

The DOE Webinar is scheduled to begin at 2:00 p.m. ET

- **Why is there no sound?**
 - This webinar is broadcast via your computer. You may need to turn your volume on or up as the sound for this webinar comes through your computer speakers.
 - We recommend using GOOGLE CHROME for this and other DOE SBIR webinars.
 - There is no dial-in number.
- **Will DOE provide access to the recorded webinar after the meeting?**
 - Yes, we will post the slides and the recorded webinar on the DOE SBIR/STTR web site.
- **Where can I find the FOA being discussed today?**
 - This link will take you to the FY 2020 Phase I Release 1 FOA:
<https://science.osti.gov/sbir/Funding-Opportunities>
- **What if my question was not answered at today's webinar?**
 - If you have a question about the grant application process, please send us an email at:
sbir-sttr@science.doe.gov or call us at (301) 903-5707.





***DOE's
Small Business Innovation Research (SBIR) and Small
Business Technology Transfer (STTR) Programs***

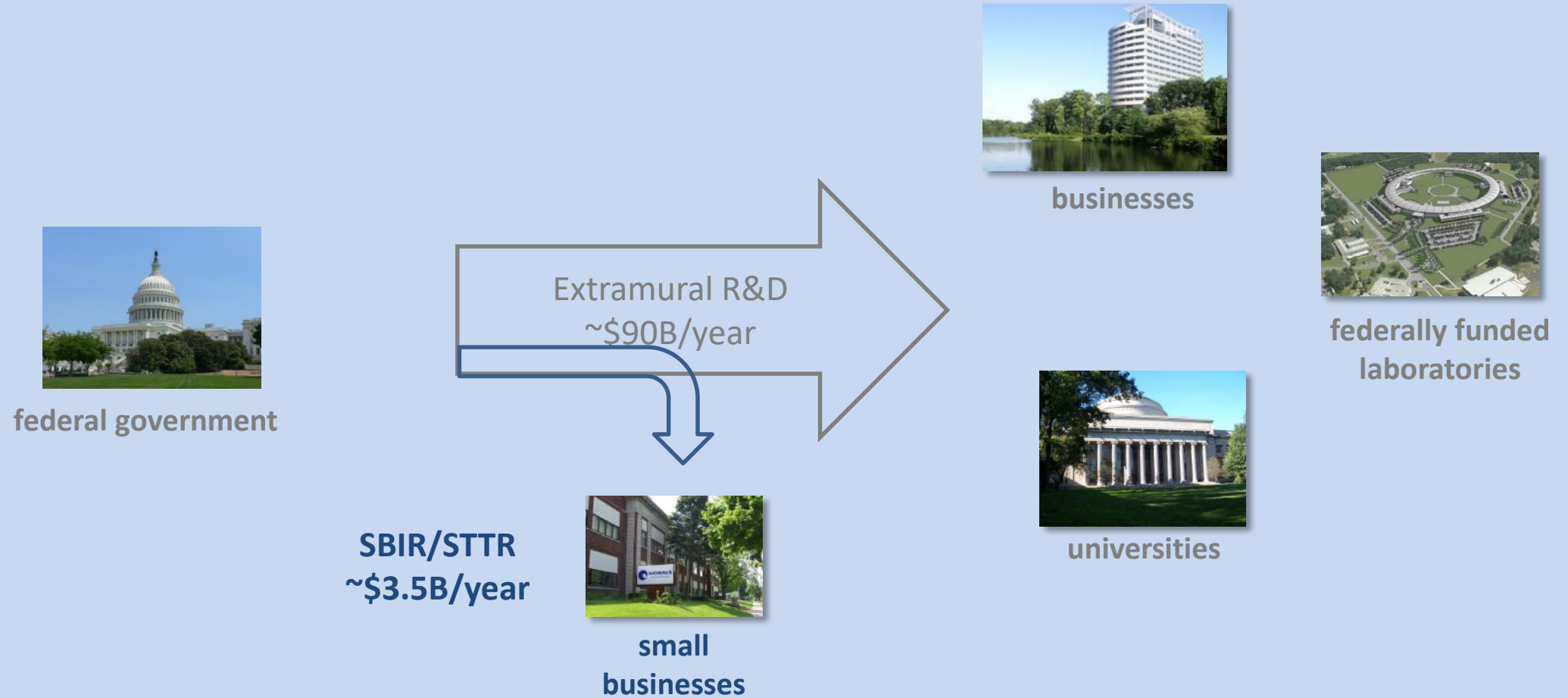
***Chris O'Gwin
DOE SBIR/STTR Programs Office***

**FY20 Phase I Release 1 Overview
August 19, 2019**

Overview of Federal SBIR/STTR Programs



FEDERAL Extramural R&D



Program Goals

Small Business Innovation Research (SBIR) *est. 1982*

- Stimulate technological innovation
- Use small business to meet Federal R&D needs
- Foster and encourage participation by women and socially and economically disadvantaged persons in technological innovation
- Increase private-sector commercialization of innovations derived from Federal R&D

Small Business Technology Transfer (STTR) *est. 1992*

- Stimulate and foster scientific and technological innovation through cooperative research and development carried out between small business concerns and research institutions
- Foster technology transfer between small business concerns and research institutions

SBIR and STTR were reauthorized on December 23, 2016 (P.L. 114-840) through September 30, 2022



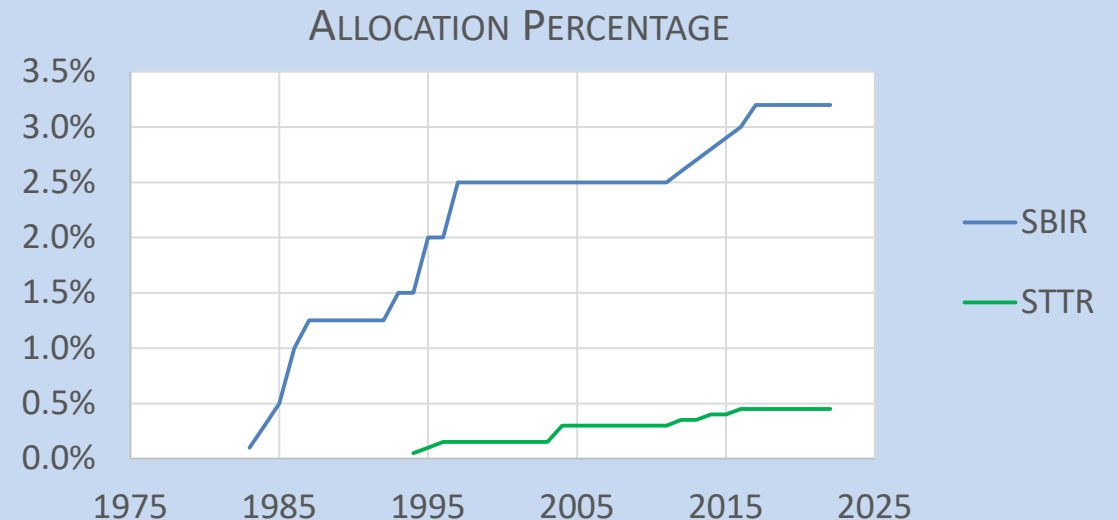
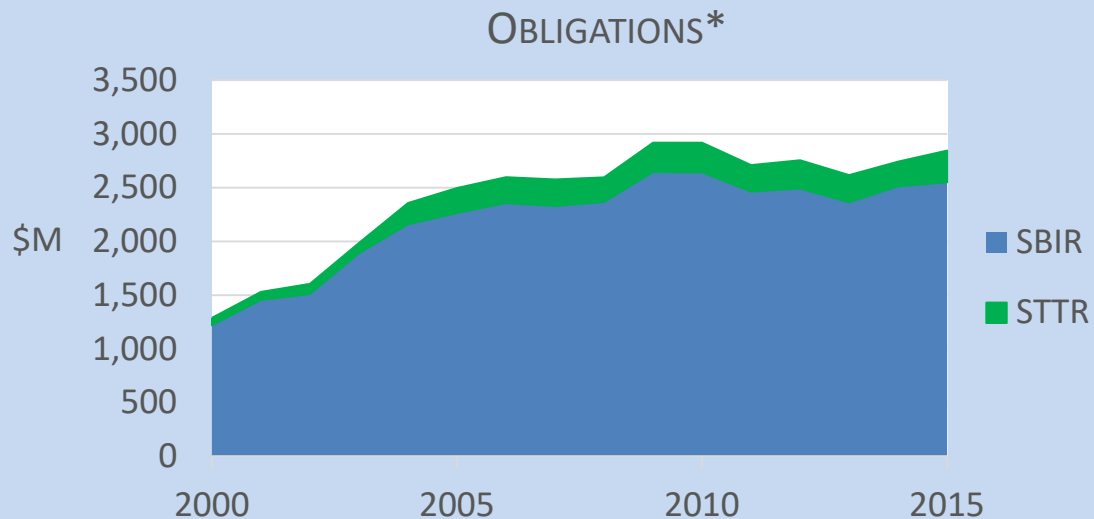
Major Differences between SBIR & STTR

- STTR: Requires collaboration with a Research Institution
 - Research Institution
 - College, University, Federal R&D Laboratory, other non-profit research organization
- Principal Investigator primary employment
 - SBIR: employed by the small business
 - STTR: employed by the small business OR research institution
- Percentage of R/R&D conducted by the small business
 - SBIR
 - Phase I: minimum 2/3 by small business
 - Phase II: minimum 1/2 by small business
 - STTR:
 - Phase I & II: minimum 40% by small business; minimum 30% by research institution
 - Subcontracting is permitted provided the level of effort requirements above are met



