

How DOE Is Supporting Small Businesses to Strengthen Community Partnerships and Workforce Development

Eileen Chant, Outreach Manager, Office of Small Business Innovation Research
and Small Business Technology Transfer Programs

Jasmine Bridges, Commercialization Executive, Office of Technology Transitions

Elizabeth Burrows, Technology Manager, Bioenergy Technologies Office



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October 21, 2021



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- Audio connection options:
 - Computer audio
 - Dial in through your phone (best connection)
- Technical difficulties? Contact us through the chat section, lower right of your screen
- Use the Q&A window to ask questions
- Today's webinar will be recorded and posted to "BETO Webinars":
energy.gov/eere/bioenergy/beto-webinars

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About the Bioenergy Communicators (BioComms) Working Group

Sponsor:

- U.S. Department of Energy (DOE)
Bioenergy Technologies Office (BETO)



BETO & DOE National Laboratory Members:

- Bioenergy communicators, laboratory relationship managers, BETO tech team, and education and workforce development professionals



Purpose:

- Communications strategy for BETO-funded bioenergy research and development

Photo by iStock



Today's Agenda

- I. **Eileen Chant:** DOE's Small Business Innovation Research and Small Business Technology Transfer Programs
- II. **Jasmine Bridges:** Small Business Innovation Research Optimization Efforts
- III. **Elizabeth Burrows:** How BETO Is Broadening Participation in the Bioeconomy through Small Business Partnerships

Photo courtesy of iStock

Today's Presenters



Eileen Chant, Ph.D.

Outreach Manager,
Office of Small Business
Innovation Research and
Small Business
Technology Transfer
(SBIR/STTR) Programs



Jasmine Bridges, M.S.

Commercialization
Executive, Office of
Technology Transitions
(OTT)



Elizabeth Burrows, Ph.D.

Technology Manager,
Bioenergy Technologies
Office (BETO)



Eileen Chant, Ph.D.

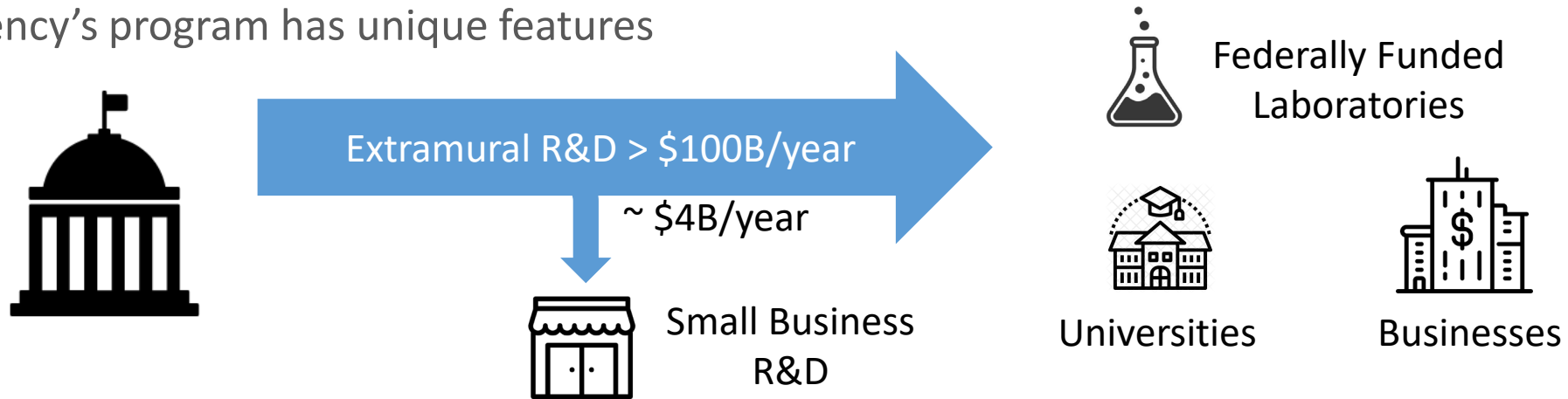
Outreach Manager

SBIR/STTR Programs

Eileen.Chant@science.doe.gov

What is the Federal SBIR/STTR Program?

- A >\$3.5 billion early-stage, non-dilutive research and development (R&D) fund for small businesses*
- A mechanism to fund early-stage, high risk ideas in the private sector
- Program goals include:
 - Using small businesses to stimulate technological innovation
 - Fostering and encouraging participation by socially and economically disadvantaged small business concerns and women-owned business concerns in the SBIR program.
- Each agency's program has unique features



*"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

- Allows non-profit research institution partner
- Principal investigator (PI) employee of small business
- Minimum of 2/3 of R&D must be performed by small business

Small Business Technology Transfer (STTR) est. 1992

- 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
- Minimum of 40% of R&D performed by small business & 30% by RI

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

They are two pots of funding.

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

FY2022 Phase I Funding Opportunity Announcements

Release 1

July (topics) → October (due)

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

Release 2

Nov 8 (topics) → Feb 22 (due)

- Office of Cyber Security, Energy Security, and Emergency Response
- Office of Defense Nuclear Nonproliferation
- Office of Electricity
- Office of Energy Efficiency and Renewable Energy (EERE) **Includes BETO**
- Office of Fossil Energy and Carbon Management
- Office of Fusion Energy Sciences
- Office of High Energy Physics
- Office of Nuclear Energy
- Office of Environment Management

science.osti.gov/sbir/Funding-Opportunities

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
- Bioenergy & Biofuels
- Hydrogen & Fuel Cells
- Solar Power
- Water Power
- Wind Energy
- Advanced Manufacturing
- Efficient Buildings & Vehicles

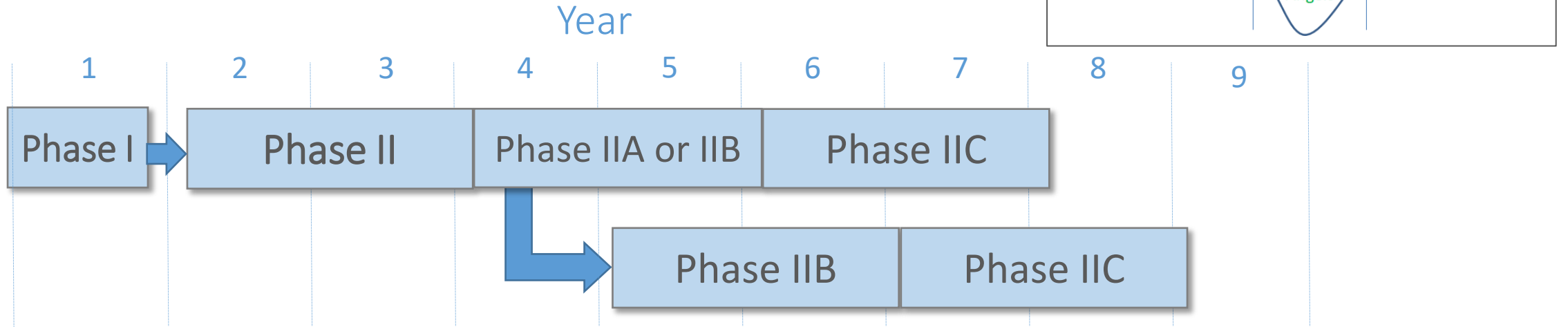
Leadership in Basic Energy and Engineering Sciences

- 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

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 • 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 • \$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

FY2022 Phase I Funding Opportunity Announcements (FOAs)

DOE mission-focused specific topics and subsequent webinar

FOA issued and subsequent webinar

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

Application due date

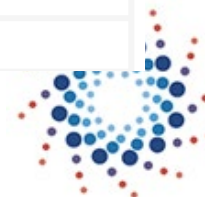
Phase I	Release 1	Release 2
Topics Issued	Monday, July 12, 2021	Monday, November 8, 2021
Document	Phase I Release 1 Topics	
Topic Webinar, week of	Webinar 1: Topics 01 – 23 Slides Webinar 2: Topics 25 - 35 Slides	Monday, November 15, 2021*
FOA Issued	Monday, August 9, 2021	Monday, December 13, 2021
Document	DE-FOA-0002554	
FOA Webinar	Friday, August 13, 2021 Register	Friday, December 17, 2021*
Letters of Intent (LOI) Due	Monday, August 30, 2021 5:00pm ET	Monday, January 3, 2022 5:00pm ET
Non-responsive LOI Feedback Provided	Monday, September 20, 2021	Monday, January 24, 2022
Full Applications Due	Tuesday, October 12, 2021 11:59pm ET	Tuesday, February 22, 2022 11:59pm ET
Award Notification	Monday, January 03, 2022**	Monday, May 16, 2022**
Projected Grant Start Date	Monday, February 14, 2022	Monday, June 27, 2022
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		



