



# U.S. Department of Energy's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs

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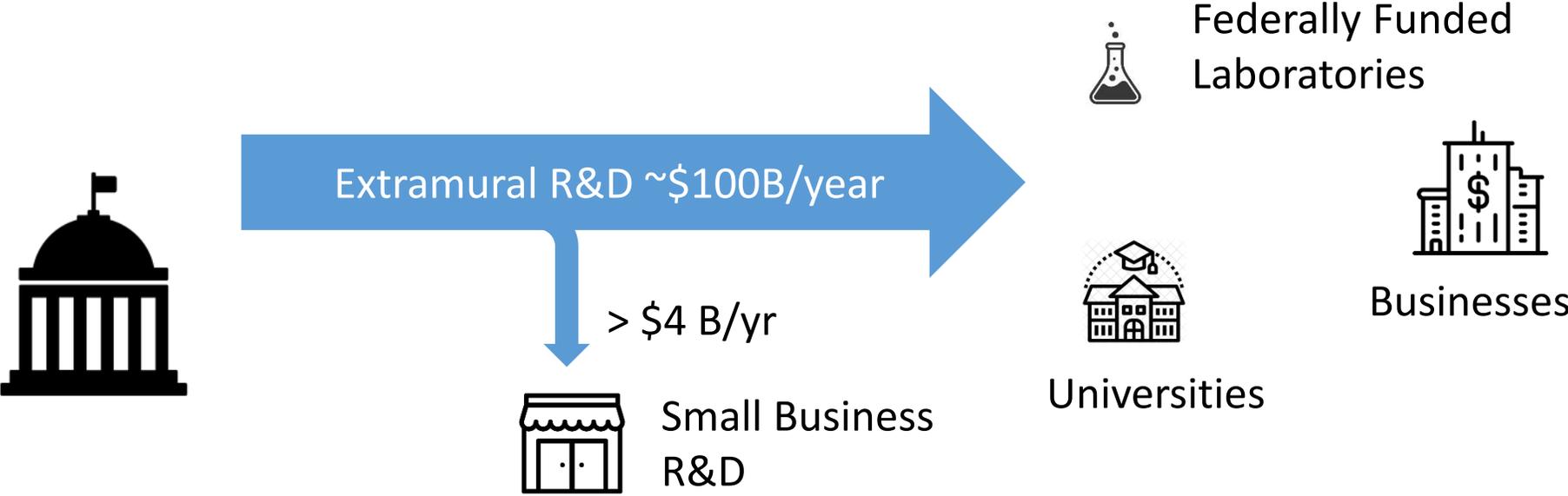


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**ENERGY**

Office of SBIR/STTR  
Programs

# What are the Federal SBIR & STTR Programs?

- A >\$4 Billion early stage nondilutive R&D fund for US-based small businesses
- Must be U.S. Citizen or permanent resident majority owned
- A mechanism to fund best early-stage high-risk innovation ideas
- Funds ideas that are too high risk for the private sector
- Use U.S. Small Businesses to stimulates technological innovation



# FY 2022 SBIR/STTR Budgets by Agency

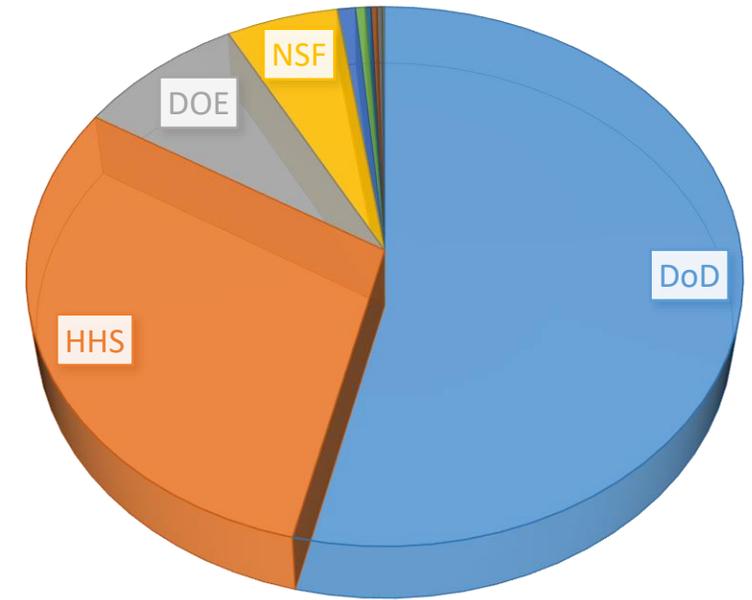


Agency	Budget (Millions)
Department of Defense (DoD)	\$ 2,240
Department of Health and Human Services (HHS), incl. National Institute of Health (NIH)	\$ 1,250
Department of Energy (DOE), incl. Advanced Research Projects Agency (ARPA -E)	\$ 348
National Science Foundation (NSF)	\$ 231
National Aeronautics and Space Administration (NASA)	\$ 215
Department of Agriculture (USDA)	\$ 38
Department of Homeland Security (DHS)	\$ 20
Department of Commerce: National Oceanic and Atmospheric Administration (NOAA), National Institute of Standards and Technology (NIST)	\$ 12
Department of Education (ED)	\$ 12
Department of Transportation (DOT)*	\$ 11
Environmental Protection Agency (EPA)	\$ 5