SBIR & STTR Funding Levels

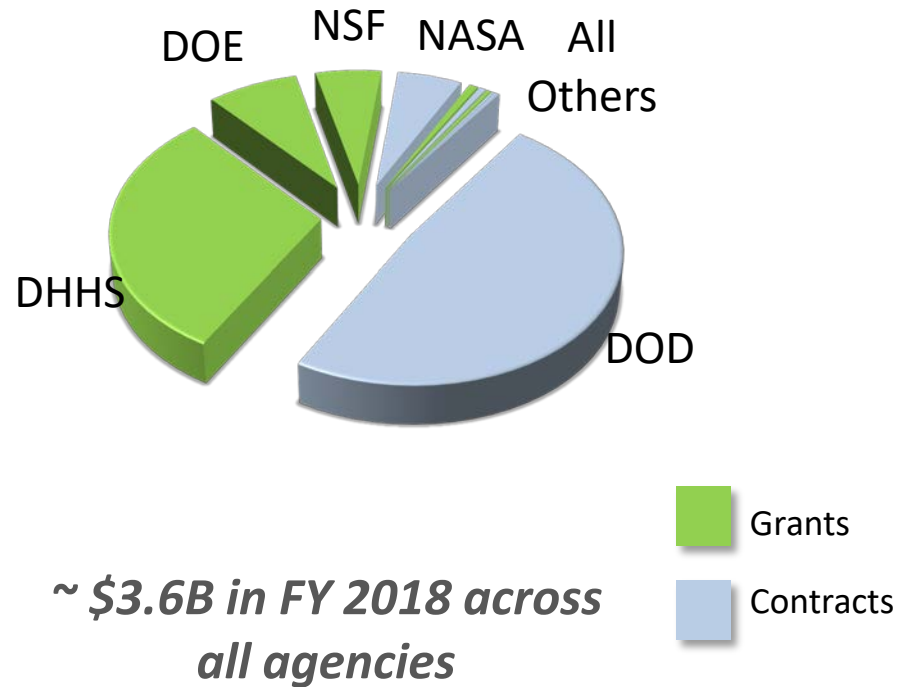
- Agencies allocate a percentage of their extramural R/R&D budgets for the SBIR & STTR programs
 - SBIR: 3.2% (FY 2019), for agencies with >\$100M in extramural R/R&D
 - STTR: 0.45% (FY 2019), for agencies with >\$1B in extramural R/R&D
- Congress has increased the allocation percentages since the programs were initiated



*source: SBIR.gov, 8/22/2016



Estimated SBIR/STTR Budgets by Agency, FY 2018



| AGENCIES WITH SBIR & STTR PROGRAMS | APPROX BUDGET |
|--|---------------|
| Department of Defense (DOD) | \$ 1.750 B |
| Department of Health and Human Services (DHHS), including the National Institutes of Health (NIH)* | \$1.088 B |
| Department of Energy (DOE), including Advanced Research Projects Agency – Energy (ARPA-E) | \$280.0 M |
| National Science Foundation (NSF) | \$ 202.4 M |
| National Aeronautics and Space Administration (NASA) | \$198.0 M |
| AGENCIES WITH ONLY SBIR PROGRAMS | APPROX BUDGET |
| Department of Agriculture (USDA) | \$27.0M |
| Department of Homeland Security (DHS): Science and Technology Directorate (S&T) & Countering Weapons of Mass Destruction Office (CWMD) | \$20.8 M |
| Department of Commerce: National Oceanic and Atmospheric Administration (NOAA) & National Institute of Standards and Technology (NIST) | \$14.2M |
| <i>*DHHS also issues contracts</i> | |
| Department of Transportation (DOT) | \$8.5 M |
| Department of Education (ED) | \$7.5 M |
| Environmental Protection Agency (EPA) | \$4.2 M |



Small Business Eligibility for SBIR & STTR

- For-profit U.S. business
- 500 employees or fewer, including affiliates
- Ownership (*applies to all agencies*)
 - Be a concern which is more than 50% directly owned and controlled by one or more individuals (who are citizens or permanent resident aliens of the United States), other small business concerns (each of which is more than 50% directly owned and controlled by individuals who are citizens or permanent resident aliens of the United States), or any combination of these
 - Joint ventures where the entities meet the requirements above
- Portfolio Companies (*some agencies*)
 - Be a concern which is more than 50% owned by multiple venture capital operating companies, hedge funds, private equity firms, or any combination of these. No single venture capital operating company, hedge fund, or private equity firm may own more than 50% of the concern.
- Performance of R&D
 - All R&D must be performed in the United States



3 Phases

PHASE I: FEASIBILITY, PROOF OF CONCEPT

- Award Amount: \$168,087 (guideline), \$252,131 (max.)
- Project Duration: 6-12 months



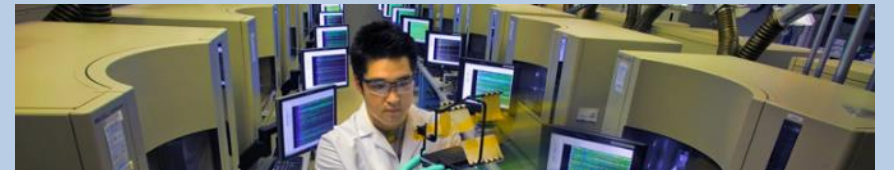
PHASE II: CONTINUE R/R&D FOR PROTOTYPES OR PROCESSES

- Award Amount: \$1,120,586 (guideline), \$1,680,879 (max.)
- Project Duration: 2 years
- Additional Phase II awards can be made



PHASE III: COMMERCIALIZATION

- Federal or Private Funding (non-SBIR/STTR funds)
- No dollar or time limits



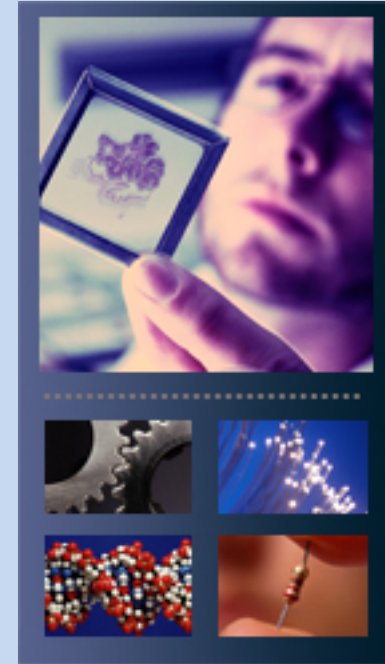
SBIR and STTR Awards

- Critical Early Stage R/R&D funding
 - The SBIR & STTR programs provide funding for innovative, early stage research
 - SBIR & STTR awards provide credibility when seeking investors or partners
- SBIR/STTR awards are executed as grants or contracts
 - No repayment
 - No dilution of company equity
 - No cost sharing is required for Phases I and II. Cost sharing may not be used as an evaluation criteria.



Intellectual Property

- Patent rights
 - Small business concerns normally retain the principal worldwide patent rights to any invention developed with Government support
- Government Use
 - The Federal Government receives a royalty-free license for Federal Government use

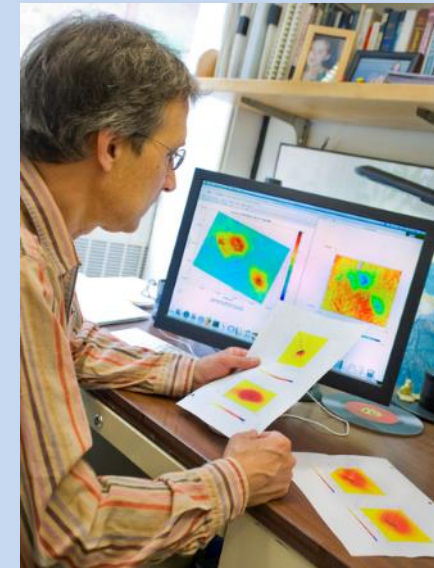


<http://www.uspto.gov/>



Data Protection

- Protection Period
 - Data generated from your R/R&D is protected from public disclosure for a minimum of **20 years** from the start of your award. *New policy change implemented in 2019*
- Government Use
 - The Government retains a royalty-free license for Government use of any technical data delivered under an SBIR award, whether patented or not



DOE SBIR & STTR Programs: Technology Areas



U. S. Department of Energy Mission

- **DOE's Mission** is to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions.
 - **Goal 1:** Catalyze the timely, material, and efficient transformation of the nation's energy system and secure **U.S. leadership in energy technologies**.
 - **Goal 2:** Maintain a **vibrant U.S. effort in science and engineering** as a cornerstone of our economic prosperity, with clear leadership in strategic areas.
 - **Goal 3:** Enhance **nuclear security** through defense, nonproliferation, and environmental efforts.

