

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.
 - Use the dial-in number if you are having trouble with your computer sound
- **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 2022 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



U.S. DEPARTMENT OF
ENERGY

Office of SBIR/STTR
Programs



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

*Eileen Chant
Outreach Manager, DOE Office of SBIR/STTR Programs
eileen.chant@science.doe.gov, (301) 903-5713*

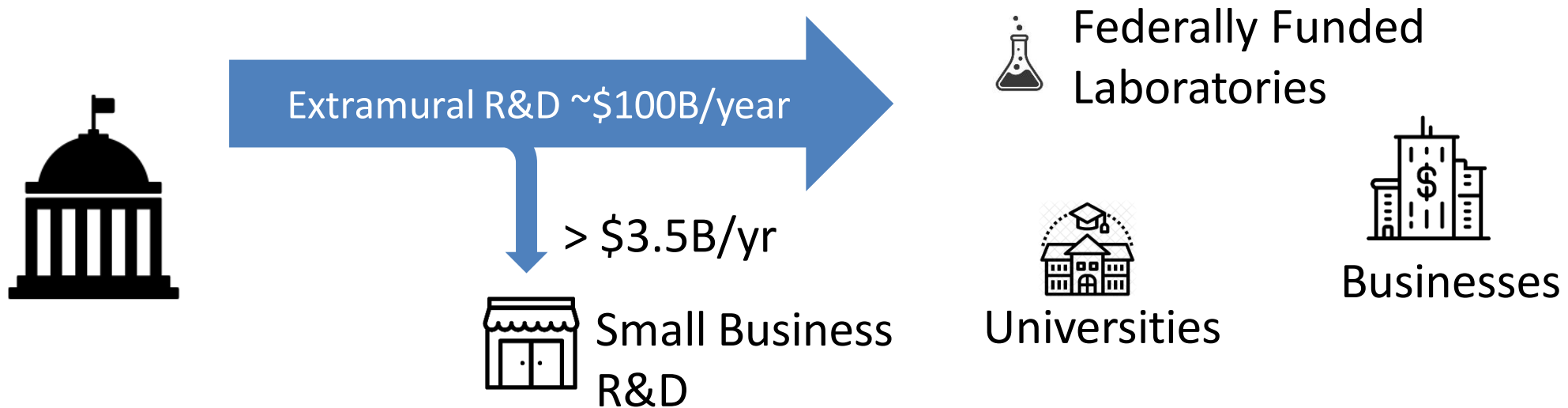
August 13, 2021

A large American flag is shown waving against a blue sky with scattered white clouds. The flag is attached to a pole on the left side of the frame. The stars and stripes are clearly visible, and the flag is draped in a way that suggests it is caught in a breeze.

Federal SBIR/STTR Programs Overview

What is the Federal SBIR/STTR Program?

- A >\$3.5 Billion early stage nondilutive R&D fund for small businesses*
- A mechanism to fund best early-stage high-risk innovation ideas
- Funds ideas that are too high risk for the private sector
- Stimulates technological innovation



*“small business” is defined as a for-profit business with fewer than 500 employees, owned by one or more individuals who are citizens of, or permanent resident aliens in, the United States of America.

SBIR vs STTR

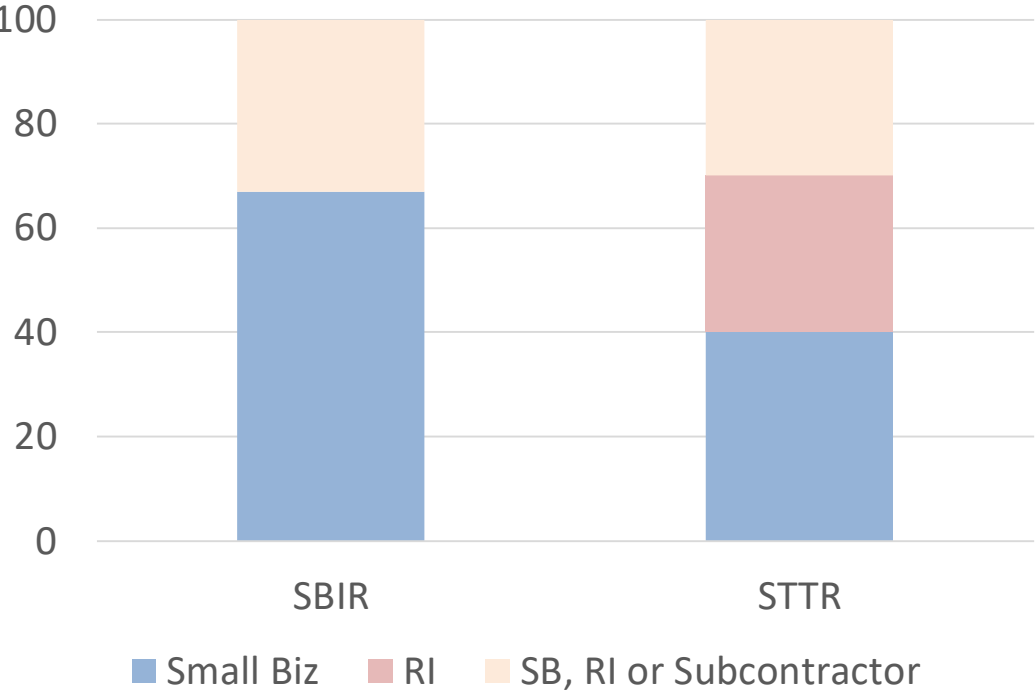
Small Business Innovation Research (SBIR) est. 1982	Small Business Technology Transfer (STTR) est. 1992
<ul style="list-style-type: none">• Allows non-profit research institution partner• Principal Investigator (PI) employee of small business	<ul style="list-style-type: none">• Foster technology transfer between small business concerns and research institutions• Requires non-profit research institution (RI) partner• PI can be employee of either small business or RI
<p><i>If you fulfill requirements of SBIR & STTR, you can submit the same application to both programs</i></p> <p><i>They are two pots of funding</i></p>	

