

PITTSBURGH 2019

APRIL 16-18, 2019

Office of Technology
Transitions

Clara Asmail
Deputy Director for Policy & Practice

New American Energy Era



18th Annual DOE Small Business Forum & Expo
APRIL 16 – 18, 2019 | PITTSBURGH, PA

- 17 world-class institutions that constitute the most comprehensive research and development network of its kind.
- An enduring science and technology powerhouse comprised of more than 20,000 scientists and engineers who deliver new discoveries and provide world-class technological capabilities.

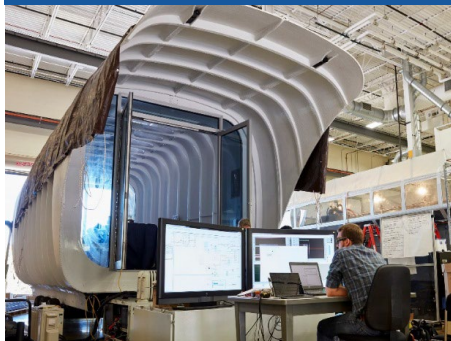


Ames Laboratory (Ames)
 Argonne National Laboratory (ANL)
 Brookhaven National Laboratory (BNL)
 Fermi National Accelerator Laboratory (FNAL)
 Idaho National Laboratory (INL)
 Lawrence Berkeley National Laboratory (LBNL)

Lawrence Livermore National Laboratory (LLNL)
 Los Alamos National Laboratory (LANL)
 National Energy Technology Laboratory (NETL)
 National Renewable Energy Laboratory (NREL)
 Oak Ridge National Laboratory (ORNL)
 Pacific Northwest National Laboratory (PNNL)

Princeton Plasma Physics Laboratory (PPPL)
 Sandia National Laboratories (SNL)
 Savannah River National Laboratory (SRNL)
 SLAC National Accelerator Laboratory (SLAC)
 Thomas Jefferson National Accelerator Facility (TJNAF)

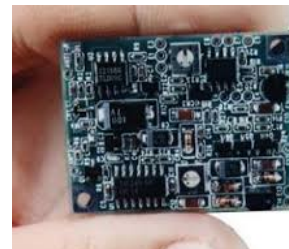
3-D printed house in Oak Ridge highlights the possibilities of new manufacturing technologies.



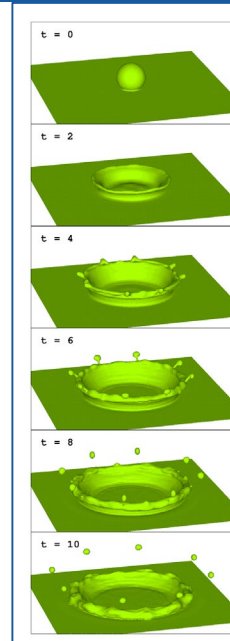
PNNL's mobile Smartphone Microscope allows anyone with a smartphone to explore tiny objects for as little as 5¢. It slips over the smartphone and can be 3D printed.



LANL's expertise in nuclear weapons helped P&G engineer a better diaper.



LLNL's MIR is a compact, low-cost, low-power radar used for sensing nearby objects and measuring distances between objects in proximity.

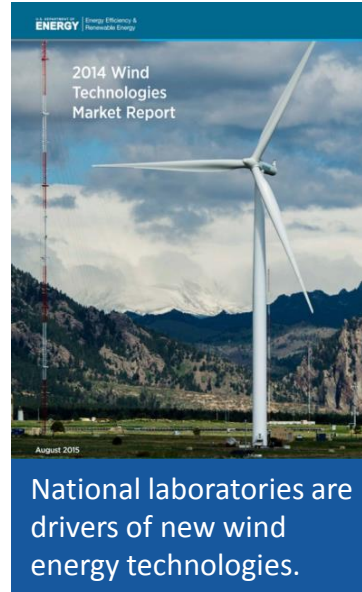
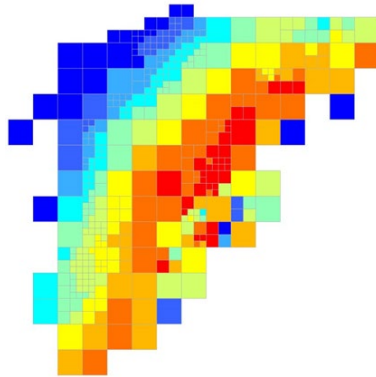


Nanosys partnered with LBNL, 3M, and LG to develop Quantum Dot Enhancement Film that offers displays with 50% wider color spectrum at a comparable price without using more energy.