Program Offices Participating in the DOE SBIR/STTR Programs

Cyber Security, Energy Security & Emergency Response

Electricity

Energy Efficiency & Renewable Energy

Fossil Energy

Nuclear Energy

Advanced Scientific Computing Research

Basic Energy Sciences

Biological & Environmental Research

Fusion Energy Sciences

High Energy Physics

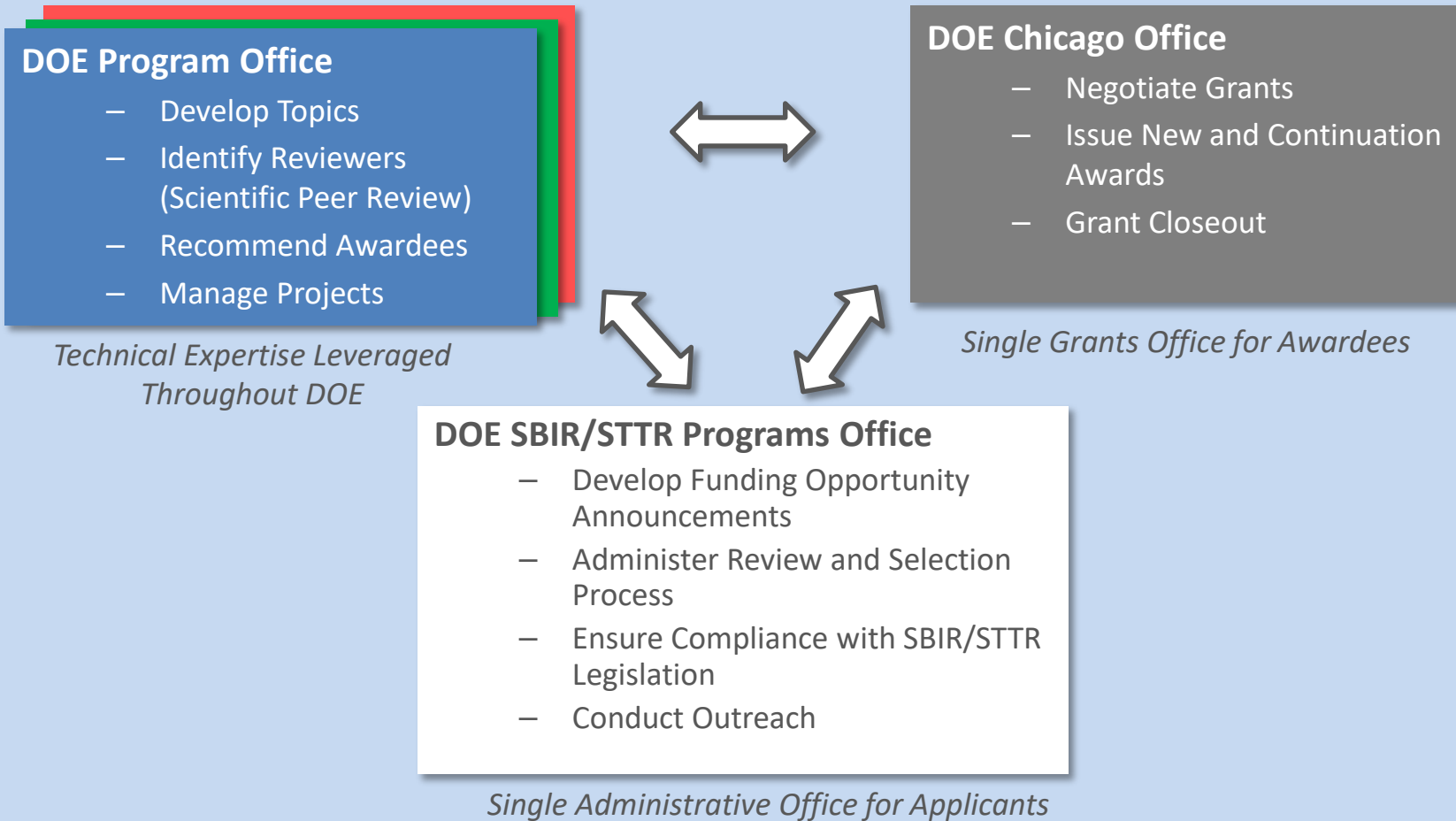
Nuclear Physics

Defense Nuclear Nonproliferation

Environmental Management

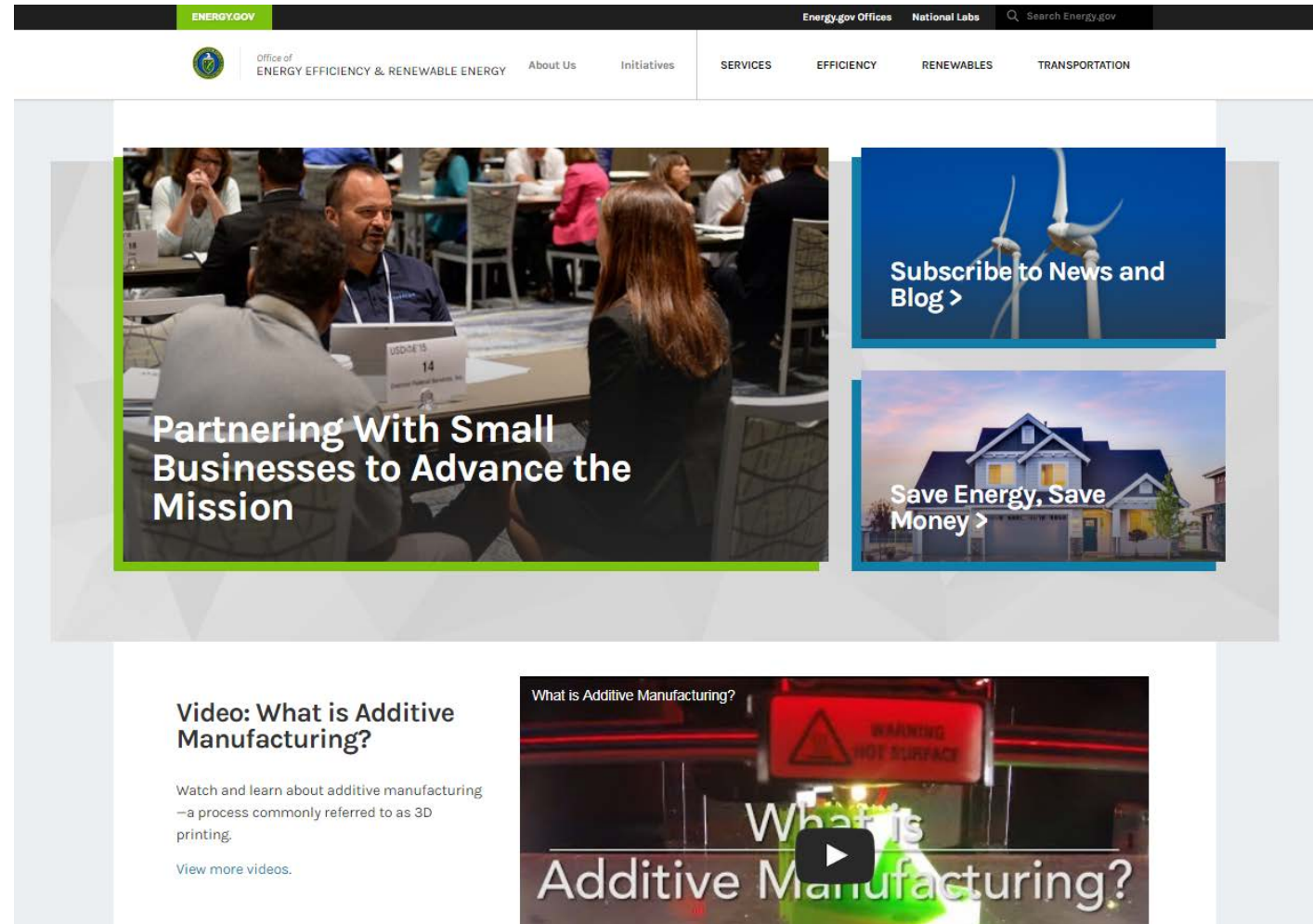


DOE SBIR and STTR Programs Operational Process



Information Available at DOE Program Office Websites

- Mission
- Funding Priorities and Announcements (non-SBIR)
- Technical Reference Data and Reports
- Conference Proceedings
- Contact Information



DOE Program Offices supporting

Goal 1: Energy Technologies

- [Office of Cybersecurity, Energy Security and Emergency Response](#)
- [Office of Electricity](#)
- [Office of Energy Efficiency and Renewable Energy](#)
- [Office of Fossil Energy](#)
- [Office of Nuclear Energy](#)



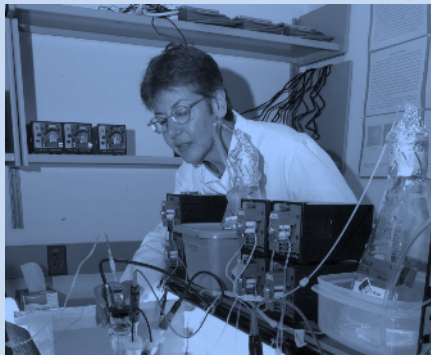
R&D Topic Areas

- Clean Coal Technologies
- Advanced Turbine Technology
- Oil and Gas Technologies
- Advanced Materials and Technologies for Nuclear Energy
- Smart Grid Technologies
- Cyber Security
- Energy Storage
- Bio-energy & Biofuels
- Hydrogen & Fuel Cells
- Solar Power
- Water Power
- Wind Energy
- Advanced Manufacturing
- Efficient Buildings & Vehicles

DOE Program Offices Supporting

Goal 2: Science and Engineering Leadership

- [Advanced Scientific Computing Research](#)
- [Basic Energy Sciences](#)
- [Biological and Environmental Research](#)
- [Fusion Energy Sciences](#)
- [High Energy Physics](#)
- [Nuclear Physics](#)



R&D Topic Areas

- Advanced Detectors
- Accelerator technology
- RF Components and Systems
- Data Acquisition, Processing and Analysis
- Fusion Energy Systems
- High Performance Computing & Networking
- Quantum Information Sciences
- Modeling and Simulation
- Atmospheric Measurement Technology
- Genomic Science and Related Biotechnologies
- Advanced Sources: neutron, x-ray, electron

DOE Program Offices Supporting

Goal 3: Nuclear Security

- [Office of Defense Nuclear Nonproliferation](#)
- [Office of Environmental Management](#)



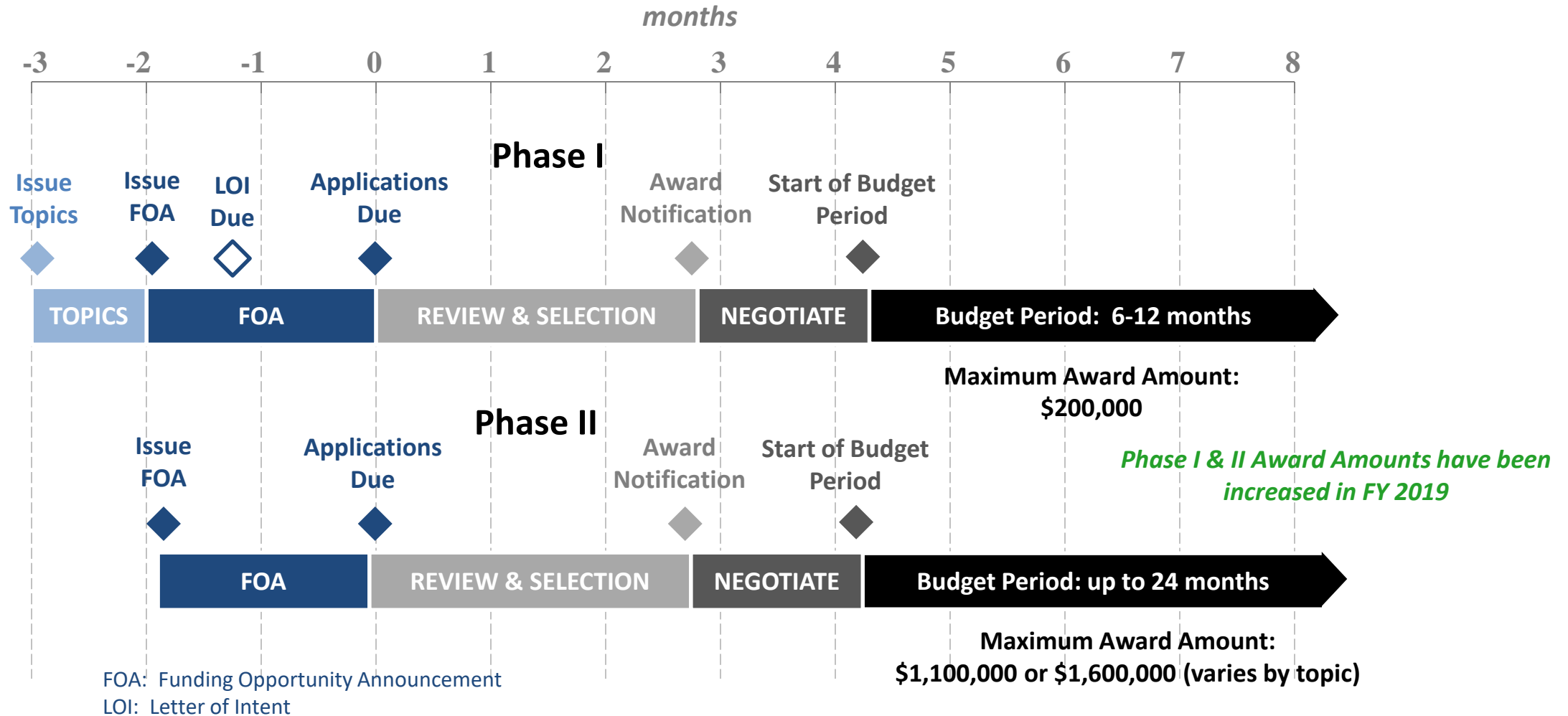
R&D Topic Areas

- Novel Radiation Monitoring Concepts
- In Situ Remediation
- Facility Deactivation and Decommissioning
- Remote Sensing
- Global Nuclear Safeguards R&D
- Nuclear Detonation Detection