SBIR & STTR (> \$1B in extramural R&D)

SBIR only (> \$100M in extramural R&D)

## 2022 BUDGETS



**SBIR: \$3.85 Billion**  
**STTR: \$532 Million**

Contracting agency
Granting agency
Both

# DOE SBIR/STTR Programs – The Specifics

- Historically awards in excess of \$300 Million per year
- Grants not contracts – your idea & your execution
- Topics are aligned with DOE Mission:
  - **Leadership in Clean Energy**
  - **Leadership in Basic Energy and Engineering Sciences**
  - **Enhancement of Nuclear Security**
- Topics are more wide ranging than most expect!
- Two Phase I solicitations per year
- Letter of Intent is required
- We offer an expansive application assistance program “Phase 0”. It opens for an application cycle when the topics document are released <https://doephase0.dawnbreaker.com/>



# SBIR vs STTR?



<b>Small Business Innovation Research (SBIR)</b> est. 1982	<b>Small Business Technology Transfer (STTR)</b> est. 1992
<ul style="list-style-type: none"> <li>• Allows non-profit research institution partner</li> <li>• Principal Investigator (PI) employee of small business</li> </ul>	<ul style="list-style-type: none"> <li>• Foster technology transfer between small business concerns and research institutions</li> <li>• Requires non-profit research institution (RI) partner</li> <li>• PI can be employee of either small business or RI</li> </ul>

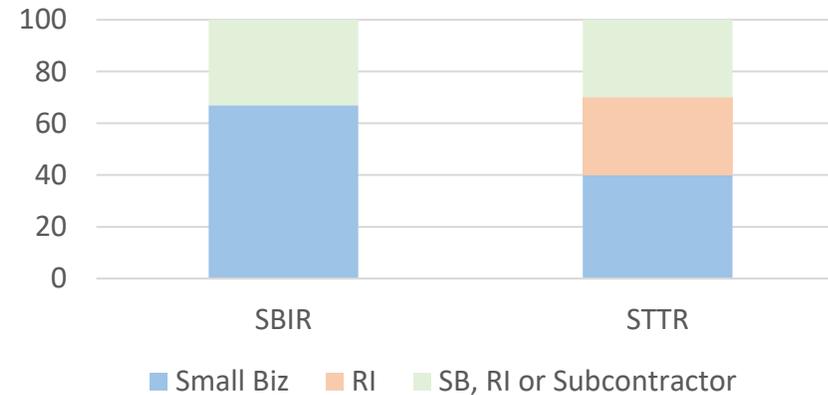
*There are different level of effort requirements to meet [use our workbook to check compliance](#) !*

*If you fulfill requirements of SBIR & STTR you can submit the same application to both programs*

*Award always goes to the Small Business*

*They are two pots of funding*

Phase I – R&D Requirements



*SBIR and STTR were reauthorized on September 30, 2022*



# Participating DOE Program Offices –2 Funding Opportunities



FY 24 Phase I Release 1: July 10, 2023 (topics release)– October (due)



FY 24 Phase I Release 2: November 6, 2023 (topics release) – February (due)

Advanced Scientific  
Computing Research  
(ASCR)

Cybersecurity, Energy  
Security & Emergency  
Response (CESER)

Nuclear Nonproliferation  
(NNSA)

Fusion Energy Sciences  
(FES)

Electricity  
(OE)



Basic Energy Sciences  
(BES)

Energy Efficiency &  
Renewable Energy (EERE)



Nuclear Energy  
(NE)

High Energy Physics  
(HEP)

Biological & Environmental  
Research (BER)

Nuclear Physics  
(NP)

Fossil Energy & Carbon  
Management (FECM)

Environmental  
Management (EM)

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



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# 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

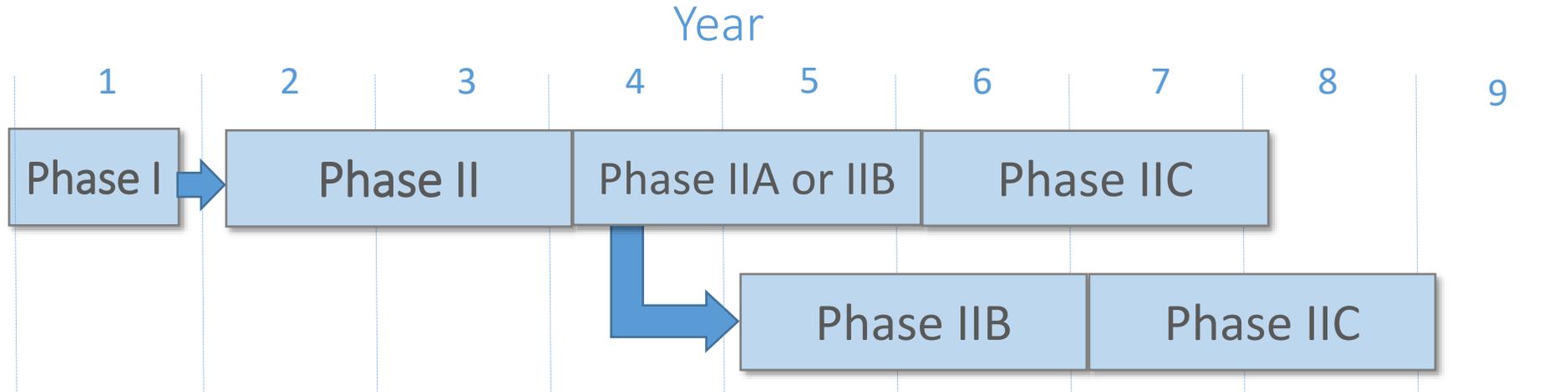
## Enhancement of Nuclear Security

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

Specific – but many more topics than you would expect



# How does our funding work?



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



# FY 2024 Phase I Funding Opportunity Announcements (FOAs)



Phase I Release 1 Topics in July

Letters of Intent required (see [LOI instructions](#)) and Feedback (if non-responsive)