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

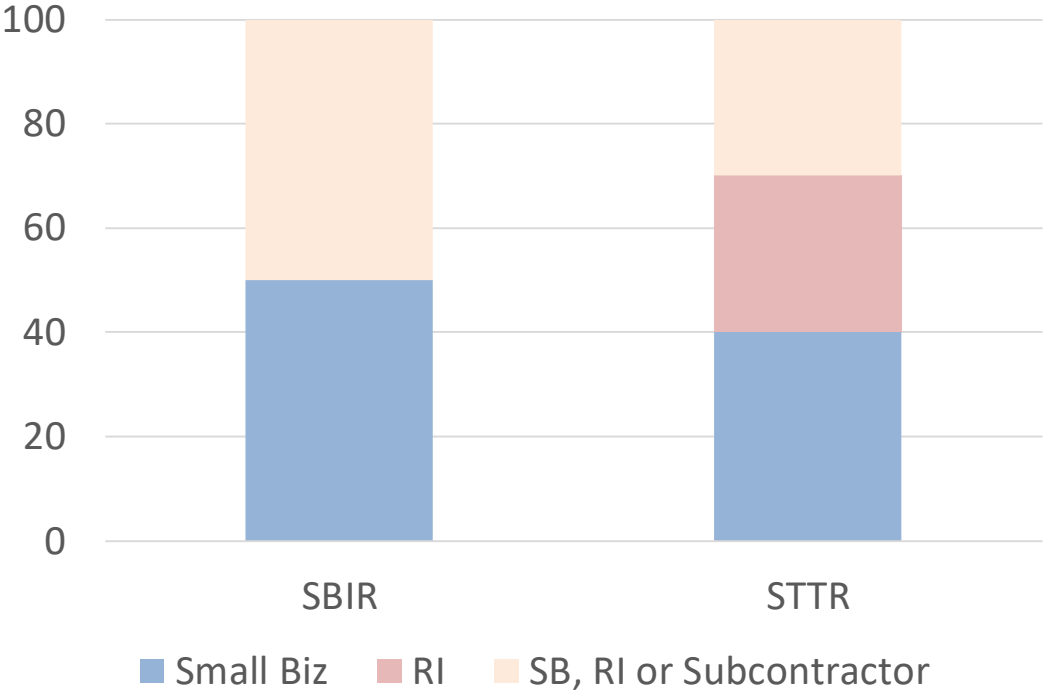


SBIR vs STTR – R&D expenditure requirements in %

Phase I



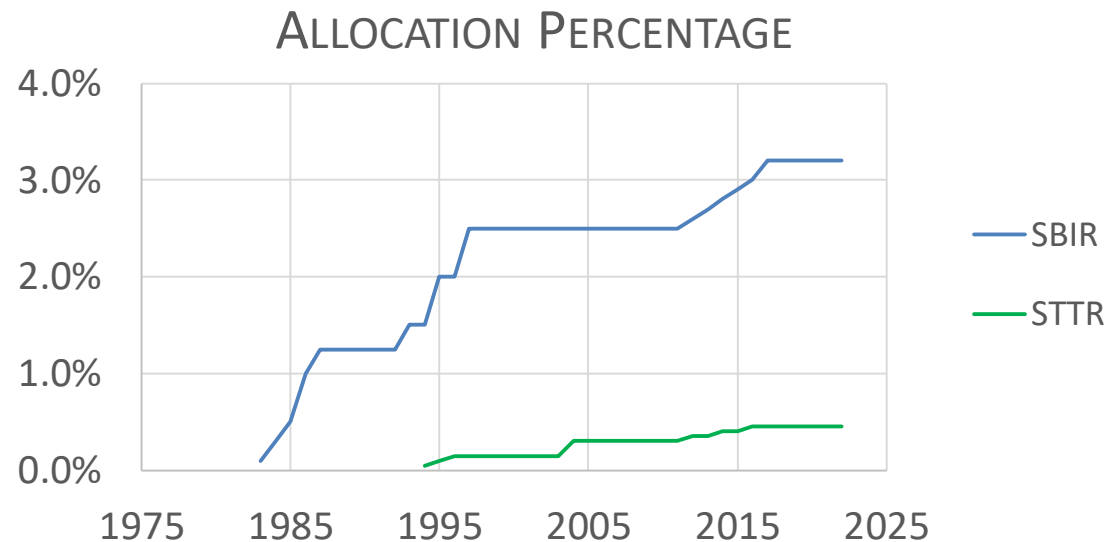
Phase II



Our [level of effort workbook](#) can be used to ensure compliance prior to submitting your proposal

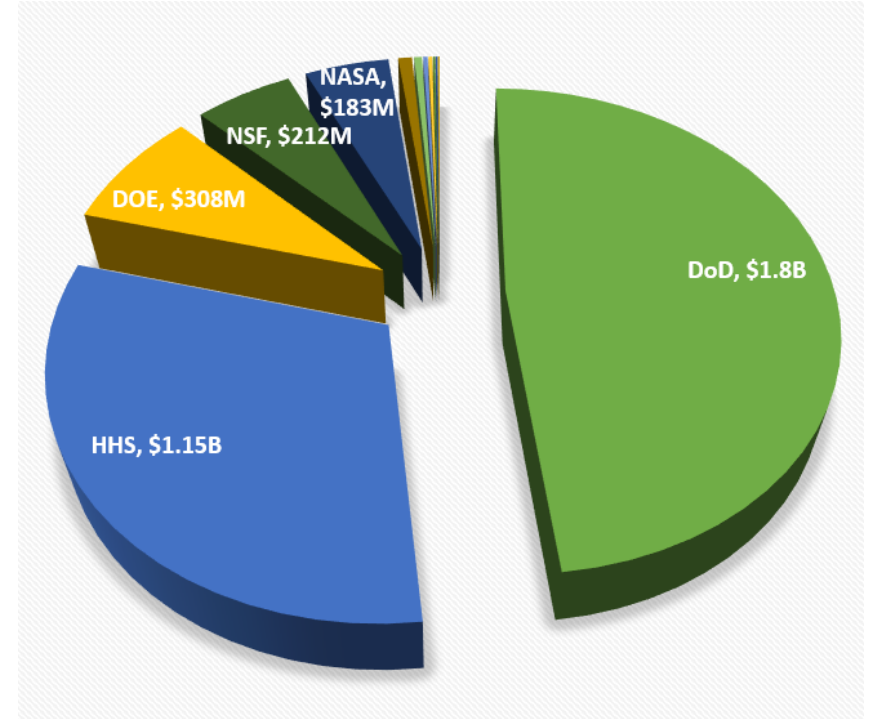
SBIR & STTR Funding Levels

- Agencies allocate a percentage of their extramural R/R&D budgets for the SBIR & STTR programs
 - SBIR: 3.2% (FY 2020), for agencies with >\$100M in extramural R/R&D
 - STTR: 0.45% (FY 2020), for agencies with >\$1B in extramural R/R&D
- Congress has increased the allocation percentages since the programs were initiated



Estimated SBIR/STTR Budgets by Agency, FY 2019

Agency	Budget (Millions)
Department of Defense (DoD)	\$ 1,800
Department of Health and Human Services (HHS), incl. National Institute of Health (NIH)	\$ 1,150
Department of Energy (DOE), incl. Advanced Research Projects Agency (ARPA -E)	\$ 308
National Science Foundation (NSF)	\$ 212
National Aeronautics and Space Administration (NASA)	\$ 183
Department of Agriculture (USDA)	\$ 30
Department of Homeland Security (DHS)	\$ 17
Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Institute of Standards and Technology (NIST)	\$ 13
Department of Education (ED)	\$ 8.4
Department of Transportation (DOT)	\$ 5.2
Environmental Protection Agency (EPA)	\$ 3.6



SBIR: \$3.28 Billion
STTR: \$453 Million

Contracting agency

Granting agency

Both

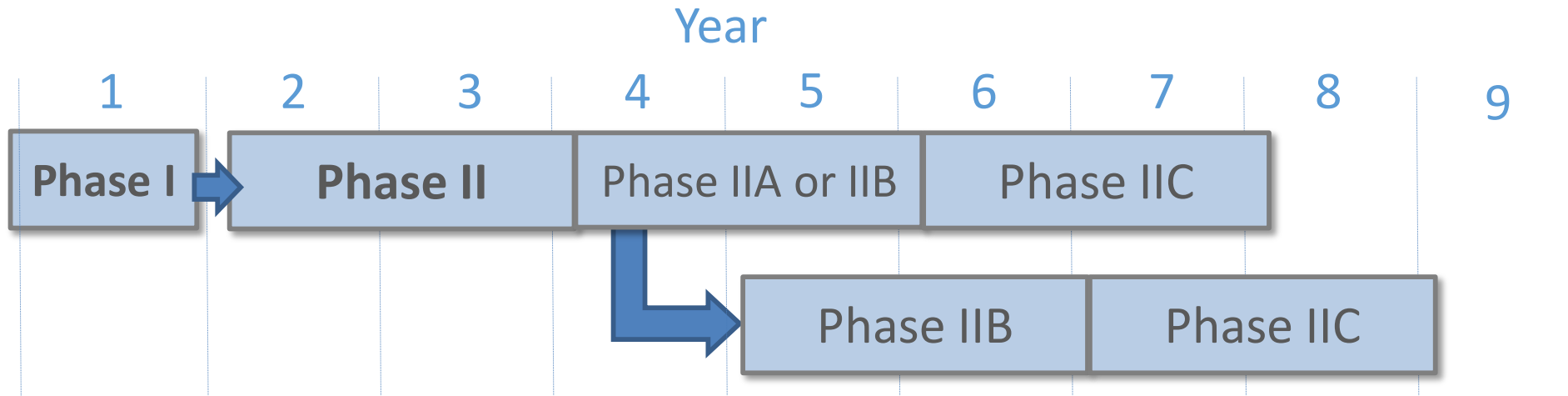
Small Business Eligibility for SBIR & STTR



- 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, **not DOE***)
 - 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



How does our funding work?