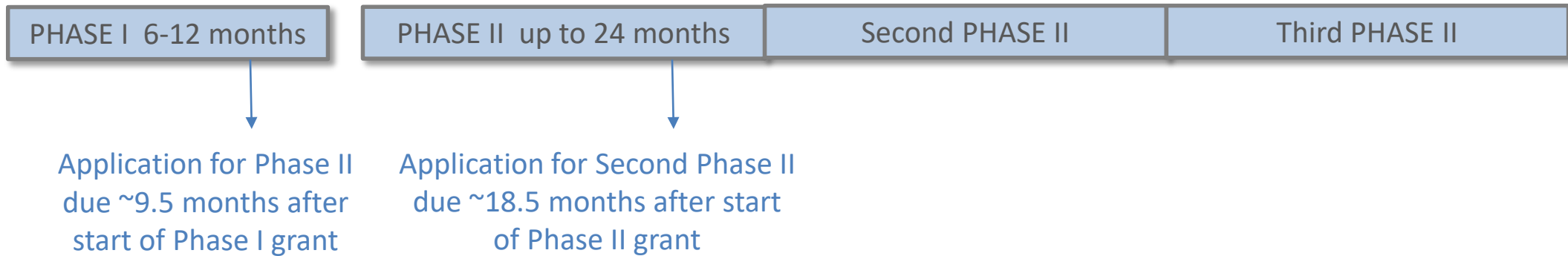
DOE SBIR & STTR Programs: Application & Award Process



Application & Award Timelines



Award Sequence



Second Phase II Awards (Maximum Award Amount: \$1,100,000)

- Phase IIA: For projects requiring more time and funding than available with a single Phase II award to complete prototype or process development
- Phase IIB: For projects that have successfully completed prototype or process development and require additional R&D funding to transition an innovation towards commercialization

Third Phase II Awards (pilot program started in FY 2019)

- Requires 1:1 investor matching funds



FY 2020 SBIR/STTR Phase I Funding Opportunity Announcements

Phase I Release 1

- Office of Advanced Scientific Computing Research (ASCR)
- Office of Basic Energy Sciences (BES)
- Office of Biological and Environmental Research (BER)
- Office of Nuclear Physics (NP)

Phase I Release 2

- Office of Cyber Security, Energy Security, and Emergency Response (CESER)
- Office of Defense Nuclear Nonproliferation (NA)
- Office of Electricity (OE)
- Office of Energy Efficiency and Renewable Energy (EERE)
- Office of Fossil Energy (FE)
- Office of Fusion Energy Sciences (FES)
- Office of High Energy Physics (HEP)
- Office of Nuclear Energy (NE)

Schedule: FY 2020 Phase I, Releases 1 & 2

| Phase I FOA Schedule | Release 1 | Release 2 |
|--------------------------------------|-----------------------------|----------------------------|
| Topics Issued | Monday, July 15, 2019 | Tuesday, November 12, 2019 |
| Webinar(s) | Week of July 22, 2019 | Week of November 18, 2019 |
| FOA Issued | Monday, August 12, 2019 | Monday, December 16, 2019 |
| Webinar(s) | Monday, August 19, 2019 | Friday, December 20, 2019 |
| Letters of Intent (LOI) Due | Tuesday, September 03, 2019 | Monday, January 6, 2020 |
| Non-Responsive LOI Feedback Provided | Tuesday, September 24, 2019 | Monday, January 27, 2020 |
| Applications Due | Tuesday, October 15, 2019 | Monday, February 24, 2020 |
| Award Notification | Monday, January 06, 2020* | Monday, May 18, 2020* |
| Projected Grant Start Date | Tuesday, February 18, 2020 | Monday, June 29, 2020 |

**preliminary dates subject to change*



Schedule: FY 2020 Phase II, Releases 1 & 2

| Phase II FOA Schedule | Release 1 | Release 2 |
|---|----------------------------|---------------------------|
| FOA Issued | Monday, October 21, 2019 | Monday, March 02, 2020 |
| Letters of Intent Due (Second or Third Phase II only) | Tuesday, November 12, 2019 | Wednesday, April 01, 2020 |
| Full Applications Due | Tuesday, December 10, 2019 | Tuesday, April 21, 2020 |
| Award Notification | Monday, February 24, 2020* | Monday, July 13, 2020* |
| Grant Start Date | Monday, April 6, 2020 | Monday, August 24, 2020 |

**preliminary dates subject to change*



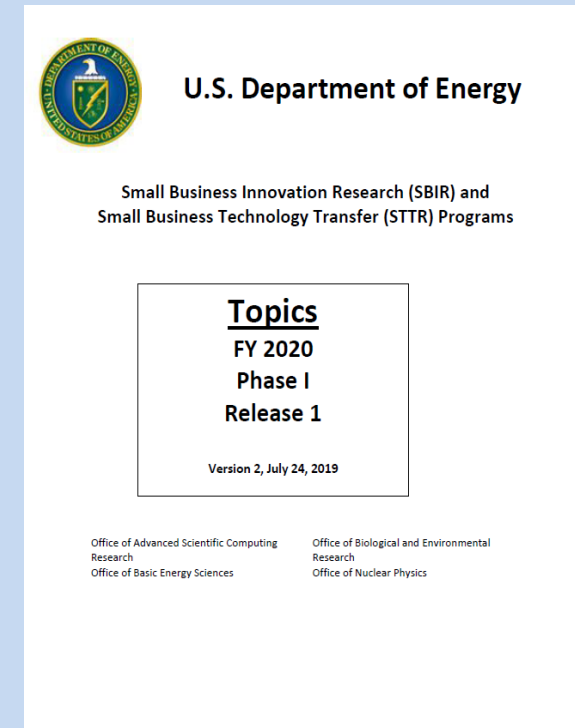
Assistance for the Application Process

- We have an online learning system to assist new applicants:
 - <https://science.osti.gov/SBIRLearning>
- Additional resources can be found on our website:
 - <https://science.osti.gov/sbir/Applicant-Resources>
- Phase 0 Application Assistance Program:
 - Created to assist first-time applicants from under-represented groups (socially and economically disadvantaged small businesses, women-owned small businesses, and small businesses from under-represented states) prepare high quality applications
 - Any first-time applicant is eligible to apply for assistance
 - <http://www.dawnbreaker.com/doephase0/>
 - Services
 - Letter of Intent (LOI) writing assistance
 - Phase I Proposal Preparation, Review and Registration Assistance
 - Market Research Assistance
 - Small Business Development Training, Mentoring and Registrations
 - Technology Advice and Consultation
 - Intellectual Property Consultation
 - Indirect Rates and Financials



Topics

- Topics Document
 - DOE primarily uses focused topics
 - Issued 4 weeks prior to the FOA
- Communication with DOE program managers
 - Open communication permitted about topic scope
- Webinar
 - DOE program managers discuss their topics
 - Applicants submit questions in advance or during the webinar
 - Webinars are recorded and available at our website



Example Topic

- Topic & Subtopic
 - You must specify the topic and subtopic in your letter of intent and application
- Topic Header
 - Lists the maximum award amounts for Phase I & Phase II and whether SBIR & STTR applications are accepted
- Program Manager
 - Each subtopic lists the responsible DOE program manager
- Other Subtopic
- References

[Return to Table of Contents](#)

11. SEMI-AUTONOMOUS INTELLIGENT CONTROL FOR SYNCHROTRON AND FEL X-RAY SOURCES

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

This topic seeks development that targets small, secure, locally networked, audit-able, semi-autonomous "human-in-the-loop" control systems for synchrotron and Free-Electron Laser (FEL) facilities. The next generation of very high flux light and particle sources will require a matching innovation leap in current diagnostic and controls technology. Given the very high measurement rates (of order TeraByte/s) and the control complexity (100s of distributed and interrelated control parameters in e.g. FEL sources), these facilities present a microcosm on the future of semi-autonomous human-supervised control systems (Industry 4.0 standards) that use swarms of small form-factor commercial edge machine learning hardware for on-detector analysis and collaborative inference. Application should enable small, locally networked, semi-autonomous control systems. These systems are comprised of electron beam steering magnets, beam position monitors, undulator settings, real-time spectra and power measurements, etc. This collection of controls and diagnostics span up to many 100s of meters and so distributed devices must communicate via a local sub-network. Transactions should be authenticated via Transport Layer Security (TLS) handshake that enable moving encryption for the device-to-device data transactions needed for collaborative machine learning inference generation.

Grant applications are sought in the following subtopics:

- Development of "Human-in-the-Loop" Semi-autonomous Intelligent Control Systems for Real-time Synchrotron and FEL X-ray Tuning and Experimentation**
Grant applications are sought for systems that require minimal intermittent interaction with distant data centers. Each device should be capable of small adaptation to its machine learned models based on local input and use intermittent connections to remotely hosted data centers with High Performance Computing (HPC) for full model retraining. Furthermore, the ensemble of collaborating devices should maintain inter-device awareness via a data dissemination protocol such that inter-device communication is not only authenticated, but also the recent trust-state of an individual device is known to all potential receiving devices and accordingly corroborated by the ensemble. Indexing the human environment should use voice and/or facial recognition to identify the presence of specific individuals and encode that configuration into the decision chain record. Certain configurations of individuals should unlock certain machine controls that otherwise remain locked to human interaction.

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

- 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:

- Grossetete, P., 2019, What does 5G Look Like for Industrial IoT, Cisco. <https://blogs.cisco.com/internet-of-things/what-does-5g-look-like-for-industrial-iot>

35



Technology Transfer Opportunities (TTOs)

- An opportunity to transfer inventions made by a DOE National Lab or university to your small business for commercialization
- Awardees receive
 - an SBIR/STTR grant and
 - an option to license the technology
- Please review TTO information section at the beginning of the topics document if you plan to submit an application to a TTO.



