

IMPORTANT DATES



Important Dates

- Dates topics are released (7/10/23)
- Topic webinar dates (7/18-7/19)
 - You need to register in advance
 - You can listen to recordings
- Funding Opportunity Announcement (FOA) release (8/8/23)
- **Letter of Intent Due (8/28/23)**
- **Non-responsive feedback (9/18/23)**
- Full Applications due (10/10/23)



Letter of Intent (LOI) Instructions

An essential gate!





About

Funding Opportunities

Closed FOAs

Applicant Resources

Awardee Resources

Partnering Resources

Frequently Asked Questions

Research Areas & Impact

Awards

SBIR/STTR Phase III Success Stories

Outreach

Foreign Risk Management

Reporting Fraud

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FOA Issued	Monday, August 7, 2023	Monday, December 11, 2023
Document		

Finding Instructions!

Always go to Applicant Resources

Why does DOE have a Letter of Intent (LOI)

- Congress has asked agencies participating in the SBIR/STTR programs to announce their awards within 90 days of application submission deadlines
- To do this, DOE selects reviewers early.
- The LOI enables them to do this



What happens if I get a non-responsive notice from DOE?



- **You can still submit an application if you receive a non-responsive letter from DOE**
 - DOE only sends an email to those whose LOIs are non-responsive
 - You can only submit an application based on the LOIs that you submit.
 - You cannot just change topics/subtopics
 - You can submit multiple LOIs
- **Recommendation**
 - Work hard to prepare an excellent LOI, view this as the beginning of your proposal preparation process.

Funding Opportunity Announcement (FOA)

Should I wait until the FOA is released on 8/7/23 before I start working on my application?



START NOW!



- The worst thing you can do is to wait for the FOA to be released before you do anything!
 - Review the topics document now!
 - As you read the topics/subtopics – LISTEN to what the topic manager is saying that they want.
 - Is there synergy between your skills and DOE's needs
 - Do you understand the state of the art?
- View working on the LOI as starting to work on your proposal



Registrations





Three registrations that all SBIR/STTR require

- Unique Entity Identifier (replaces D&B)
 - <https://sam.gov/content/duns-uei>
- System for Awards Management (SAM)
 - <https://sam.gov/content/home>
- SBIR company registration with SBA
 - <https://www.sbir.gov/registration>

Each agency may have additional systems with which you must register, but these three all participating agencies require.

DOE does have MORE registrations – PAMS is the first one you will use



SAM registration

- If you are planning to apply for a federal grant or contract, complete this at any time
- This process is currently taking two-to- three months to clear
- **To minimize delays in the registration process:**
 - Always use the same company name and address (no variations)
 - Make sure that this is the same information that you use with IRS
 - Keep copies of your SAM password and UEI handy
 - Check trash for CAGE code – still currently coming from DLA (Defense Logistics Agency)
 - Work with a local Procurement Technical Assistance Center (PTAC)
 - <https://www.aptac-us.org/find-a-ptac/?state=PR>



Implications

- Some companies that start their SAM registration as soon as they start working on their proposal, have not received information in time to submit their proposal

You can't submit a responsive proposal, if you are not registered with SAM

A futuristic server room with glowing blue lights and data patterns. The room is filled with server racks on both sides, and the floor is covered in a grid of glowing blue lines. The ceiling is a complex, grid-like structure with glowing blue lights. The overall atmosphere is high-tech and digital.

**What are the elements
of a DOE Phase I Application?**

What is the structure of DOE Phase I application package?



- In order to apply for a DOE SBIR/STTR award you need to :
 - First submit a **Letter of Intent** (LOI) through the system called Portfolio Analysis and Management System (**PAMS**)
 - Prepare a research proposal (called a “**Project Narrative**”)
 - and a **Commercialization Plan**
 - with an accompanying **budget** and
 - **Resumes** (biographical sketches) of those who will do the work
 - A **public abstract**
 - A variety of forms and attachments
 - Register with the **System for Awards Management (SAM)**
 - Submit the application through a system called **Grants.gov**