Phase I	Phase II	Phase IIA/IIB	Phase IIC
<ul style="list-style-type: none"> • Two annual Funding Opportunity Announcements • Focused, mission-aligned topics • Proof of feasibility • Feedback provided on letters of intent • \$200,000/\$250,000 • 6 - 12 months duration • ~ 350-400 awards per year 	<ul style="list-style-type: none"> • Phase I awardees apply for Phase II the following year • Focus on prototype, demonstration and commercialization • \$1,100,000/\$1,600,000 • 2 years duration • ~ 160 awards per year 	<ul style="list-style-type: none"> • For projects that require additional R&D funding to transition to commercialization • \$1,100,000 • 2 years duration • ~30 awards per year 	<ul style="list-style-type: none"> • Pilot program to leverage 1:1 matching funds for commercialization • \$1,100,000 • 2 years duration

SBIR and STTR Awards

- Critical, Early-Stage R/R&D funding
 - The SBIR & STTR programs provide funding for innovative, early-stage research
 - Awards process is competitive, i.e. high quality and aligned applications are funded
 - 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



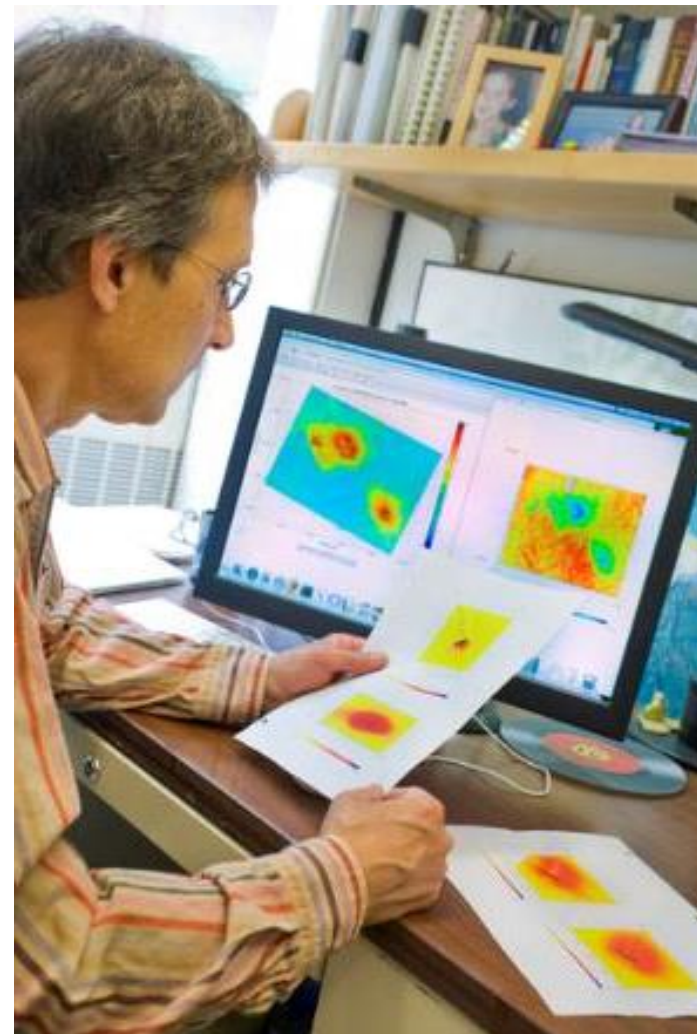
Intellectual Property

- 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



Data Protection

- Protection Period
 - Data generated from Phase I and II awards 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



Technical and Business Assistance

- For awardees, in addition to funding for research and development, funding is provided to assist small businesses commercialize their innovations
 - Phase I: \$6,500
 - Phase II: \$50,000
 - Funding levels increased in FY 2019
- Companies can select their own vendors to provide assistance or use a vendor that is funded directly by DOE.



U. S. Department of Energy Mission & Program Offices

- **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 DOE SBIR/STTR

Cyber Security, Energy Security and Emergency Response
Electricity
Fossil Energy and Carbon Management
Energy Efficiency and Renewable Energy
Nuclear Energy
Advanced Scientific Computing Research*
Basic Energy Sciences*
Biological and Environmental Research*
Fusion Energy Sciences
High Energy Physics
Nuclear Physics*
Defense Nuclear Nonproliferation
Environmental Management

* Release 1

Specific Topics Aligned with DOE Mission

Leadership in Clean Energy

- Advanced Turbine Technology
- Clean Coal, Oil and Gas Technologies
- Advanced Materials/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

Leadership in Basic Energy and Engineering Sciences

- 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

Enhancement of Nuclear Security

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



Release 1 Technology Areas
Topics Released: July 12, 2021

DOE SBIR & STTR Programs: Technology Areas

Advanced Scientific Computing Research

- Website: [Advanced Scientific Computing Research](#)
- Research Areas
 - High Performance Computing
 - High Performance Networking
 - Edge Computing
 - Artificial Intelligence
 - Quantum Computing



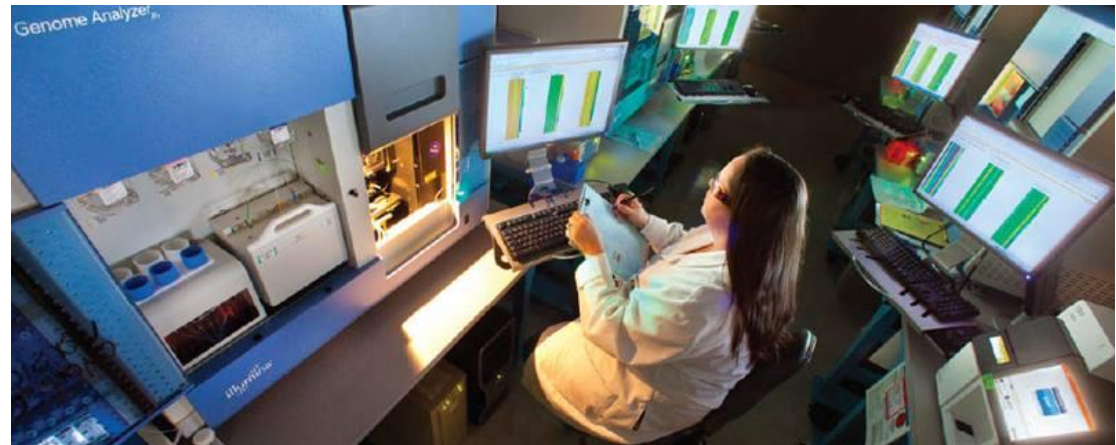
Basic Energy Sciences

- Website: [Basic Energy Sciences](#)
- Research Areas
 - Technologies to Support Advanced X-ray, Electron, and Neutron-based Scientific Instruments
 - Advanced Materials for Energy Systems
 - Membranes for energy storage
 - Nuclear reactor structures



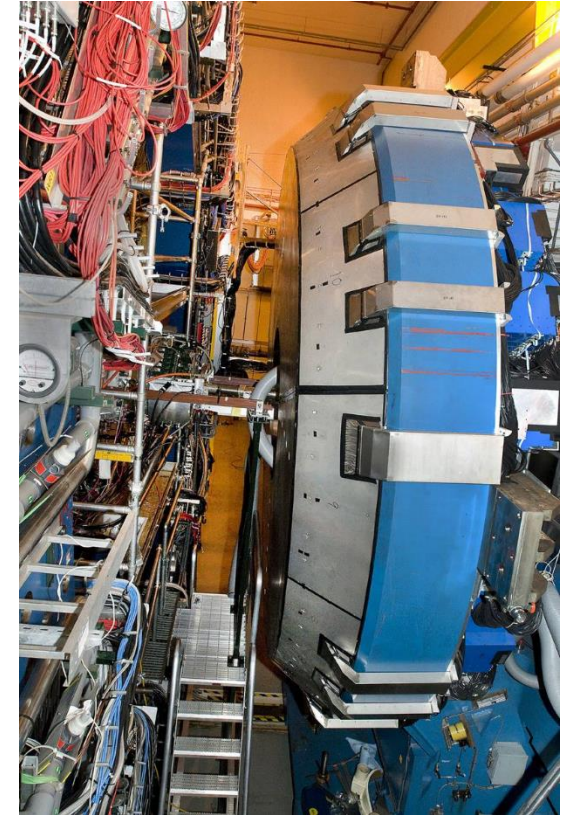
Biological and Environmental Research

- Website: [Biological and Environmental Research](#)
- Research Areas
 - Scientific Tools for Subsurface and Atmospheric Monitoring
 - Tools and Technologies for Biological Synthesis and Structural Biology Relating to Bioenergy



Nuclear Physics

- Website: [Nuclear Physics](#)
- Research Areas
 - Technologies to Support Advanced Accelerators
 - Nuclear Isotope Production