Example Technology Transfer Opportunity Topic

- Technology Transfer Opportunity
 - The topic or subtopic will be clearly labeled
- Research Organization
 - The DOE National Lab or university responsible for the TTO is listed along with contact information and other references
 - Please contact the Lab or university to obtain information about the TTO
- DOE Program Manager

25. TECHNOLOGY TRANSFER OPPORTUNITIES: BASIC ENERGY SCIENCES

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

Applicants to TECHNOLOGY TRANSFER OPPORTUNITIES (TTO) should review the section describing these opportunities on page 7 of this document prior to submitting applications.

b. Technology Transfer Opportunity: NbTi High Performance Superconducting Undulator

Argonne National Laboratory (ANL) researchers have developed a novel superconducting (SC) magnetic device called a superconducting undulator (SCU). Such a device, installed in the storage ring or undulator line of existing synchrotron or free-electron laser light sources, significantly enhances their performance. SCUs deliver higher magnetic fields at smaller undulator periods, resulting in performance superior to that of permanent magnet undulators. An SCU is a cryogenic device that consists of the cryostat; an SC magnet with a sign-alternating magnetic field; and sets of mechanical, electrical, and electronic control systems that permit this device to be operated as a component of large light sources. The SCU cryogenic system maintains the temperature of the undulator magnet close to that of liquid helium. A specially designed and precisely fabricated undulator magnet delivers the high-quality magnetic field that is critical for optimizing the performance of advanced light source facilities. Special auxiliary systems permit an SCU to be seamlessly incorporated into any type of light source. In addition to the SCU, ANL researchers have developed special tools to characterize an SCU prior to installation in the light source. Several SCUs, built at ANL, have demonstrated remarkable operational performance and a high level of reliability. ANL is looking for the industrial partner with the proven record of designing, building and delivering to customers SC magnets and cryogenic equipment, such as cryostats, to house these magnets. Industrially produced SCUs would find their way to numerous light sources around the world and significantly advance the performance of these sources.

Licensing Information:

Argonne National Laboratory

Contact: Gregory Halder, (halder@anl.gov), (630) 327-7059

ANL Technology ID: PB-16-082

Patent Status: US Patent 10,062,486

Website: <http://patft.uspto.gov/netacgi/nph->

[Parser?Sect1=PTO1&Sect2=HITOFF&p=1&u=/netahtml/PTO/srchnum.html&r=1&f=G&l=50&d=PALL&s1=10062486.PN](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&p=1&u=/netahtml/PTO/srchnum.html&r=1&f=G&l=50&d=PALL&s1=10062486.PN)

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



Funding Opportunity Announcement (FOA)

- FOA
 - Available at the [DOE SBIR website](#) or [Grants.gov](#) and includes information on
 - Anticipated number of awards and funding available
 - Eligibility
 - Application Requirements
 - Review Criteria
 - Award Administration
 - Open for approximately 9 weeks
- Communications with DOE program managers
 - Open communication permitted to clarify the scope of the topic and subtopic prior to submitting an application

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



FY 2020 PHASE I RELEASE 1

FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER:
DE-FOA-0002145

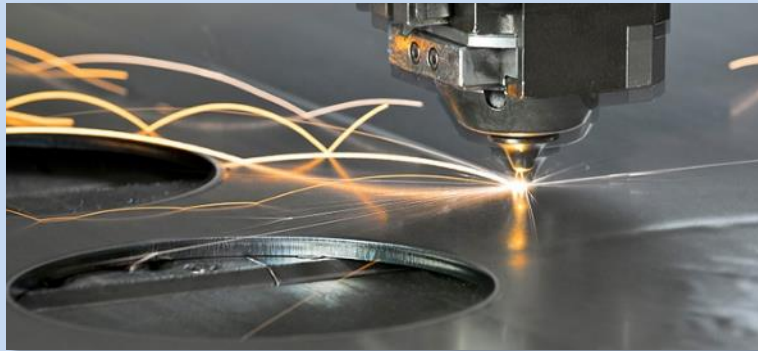
FOA TYPE: INITIAL
CFDA NUMBER: 81.049

| | |
|--|---|
| FOA Issue Date: | August 12, 2019 |
| Submission Deadline for Letters of Intent: | Tuesday, September 3, 2019 5:00 PM Eastern |
| Submission Deadline for Pre-Applications: | N/A |
| Pre-Application Response Date: | N/A |
| Submission Deadline for Applications: | Tuesday, October 15, 2019 11:59 PM Eastern |



Commercialization

- DOE topics are drafted by program managers who are aware of the technology roadblocks but may not be aware of the commercialization challenges
- Small business applications are expected to address the commercialization challenges and ensure that there is a profitable business opportunity
 - Phase I & II Applications must include Commercialization Plans
 - Commercialization Plans accommodate long commercialization timeframes: emphasis on first 10 years of commercialization beginning with first sale
 - Ability to address follow-on markets can also be included in your commercialization plan
- DOE performs follow-up surveys to track commercialization outcomes of its SBIR/STTR awards



Letters of Intent (LOI)

- Requirement
 - You must submit an LOI by the due date to be eligible to submit an application
- Primary purpose
 - begin reviewer assignment to reduce award selection time
 - due 3 weeks after FOA is issued
- Secondary purpose
 - provide email notification to applicants who appear to be non-responsive; you may submit an application if you receive this notification
 - Applicants whose LOI appears responsive will NOT receive a notification
- Limits
 - Small businesses may submit only 10 letters of intent (and 10 applications) per Funding Opportunity Announcement

Content of LOI

- Title
- Topic and Subtopic
- Abstract (<500 words)
 - ***Provide sufficient technical detail to enable reviewer assignment***
 - Non-proprietary
- List of Collaborators
- Small Business Information
 - Name, address
 - Business Official and contact information
 - Principal Investigator

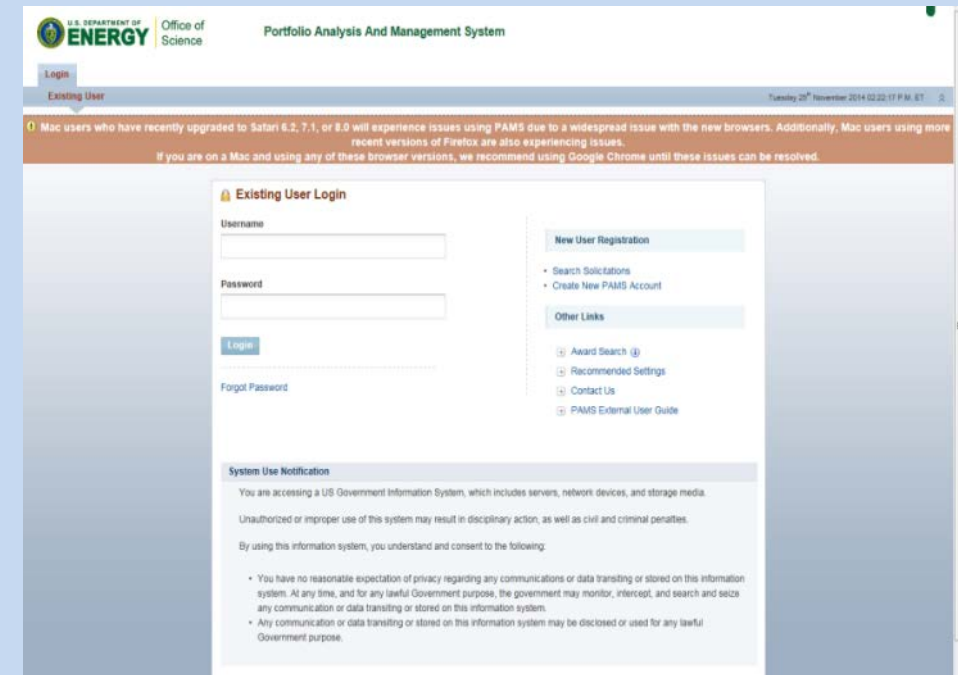


Letter of Intent (LOI) Submission

- Submit LOI online directly to the DOE Portfolio Analysis and Management System (PAMS) website:

<https://pamspublic.science.energy.gov/>

- Select “Create New PAMS Account” (if you do not have an account)
- Submit your abstract as a PDF file
- Utilize the [LOI instructions](#) available at the DOE website to ensure that you submit all the required information
- For additional details on the LOI submission process, see the FOA



The screenshot shows the DOE Portfolio Analysis and Management System (PAMS) login page. At the top, the U.S. Department of Energy logo and 'Office of Science' are visible, along with the system name 'Portfolio Analysis And Management System'. A 'Login' button is present. Below the header, a message states: 'Mac users who have recently upgraded to Safari 6.2, 7.1, or 8.0 will experience issues using PAMS due to a widespread issue with the new browsers. Additionally, Mac users using more recent versions of Firefox are also experiencing issues. If you are on a Mac and using any of these browser versions, we recommend using Google Chrome until these issues can be resolved.' The main content area features an 'Existing User Login' section with fields for 'Username' and 'Password', a 'Login' button, and a 'Forgot Password' link. To the right, there is a 'New User Registration' section with links for 'Search Solicitations' and 'Create New PAMS Account', and an 'Other Links' section with links for 'Award Search (i)', 'Recommended Settings', 'Contact Us', and 'PAMS External User Guide'. At the bottom, a 'System Use Notification' section contains a disclaimer about the system being a US Government Information System and a consent statement.

Letter of Intent: Sample Abstract

ABC LLC will develop a new class of low cost battery separator materials for lithium ion batteries. It is anticipated that the cost of this separator will be 70% lower than separator materials available today and will be a critical factor in reaching the \$150/kWh cost target specified in topic 4b for lithium ion batteries for electric vehicle applications.

Clearly explain why the proposed R&D is responsive to the subtopic

These separators will utilize a new optically-activated method of producing pores in nano-structured polyolefin films. This optical pore formation method results in a 10x increase in the speed of creating porous films. During Phase I, ABC LLC will (1) develop the compositions and methodology for formulating the dense nano-structured polyolefin films and (2) carry out preliminary feasibility studies to characterize the appropriate optical intensities and wavelengths to achieve uniform, high speed, pore formation. It is anticipated that multiple iterations will be required to optimize the composition and nanostructure of the precursor films to achieve the desired porosity and process speeds. All processing work will be carried out at ABC LLC but polymer characterization will leverage capabilities of the Polymer Lab at State University to evaluate the structure, porosity, tortuosity, and thermal properties of the polymer films. In addition we will be collaborating with Lion Battery Inc. who will do preliminary battery testing of our separator materials to identify any manufacturing or performance issues of the separators.

Provide sufficient technical detail about the R&D so that DOE program managers can select reviewers with appropriate technical expertise.

Do not include proprietary information in a letter of intent.



Application Process: Registrations

- Applications must be submitted through [Grants.gov](https://www.grants.gov)
- Registration at Grants.gov is a 3 step process
 1. Obtain a DUNS number
 2. Complete a SAM registration.
 - Must be updated annually
 3. Complete Grants.gov registration
 - Start this process as early as possible!
- See the Grants.gov website for instructions
- Small Business Administration (SBA) company registry
 - Small businesses must register at the SBA company registry (<http://www.sbir.gov/registration>) and submit a copy of their registration with their grants.gov application

Introduction to Grants.gov Video Series

The [Introduction to Grants.gov Video Series](#) covers the complete Grants.gov application process, from registering and creating a Grants.gov account to finding funding opportunities and completing an application package.