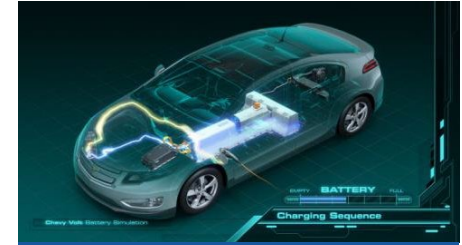


SNL, LANL, LLNL, & NETL contributed to shale gas technology that significantly improved US energy independence.

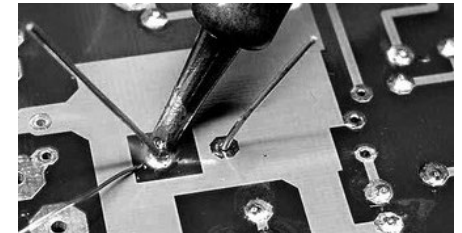
NETL developed a user-friendly, flexible, and reliable tool to effectively communicate spatial data, as well as the data's uncertainties.



National laboratories are drivers of new wind energy technologies.



Argonne National Lab's battery cathode design helps powers EVs

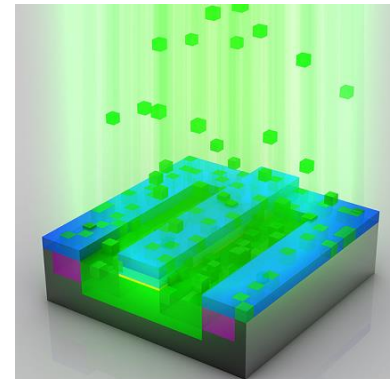
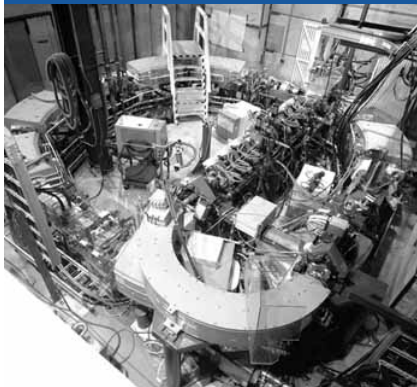


Ames' Lab lead-free solder alloy is the world wide market leader.



Approximately 50 million nuclear medicine procedures are performed each year worldwide. BNL developed the Tc-99m generator and FDG used in PET scanning.

Fermilab designed the first proton accelerator for cancer treatment.



ORNL was an early leader in the use of ion implantation for semiconductor processing and artificial joint surface treatment.

The Office of Technology Transitions was created to expand the commercial impact of the DOE's portfolio of R&D activities.

- Stakeholder Engagement
- Streamlining policies and procedures
- Elevating Best Practices
- Elevating Visibility

To ***reduce barriers*** to industry engagement with the national laboratories

Coordinating with Programs, GC, Labs and other support offices to develop:

- Alternate CRADA Clause Library
- Guidance on timing and sufficiency of CRADA Final Reports
- Guidance on Equity as Compensation within IP License Agreements
- Sharing best practices for patent licensing
- Agreements for Technology Commercialization (ACT)

...and other policies and sharing of best practices related to TT

Factors Discouraging Some Sponsors of R&D at Labs using CRADA, SPP or User Agreements:

- Advanced Payments
- Indemnification
- Guaranteed Performance – vs – Best Effort
- Certain Reserved Government Rights to IP