U.S. DEPARTMENT OF
ENERGY

Office of
SBIR/STTR
Programs

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



SBIR · STTR
America's Seed Fund

Free Application Assistance

Phase 0 for first-time DOE applicants:

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

Recorded topic and FOA webinars

Online learning center for application process including video:
<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

Application Review Process

External Peer Review

- 3 technical reviews
- 1 reviewer for the Phase II commercialization plan

Review Criteria

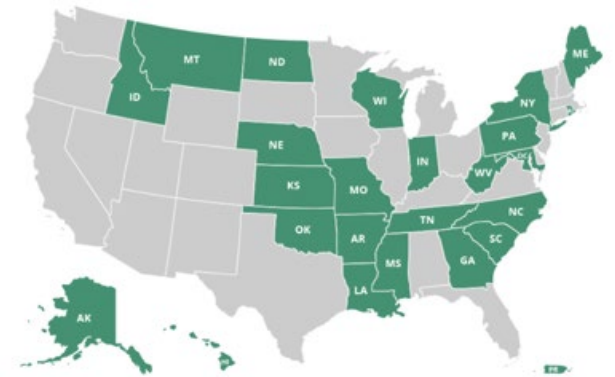
- Strength of the scientific/technical approach
- Ability to execute
- Impact

Selection

- Most highly ranked applications are awarded based on available funding

Diversity, Equity, and Inclusion (DEI)

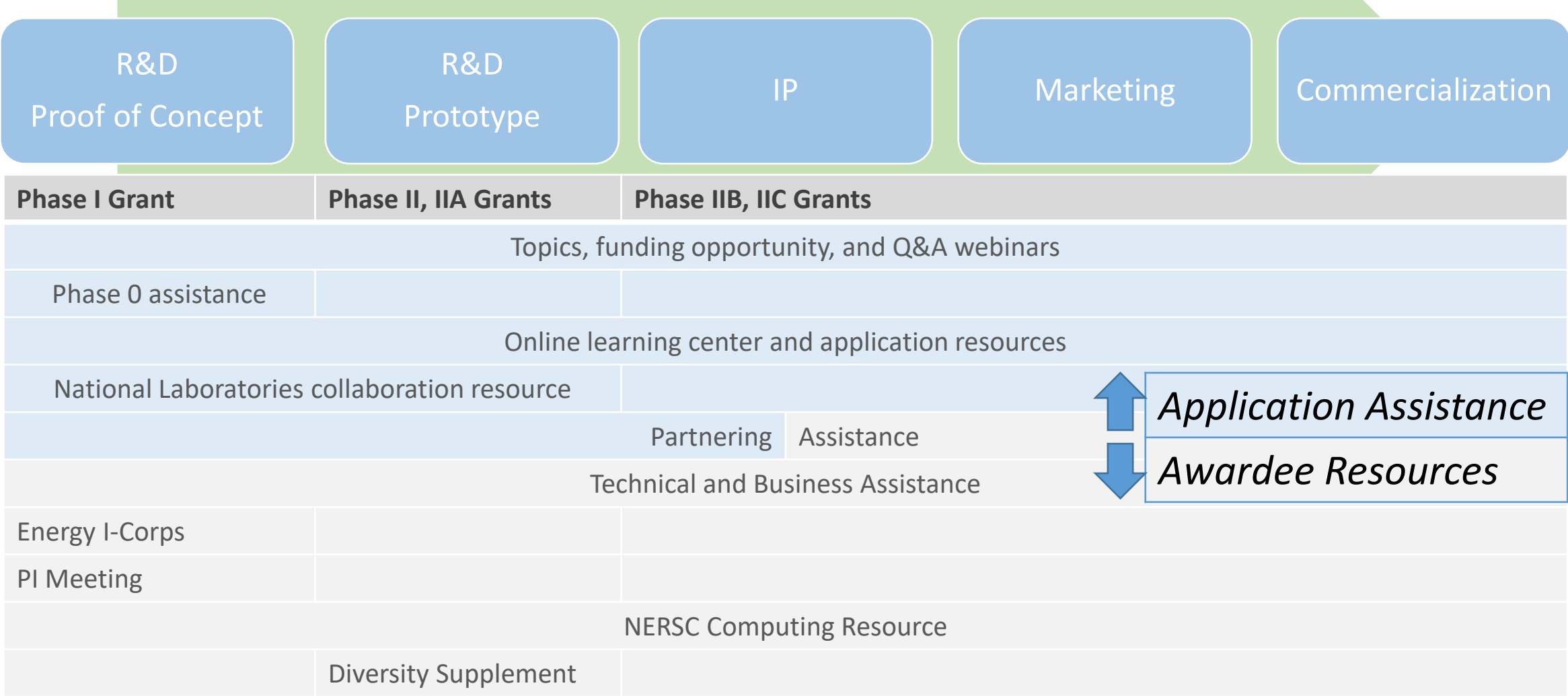
- Policy directive to foster and encourage participation by socially and economically disadvantaged small business concerns and women-owned business concerns in the SBIR program.
- DEI at DOE SBIR/STTR is critical to our success
- Who are the underrepresented groups that are tracked?
 - Women-owned small business
 - Socially and economically disadvantaged small businesses
 - Historically underutilized Business Zones (HUBZones)
 - Small businesses in underrepresented states
- Please visit [CFR 124.103](#) and [CFR.124.104](#) for more information



What Are We Doing To Advance Diversity?

- The Office of Diversity, Inclusion and Research Integrity within the Office of Science is leading efforts to both examine and improve practices to advance diversity.
- The Office of SBIR/STTR programs has created a couple of programs with a specific focus on broadening participation:
 - Our Phase 0 application assistance program (free of charge) provides first-time applicants with one-on-one coaching with Phase I application experts.
 - Our new Diversity Supplement program provides Phase II awardees an opportunity to diversify their workforce and provide STEM students with exposure to entrepreneurial careers.
- We engage with under-represented communities to encourage participation in the SBIR/STTR programs. Please contact us (eileen.chant@science.doe.gov) if you would like us to engage in outreach with your community!

Support Programs along the Path to Technology Commercialization



Office of
SBIR/STTR
Programs

Also visit [SBIR.gov](https://www.sbir.gov)





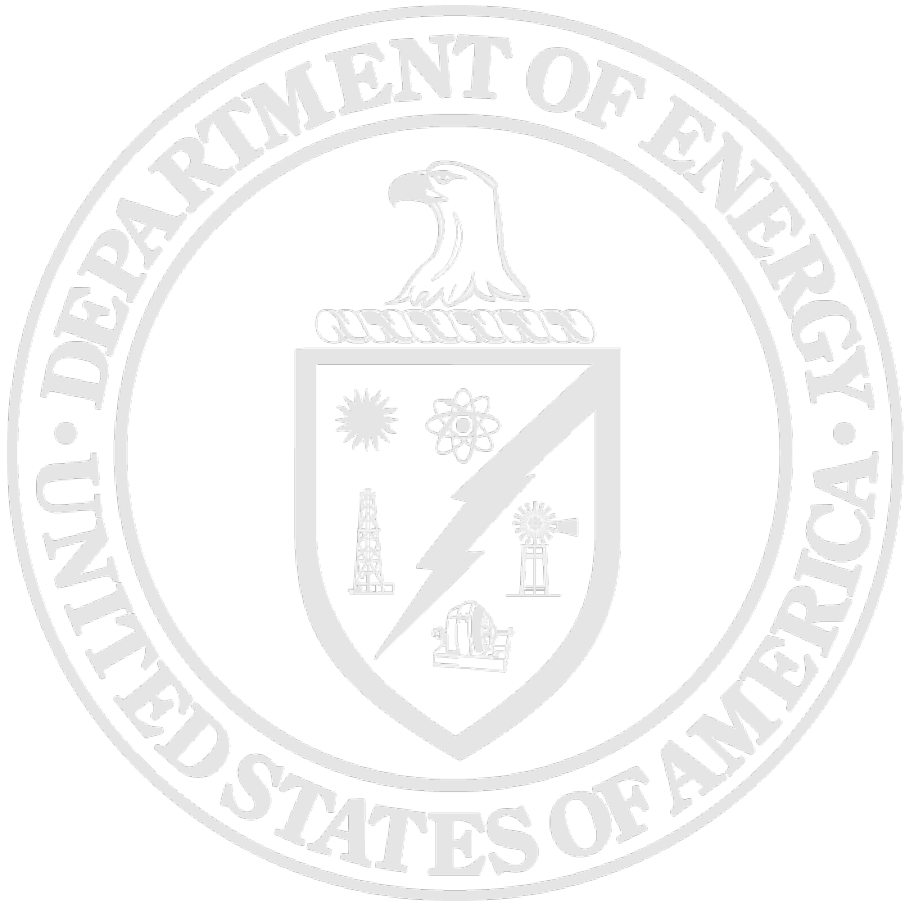
Jasmine Bridges, M.S.