Applicant Registration for Grants.gov, Part 1

Published on Aug 3, 2015

Learn how to get a DUNS number and register with the System for Award Management (SAM) before you register as an applicant on Grants.gov.



Applicant Registration for Grants.gov, Part 2

Published on Aug 3, 2015

Learn how to complete the Grants.gov registration process after getting a DUNS number and registering with SAM.



Understanding User Roles in Grants.gov

Updated on Feb 18, 2016

Learn about applicant user roles within the Grants.gov system and how these roles impact the application process.



Searching for Funding Opportunities on Grants.gov

Updated on Feb 18, 2016

Learn about Grants.gov's powerful search engine, which allows users to find and apply for federal grants in a variety of ways.



What is in a Grant Opportunity on Grants.gov?

Updated on Feb 18, 2016

Learn about the information that is included with every posting of a federal grant opportunity on Grants.gov.



What's in an Application Package on Grants.gov?

Published on Aug 3, 2015

Learn all you need to know about filling in required fields on downloaded federal grant application packages.



Submitting the Application Package on Grants.gov

Published on Aug 3, 2015

Learn how to submit a completed application package on Grants.gov.



Confirmation Emails from Grants.gov

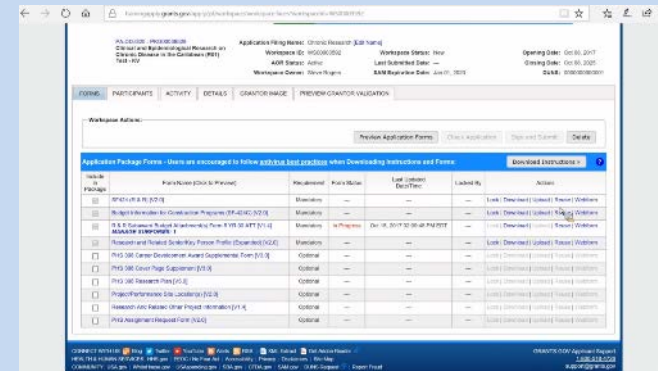
Published on Aug 3, 2015

Learn about the various confirmation emails users may receive after submitting a grant application through Grants.gov.



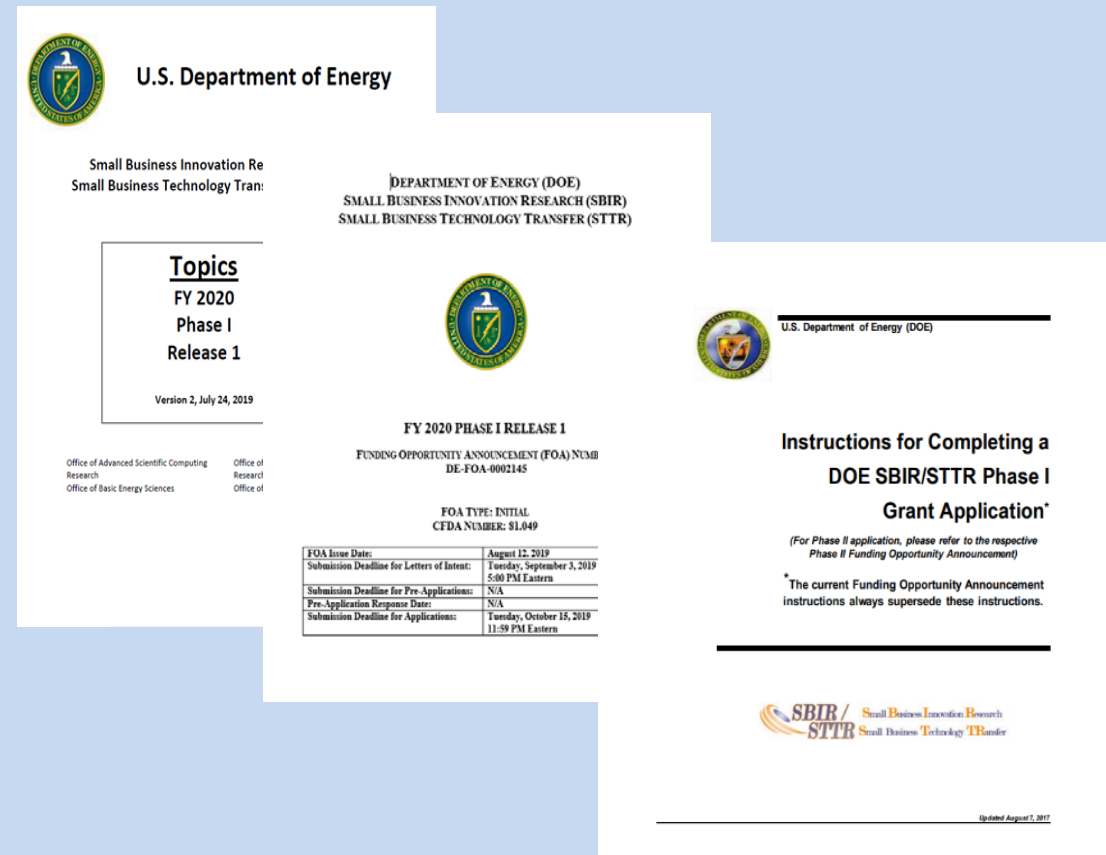
Completing a Grants.gov Application

- **Workspace**
 - Online application completion and submission
 - Online tutorials are available
 - <https://www.grants.gov/applicants/workspace-overview.html>



Completing an Application

- Important documents to assist you with completing the application package
 - Topics Document, Funding Opportunity Announcement, & Instructions are available at the [DOE SBIR/STTR website](https://science.osti.gov/SBIR/STTR)
 - Online tutorials are available at <https://science.osti.gov/SBIRLearning>



The image displays three overlapping document thumbnails from the U.S. Department of Energy (DOE) Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. The top-left thumbnail is the 'Topics' document for FY 2020 Phase I Release 1, dated July 24, 2019, and lists the Office of Advanced Scientific Computing Research and the Office of Basic Energy Sciences. The middle thumbnail is the 'FY 2020 PHASE I RELEASE 1' Funding Opportunity Announcement (FOA) with number DE-FOA-0002145, dated August 12, 2019, and lists the Office of Research. The bottom-right thumbnail is the 'Instructions for Completing a DOE SBIR/STTR Phase I Grant Application' document, dated August 7, 2017, and includes a note that the current FOA instructions supersede previous ones. The SBIR/STTR logo is visible at the bottom of the instructions document.

U.S. Department of Energy

Small Business Innovation Research
Small Business Technology Transfer

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

Topics
FY 2020
Phase I
Release 1
Version 2, July 24, 2019

Office of Advanced Scientific Computing Research
Office of Basic Energy Sciences

Office of Research

FY 2020 PHASE I RELEASE 1
FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER: DE-FOA-0002145

FOA TYPE: INITIAL
CFDA NUMBER: 51.049

| | |
|--|---|
| FOA Issue Date: | August 12, 2019 |
| Submission Deadline for Letters of Intent: | Tuesday, September 3, 2019 5:00 PM Eastern |
| Submission Deadline for Pre-Applications: | N/A |
| Pre-Application Response Date: | N/A |
| Submission Deadline for Applications: | Tuesday, October 15, 2019 11:59 PM Eastern |

Instructions for Completing a
DOE SBIR/STTR Phase I
Grant Application*

(For Phase II application, please refer to the respective
Phase II Funding Opportunity Announcement)

* The current Funding Opportunity Announcement
instructions always supersede these instructions.

SBIR / STTR Small Business Innovation Research
Small Business Technology Transfer

Updated August 7, 2017

Important Elements of Your Application

- Project Narrative
 - Page and word limits
 - Phase I: 15 pages, 7,500 words
 - Phase II: 20 pages, 10,000 words
- Budget & Budget Justification
- Key Personnel
- Commercialization Plan
 - Phase I commercialization plan
 - an example can be found here at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>
 - Phase II commercialization plan
- SBIR/STTR Information form
- Data Management Plan

YOUR APPLICATION MUST INCLUDE THE FOLLOWING DOCUMENTS:

| Name of Document | Format | Attach to |
|--|--------|------------------------------|
| Application for Federal Assistance, SF 424 Form | PDF | |
| SF-LLL, Disclosure of Lobbying Activities, if applicable | PDF | Field 18 |
| Research and Related: Budget Form | PDF | |
| Additional Senior Key Persons, if applicable | PDF | Field A. 9 |
| Additional Equipment, if applicable | PDF | Field C. 11 |
| Budget Justification | PDF | Field K |
| Research and Related: Senior/Key Person Profile Form | PDF | |
| Biographical Sketch for each person | PDF | Appropriate Block |
| Current & Pending Support for each person, if applicable | PDF | Appropriate Block |
| Research and Related: Other Project Information Form | PDF | |
| Project Summary/Abstract | PDF | Field 7 |
| Project Narrative | PDF | Field 8 |
| Bibliography and References Cited, if applicable | PDF | Include in Project Narrative |
| Facilities and Other Resources, if applicable | PDF | Include in Project Narrative |
| Equipment, if applicable | PDF | Include in Project Narrative |
| | | |
| Other— Data Management Plan | PDF | Field 12 |
| Other—Level of Effort Worksheet | PDF | Field 12 |
| Other—Letter of Commitment for consultant, sub-award, or research institution, if applicable | PDF | Field 12 |
| Other—Letters of Support, if applicable | PDF | Field 12 |



Data Management Plan

- Purpose – Disseminate, as widely as possible, data generated with public funding
- Requirement – All SBIR and STTR applications must select one of the two Data Management Plan (DMP) options below:
 - Option 1
 - The Option 1 DMP is: “It is anticipated that all generated digital data will be protected as SBIR/STTR data and therefore will not be publicly shared during the applicable SBIR/STTR data protection period.” If any data generated under this award are published, an effort will be made to also release any related digital data that is not protected SBIR/STTR data.”
 - Please note that if you do not include a DMP with your application, Option 1 for the DMP will be assumed for your application. However, if you plan to publicly disclose generated digital data, you must provide a DMP under Option 2.
 - Option 2
 - If you plan to publicly disclose technical data during the data protection period or, for data not expected to be asserted as protected SBIR/STTR rights data , please submit a DMP. Use the DMP requirements outlined in the FOA.