The Project narrative is the heart of the proposal

Cover Page

Proprietary Data Legend

1.0 Identification and Significance of the Problem or Opportunity, and Technical Approach

2.0 Anticipated Public Benefits

3.0 Technical Objectives

4.0 Work Plan

5.0 Performance Schedule

6.0 Facilities/Equipment

7.0 Research Institution

8.0 Other Consultants and Subcontractors

9.0 Bibliography and References Cited





Work on the LOI and project narrative concurrently

This will save you time



First two sections of Project Narrative

From previous FOA

- **Identification and Significance of the Problem or Opportunity, and Technical Approach** – Define the specific technical problem or opportunity addressed by your application. Provide enough background information so that the importance of the problem/opportunity is clear. Indicate the overall technical approach to the problem/opportunity and the part that the proposed research plays in providing needed results.
- **Anticipated Public Benefits** – Discuss the technical, economic, social, and other benefits to the public as a whole anticipated if the project is successful and is carried over into Phases II and III. Identify specific groups in the commercial sector as well as the Federal Government that would benefit from the projected results. Describe the resultant product or process, the likelihood that it could lead to a marketable product, and the significance of the market.

LOI Guidelines

- A Technical Abstract in .PDF format must be uploaded to PAMS, must not exceed 500 words and two pages, and it **must provide sufficient technical description of the proposed technology and application to allow DOE to assign technical reviewers to the full grant proposal**. The technical abstract may include photos and/or tables, and captions are not included in word count. **However, please note that a technical abstract must not contain any proprietary information.”**
- **Download sample LOI from DOE Application Resources**

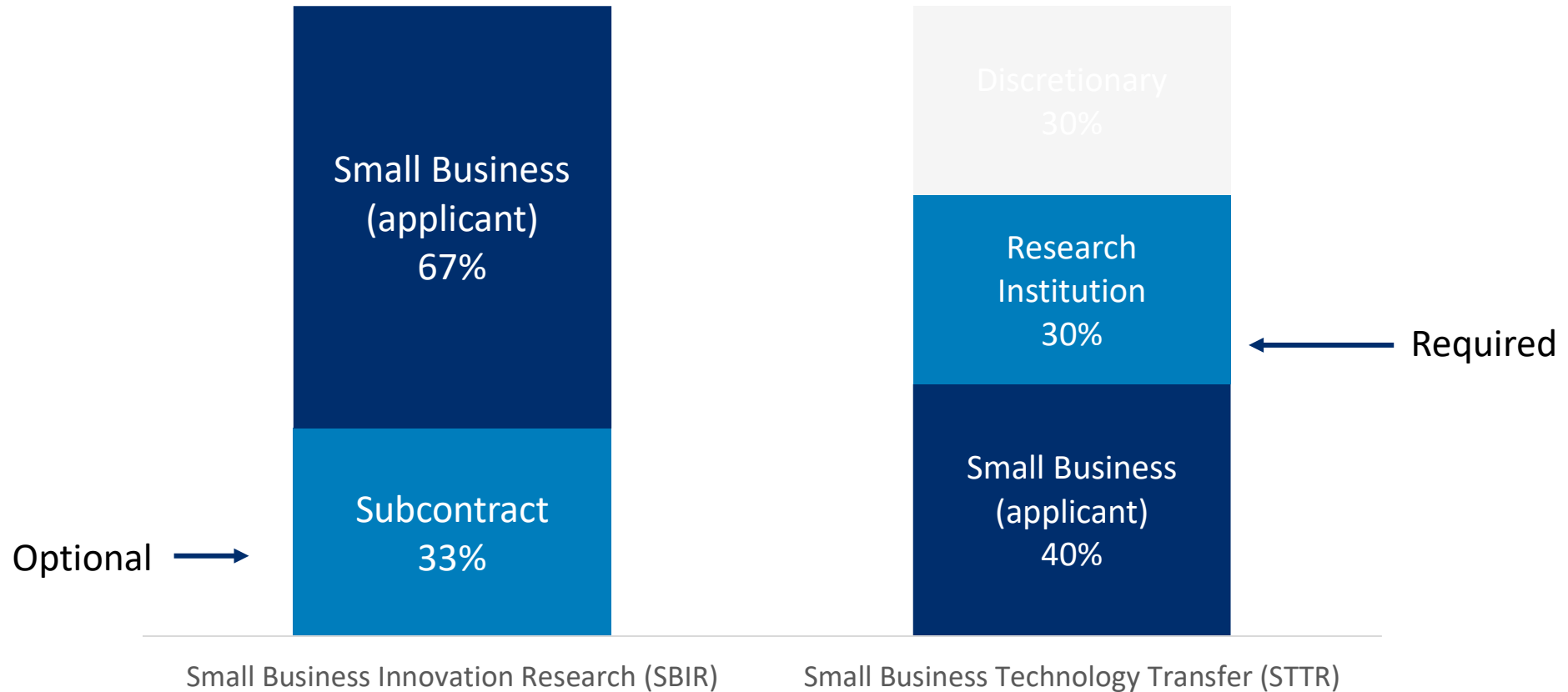


How big is the proposal / application?