Commercialization Executive

Office of Technology
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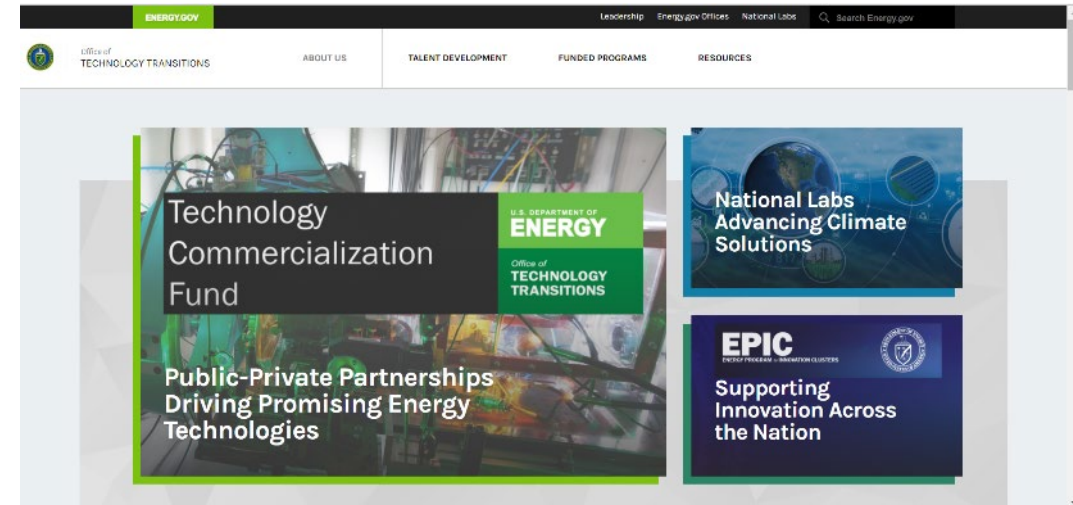
Goals



- Explain OTT
- Share some efforts OTT is leading
- Share SBIR Optimization effort

OTT's Statutory Mission (Energy Act 2020)

- Expand the **commercial impact** of DOE research investment
- Oversee delivery of the DOE strategic goals for **technology commercialization**
- Streamline **information and access** to DOE's **national labs and sites**



The Office of Technology Transitions

The Office of Technology Transitions (OTT) serves as the central hub for the technology transfer activities across the Department of Energy's extensive R&D enterprise. At OTT, we work to ensure groundbreaking scientific discoveries achieve their maximum public return and impact, advancing the economic, energy, and national security interests of the United States. Getting that done means streamlining access to our user facilities at our 17 National Labs and sites, our world-class scientific researchers, and our sprawling portfolio of intellectual property – fostering strong internal and external partnerships that guide innovations from the lab toward the marketplace.

Technology transfer is a complex and dynamic process, and OTT is here to help you connect with DOE-powered innovation to advance discoveries and commercialize transformative, impactful technologies.

Success Stories & Technology Spotlights

Access OTT's latest technology spotlights and success stories across a variety of topics and technologies.

Lab Partnering Service

The Lab Partnering Service provides a single location to connect with leading DOE National Laboratory technical experts.

Areas OTT is working on that support SBIR/STTR

- Energy I-Corps



- Lab Partnering Service



- DOE SBIR Optimization



Energy I-Corps for SBIR/STTR

What is it?

- Energy I-Corps for SBIR/STTR program is designed to **educate awardees on entrepreneurial concepts and practices**.
- Training includes a series of **interactive workshops and webinars** focusing on performing **customer discovery, identifying market segments, and crafting value propositions**.

Who can apply? How are participants selected?

- **EERE Phase I awardees** are eligible to apply for an intense two-month entrepreneurial training from experienced instructors at **no cost to participants**.
- Participants are **selected based on their commitment statement on why I-Corps training will improve their commercialization efforts** (in 150 words or fewer) along with considerations for balance across topic areas.
- FY 2020 Phase I Release 2 awardee cycle was the first cohort for the program. Cohort 2 has commenced for FY 2021.



***Please Note:** Time spent by the participants for the Energy I-Corps training cannot be directly billed to an SBIR/STTR award because these are not R&D expenses.*

<https://science.osti.gov/sbir/Awardee-Resources/Energy-I-corps>



Technology Commercialization Fund

U.S. DEPARTMENT OF
ENERGY

Office of
**TECHNOLOGY
TRANSITIONS**

Public-Private Partnerships Driving Promising Energy Technologies

National Labs Advancing Climate Solutions

EPIC

ENERGY PROGRAM for INNOVATION CLUSTERS



Supporting Innovation Across the Nation

The Office of Technology Transitions

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Lab Partnering Service

Now LIVE!

The NEW Climate Change Solutions site on Lab Partnering Service is here! This dedicated climate site digitally aggregates and categorizes innovations, experts, and facilities across DOE's National Lab complex to drive partnerships with industry, government, and academia in accelerating transformational clean energy technologies.

Ready to start exploring? Click [here](#).



Discover. Connect. Partner.

One of the best ways to expand the commercial impact of the Department is raising awareness to investors and industry about the capabilities and expertise housed among the agency's 17 National Laboratories and facilities.

The DOE Office of Technology Transitions' Lab Partnering Service[®] (LPS) offers unprecedented access to the world's most advanced scientific facilities and researchers across the Department's National Lab complex. LPS provides investors—and other parties looking to advance energy innovation—a single online platform to connect with leading DOE National Laboratory technical experts to quickly answer innovation questions, as well as discover opportunities for building partnerships. Visitors can easily search hundreds of technologies, patents, experts, facilities, and success stories tailored to their individual needs.

Whether you are a small or large business, VC, university, or non-profit, LPS offers endless opportunities to connect with DOE Labs to take your research or product to the next level.

LPS Features & Highlights

LPS Features & Highlights

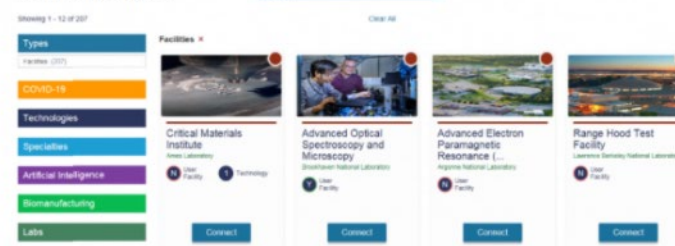
Facilities Database

LPS houses over 200 facility descriptions[®] to help visitors gain an understanding of how to leverage DOE facilities to discover, innovate, and tackle the world's most challenging scientific issues.

Lab Partnering Service Discovery

Use the LPS faceted search filters, or search by keywords, to narrow your results.

Facilities search results

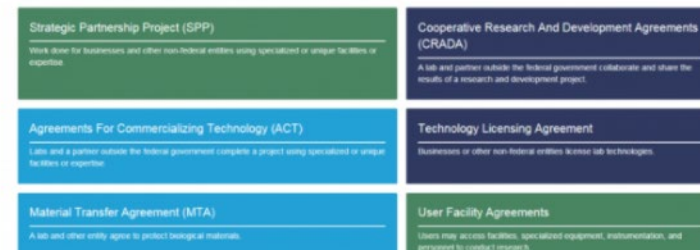


Subject-specific Portals

LPS features dedicated subject portals, including COVID-19[®], Space[®], and Artificial Intelligence[®].

Partnering Mechanisms

Working with DOE's National Labs can transpire through several different partnering mechanisms[®]. LPS and OTT can help you navigate these during the partnering process.