- M&O Contractor can negotiate business-friendly terms with third party clients in flexible agreements
- Fast DOE approval of SoW / resource allocation – No DOE approval of agreement or business terms needed
- Contractor may choose to accept certain levels of risk to carry out work for funding clients
 - payment terms, project deliverables, milestones, etc.
- Contractor may receive higher fees for work, as negotiated, based on risks and contributions of parties
- IP rights distribution as negotiated with parties
- Government use license is replaced with research and data rights license

The TCF provides matching funds with private partners to promote promising energy technologies for commercial purposes

OTT manages the execution of the TCF, as mandated by Sec 1001 of EAct 2005

- FY16: \$19.7M -- 54 projects funded at 12 national labs (\$15.9M), including matching funds (\$16.9M) from 52 private-sector partners
- FY17: 54 projects funded at 12 national labs (\$19M), with matching funds (\$34M) from more than 30 private-sector partners
- FY18: 64 projects from 10 national labs (\$20M)

LPS: Connecting Investors to Lab Subject Matter Experts & IP

**Ask a question**

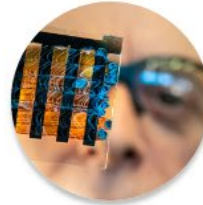
Our energy technology experts will help answer questions. Find experts by searching for technologies and keywords.

Ask a National Lab Expert

**Learn how to partner**

Each national laboratory has unique technical expertise and user facilities. Learn about each lab and contact the technology transfer point of contact to learn more.

Learn about types of agreements

**Explore technologies**

Locate technologies developed with DOE funding and available for licensing. When you find a technology you are interested in, contact the lab directly.