Release 2 Technology Areas
Topics Released: November 8, 2021

DOE SBIR & STTR Programs: Technology Areas

FY2022 Phase I Release 2 Program Offices

Release 2

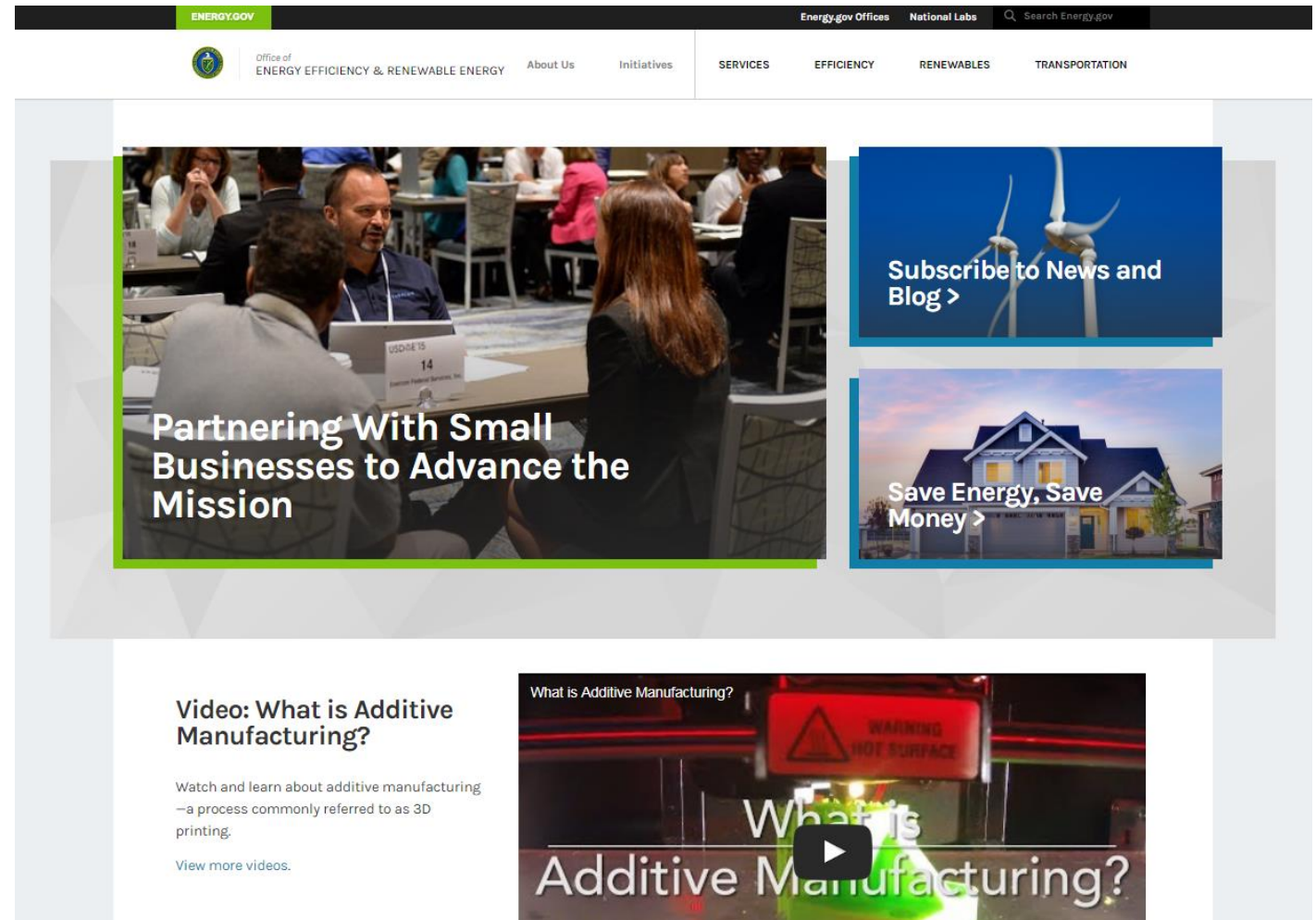
Nov 8 (topics) → Feb 22 (applications due)

- Cyber Security, Energy Security, and Emergency Response
- Defense Nuclear Nonproliferation
- Electricity
- Energy Efficiency and Renewable Energy
- Fossil Energy and Carbon Management
- Fusion Energy Sciences
- High Energy Physics
- Nuclear Energy
- Environment Management



Information Available at DOE Program Office Websites

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



A row of white wind turbines against a blue sky with light clouds. The turbines are arranged in a line, with the central one being the most prominent. The blades are long and pointed, and the nacelles are white. The sky is a clear blue with some light, wispy clouds.

DOE SBIR & STTR Programs: Application & Award Process

Operation of the DOE SBIR and STTR Programs

Technical Expertise Leveraged Throughout DOE

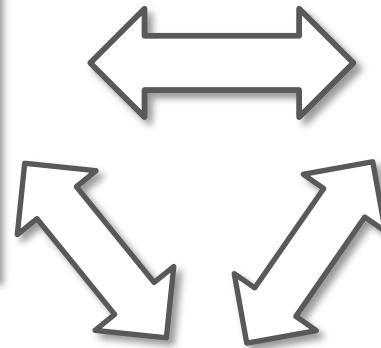
DOE Program Office

- Develop Topics
- Identify Reviewers (Scientific Peer Review)
- Recommend Awardees
- Oversee Projects

Single Grants Office for Awardees

DOE Chicago Office

- Negotiate Grants
- Issue New and Continuation Awards
- Grant Closeout



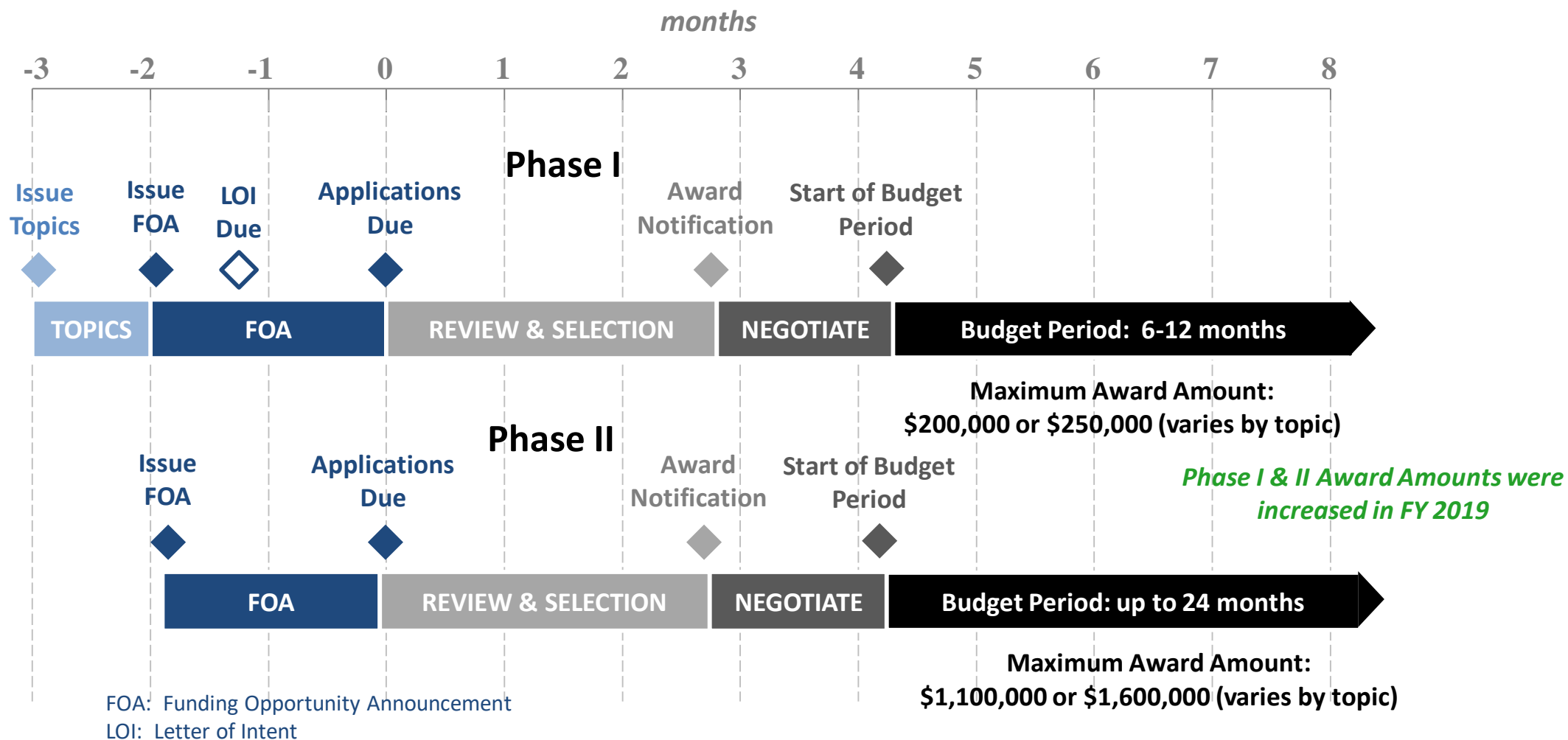
Single Administrative Office for Applicants

DOE SBIR/STTR Programs Office

- Develop Funding Opportunity Announcements
- Administer Review and Selection Process
- Ensure Compliance with SBIR/STTR Legislation
- Conduct Outreach