Application Due Date

Topics Webinars register & will also be recorded and posted

FOA document and registration link & recording

Phase I	Release 1	Release 2
Topic Webinars	Monday, July 10, 2023	Monday, November 6, 2023
Document		
Phase 0 Application Assistance (free for first time applicants) starts	Monday, July 10, 2023	Monday, November 6, 2023
Topic Webinar, week of	Monday, July 17, 2023*	Monday, November 13, 2023*
<b>FOA Issued</b>	Monday, August 7, 2023	Monday, November 20, 2023
Document		
FOA Webinar	Friday, August 11, 2023	Monday, November 27, 2023
<b>Letters of Intent (LOI) Due</b>	Monday, August 28, 2023 5:00pm ET	Monday, November 13, 2023 5:00pm ET
<b>Non-responsive LOI Feedback Provided</b>	Monday, September 18, 2023	Tuesday, November 23, 2024
<b>Full Applications Due</b>	Tuesday, October 10, 2023 11:59pm ET	Tuesday, November 13, 2023 11:59pm ET
Award Notification	Tuesday, January 2, 2024**	Monday, November 20, 2023
Principal Investigator meeting	Monday, February 12, 2024	Monday, November 27, 2023
	February 26, 2024	July 8, 2024
	April 2024	September 2024
	June 2024	October 2024

\*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

# Application Assistance

[Phase 0 application assistance](#) for first-time DOE applicants

*Free to you!*

Email us!

General questions: [sbir-sttr@science.doe.gov](mailto:sbir-sttr@science.doe.gov)

Get Connected!

Subscribe to our mailing list: <https://science.osti.gov/sbir>

Stay Connected!



Recorded Topic, FOA and AMA Webinars



36 short tutorials on the Application Process

<https://doetutorials.dawnbreaker.com/>



Being on our mailing list is the most important way to stay up to date on our funding opportunities!



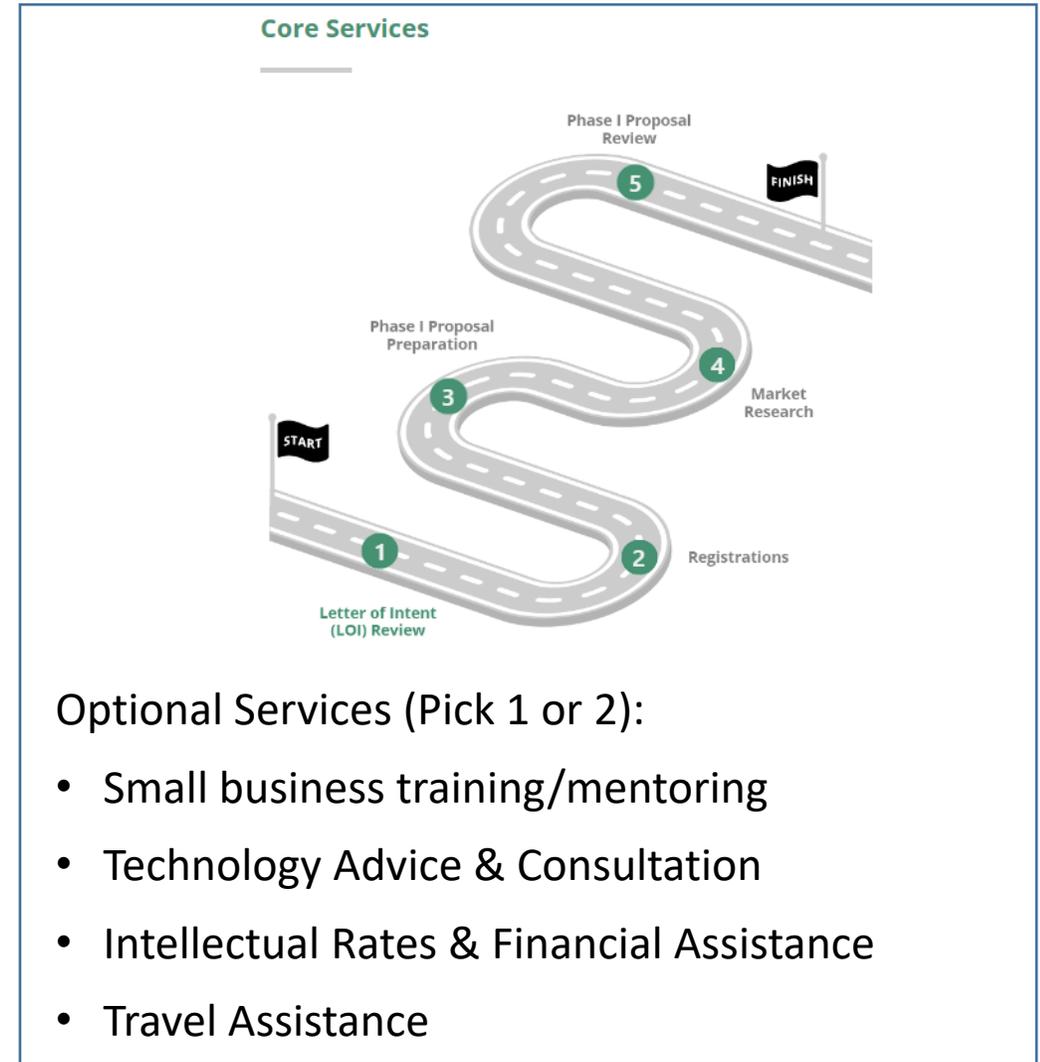
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# Phase 0 Application Assistance