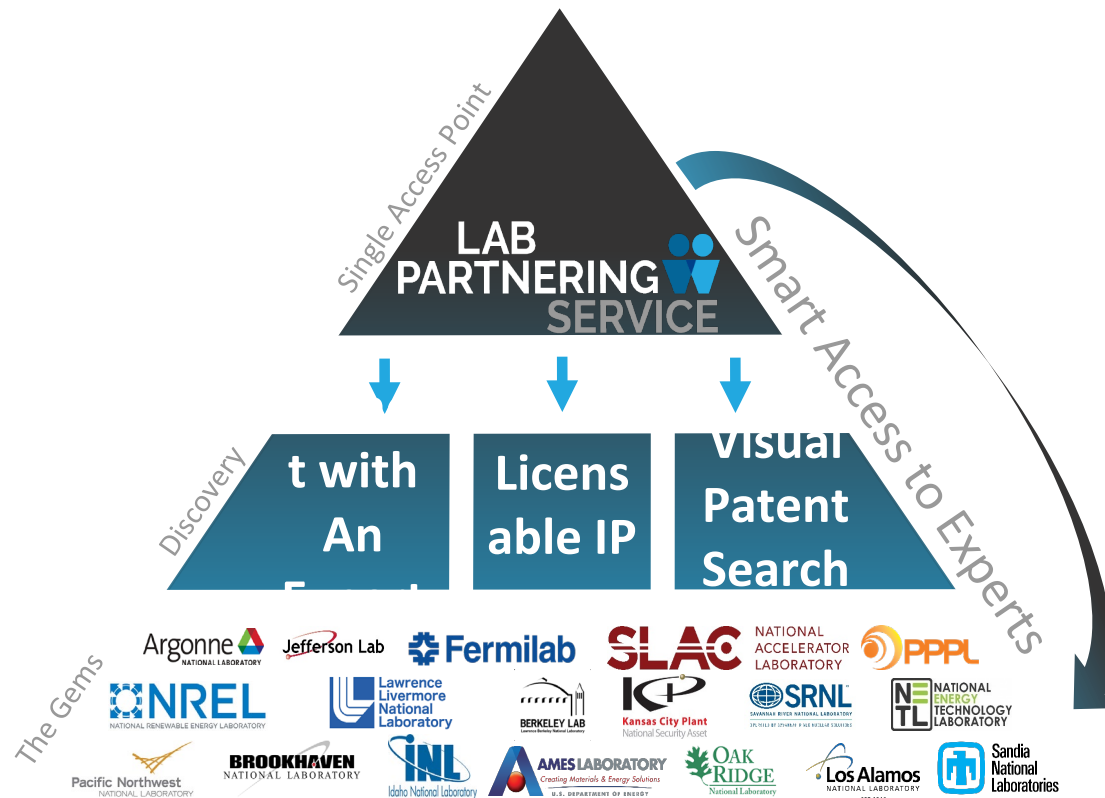
Search technologies and patents

**Discover a Lab**

Each national laboratory has unique technical expertise and user facilities. Learn about each lab and contact the technology transfer point of contact to learn more.

Profiles for over 20 locations

<https://search.labpartnering.org/>



Lab Partnering Service Discovery

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

Search Results: 157 results (0.004 seconds) Clear All

Search

Types
Experts (137)

Technologies
Advanced Materials (54)
Nuclear (40)
Energy Storage (33)
Solar (23)
Energy Conversion (24)

Specialties
Materials Characterization (31)
Modeling (42)
Simulation (33)
Nanomaterials (25)
Sensors (24)

Labs
Idaho National Laboratory (25)
Argonne National Laboratory (24)
Lawrence Berkeley National Laboratory (16)

Experts

Geo Liu Lawrence Berkeley National Laboratory 1 Area of Expertise Ask Me	Jessica Granderson Lawrence Berkeley National Laboratory 5 Areas of Expertise Ask Me	Kevin R. Schneider Pacific Northwest National Laboratory 4 Areas of Expertise Ask Me	Charles T. Blacky Brookhaven National Laboratory 10 Areas of Expertise Ask Me
J. Nathan Hohman Lawrence Berkeley National Laboratory 3 Areas of Expertise Ask Me	Jason Hales Idaho National Laboratory 4 Areas of Expertise Ask Me	Daniel Abraham Argonne National Laboratory 5 Areas of Expertise Ask Me	John Jackson Idaho National Laboratory 5 Areas of Expertise Ask Me
Nancy Lybeck Idaho National Laboratory 6 Areas of Expertise Ask Me	Richard Williamson Idaho National Laboratory 3 Areas of Expertise Ask Me	Marcus Worley Lawrence Livermore National Laboratory 1 Area of Expertise Ask Me	Douglas L. Porter Idaho National Laboratory 3 Areas of Expertise Ask Me

1 2 3 4 5 Next >>

Partner with Experts



Technologies Summaries

Lab Partnering Service Discovery

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

Search Results: 1236 results (0.006 seconds) Clear All

Search

Types
Technology Summaries (1236)

Technologies
Advanced Materials (473)
Industrial Technologies (457)
Energy Storage (216)
Solar Energy (177)

Labs
Lawrence Berkeley National Laboratory (165)
National Renewable Energy Laboratory (164)
Oak Ridge National Laboratory (139)

Technology Summaries

Process for Fabrication of Efficient... Ames Laboratory 1 Technology Category	Alignment Promoted in Heat Treatable... Ames Laboratory 1 Technology Category	Microwave and Process Technologies Complex Y-12 National Security Complex 2 Technology Categories	Selective Chemical Separation of Rare... Ames Laboratory 1 Technology Category
Readiness Certification Assurance Pro... Y-12 National Security Complex 1 Technology Category	Electronic Medical Business Operation... Y-12 National Security Complex 1 Technology Category	Molecule Nanowear Improves Drug Del... Argonne National Laboratory 1 Technology Category	Blash-Resistant Vehicle Steel Y-12 National Security Complex 1 Technology Category
Knowledge Preservation Management (KPM) Y-12 National Security Complex 1 Technology Category	Entrans Y-12 National Security Complex 1 Technology Category	Lehair Y-12 National Security Complex 1 Technology Category	Facility Management Enterprise System... Y-12 National Security Complex 1 Technology Category