Application & Award Timelines



Schedule: FY 2022 Phase I, Releases 1 & 2

Phase I FOA Schedule	Release 1	Release 2
Topics Issued	Monday, July 12, 2021	Monday, November 8, 2021
Webinar(s)	Week of July 19, 2021	Week of November 15, 2021
FOA Issued	Monday, August 9, 2021	Monday, December 13, 2021
Webinar(s)	Friday, August 13, 2021	Friday, December 17, 2021
Letters of Intent (LOI) Due	Monday, August 30, 2021	Monday, January 3, 2022
Non-Responsive LOI Feedback Provided	Monday, September 20, 2021	Monday, January 24, 2022
Applications Due	Monday, October 12, 2021	Monday, February 22, 2022
Award Notification	Monday, January 03, 2022*	Monday, May 16, 2022*
Projected Grant Start Date	Monday, February 14, 2022	Monday, June 27, 2022

**preliminary dates subject to change*



Schedule: FY 2022 Phase II, Releases 1 & 2

Phase II FOA Schedule	Release 1	Release 2
FOA Issued	Monday, October 18, 2021	Monday, February 28, 2022
Letters of Intent Due (All Phase II Applications)	Tuesday, November 9, 2021	Wednesday, March 30, 2022
Full Applications Due	Tuesday, December 7, 2021	Tuesday, April 19, 2022
Award Notification	Tuesday, February 22, 2022*	Monday, July 11, 2022*
Grant Start Date	Monday, April 4, 2022	Monday, August 22, 2022

**preliminary dates subject to change*



Free Application Assistance

Phase 0 for first-time DOE applicants (yes – its free!)

<http://www.dawnbreaker.com/doephase0/>

Recorded Topic and FOA Webinars

Online learning center for application process including videos
<https://science.osti.gov/SBIRLearning>

Explore DOE National Lab Collaboration Opportunities:

<https://science.osti.gov/sbir/Applicant-Resources/National-Labs-Profiles-and-Contacts>

Application Process Q&A Webinars

Email us!

sbir-sttr@science.doe.gov

Join our mailing list!

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

Follow us on Twitter! @DOESBIR

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



U.S. Department of Energy

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

Topics

FY 2022

Phase I

Release 1

Version 4, July 23, 2021

Office of Advanced Scientific Computing
Research
Office of Basic Energy Sciences

Office of Biological and Environmental
Research
Office of Nuclear Physics

More about Topics

- DOE Mission-Focused Specific Topics
- Open communication permitted about the topic scope with DOE Technical Topic Managers
- At Topic Webinar (recorded), DOE Program Managers discuss the topic then Q&A
- Letter of Intent and Application must specify same Topic and Subtopic
- ***Reading references is highly recommended***

31. BIOLOGICAL APPROACHES AND TECHNOLOGIES FOR SYNTHETIC POLYMER UPCYCLING

Maximum Phase I Award Amount: \$250,000	Maximum Phase II Award Amount: \$1,600,000
Accepting SBIR Applications: YES	Accepting STTR Applications: YES

Globally, more than 350 million metric tons of plastics or petroleum-based synthetic polymers are produced annually, and their production is anticipated to quadruple by 2050. Approximately 2% of total energy consumption in the United States is used to manufacture plastics, resins, and synthetic rubber. While plastic production consumes nearly 6% of global oil production, plastic consumables are largely only used once and then discarded into landfills and the environment. This suggests that a significant opportunity exists to recover both energy and carbon from plastic waste. DOE therefore seeks to support development of new methods to improve petroleum-based synthetic polymer recycling and upcycling technologies.

a. Biological Approaches and Technologies for Synthetic Polymer Upcycling

This topic addresses the need to develop biological solutions for petroleum-based synthetic polymer upcycling that may offer unique advantages over traditional recycling methods. Though petroleum-based synthetic polymers are typically considered to be highly recalcitrant to biological depolymerization, there is evidence that some plastics can be enzymatically deconstructed. Therefore, enzymatic pathways may exist or may be modified to breakdown polymers that currently cannot be recycled. With this topic, BER seeks projects that apply the principles of genome engineering and microbiome science to re-design metabolic pathways in established or emerging model organisms and/or within complex communities to deconstruct petroleum-based synthetic polymers and/or to convert polymer waste streams to usable monomers for new materials that have desirable performance and end-of-life characteristics. Projects should include identifying and developing novel biological mechanisms, enzymes, and pathways for petroleum-based synthetic polymer deconstruction and conversion focused on elucidating novel enzymes and biochemical pathways for petroleum-based synthetic polymer breakdown and/or designing new biosynthetic pathways for the conversion of polymers into new products or their precursors.

Applications on the environmental dimension of plastics pollution and/or degradation are not within scope. Primarily descriptive studies that aim only to survey strains, environments, enrichments, or consortia via metagenomic or transcriptomic sequencing are not encouraged. Studies that target human or environmental health aspects of polymers or their breakdown products are not within scope. Applications for research that would result in incremental advances in our current understanding or technology are not encouraged. Experimental studies should be focused on the biological conversion of polymers and synthetic biology. Studies that do not target petroleum-based synthetic polymers as substrates or are solely focused on just the chemical analogs or monomers for petroleum-based synthetic polymer breakdown products are not encouraged.

Questions – Contact: Dawn M. Adin (dawn.adin@science.doe.gov)

b. Other

In addition to the specific subtopic listed above, the Department invites grant applications in other areas that

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.



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 contact info is provided



24. 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 8 of this document prior to submitting applications.

Grant applications are sought in the following subtopics:

a. Split Laser Sensor for Harsh Environment Sensing Applications

This Technology Transfer Opportunity seeks to license and commercialize a split laser measurement technology (U.S. Patent 8,786,840, [1]) developed and patented by U.S. Department of Energy's National Energy Technology Laboratory (NETL). The technology is low-cost, portable, and ready to be deployed in a wide variety of remote, harsh environment sensing applications that are relevant to fossil energy and carbon management, including (but not limited to) [2]: long-term CO₂ sequestration monitoring, characterization of rare earth elements, contaminant monitoring and remediation, natural gas reservoir detection, water treatment and filtration systems, etc.

The base technology [3, 4] can support i) laser induced breakdown spectroscopy (LIBS) and/or Raman measurements of solids and liquids, and/or, ii) LIBS measurements of gases with appropriate laser safety accommodations. The technology involves the use of a diode pumped passively Q-switched solid-state laser that is remotely fiber pumped to produce high peak power nanosecond scale output pulses. The use of a passive Q-switch allows for the removal of the high voltage active Q-switch and also allows for the fusing of the remainder of the optical components that comprise the laser head into a monolithic unit which eliminates the need for alignment and any worries of misalignment. Low peak power pumping light is delivered via the optical fiber to the laser medium where a train of high peak power pulses are produced as long as the pumping light is applied. The output can be focused to produce sparks in air, on solid surfaces, or inside liquids.

Applicants must leverage this technology for a fossil-based energy and/or carbon management system.

The split laser system is adaptable with base functionality that may be extended and customized to support a wide variety of end use applications that are relevant to fossil-based energy systems. The ability of the probe to be sealed allows for usage in separations processes and/or other industrial process where critical element concentrations are needed for control and optimization. The probe also has the ability to be deployed into the subsurface to measure concentrations of various elements at rates up to 20 Hertz (in its existing configuration). In addition, the use of the optical fiber allows for versatile deployment capability of the laser into areas that would not normally accommodate a laser system. The technology can easily be attached to a robotic manipulator for interrogation of remote sites or areas of interest. Lastly, the end probe of the measurement system has been specifically designed to be low cost and rugged so that it is easily repaired or replaced if damaged, while keeping the sensitive upstream system components at a safe distance.

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 2022 PHASE I RELEASE 1

FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER:
DE-FOA-0002554
FOA TYPE: NEW
CFDA NUMBER: 81.049

FOA Issue Date:	August 9, 2021
Submission Deadline for Letters of Intent:	Monday, August 30, 2021 5:00 PM Eastern
Submission Deadline for Applications:	Tuesday, October 12, 2021 11:59 PM Eastern



U.S. DEPARTMENT OF
ENERGY

Office of SBIR/STTR
Programs

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 solicitation
 - Each letter of intent and application must be unique

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)
 - No prior registrations (SAM, etc.) are required to submit a LOI
- 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". Below the header, there is a "Login" button and a link for "Existing User". A blue banner 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 is titled "Existing User Login" and contains a "Username" field, a "Password" field, and a "Login" button. To the right, there is a "New User Registration" section with links for "Search Solicitations" and "Create New PAMS Account". Below this is an "Other Links" section with links for "Award Search", "Recommended Settings", "Contact Us", and "PAMS External User Guide". At the bottom, there is a "System Use Notification" section with a disclaimer about the system being a US Government Information System and a list of terms of use.