- Do you need help preparing your first DOE SBIR/STTR Phase I application?
- All first –timers are eligible (first come-first serve)
- Go/No-go discussion and decision:
  - Responsive to topic
  - Novel idea
  - Ability to conduct the proposed R&D
- [Apply portal](#) opens when Topics are released
- “Ample” opportunity to enroll
- Phase 0 program informational webinar hosted by provider.
- [Signup for Phase 0 mailing list](#)



# More about Topics

- DOE Mission-Focused Specific Topics
- Specify grant maximum amounts and whether STTR and Fast-Track applications are being accepted
- At Topic Webinar (recorded), DOE Program Managers discuss the topic then Q&A

## C56-10. JOINT TOPIC: DECARBONIZATION OF AGRICULTURE, BUILDINGS, TRANSPORT, INDUSTRY AND THEIR COMMUNITIES

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,100,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

The objectives of this topic on decarbonization of Agriculture, Buildings, Transport, and Industry are to enable major reductions in carbon emissions in these sectors to help meet the Biden Administration greenhouse gas (GHG) reduction objectives—50 percent reduction by 2030 and net-zero carbon economy by 2050.<sup>4</sup>

This joint topic is a collaboration among U.S. Department of Energy's Advanced Materials & Manufacturing Technologies (AMMTO), Building Technologies (BTO), Bioenergy Technologies (BETO), Industrial Efficiency and Decarbonization (IEDO), Vehicle Technologies (VTO), and Water Power Technologies (WPTO) Offices.<sup>[5]</sup> This topic is not intended to comprehensively cover all aspects of decarbonization, rather, this joint topic generally supplements individual office topics with those aspects of decarbonization R&D best suited to joint efforts.

All applications to this topic must:

- Clearly indicate the subtopic and area of interest;
- Explicitly and thoroughly differentiate the proposed innovation with respect to existing commercially available products or solutions-- Justify all performance claims with theoretical predictions and/or relevant experimental data.
- Propose a tightly structured program which includes clearly defined, relevant materials and manufacturing RD&D metrics (including energy savings where applicable). The program should include quantitative technical milestones, timelines, and expected deliverables that demonstrate aggressive but achievable progress;
- Provide evidence that the proposer has relevant materials and or manufacturing experience and capability; and
- Explain applications of project output and potential for future commercialization including projections for cost and/or performance improvements that are tied to a clearly defined baseline.

In addition to reducing carbon emissions to net zero in all sectors by 2050, the Biden-Harris Administration seeks a more immediate equitable economic recovery that requires the expertise and talents of small businesses. While increasing equity is a concern for the topic in general, one way to advance equity as well as accelerate carbon reduction is to develop equitable and inclusive innovative technology solutions through a



# More about Topics

- Open communication permitted about the topic scope with DOE Program Managers
- *Reading references is highly recommended. Market studies are sometime included.*

## C56-30. SUPERCONDUCTING MAGNETS

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,100,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

New or advanced superconducting magnet concepts are needed for plasma fusion confinement systems. Fusion specific magnetic confinement devices operate at higher magnetic fields (14T-20T), in higher nuclear irradiation environments, and require provide access/maintenance or allow for wider operating ranges in temperature or pulsed magnetic fields. Of particular interest are the following:

### a. Superconducting Magnetic Technology

Innovative and advanced superconducting materials manufacturing processes that have a high potential for improved conductor performance and low fabrication costs. Specifically addressing manufacturing capacity (>500 km/yr) while maintaining quality assurance and quality control.

Innovative and advanced superconducting materials manufacturing processes focusing on increasing deposition area (>0.5 m<sup>2</sup>)

Radiation-resistant electrical insulators, e.g., wrap able inorganic insulators and low viscosity organic insulators that exhibit low gas generation under irradiation, less expensive resins and higher pot life; and insulation systems with high bond and higher strength and flexibility in shear.