Item	Project Narrative	Commercialization Plan	Budget justification	Biographical sketches	Project Abstract
Page numbers	7,500 words	4 pages	Not specified	Use form	1 page
Other	Follow guidelines in DOE Funding Opportunity Announcement (FOA)	Follow Guidelines Under Applicant Resources	Stay within budget. Use Budget Justification form	Follow guidelines in <i>Instructions for Completing a DOE SBIR/STTR Phase I Grant Application</i>	PDF format
					No proprietary info

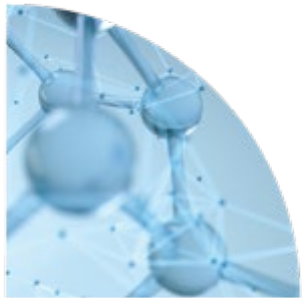
What's the difference between SBIR and STTR?



The small business is ALWAYS the applicant and awardee!



Administrative Review Process





Administrative Review Process

- Every agency conducts an Administrative review first
- If the proposal does not pass the Administrative review step, it will not go through Scientific/Technical review and will be declined
- Common reasons for NOT passing the administrative review include:
 - The proposed budget is higher than what the agency allows in Phase I
 - Some of the required forms were NOT included
 - The company did not adhere to the page count, margins, etc.
 - The proposal was not for research and development
 - The proposal was submitted after the deadline



How to pass Administrative Review?

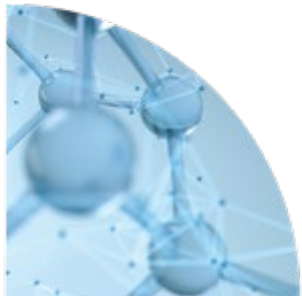
When you review an agency solicitation,

- Read the **application guidelines** very carefully
- Prepare a PPT to share with others who are assisting you and include
 - The due date a time
 - Any guidelines regarding page limits, font type and size, margins, markings
 - Budget for Phase I awards
 - Evaluation criteria
 - See if a checklist is included in the solicitation
 - Determine through which system the SBIR/STTR application must be delivered
 - Generate a list of all forms that must be completed
 - Note any additional registrations, besides the three mentioned earlier
 - Note any initial steps that affect your ability to submit an application, later



Agency Evaluation Criteria

Write **to** the evaluation criteria!





Technical Plan – the Heart of the Proposal

- Every solicitation requires that you draft a technical plan, which may be called different things depending on the agency. For example
 - Project Narrative (DOE, USDA)
 - Technical Volume (DoD, NASA)
 - Project Description (NSF)
 - Research Plan (NIH)
- This section is the heart of the proposal and the key part that reviewers will evaluate. Be sure that you review the evaluation criteria, presented in the solicitation, before you start drafting this section.



Follow the Outline Precisely

- The sections that an agency wants to see in the technical plan, are unique to that agency
- The agency provides an outline in the Phase I solicitation
- Follow the outline precisely
- This makes it easy for reviewers to find information they need to evaluate
- Build this document in stages and secure feedback as you develop
- Gradually winnow down to the page length to that specified



All solicitations include evaluation criteria



DOE Evaluation Criteria



2. Merit Review Criteria

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

Strength of the Scientific/Technical Approach as evidenced by

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

Ability to competently carry out the project as evidenced by

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

Impact as evidenced by

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

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

How do I keep this simple!?

- **Understand what is the most important**
 - The Project Narrative
 - Evaluation criteria: Innovation, Team, Facilities
- **Know where and when to get help!**
 - For those in the Phase 0 program – we will help you
 - For others – reach out to your local Small Business Development Center and/or Procurement Technical Assistance Center
 - Listen to the Tutorials on [DOE Phase 0 website](#)
 - Podcasts and PDFs



Upcoming Webinars from Dawnbreaker

- The importance of Developing a Proposal Preparation Schedule
 - Tuesday, July 25, 2:00 EDT
- Do you Really Understand the Topic?
 - Thursday, August 3, 2:00 EDT



Please take a moment to complete our short survey!

<https://forms.office.com/r/6YrR222VUW>

Thank you for joining me today!

Jenny C. Servo, Ph.D.

jcservo@dawnbreaker.com

Be sure to follow us on Twitter!

<https://twitter.com/dawnbreaker>