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
 - Obtain a DUNS number (This will be replaced by a [Unique Entity Identifier](#) (UEI) in the near future.)
 - Complete a SAM registration.
 - Must be updated annually
 - 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.



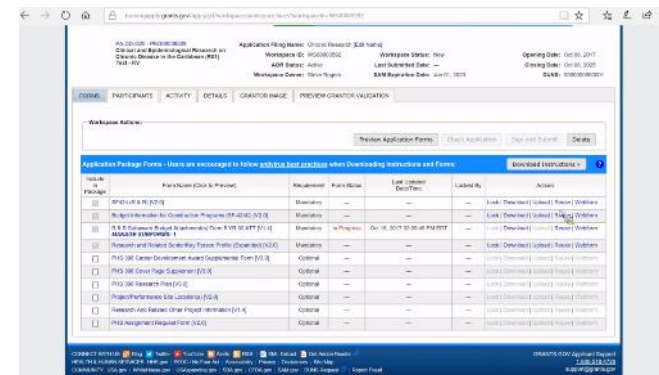
[Confirmation Emails from Grants.gov](#)

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>



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
 - Provide a resume for each person listed on the budget form
- Commercialization Plans
 - Phase I commercialization plan (2000 words)
 - an example can be found here at <https://science.osti.gov/sbir/Applicant-Resources/Grant-Application>
 - Phase II commercialization plan (7,500 words)
- SBIR/STTR Information form
- Data Management Plan

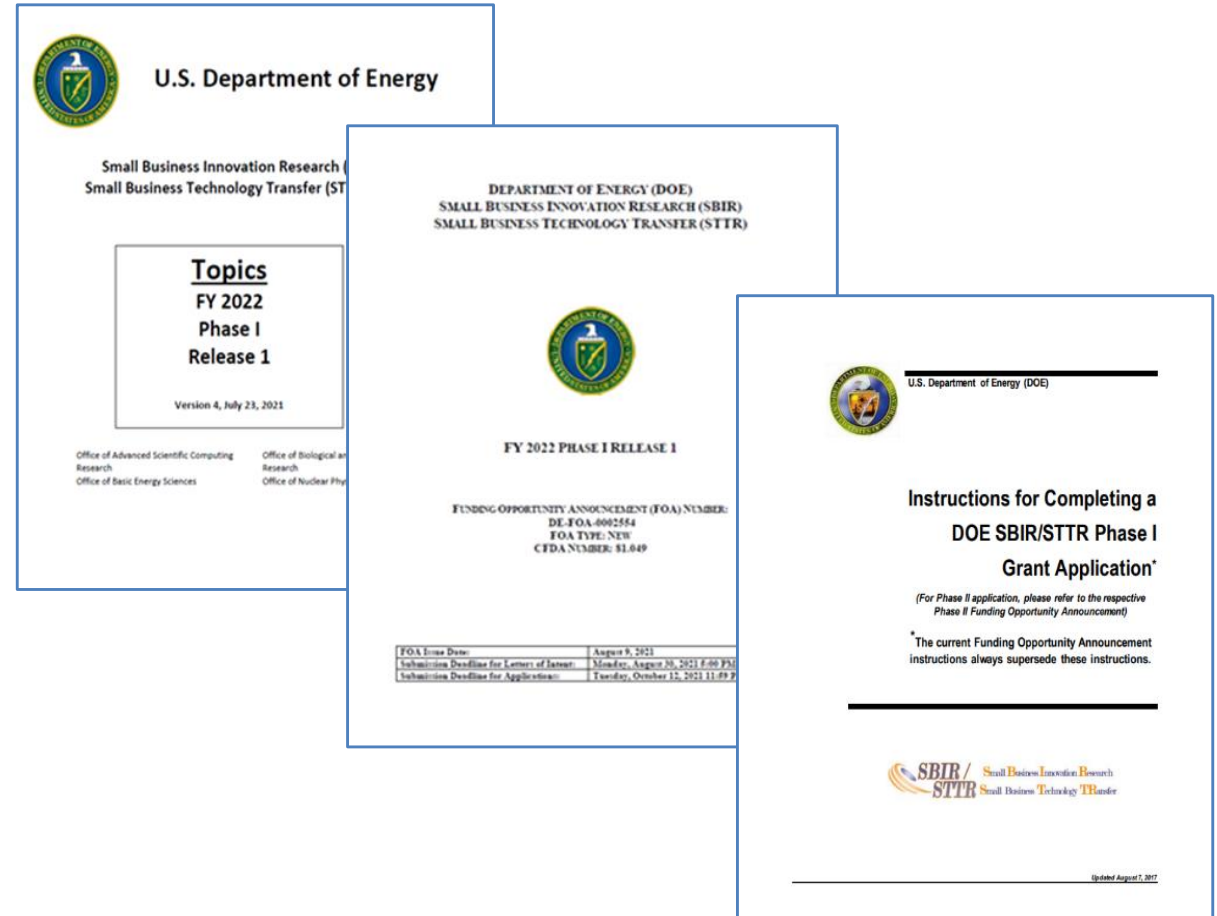
YOUR APPLICATION MUST INCLUDE THE FOLLOWING DOCUMENTS:

Name of Document	Format	Attach to
Application for Federal Assistance, SF-424 Form	PDF	
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 Abstract and Summary	PDF	Field 7
Project Narrative	PDF	Field 8
Bibliography and References Cited, if applicable	PDF	Include in Project Narrative
Facilities and Other Resources, if applicable	PDF	Include in Project Narrative
Equipment, if applicable	PDF	Include in Project Narrative
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
Other—SBA Company Registration	PDF	Field 12
Authorization for non-DOE/NNSA FFRDCs, if applicable	PDF	Field 12



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://www.doesbirlearnin.g.com/)
 - Online tutorials are available at <http://www.doesbirlearnin.g.com/>



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



Updating SAM registration at the last minute – and unable to submit on Grants.gov

Fail to submit letter of intent by the deadline

Fail to check level of effort is compliant (see slide 6)

Fail to meet PI effort requirements (a minimum of 3 hours/week on average)

Incorrect/missing marking of proprietary data. Instructions in FOA

Missing letters of commitment, required for each consultant and subaward

Proposing a technology that is not new

Unresponsive to the subtopic/ Not clearly addressing technology need

Not including the required documents

Proposal reflects unfamiliarity with the current literature

Budget form and budget justification are in agreement (to the penny). Subawards too!

Not fully reading the FOA!!