Questions – Contact: Guinevere Shaw, [guinevere.shaw@science.doe.gov](mailto:guinevere.shaw@science.doe.gov)

### b. Other

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

Questions – Contact: Guinevere Shaw, [guinevere.shaw@science.doe.gov](mailto:guinevere.shaw@science.doe.gov)



# What makes you a good fit with DOE?

## Application Review Criteria

1/3

Technical Merit

1/3

Ability to Carry Out  
the Project

1/3

Impact

- Responsiveness to the topic & subtopic
- Must be technology development R&D!
- Idea is novel
- Solid work plan to prove feasibility
- Your team is composed of the right expertise
- Potential impact if R&D is successful

# Awardee Commercialization Resources

- New for *Applicants and Awardees!* [DOE SBIR/STTR Partnering Resources](#)
  - Looking for SMEs, collaborators, subcontractors?
  - Understand related research being done at research institutes
  - Email [carol.rabke@science.doe.gov](mailto:carol.rabke@science.doe.gov) to discuss your partnering needs



## Technical and Business Assistance (TABA)

\$6,500 above maximum award amount in Phase I

- a) Select your own vendor
- b) Use DOE vendor

\$50,000 above maximum award for Phase II

- [Energy I-Corps](#)
  - 40 are selected
  - Designed to educate on entrepreneurial concepts
  - 2 months training at no cost to participants
  - Customer discovery process



# DOE SBIR/STTR Resources



Early-Stage Innovation  
SBIR & STTR  
Angels

Commercialization  
Private Funding



[Applicant Resources](#) (webinars, Q&A, tutorials and more...)  
[Phase 0 Application Assistance](#)

[PI Meeting](#)

[Energy I-CORPS for SBIR/STTR](#)

[TABA funds](#)

[Partnering Resources](#) and Phase II Workshops

[NERSC Computing Resources](#)

[Diversity Supplement for Phase II Awardees](#)

[Sequential Phase IIs](#)



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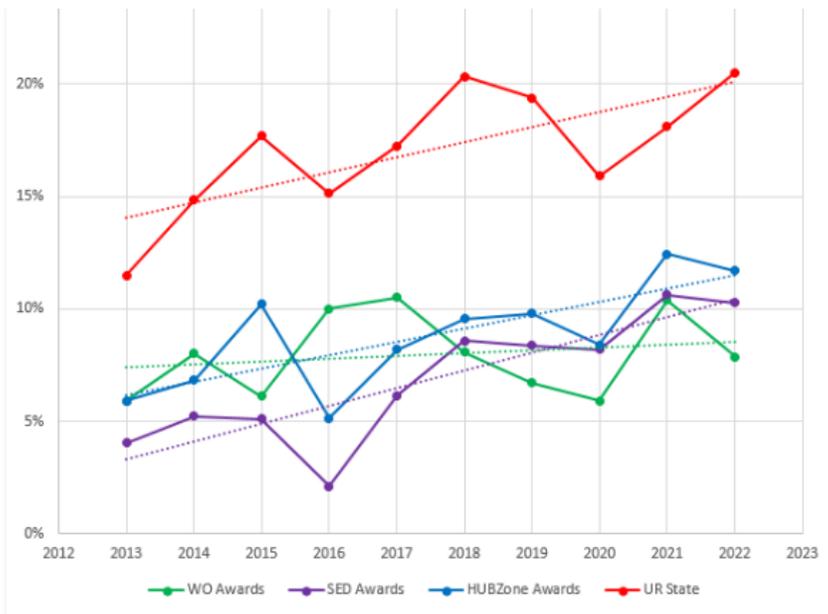
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# Diversity, Equity and Inclusion



- Our office collaborates across the Office of Science (SC) to advance organizational best practices for promoting diversity, equity, and inclusion (DEI) in SC's business practices for awarding and managing competitive research
- Our methodology is to track, educate, support and innovate
- We are always looking for opportunities to elevate awareness to under-represented groups (URG), feel free to reach out to us to speak at your event!
- We have a number of relatively new DEI initiatives
  - *Tracking diversity performance*
  - *Phase 0 for first-time applicants*
  - *Diversity Supplement for Phase II awardees*
  - *Improving accessibility of application process*
  - *Using software tools such as LinkedIn to identify and reach out to URGs who are a fit with DOE*

Phase I Award Percentages by Demographic



WO – Women-owned

SED – Socially and economically disadvantaged-owned

HubZone – In historically underrepresented business zone

UR – In underrepresented state

# Small Business Administration SBIR/STTR Resources

- *Many resources on navigating the federal SBIR/STTR programs at <https://www.sbir.gov>*
  - Your state support programs
  - What awards have been issued
  - Events
- *SBIR/STTR funding programs info for all 11 agencies and links at <https://www.sbir.gov/solicitations>*
- FAST Assistance for SBIR/STTR Proposals in most states, including Delaware
- If you decide that DOE SBIR/STTR is not a good fit for you, try other agencies!



# Finding Topics

*What problem are you currently interested in solving and how do you apply your technology in this area?*

## Examples:

- Your company builds a detector that analyzes particle size of solids produced in the cosmetic industry, such as powders, etc. You want to understand if there are different markets for your technology and R&D funding to develop your analyzer for new applications.
- Your company develops metal organic frameworks (MOFs) for controlling humidity in HVAC systems, by adsorbing water from the environment at low temperatures. You want to conduct R&D to see if the materials can be used for carbon capture at higher temperatures in a flue stack.
- Your company develops a coating mitigating biofouling for boat hulls. You want to know if your coating can be used in other marine and hydro environments

# Award Keywords & Topic Searching - SBA



Brainstorm 5-10 keywords that represent the problem you are trying to solve and your area of expertise, technology or innovation

- nanomaterials, sorbents, energy,
- water, purification, remote, renewable energy, filter
- artificial intelligence, software, inequality
- Detectors, monitoring