Lab Partnering Service

Technical Summaries

Browse hundreds of technical summaries or to gain insight into technologies associated with patents, patent applications, and publications ready for licensing.

Lab Partnering Service Discovery

Use the LPS faceted search filters, or search by keywords, to narrow your results.

Technology Summaries search results

Showing 1 - 12 of 1299

- Types
- Technology Summaries (1299)
- COVID-19
- Technologies
- Specialties
- Artificial Intelligence
- Biomanufacturing
- Labs

Technology Summaries

Endoscopic Radiation Revolutionizes Cancer...

Synthesizing Amorphous Pharmaceuticals Usi...

ARG-US RADIO FREQUENCY IDENTIFICATION (RFI...

Layered CU-based electrode for high-dielec...

Connect

Visual Patent Search

Looking for a patent? The LPS Visual Patent Search enables a unique, visually facilitated search of available patent content. This portfolio contains over 40,000 published US patent applications and issued US patents resulting from DOE funded R&D.



COVID-19 Technical Assistance Program



In support of efforts against the global pandemic, OTT launched the COVID-19 Technical Assistance Program (CTAP). CTAP provides targeted funding for DOE's National Labs to offer short-term engagements with U.S. external entities in coronavirus-related projects, one way for innovators challenged with technical burdens to take advantage of the cutting-edge researchers and facilities across the DOE Lab complex.

To learn more about the program, including eligibility requirements and the application process, click [HERE](#).


Ready to explore? Visit OTT's Lab Partnering Service [HERE](#).


Lab Partnering Service


The screenshot shows the homepage of the Lab Partnering Service (LPS) website. The URL in the browser is <https://www.labpartnering.org>. The header includes navigation links: Explore, Patents, Funding, and How to Partner. The main banner features the text "Access to DOE Experts, Innovations, and Labs" and "LPS brings together patents, intellectual property, and expertise from across the U.S. Department of Energy (DOE) national labs." Below this is a search bar labeled "Discover" and a section "or browse by industry:" with buttons for "Healthcare & Life Sciences", "Information & Communications Technology", and "Automotive". A "Browse Everything!" link is also present. On the left, there is a "Climate Related Resources" section with a yellow vertical bar and a thermometer icon. The text describes how LPS has assembled hundreds of national laboratory innovations and experts to help create innovative solutions in related to climate change. On the right, there is an "IMPEL" section with a photo of a building and text about driving innovation to impact. It mentions that IMPEL is helping launch ideas, innovators, scientists, and companies that will transform the built environment. It also states that IMPEL is a program funded by U.S. Department of Energy's Building Technologies Office (BTO) and implemented by the Lawrence Berkeley National Laboratory (Berkeley Lab). It offers access to powerful public-private tech-to-market pipelines. A link to "Apply here for the transformative IMPEL+ workshops" is provided.

This section displays a grid of service tiles for the Lab Partnering Service. The tiles are arranged in two columns and three rows. The first row includes "CLIMATE RESOURCES" and "EXPLORE PATENTS". The second row includes "ASK AN EXPERT" and "EXPLORE PATENTS". The third row includes "EXPLORE TECHNOLOGIES" and "DISCOVER A FACILITY". Each tile has a header image, a title, a description, and a "LEARN MORE" button. The "ASK AN EXPERT" tile features a photo of a woman and lists featured experts: Mike Tucker and Ahmet Kusoglu. The "EXPLORE PATENTS" tile features a photo of a person's eye and lists featured patents: Energy (10%), Engineering (10%), Devices (10%), Computer Sciences (10%), Math and Physical Science (10%), Sensing, Detecting, Monitoring (10%), and Analysis (10%). The "EXPLORE TECHNOLOGIES" tile features a photo of a robotic arm and lists featured technologies: Additively Manufactured Crystalline Materials. The "DISCOVER A FACILITY" tile features a photo of a building and lists featured facilities: Laboratory for Energy Applications for the... The "CLIMATE RESOURCES" tile has a "LEARN MORE" button. The "EXPLORE PATENTS" tile has a "LEARN MORE" button. The "EXPLORE TECHNOLOGIES" tile has a "LEARN MORE" button. The "DISCOVER A FACILITY" tile has a "LEARN MORE" button.

Lab Partnering Service

 Ask an Expert

**Mike Tucker**

**Ahmet Kusoglu**

[ASK A NATIONAL LAB EXPERT](#)


DOE energy experts will help answer your questions. Find and quickly connect with national lab experts by searching for technologies and keywords.

Featured experts:

Positions in the U.S. Department of Energy

We are pulling together climate related [resources](#).


Lab Partnering Service Discovery


 Filters


View: Labs ▾


View: Content Type(1) ▾


[All Laboratories](#) | [Experts](#)


 Aerospace & Defense ▾


 Automotive ▾


 Energy & Utilities ▾


 Healthcare & Life Sciences ▾


 Information & Communications Technology ▾


 Manufacturing & Industrial ▾


 Micro and Nanotechnology ▾


 Experts


**Daniel Abraham**
Argonne National Laboratory


 Experts


**Mark Petri**
Argonne National Laboratory


 Experts


**Jeff Heikoop**
Los Alamos National Laboratory


 Experts


**Michael Starr**
Sandia National Laboratories


 Experts


**Jay Johnson**
Sandia National Laboratories


 Experts


**Tina Nenoff**
Sandia National Laboratories


 Experts


**Yuliya Preger**
Sandia National Laboratories


 Experts

**Patrick Balducci**
Argonne National Laboratory

 Experts

**Andrea Jokisaari**
Idaho National Laboratory

 Experts

**Ryan Coe**
Sandia National Laboratories

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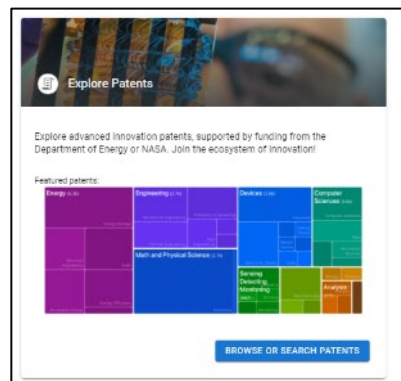
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Lab Partnering Service



Visual Patent Search

Filters

Reset All

Expand All

Find

Inventor

0 / 35,673

Lab

0 / 32

Patent Status

0 / 2

TaxonomyTag

0 / 873

Time Filter: Patent Status Date

Enter search terms...

Search

Reset All

Export

About

Treemap

Zoom: All

Energy (4.1k)

Engineering (2.1k)

Math and Physical Science (2k)

Computer Sciences (1.1k)

Devices (2k)

Sensing Detecting Monitoring (731)

Fabrication and Manufacturing (724)

Patents 31,356

Sort: Patent Status Date

Metal fluoride passivation coatings prepared by atomic layer deposition for Li-ion batteries

11121355 • Issued: 09/14/2021

The fabrication of robust interfaces between transition metal oxides and non-aqueous electrolytes is one of the great challenges of lithium ion batteries. Atomic layer deposition (ALD) of aluminum tungsten fluoride...

Argonne National Laboratory

Lithium metal synthesis

11111590 • Issued: 09/07/2021

System and methods for producing lithium metal from an anodic half-cell and a cathodic half-cell with a lithium permeable membrane therebetween.