Top Application Errors

- Serious Errors (Applications Ineligible for Review or Administratively Declined)
 - *Failed to update SAM registration early—unable to submit application to Grants.gov by deadline*
 - *Failed to submit a Letter of Intent (LOI) by the LOI deadline*
 - A LOI needs to be submitted by the LOI deadline each application.
 - Please note: The project title and topic/subtopic designation included in the LOI need to match the application.
 - *Failed to accurately calculate level of effort (for SBIR and/or STTR)*
 - Use [Level-of-Effort worksheet](#) to assist you with the calculation
 - *Failed to meet Principal Investigator hours requirement*
 - Principal Investigator must devote at least 3 hours per week on average for the duration during Phase I project
 - Example: 12 month project: at least 156 hours (52 weeks x 3 hours/week), List the hours explicitly in your budget justification
- Other Errors (may limit funding eligibility or delay award processing, if recommended for award)
 - *Failed to properly mark proprietary data*
 - See FOA for instructions
 - *Failed to complete budget form(s) correctly*
 - Amounts in the budget form should be rounded to the nearest dollar and only include funds requested for the grant excluding any outside source funding.
 - Amounts listed on the budget form should match the amounts listed on the budget justification (unless explicitly labeled as other funding from outside sources).
 - Include a completed subaward budget form for each subaward included in the application. (Subaward budget form(s) total should match the amount for subaward listed in the small business budget form.)
 - *Failed to include Letter(s) of Commitment*
 - Submit a Letter of Commitment for each Consultant and Subaward in Field 12 of the Research & Related: Other Project Information Form



SBIR vs. STTR

- DOE uses the same topics for SBIR & STTR
 - All topics accept SBIR applications; some topics may not accept STTR applications so please check the topic header prior to submission
- Applicants can apply to either or both SBIR & STTR programs with a single application
 - If you apply to both programs, you must meet the requirements for both

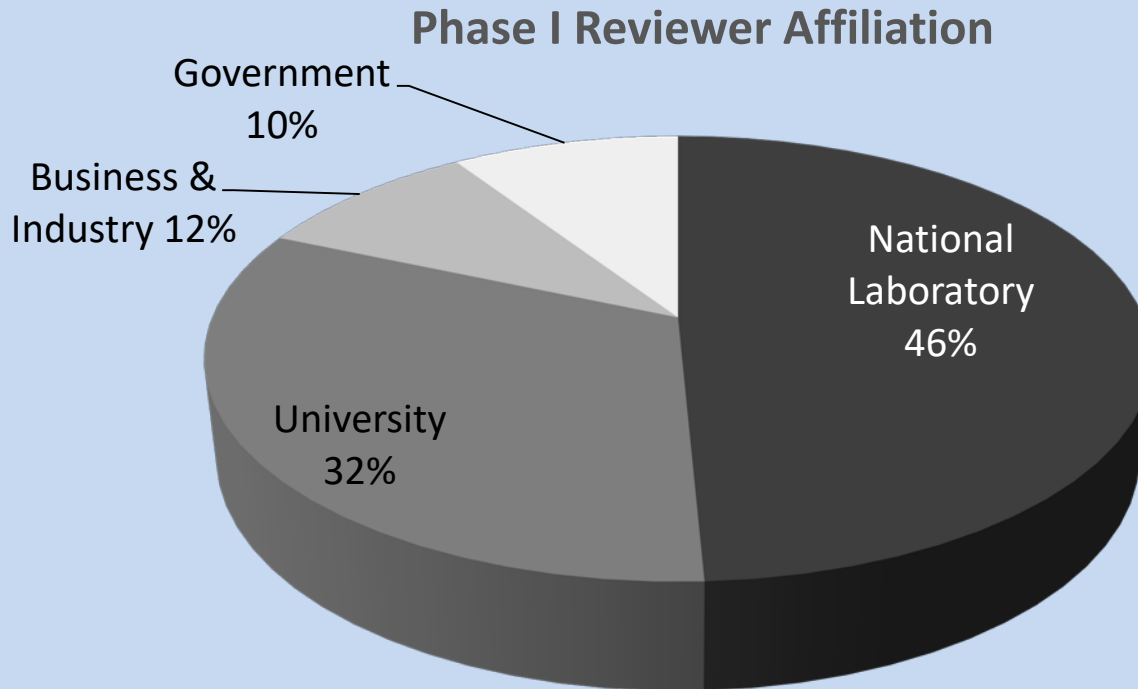


Review and Selection of Applications

- DOE primarily uses external peer review to evaluate your applications
 - Typically at least 3 technical reviewers
 - 1 reviewer for the Phase II commercialization plan
- Review Criteria (equally weighted)
 - Strength of the Scientific/Technical Approach
 - Ability to Carry Out the Project
 - Impact
- Selection
 - DOE ranks the most meritorious applications—award selections are made based on available funding
- You will be notified of the decision on your application within 90 days of the application deadline
 - Reviewer comments will be made available to you through PAMS. Use this feedback constructively to improve future applications



Technical Reviewer Affiliation

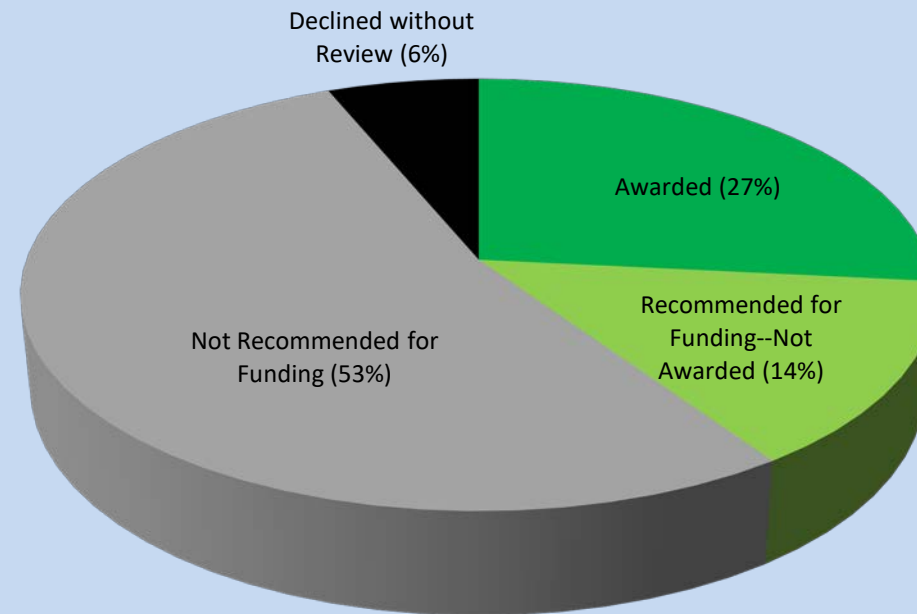


- Reviewers agree that (1) they will keep application information confidential and (2) they do not have a conflict of interest in reviewing the application.



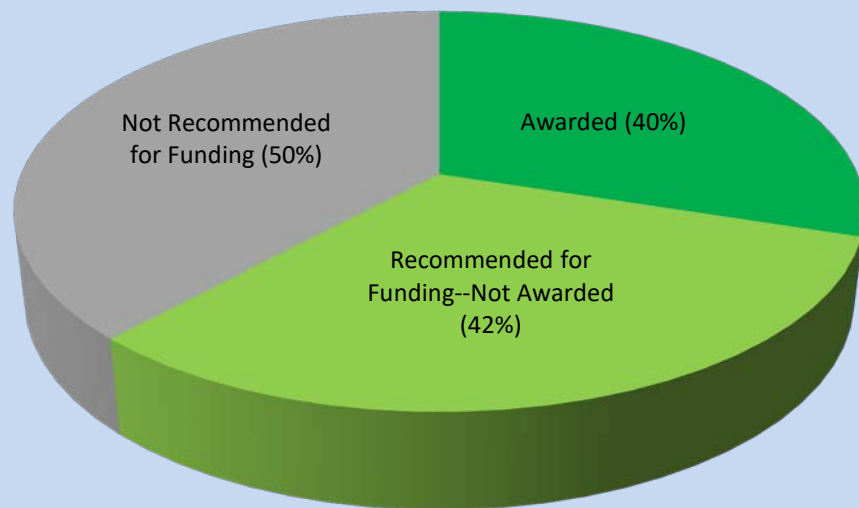
Phase I Application & Award Statistics for FY 2019

- Phase I
 - 1,568 applications
 - 417 awards

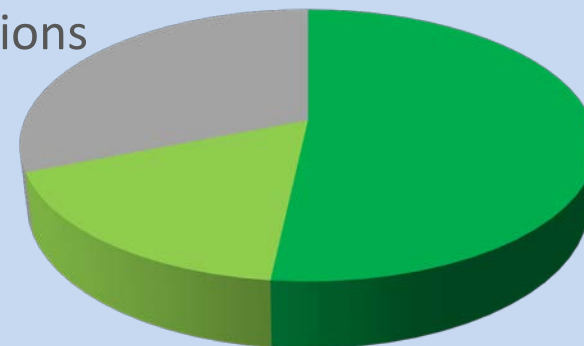


Phase II Application & Award Statistics for FY 2019

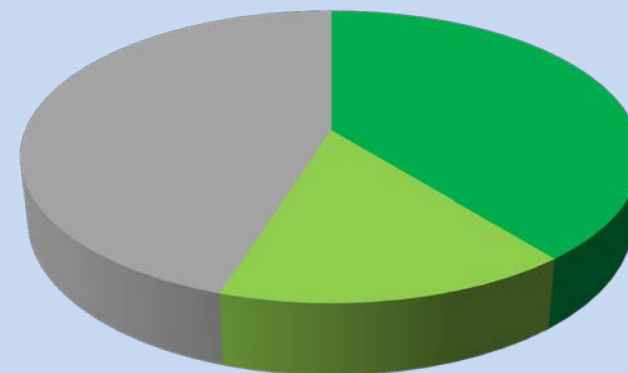
- Phase II
 - 305 applications
 - 121 awards



- Phase IIA
 - 29 applications
 - 15 awards



- Phase IIB
 - 51 applications
 - 20 awards



Commercialization Assistance



- DOE Commercialization Assistance
 - Phase I assistance
 - Assistance with development of Phase II commercialization plans
 - Or, Industry-specific business consultant
 - Phase II assistance
 - Flexible offerings to meet a variety of commercialization needs
 - Or, Industry-specific business consultant
 - Vendor website: <http://www.larta.org/doecap>
- Company-selected commercialization assistance vendor
 - Companies may select their own vendor(s) to provide commercialization assistance
 - Company must include this vendor(s) as a subcontractor or consultant in their Phase I or II application
 - Up to \$6,500 for Phase I