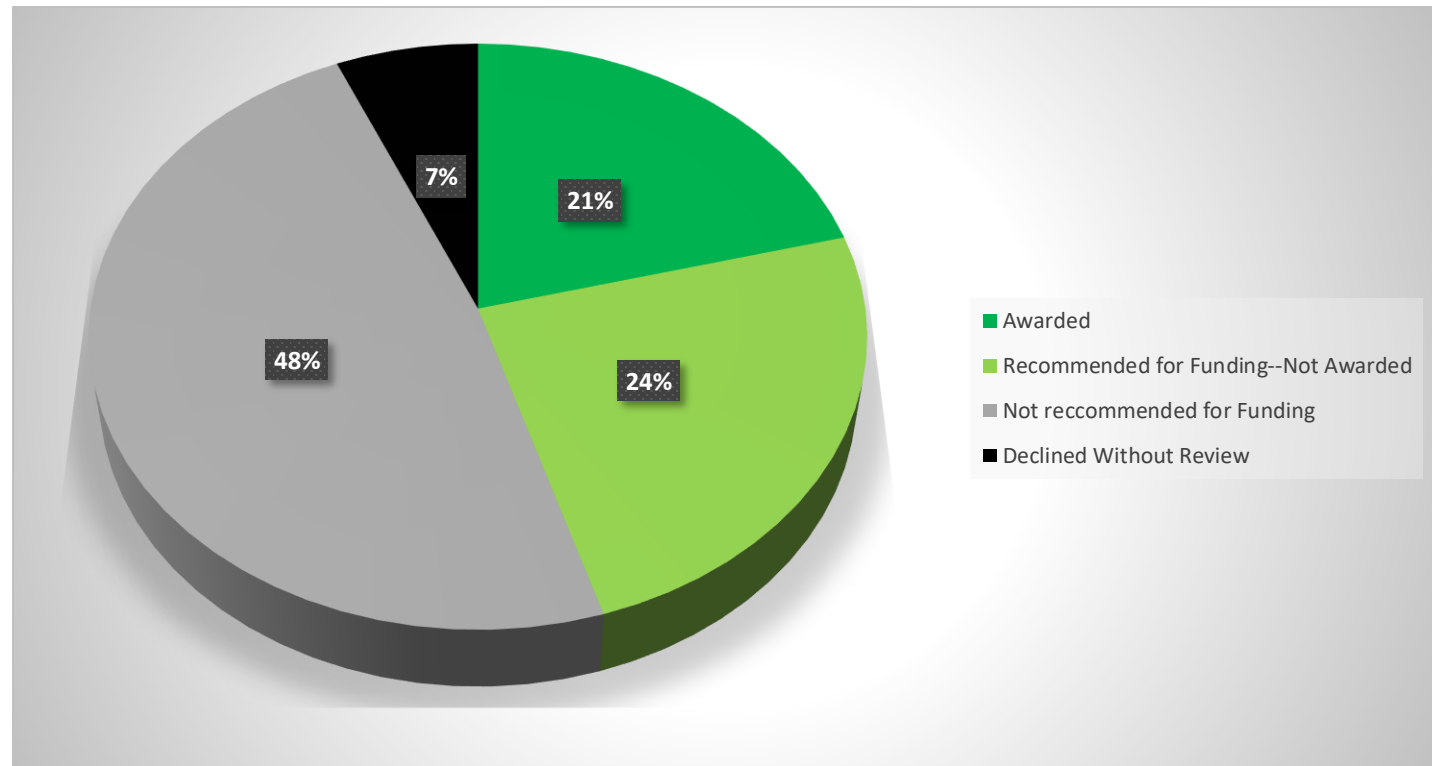
Review and Selection of Applications

- 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



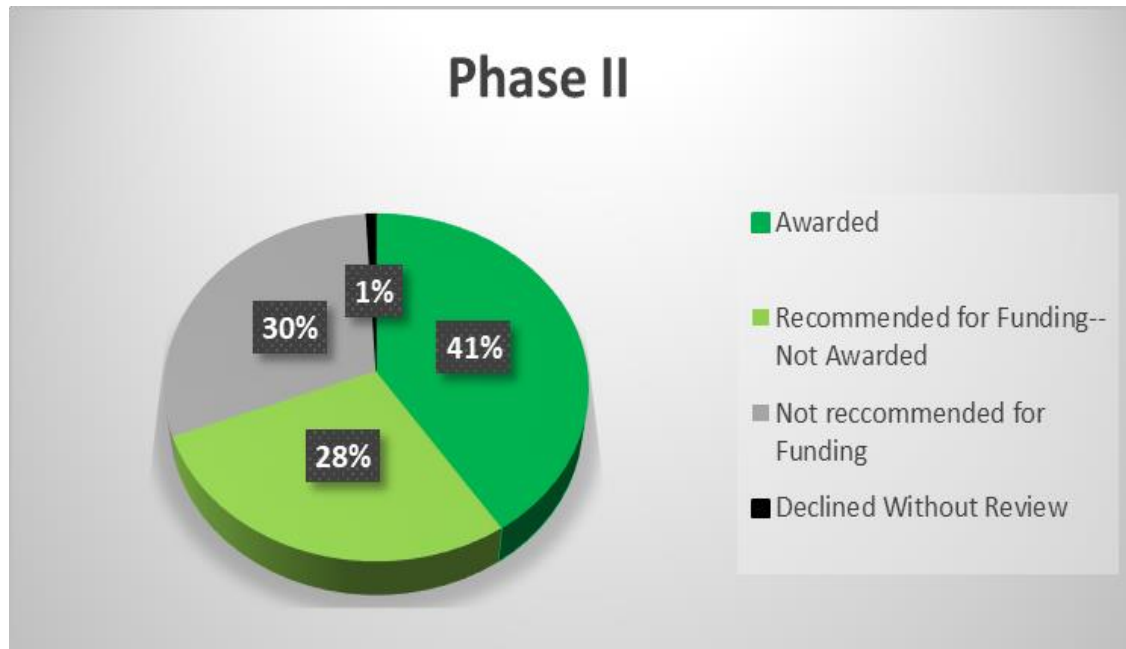
Phase I Application & Award Statistics for FY 2021

- Phase I
 - 2,084 applications
 - 439 awards

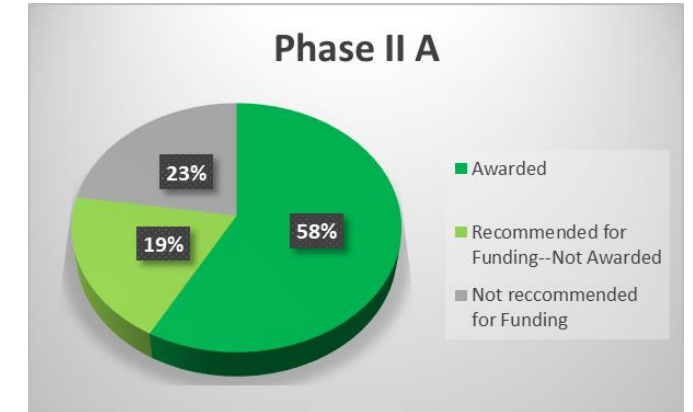


Phase II Application & Award Statistics for FY 2021

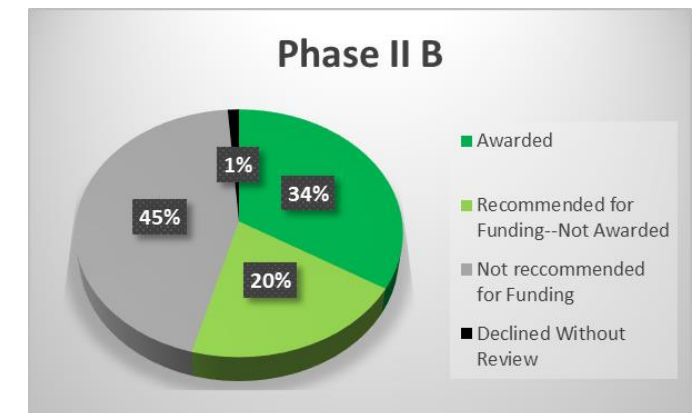
- Phase II
 - 358 applications
 - 146 awards



- Phase IIA
 - 31 applications
 - 18 awards



- Phase IIB
 - 83 applications
 - 28 awards



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



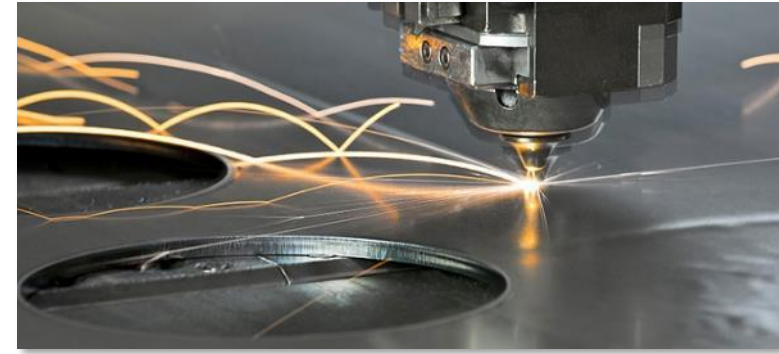
Commercialization Assistance



- 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
- Energy I-Corps for SBIR/STTR
 - New program for Phase I awardees with a focus on customer discovery




Commercialization



- DOE topics are drafted by program managers who are aware of the important technology roadblocks that are preventing progress in their mission areas
- Small business applicants are expected to address the commercialization challenges and ensure that there is a profitable, self-sustaining, business opportunity
 - Phase I & II Applications must include Commercialization Plans
 - Commercialization Plans can accommodate long commercialization timeframes
 - Ability to address adjacent markets can also be included in your commercialization plan
- DOE performs follow-up surveys to track commercialization outcomes of its SBIR/STTR awards





DOE SBIR & STTR Programs: Examples of Phase III Success
<https://science.osti.gov/sbir/SBIR-STTR-Phase-III-Success-Stories>



DOE OFFICE: Advanced Scientific Computing Research (ASCR)

TECHNOLOGY: Developed Keymaker, an AI based analytics platform which enhances network connectivity

IMPACT: Reduces costly networking distributions and improves productivity

TIMELINE: Phase II SBIR award in 2019 has led to sales approaching DoD and DOE investments. Solutions are implemented in NewNode used by 24 organizations and 2.5 Million users. Expanding products to other markets.