<https://www.sbir.gov/sbirsearch/topic/current/>

## Award Data

View As: [List](#) [Chart](#) [State Map](#)

### FILTER BY:

#### Agency

- Department of Agriculture (3852)
- Department of Commerce (1739)
- National Institute of Standards and Technology (410)
- National Oceanic and Atmospheric Administration (321)
- Department of Defense (95793)
- Air Force (30973)

#### Phase

- Phase I (140790)
- Phase II (60346)

#### Program

- SBIR (182412)
- STTR (18724)

#### Year

- 2023 (86)
- 2022 (6383)
- 2021 (6779)
- 2020 (7310)
- 2019 (7031)
- 2018 (5655)
- 2017 (6028)
- 2016 (5401)
- 2015 (5172)
- 2014 (5268)

Search Keywords Company Name Topic Code

- i** For best search results, use the search terms first and then apply the filters
- i** The Award database is continually updated throughout the year. As a result, data for FY22 is not expected to be complete until September, 2023.
- i** Download all SBIR.gov award data either **with award abstracts (290MB)** or **without award abstracts (65MB)**. A data dictionary and additional information is located on the **Data Resource Page**. Files are refreshed monthly.

Displaying 1 - 10 of 201136 results

### SIMPLIFIED STEAM ELECTROLYSIS: HYDROGEN FOR HARD-TO-ABATE INDUSTRIES

SBC: *Advanced Ionics, Inc.* Topic: *NA*

Advanced Ionics, Inc. (AI)—proposes to advance its breakthrough, high-efficiency low-cost hydrogen electrolyzer technology to gigawatt-scale production within the next decade, supporting rapid decarbonization of heavy industry 10 to 20 years earlier than possible under typical industry-led R&D timeframes. Targeting the multi-billion-dollar hydrogen industry, AI's system will generate volumes ...

**SBIR** **Phase I** **2023** **Department of Energy**

### Efficient Recovery of Dilute Helium Gas Using Molecular Sieve Membranes

SBC: *Osmoses Inc.* Topic: *NA*

Diminishing domestic helium supplies and a growing dependence on foreign sources of helium, such as helium produced in Russia, have created severe shortages of this critical gas for various facets of the U.S. economy, including medicine, research, manufacturing, and consumer goods. This proposal aims to address this vulnerability in the U.S. supply chain through the development of a novel family o ...

**SBIR** **Phase I** **2023** **Department of Energy**

### Simplifying Reactor Setup for Cell-Free Biofuel Production



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# Topic Searching - DOE



topicsV412222022.pdf 121 / 175 100% purify 2/3

Grant applications are sought in the following subtopics:

**a. Novel Reactive Capture Approaches that Convert Industrially Produced CO<sub>2</sub> to Useful Products On-Site**  
Among the objectives of the Point Source Capture Program is to support the deep decarbonization of the industrial sector. Facilities of interest for decarbonation are cement and lime plants, iron and steel manufacturing plants, hydrogen production plants, ethanol plants, and chemicals and petrochemicals plants. The conventional capture approach is to first separate/capture carbon dioxide (CO<sub>2</sub>) from process emissions or pre/post-combustion flue gases and then, as applicable, to regenerate the capture medium and to compress, transport, and store or otherwise utilize the purified CO<sub>2</sub> in other applications. The act of capturing CO<sub>2</sub> in this method is often accompanied downstream by energy intensive and costly support infrastructure and

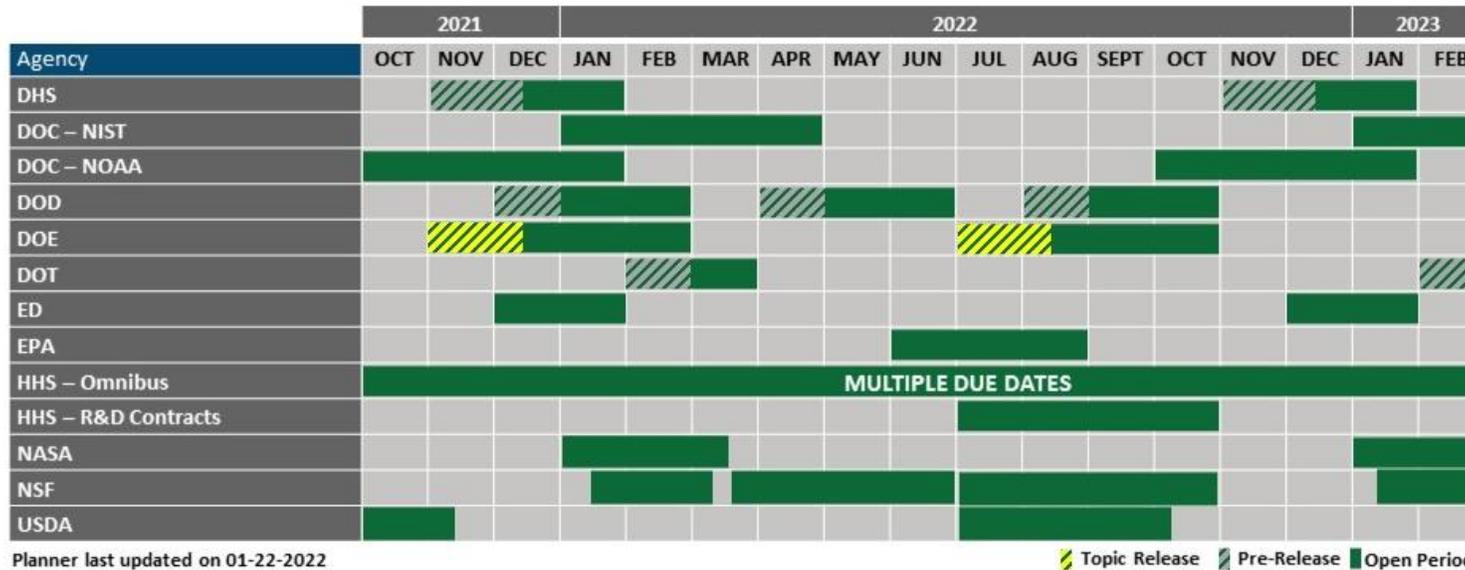
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processes to capture, purify, compress, transport and/or store the captured CO<sub>2</sub>, and to regenerate the capture medium. It may therefore be highly advantageous in terms of energy efficiencies and costs to employ a “reactive capture” approach to carbon capture. 1 In the reactive capture approach, the act of capturing CO<sub>2</sub> and converting it into a higher value product is integrated into one continuous process onsite – thus eliminating the potential need to separately regenerate the capture medium and the need to purify, compress, transport, or store the captured CO<sub>2</sub>. Removing the need for regeneration and compression steps from the carbon capture process could eliminate up to 90% of the energy loss associated with employing a typical amine capture process. 2 It is also possible that the integrated process could significantly reduce capital expenditures as well as provide distributed economic and employment opportunities.