Phase I Principal Investigator Meeting

- Phase I Principal Investigators are expected to attend a two day DOE SBIR/STTR Principal Investigator Meeting held in the DC area
 - Release 1: June
 - Release 2: October
- Objectives
 - In-person meetings with DOE program managers and DOE Commercialization Assistance provider
 - Presentations relating to Phase II and Commercialization
 - Small business networking
- You may include the cost for the trip (registration, travel) in your Phase I budget
- Exceptions
 - If the DOE program office that funds your topic has a separate principal investigator meeting, you will be notified that your participation in the Phase I PI meeting is optional



DOE Office of Inspector General: Fraud, Waste & Abuse



DOE Office of Inspector General

Combating Fraud

- *What types of fraud are found in the SBIR Program?*
- Application Process
 - submitting a plagiarized proposal
 - providing false information regarding the company, the Principal Investigator (PI), or work to be performed
 - seeking funding for work that has already been completed
- During Award
 - using award funds for personal use or for any use other than the proposed activities
 - submitting plagiarized reports or reports falsely claiming work has been completed
 - claiming results for an award that were funded by a different source



DOE Office of Inspector General

Knowing the Rules

- ***Which SBIR rules should you be particularly familiar with?***
 - Duplicate or overlapping proposals may not be submitted to multiple agencies without full disclosure to all agencies.
 - The company must meet SBA's requirements for a small business, including being majority American owned and have 500 employees or fewer.
 - For SBIR: The PI's primary employment must be with the company during the grant period. The PI may not be employed full time elsewhere.
 - For SBIR: For Phase I, a minimum of two thirds of the research effort must be performed by the grantee company; for Phase II, a minimum of one-half of the research effort must be performed by the grantee company. Work performed by a university research lab is NOT work completed by the grantee company.
 - University employees participating on an SBIR award should disclose their involvement to the university as well as their use of university facilities.
 - R&D must be performed in the United States.



DOE Office of Inspector General

Consequences

- ***What Happens If You Break the Rules?***
 - If you commit fraud or other wrongdoing in applying for or carrying out an SBIR award, we will investigate.
 - We refer violations of civil or criminal law to the Department of Justice (DOJ). If DOJ prosecutes you for fraud or false statements, you may be sentenced to prison and required to pay full restitution. If DOJ pursues a civil action under the False Claims Act, you may have to pay treble damages and \$11,000 for each false claim. In addition, DOE may terminate your awards and debar you from receiving grants or contracts from any federal agency.



Recent Prosecution

Friday, September 11, 2015

Scientists Sentenced To Prison For Defrauding The Small Business Innovation Research Program

Tampa, Florida – U.S. District Judge Virginia Hernandez Covington has sentenced Mahmoud Aldissi (a/k/a Matt) and Anastassia Bogomolova (a/k/a Anastasia) for conspiracy to commit wire fraud, wire fraud, aggravated identity theft, and falsification of records. Aldissi was sentenced to 15 years in federal prison and Bogomolova was sentenced to a term of 13 years. As part of their sentences, the court entered a money judgment in the amount of \$10.6 million, representing the proceeds of the crime, and ordered them to pay \$10.6 million in restitution. Aldissi and Bogomolova were found guilty on March 20, 2015.

According to testimony and evidence presented during the month-long trial, through their two companies, Fractal Systems, Inc., and Smart Polymers Research Corp., Aldissi and Bogomolova fraudulently obtained approximately \$10.5 million of small business research awards from the federal government. In order to be awarded contracts, they submitted proposals using the stolen identities of real people to create false endorsements of and for their proposed contracts. In the proposals, they also lied about their facilities, costs, the principal investigator on some of the contracts, and certifications in the proposals.

<https://www.justice.gov/usao-mdfl/pr/scientists-sentenced-prison-defrauding-small-business-innovation-research-program>

DOE Office of Inspector General

Reporting Fraud

- The Department of Energy's Office of Inspector General (OIG) promotes the effective, efficient, and economical operation of DOE's programs and operations through audits, inspections, investigations, and other reviews.
- Within DOE OIG, the Office of Investigations is responsible for investigating any fraudulent acts involving DOE, its contractors or subcontractors, or any crime affecting the programs, operations, Government funds, or employees of those entities.

- ***If you want additional information or to report wrongdoing***

Internet: ig.energy.gov

E-mail: ighotline@hq.doe.gov

Telephone: 202-586-4073

Hotline: 800-541-1625

Fax: 202-586-5697

U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL
ATTN: OFFICE OF INSPECTIONS
1000 INDEPENDENCE AVENUE, SW
MAIL STOP 5D-031
WASHINGTON, DC 20585



Questions?

*Please submit any question you may have via the **Q&A box**, center bottom of you screen.*

Contact information:

- DOE SBIR/STTR Operations: 301-903-5707
- DOE SBIR/STTR Email: sbir-sttr@science.doe.gov

Our Website:

- DOE SBIR/STTR main website: <https://science.osti.gov/sbir>

Join our Mailing List:

- [Join our Mailing List](#) – this field is on every DOE SBIR/STTR web page


DOE Phase 0 Assistance Program: <http://www.dawnbreaker.com/doephase0/>

Provide Feedback

- Submit suggestions for improving the SBIR & STTR Programs: <https://science.osti.gov/sbir/Anonymous-Feedback>

Join Mailing List

Subscribe to email updates from the SBIR & STTR Programs

Subscribe 

Resources



DOE SBIR webpage

<https://science.osti.gov/sbir>

Funding Opportunities

Applicant Resources

The screenshot shows the DOE SBIR/STTR webpage. At the top, there is a navigation bar with links: SC Home, Organization, Jobs, Contact, and DOE Home. Below this is the U.S. Department of Energy logo and the Office of Science logo, followed by a search bar. A blue navigation bar contains links: Home, Programs, Laboratories, User Facilities, Universities, Funding, Science Features, and About. Below the blue bar, a breadcrumb trail reads: Programs | Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR). The main content area features a large banner with the text "Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)" and a list of links: About, Funding Opportunities, Applicant Resources, Awardee Resources, Frequently Asked Questions, Research Areas & Impact, Awards, Outreach & Events, SBIR/STTR Phase III Success Stories, and Reporting Fraud. To the right of this list is a large image of a woman wearing glasses. Below the banner, a section titled "What is SBIR and STTR?" provides a brief overview of the programs and lists technical topics: Energy Production, Energy Use, Fundamental Energy Sciences, Environmental Management, and Defense Nuclear Nonproliferation. Two blue callout boxes on the left point to the "Funding Opportunities" and "Applicant Resources" links in the main content area.

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


What is SBIR and STTR?

The SBIR and STTR programs are U.S. Government programs, intended to help certain small businesses conduct R&D. At DOE, funding takes the form of grants. Projects must have the potential for commercialization and meet specific DOE mission-specific R&D needs.

DOE offers more than sixty technical topics and 250 subtopics, spanning research areas that support the DOE mission in:

- Energy Production
- Energy Use
- Fundamental Energy Sciences
- Environmental Management, and
- Defense Nuclear Nonproliferation

DOE Funding Opportunities Tab

**U.S. DEPARTMENT OF ENERGY**

Office of Science

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Programs | Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) | Funding Opportunities

AboutFunding OpportunitiesClosed FOAsApplicant ResourcesAwardee ResourcesFrequently Asked QuestionsResearch Areas & ImpactAwardsOutreach & EventsSBIR/STTR Phase III Success StoriesReporting 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
Tel(301) 903-5707
Fax(301) 903-5488

Email
Send us a message
sbir-sttr@science.doe.gov

Funding Opportunities

Fiscal Year: FY21 (Future), FY20 (Current), FY19 (Closed)

2020

Phase I

| | Release 1 | Release 2 |
|--------------------------------------|---|--------------------------------------|
| Topics Issued | Monday, July 15, 2019 | Tuesday, November 12, 2019 |
| Document | Phase I Release 1 Topics | |
| Topic Webinar, week of | Monday, July 22, 2019: Webinar 1: Topics 1-24 Slides Webinar 2: Topics 26-30 Slides | Monday, November 18, 2019** |
| FOA Issued | Monday, August 12, 2019 | Monday, December 16, 2019 |
| Document | | |
| FOA Webinar | Monday, August 19, 2019** | Friday, December 20, 2019** |
| Letters of Intent (LOI) Due | Tuesday, September 03, 2019 5:00pm ET | Monday, January 6, 2020 5:00pm ET |
| Non-responsive LOI Feedback Provided | Tuesday, September 24, 2019 | Tuesday, January 27, 2020 |
| Full Applications Due | Tuesday, October 15, 2019 11:59pm ET | Monday, February 24, 2020 11:59pm ET |
| Award Notification | Monday, January 06, 2020* | Monday, May 18, 2020* |
| Projected Grant Start Date | Tuesday, February 18, 2020 | Monday, June 29, 2020 |
| Principal Investigator Meeting | | |

**Registration link will be posted here, one week prior to the webinars. To receive this link automatically via email, please join our Mail List.

*Preliminary dates subject to change

Documents and Webinars for Topics and FOAs are posted here

Federal SBIR webpage

*general
information for
those new to SBIR*

The screenshot shows the sbir.gov website. At the top, the URL sbir.gov is displayed in blue. To the right is the SBA logo. Below the header is a navigation bar with links: Home Links, About, Funding, Awards, News, Events, Resources, and Tutorials. A blue callout bubble points to the 'About' link. Below the navigation bar is a search bar with the text 'Looking for SBIR/STTR Funding? Search the Open Funding Topics'. A blue callout bubble points to the search bar. Below the search bar is a large banner for 'SBIR · STTR America's Seed Fund™ POWERED BY SBA'. To the right of the banner is a box titled 'SBIR/STTR Policy Directive' with a button 'View SBIR/STTR Policy Directive'. Below the banner is text: 'SBA finalized an updated Policy Directive on May 2, 2019. SBA combined the SBIR and STTR Policy Directives into a single guidance documents.' At the bottom, there are three columns: 'Quick Links' with 'Overview' and 'Policy Directive'; 'Information for...' with 'Applicants' and 'Awardees'; and 'I Want to...' with 'Start a Small Business' and 'Register my company'.

sbir.gov

SBIR · STTR
America's Seed Fund™
POWERED BY SBA

Home Links About Funding Awards News Events Resources Tutorials

Looking for SBIR/STTR Funding? Search the Open Funding Topics

SBIR · STTR
America's Seed Fund™
POWERED BY SBA

SBA finalized an updated Policy Directive on **May 2, 2019**.
SBA combined the SBIR and STTR Policy Directives into a single guidance documents.

SBIR/STTR Policy Directive
Please see the preamble for a summary of the changes and comments from the review process.
[View SBIR/STTR Policy Directive](#)

Quick Links

- Overview
- Policy Directive

Information for...

- Applicants
- Awardees

I Want to...

- [Start a Small Business](#)
- [Register my company](#)

*Search topics
across all federal
agencies*