DOE OFFICE: Basic Energy Sciences

TECHNOLOGY: Acoustic and Aerodynamic “levitation” forces allowing liquids to float for materials investigation in a container-less environment

IMPACT: Resulted in a specially developed facility for materials investigation in length scales from atomic to mid-range. Instrument developed for commercial market. Job creation.

TIMELINE: Multiple Phase II SBIR awards during 2011 through have led to sales exceeding \$1 Millions with more in the pipeline.



IMPACT

Ground-breaking characterization tool enabling 3D, element sensitive, high resolution imaging for next-generation energy-efficient and nanotechnology devices



DOE OFFICES: Basic Energy Sciences (BES), High Energy Physics (HEP).

TECHNOLOGY: table-top, femtosecond pulsed x-ray lasers for imaging and time-resolved spectroscopy with applications in semiconductor industry, bio-imaging and neuroscience.

COMMERCIALIZATION TIMELINE: SBIR support starting in 2002 with a DOD grant and 6 DOE SBIR Phase II award since 2007. \$14M in product sales; >\$13M in two rounds of investments by Intel Capital, Kairos Ventures and Colorado Impact Fund.



TELESCENT



DOE OFFICES: Advanced Scientific Computing Research (ASCR).

TECHNOLOGY: Fiber optic interconnects.

TIMELINE: 3 DOE SBIR Phase II awards and a Phase IIB since 2010. First Phase II lead to significant Angel Investments.

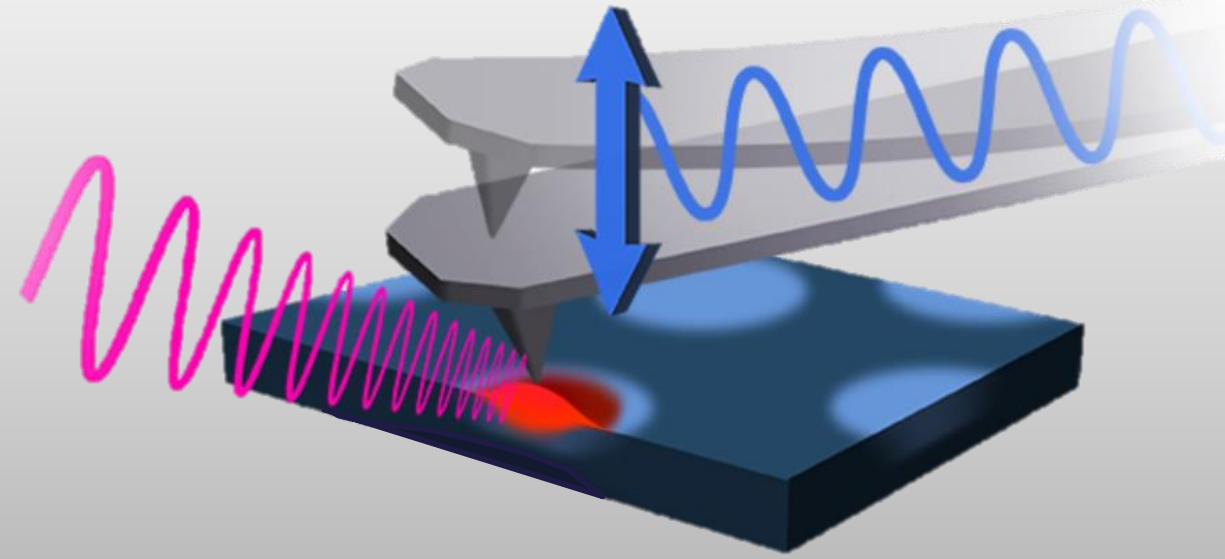
ROI: \$5M in product sales rapidly growing. \$15M in Angel Investments. 36 employees. Deployed in 15 large data centers. Customers include Verizon. 38+ patents.

TAKEAWAY MESSAGE: Game-changing technology born from a String Theory mathematical representation.



U.S. DEPARTMENT OF
ENERGY

Office of SBIR/STTR
Programs



DOE OFFICES: Basic Energy Sciences (BES).

TECHNOLOGY: Nanoscale IR spectroscopy through AFM.

TIMELINE: 5 DOE SBIR Phase II awards in 2010 - 2017. Critical to validate a large potential market.

ROI: By 2018 Anasys' growing sales made the acquisition by Bruker possible.

TAKE-AWAY MESSAGE: Intensive multi-disciplinary R&D with significant advances in multiple disciplines like IR lasers, optics, AFM probes, mechanics, and electronics.



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

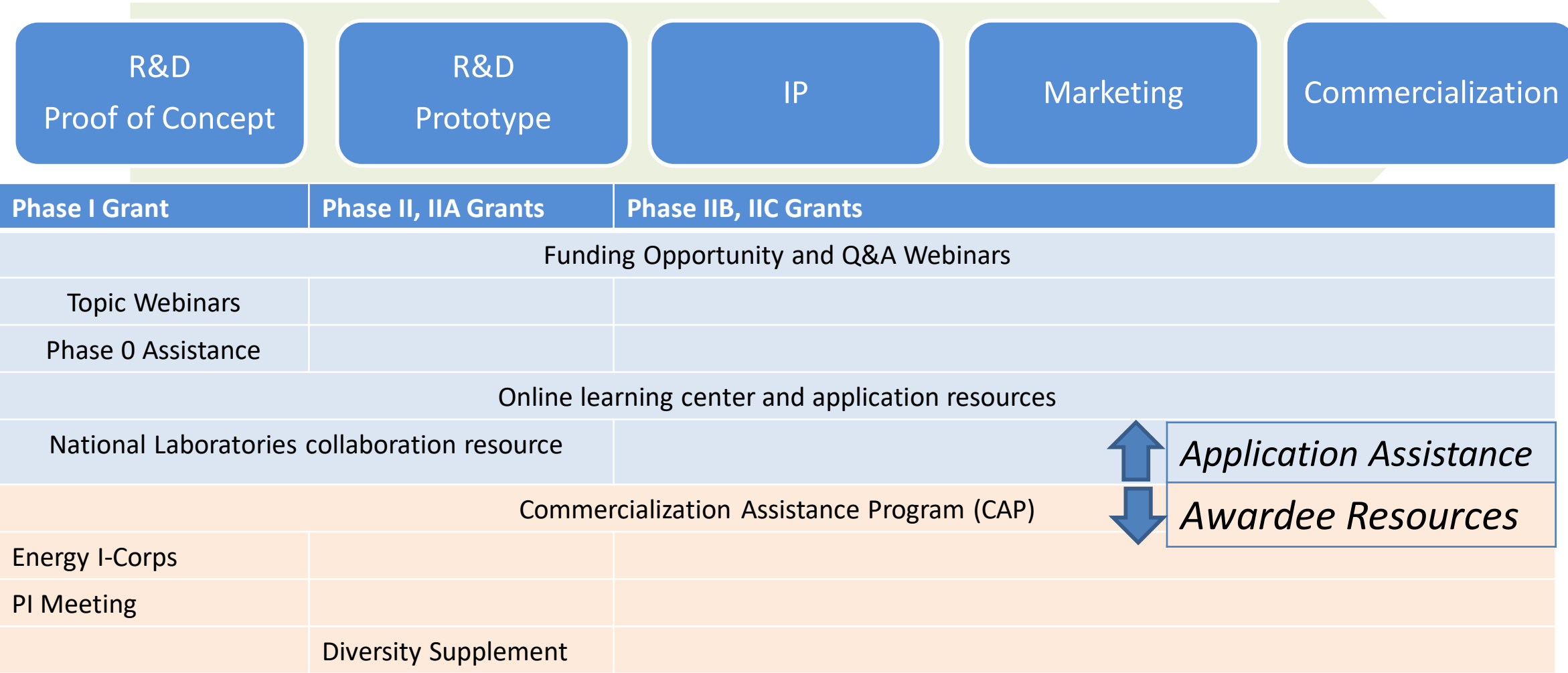
U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL
ATTN: OFFICE OF INSPECTIONS
1000 INDEPENDENCE AVENUE, SW
MAIL STOP 5D-031
WASHINGTON, DC 20585



U.S. DEPARTMENT OF
ENERGY

Office of SBIR/STTR
Programs

Support Programs along the Path to Commercialization



Final Reminders!

Phase 0 for first-time DOE applicants (yes – its free!)

<http://www.dawnbreaker.com/doephase0/>

Online learning center for application process including videos

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

Join our mailing list!

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

Follow us on Twitter! @DOESBIR

Email us

sbir-sttr@science.doe.gov

Funding Opportunities Page:

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

Documents and Webinars for Topics and FOAs are posted here