Grant applications are desired for reactive capture approaches that integrate the CO<sub>2</sub> separation from diluted gas streams and the conversion of CO<sub>2</sub> to valuable product(s). The reactive capture process must achieve over 95% carbon capture rates and demonstrate significant progress towards a 30% reduction in the cost and 30% improvement in energy efficiency of carbon capture versus a reference conventional capture process where the acts of capture and conversion are separate. This topic area supports Infrastructure Investment and Jobs Act (IIJA) Title III: Fuels and Technology Infrastructure Investments; Subtitle A: Carbon Capture, Utilization.



# Estimated SBIR Topic Release Schedule



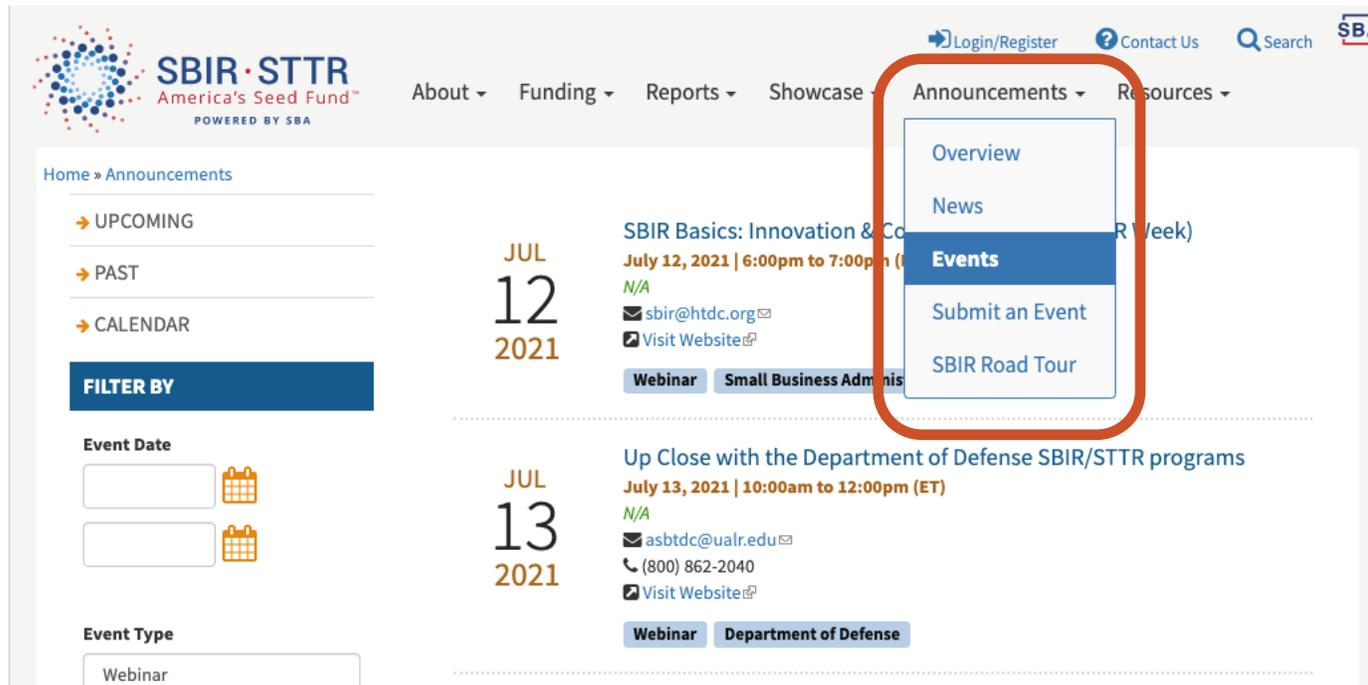
<https://www.sbir.gov/solicitations>

While there are core parts of solicitations that are the same across the SBIR/STTR programs, solicitation guidelines are quite different at different agencies, especially between agencies that provide awards as grants and those that use contracts. The solicitations and topics listed on this site are copies from agencies to be used for general planning purposes, but they may not be the most up-to-date.