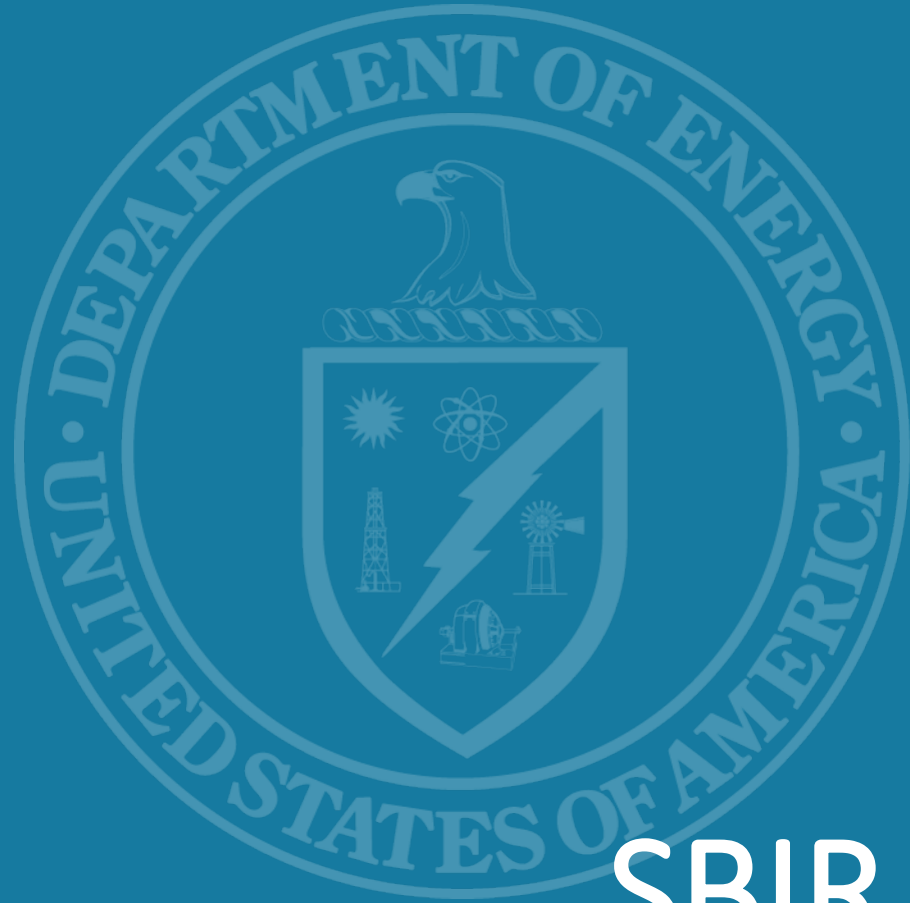
Argonne National Laboratory

Electrolyte for high voltage lithium-ion batteries

11108086 • Issued: 08/31/2021

No text

Argonne National Laboratory



SBIR Optimization Effort

What is SBIR/STTR?

SBIR/STTR is the largest government funding program for small business R&D. The goals¹ are to:



- Utilize **small business** for federal R&D
- **Stimulate and commercialize** federal R&D-funded innovation
- Foster and encourage participation in innovation and entrepreneurship by **women and socially/economically disadvantaged individuals**
- **STTR (only):**
 - Foster technology transfer through cooperative R&D between small businesses and **research institutions**

1. Program goals and requirements are in U.S. [Title 15 § 638 of the U.S. Code](#) – “Research & Development”

SBIR Optimization

We recognize there are **opportunities to further enhance** SBIR/STTR programs. All aspects of the program are being considered including:

- Program Structure
- Operations
- Stakeholder Engagement
- Technical Assistance
- Diversity, Equity, and Inclusion
- Policy Implications
- Metrics
- Funding
- Commercialization



SBIR Optimization Plan

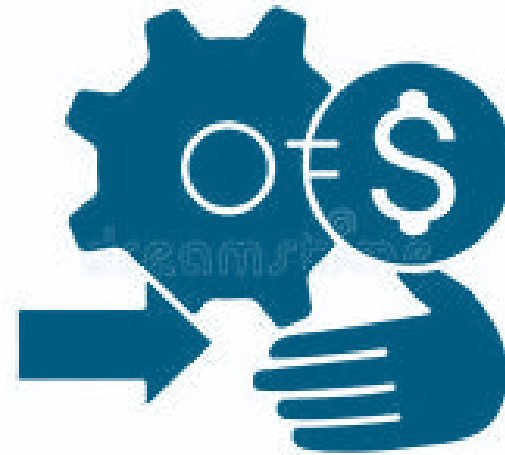
Commercialization Executive (within Office of Technology Transitions) is **speaking with a cross-section of SBIR/STTR Program Stakeholders** including:

- DOE Program Managers
- Small Businesses
- Incubators/Accelerator
- Financing Community
- Policy Leaders
- Reviewers
- National Labs
- Diversity Experts
- Contractors
- Universities

Improvement Opportunities for SBIR

Through observation, analysis, stakeholder interviews and research, opportunities to improve and optimize SBIR performance lie within two key goals and mission areas:

Diversity and Commercialization

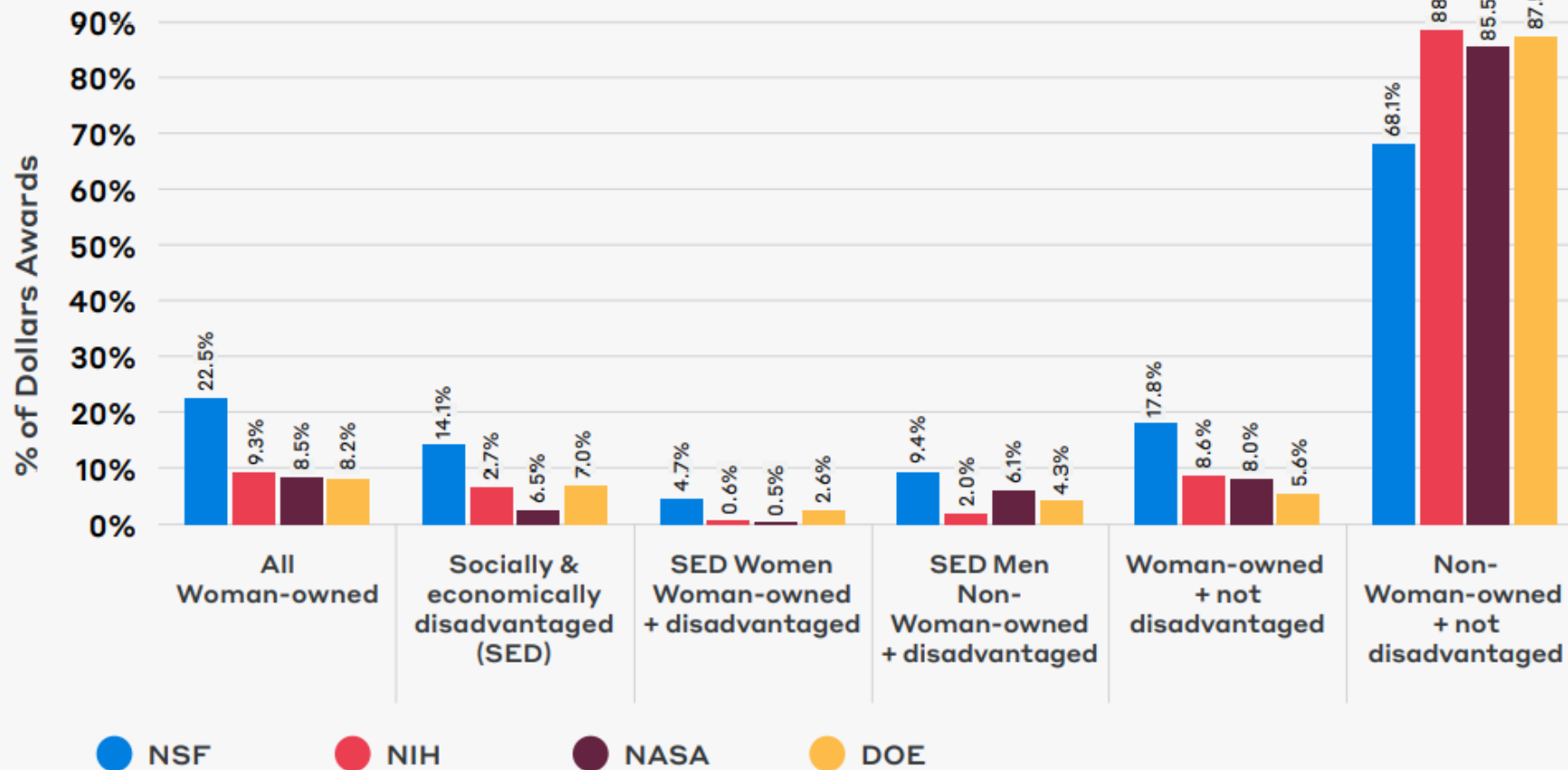


SBIR Award Data

Percent of Total SBIR/STTR Awards in FY19

Phases 1 & 2

(% of Dollars Awarded)*



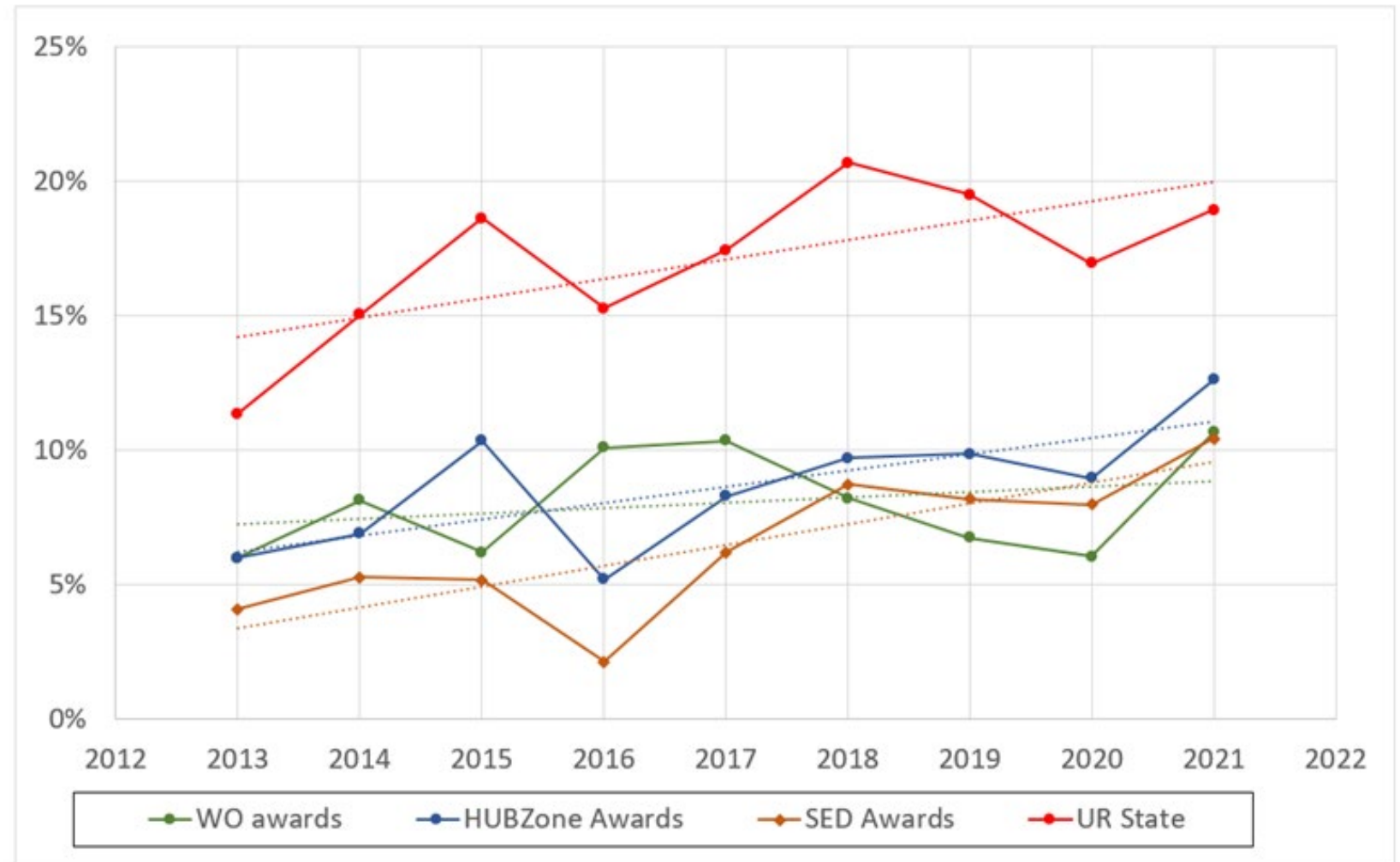
*Data from <https://www.sbir.gov/sbirsearch/award/all>

Source: [Turbocharging Small Business Innovation](#),
Bipartisan Policy Center
Jasmine Bridges, March 2021



Phase I Historical Underrepresented Groups Award Rates

Our analysis of industries that participate in the DOE SBIR/STTR program using 2017 census data predict that the women ownership rate for these industries is approximately **17%**, and the socially and economically disadvantaged SED ownership rate is approximately **18%**.



SBIR Optimization Next Steps

Next steps are to finalize analysis and recommendations.
Compile report for DOE.

I seek to speak with:

- **Diverse applicants** (awarded and not awarded)
- **Stakeholders** who focus on **diversity and/or diversity in STEM**
- **Previous applicants** (awarded and not awarded)





Elizabeth Burrows, Ph.D.

Technology Manager &
SBIR/STTR Topic Manager
Bioenergy Technologies Office

elizabeth.burrows@ee.doe.gov

BETO FY21 Pilot: Broadening Participation as Core Topic Content

Subtopic 10a. Small Business Bioenergy Technologies Increasing Community Partnerships

- Innovative research proposals from bioenergy small businesses to develop a community-scale preliminary design package of their products and/or processes and engage community stakeholders.

Subtopic 10b. Cultivating a More Competitive Bioeconomy Through Strengthening Small Business Workforces

- Creation of research-driven workforce development program or tool that can be widely applicable for the bioeconomy, establishing a partnership with business experts in bioenergy and/or inclusive workforce development to improve the commercialization potential of the business partner.

BETO FY21 Pilot: Broadening Participation Focus Throughout

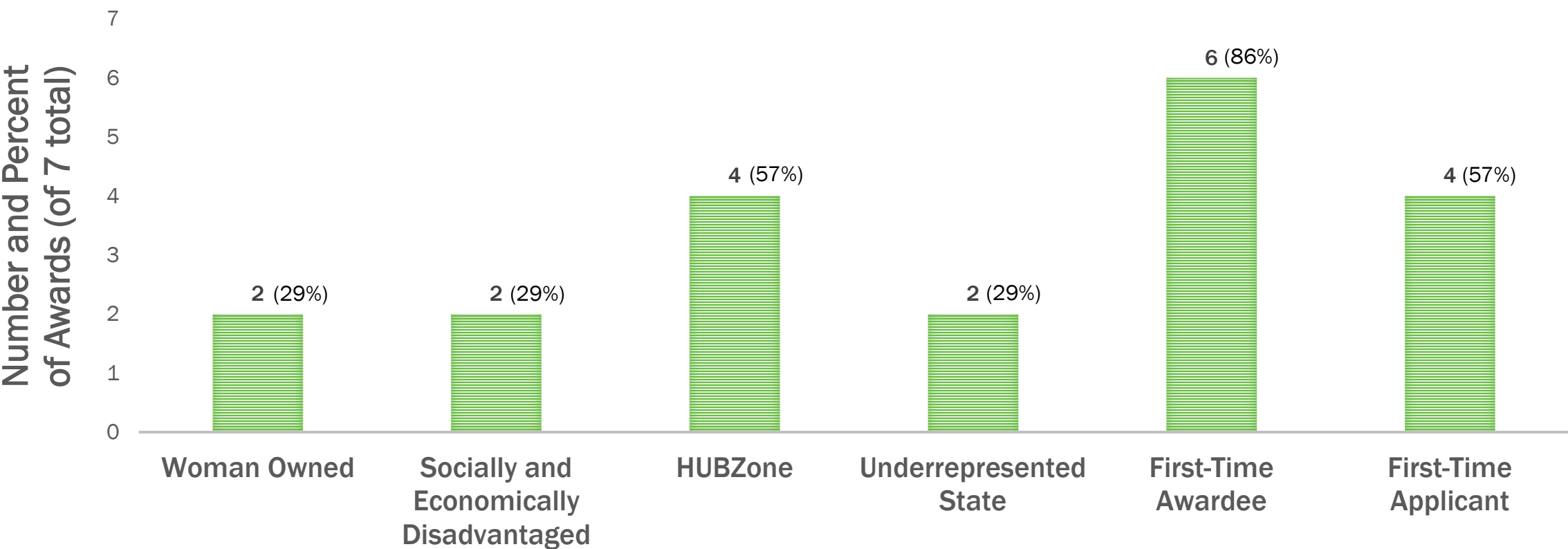
In addition to core topic content:

- Wide amplification of published topic and applicant resources
- Diverse reviewer recruitment
 - For technology AND community partner/workforce aspects
- Community/workforce aspect treated as an R&D component of the project
- Unique Teaming Mechanism:

Broadening Participation in the Bioeconomy through Small Business Partnerships

BETO is compiling a **Partners List**, wrote a [blog](#), and hosted a **webinar** to facilitate the widest possible national participation in the formation of teams for this topic. The Partners List allows organizations who may wish to participate in an application to express their interest to potential

FY21 SBIR Phase I Award Recipients: Topics 10a and 10b – Notified May 19, 2021

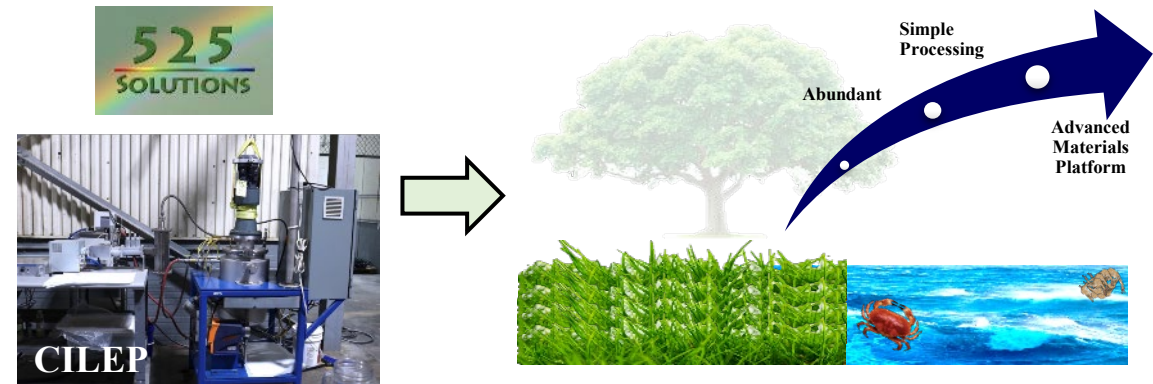


Metrics Tracked by SBIR/STTR Office

525 Solutions, Inc. – SBIR FY21 Phase I Project “Waste Biomass Valorization Through Strategic Partnerships”

Integrate 525’s chitin-ionic liquid (IL) extraction process (CILEP) near the shrimp shell waste process facility in Bayou la Batre, AL, to build supply to help the local fishing community and an educated entrepreneurial base to develop products to drive demand.

The Technology - Ionic Liquids Processing of Biomass as Platform for Transformational Technologies to Replace Plastics



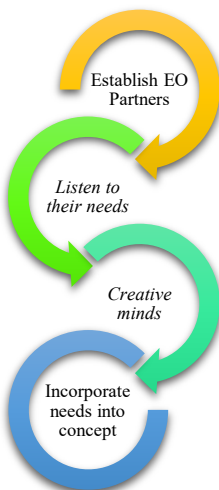
- Complete the engineering work necessary to design an operating CILEP system
- Techno-economic evaluation of the CILEP process with community input

Outreach and Education - Bring Community Engagement Into Adopting the Technology and Get It Implemented



Hale Empowerment
Revitalization Organization
(HERO)

- Form a Community of Stakeholders Partnership, linking members from geographically diverse areas of Alabama: seafood processing businesses, non-profit organizations, high schools, community colleges, technology centers, universities
- Recruit, encourage, teach, and support creative minds



The Team

Gabriela Gurau, PhD
(525)

Robin D. Rogers, PhD
(525)

Jonathan R. Bonner, PE
(consultant)

Karen Boykin, PhD
(HERO/UA)

Conceptsheon Hall
(HERO)

Project Impact:

- Revitalize economically depressed areas in Coastal Alabama, and elevate underrepresented groups from the nearby Alabama Black Belt with low employment, limited sources of income or with special environment sensitivity
- Stimulate community partnership as an integral part of the processing of biomass into bioproducts
- CILEP system will serve as a reproducible model in the community to follow for how a small-scale, modular biorefinery process can work as a powerful economic stimulus driver useful for community leaders, industry, educators, and students
- Collaborate with local citizen scientists and innovators, local businesses and finance to assess new business opportunities for the products, technologies, and innovations
- Provide transitional knowledge illustrating to underutilized communities the potential for high biomass industries, involve students and community stakeholders, to give them a vocabulary and resources to recognize, explore, and capitalize on opportunities stemming from a national goal of net-zero carbon emissions by 2050.



High Yield Bioenergy Crop Production for Fertilizer Runoff Capture, Soil Stabilization, and Soil Regeneration in Northern California - DE-SC0021865



Feasibility

Conduct a feasibility study for XanoGrass™ bioenergy crop production to provide ecosystems services, capture carbon, and generate revenues for local farmers.



MVP

Determine the most valuable product(s) (MVP) for bioenergy production using XanoFiber™ produced from XanoGrass™.



Survey

Create a survey to evaluate knowledge of, attitudes towards, and willingness to produce bioenergy crops by farmers and landowners.



Education

Develop educational materials on the economic and environmental benefits of bioenergy crop production.



Test Planting

Plant a small test plot of XanoGrass™ bioenergy crop at the City of Colusa's wastewater treatment plant.

Hexas is working with local organizations, farmers, and businesses in a holistic approach to bioenergy crop production in agricultural communities.



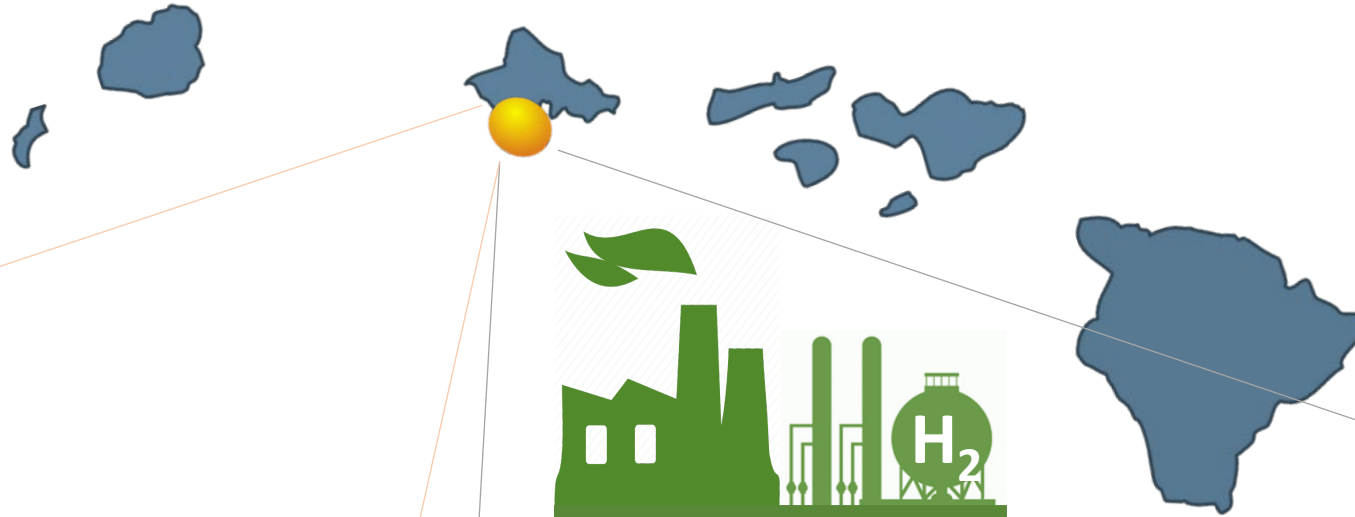
Aloha Carbon:

Community-Informed Bioenergy Projects from Cellulosic Urban Wastes

Phase I SBIR Awardee:



Simonpietri
Enterprises



Problems we are tackling:

>560 million tons of C&D waste landfilled each year in the U.S.A.



- ❑ More than 2X the municipal solid waste generated annually
- ❑ Contaminated with treatment chemicals, paint, and glue
- ❑ Difficult to re-use in power plants, mulch, or compost

Solutions we are developing:

Biofuel and Biopower by gasifying “dirty” C&D waste



- ✓ 3 project design spirals with community input
- ✓ Native Hawaiian voices are central to the conversation
- ✓ 97% lower greenhouse gas lifecycle emissions than petroleum

“Novel Design for Biomass Renewable Energy Community Education Site” by [All Power Labs](#) with the [Epic Institute](#) and [The Plant](#)

The partners will do **community outreach** to **sequester carbon** with local partners such as **community farms** and gardens, as well as **individual households** in and around **Yonkers, New York**.