For these reasons, you should [visit the agency SBIR program sites](#) to read the official version of the solicitations and download the appropriate forms and rules.

# Take the Next Step

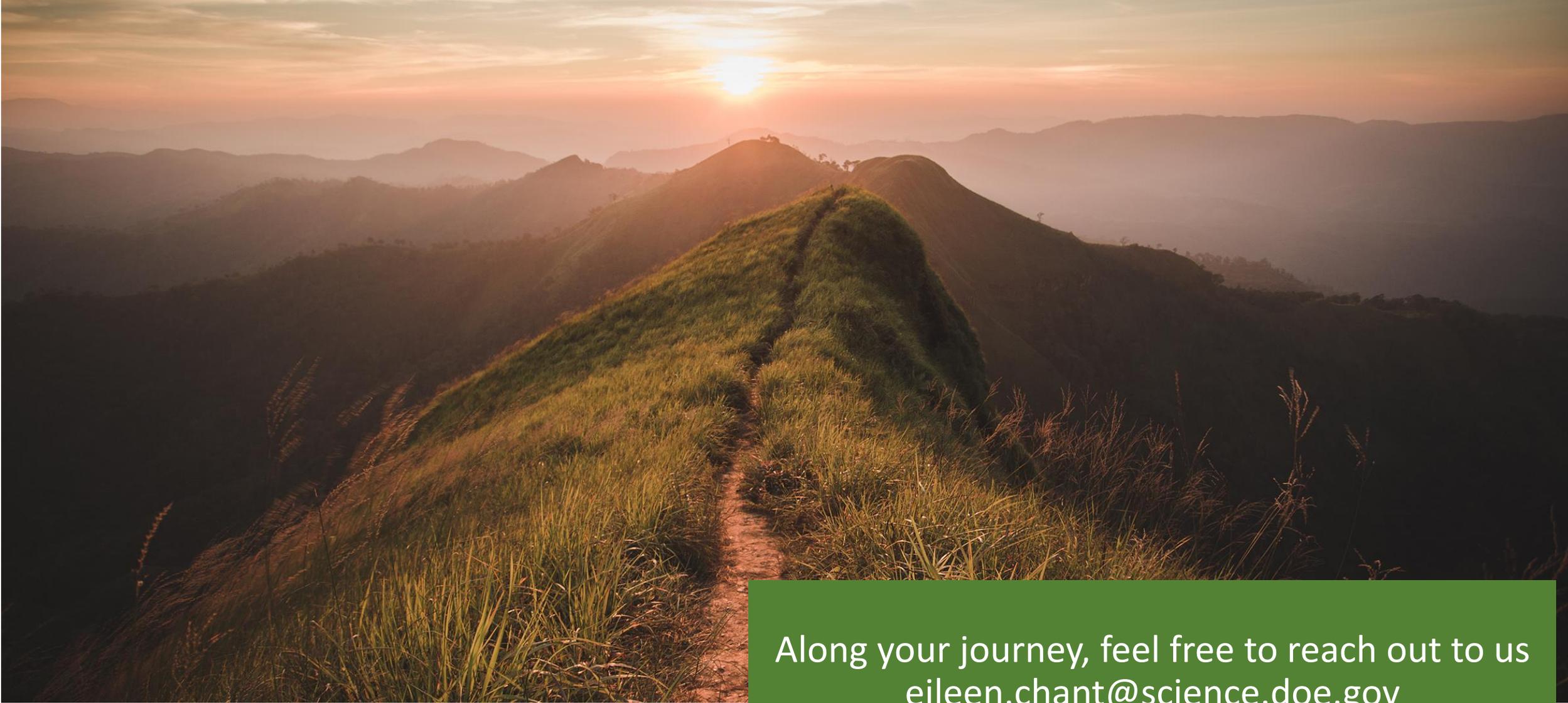
- Attend **SBIR/STTR** training events - <https://www.sbir.gov/events>
- SBIR.gov tutorials - <https://www.sbir.gov/tutorials>
- Review [Is SBIR/STTR A Source of Funding for My Company?](#)



The screenshot shows the SBIR/STTR website's Announcements page. The top navigation bar includes links for Login/Register, Contact Us, Search, and SBA. A dropdown menu is open under 'Announcements', with 'Events' highlighted in blue. Below the navigation, the page displays a list of upcoming events. The first event is 'SBIR Basics: Innovation & Commercialization (1 Week)' on July 12, 2021, from 6:00pm to 7:00pm. The second event is 'Up Close with the Department of Defense SBIR/STTR programs' on July 13, 2021, from 10:00am to 12:00pm (ET). The left sidebar contains filters for 'Event Date' and 'Event Type'.

## Action Items:

- Registrations
- 5-10 keywords → Initial topic search
- Research SBIR support in your state/region



Along your journey, feel free to reach out to us  
[eileen.chant@science.doe.gov](mailto:eileen.chant@science.doe.gov)

[sbir-sttr@science.doe.gov](mailto:sbir-sttr@science.doe.gov)

Call: (301) 903-5707



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