**Site of The Plant
In Yonkers, NY**

APL's mobile energy solution

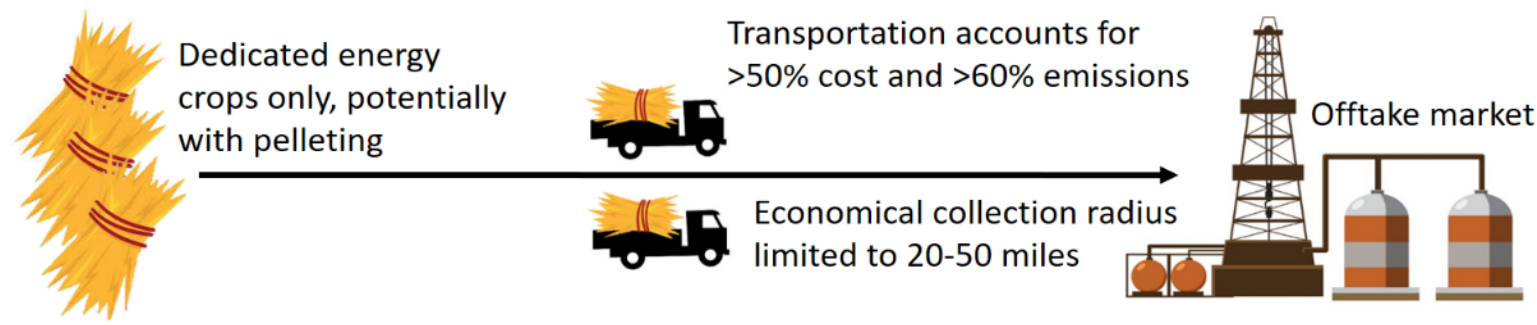


APL's waste-to-energy mobile units create **biochar**, a stable form of carbon that persists in soil for **centuries**, as well as clean, **renewable energy**.

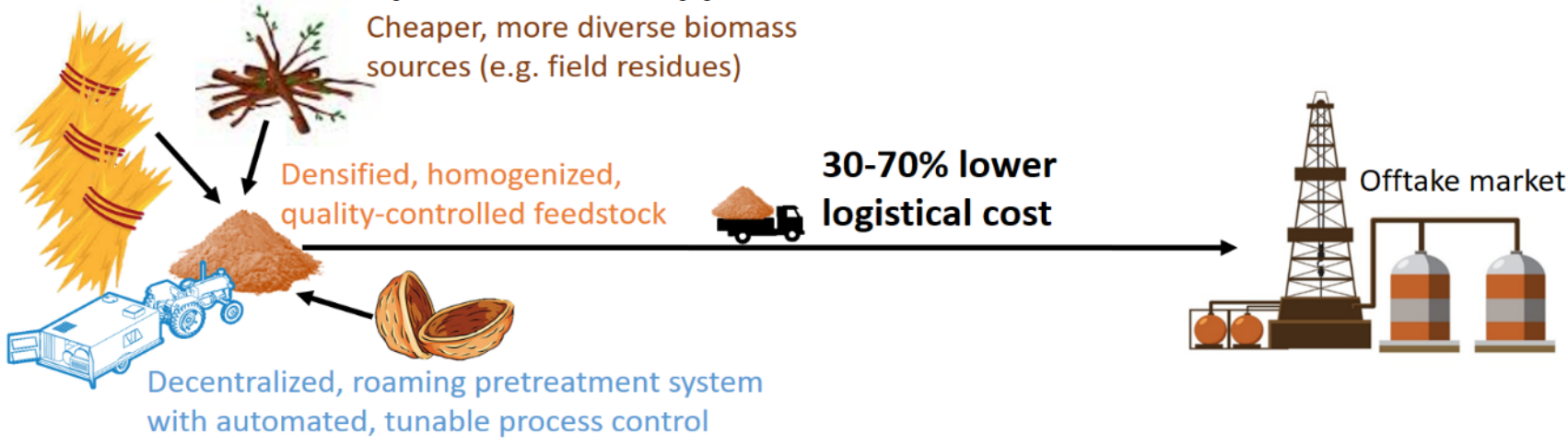
Portable, Community-Scale Biomass Pretreatment Systems to Reduce Feedstock Procurement Costs

Takachar Limited (info at takachar.com)

How it is done today



Our decentralized pretreatment approach



Local stakeholders engaged:



Vegetation management contractors, sort yard, and power plant operators
Various nearby farmers



iZen is a talent empowerment and EdTech startup, focused on inclusive innovation and learning for developing employable talent and future-ready workforce.

As part of this SBIR, iZen is building a solution that will deliver education and training programs to people with/without internet and with/without computers, anywhere including rural areas.

With this solution, iZen will:

1. Develop a platform to provide “affordable-access” to education/training to any corner of the world
2. Offer their existing skill-development programs in emerging tech areas on this platform
3. Develop eLearning certification programs for the bioeconomy, aligned with the industry job roles, for building foundations and to develop practitioner-level skills
4. Open the platform for other content providers to expand to overall STEM and other areas

iZen strongly believes that “everyone in or aspiring to enter the bioeconomy should have accessible, inexpensive, and reliable training at all levels.”

Affordable-access to training can make a significant difference in developing workforce and in addressing diversity and inclusion challenges – for the bioeconomy and overall.

Problem:

People of color, rural communities, impoverished communities, and small business enterprises are not participating in the bioenergy sector, and they lack clear access to bioenergy employment and business opportunities. There is a labor shortage in the bioenergy sector, and there is an enormous equity gap for minorities. There has been a lack of representation for people of color, who have long faced entry barriers into the energy efficiency and renewable energy fields.

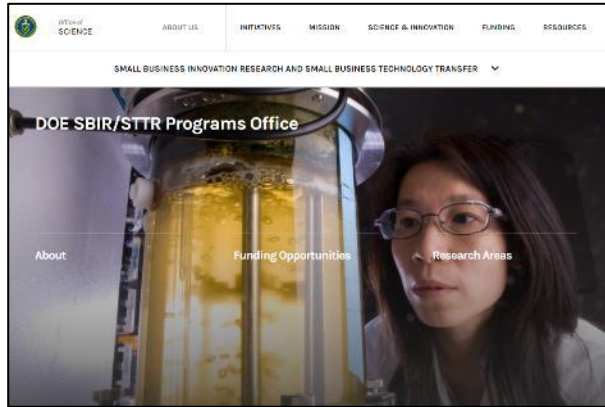
Solution – Pathways to BioPower

The program will deliver a smart technology workforce platform for the bioenergy industry. The platform uses artificial intelligence, brain-based synaptic learning, adaptive learning, and advanced scientific visualization to enhance opportunities for people of color and minority/women/disadvantage business enterprises to enter the bioenergy fields.

Dr. Alice Prince, Info@pathwaysunited.org



Thank you!



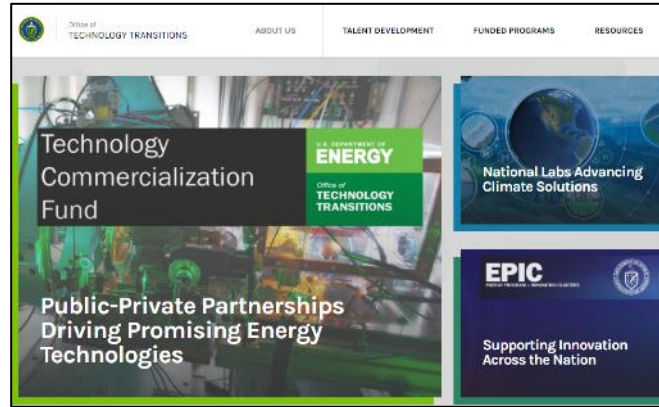
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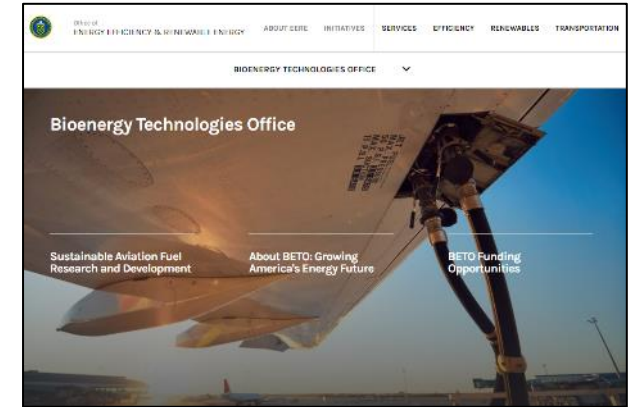
OTT

Website:

[energy.gov/technologytransitions/
office-technology-transitions](https://energy.gov/technologytransitions/office-technology-transitions)

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Webinar Recording: energy.gov/eere/bioenergy/beto-webinars

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