1 2 3 4 5 Next >>

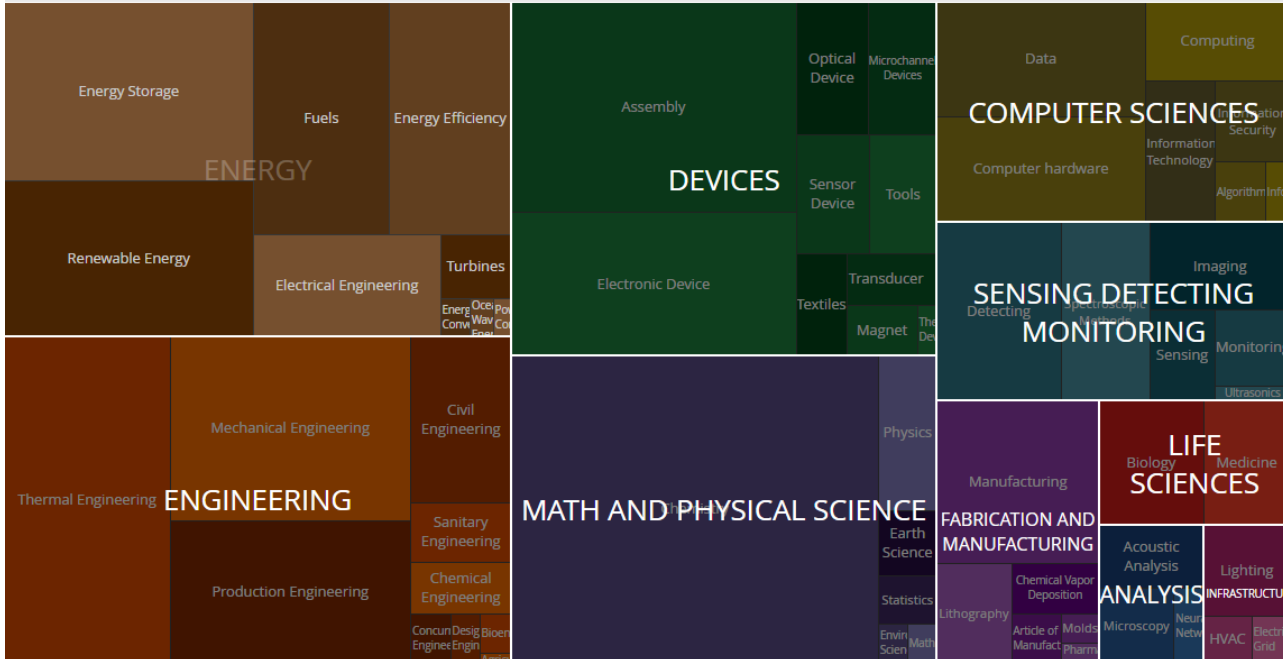
Visual Patent Search Explore patents with Department of Energy funding on the [Lab Partnering Service](#) | [Web Site Policies](#) | [Contact](#) | [Accessible Patent Search](#)

Labs ▾ Patent Status ▾

TF Query by Example

Search

37,047 Patents | Status Date ▾ | Export |



Separating Components of Mixed Fluid Using a Func...	Issued Patent 10,130,899	Nov 19, 2018
Capture and Release of Acid Gasses Using Tunable ...	Issued Patent 10,130,907	Nov 19, 2018
Biomimetic Membranes and Methods of Making Bio...	Issued Patent 10,130,916	Nov 19, 2018
Two-Fluid Hydrodynamic Printing	Issued Patent 10,130,961	Nov 19, 2018
Electrified Vehicle Dc Power Conversion With Distri...	Issued Patent 10,131,245	Nov 19, 2018
Preparation of Large Ultra-Thin Free-Standing Poly...	Issued Patent 10,131,754	Nov 19, 2018
Compositions for Cooling Materials Exposed to the ...	Issued Patent 10,131,838	Nov 19, 2018
Polypeptides Having Endoglucanase Activity and Po...	Issued Patent 10,131,893	Nov 19, 2018
Bioactive Compositions for High Avidity Cell Capture	Issued Patent 10,131,899	Nov 19, 2018
Microfluidic Platform for Synthetic Biology Applicat...	Issued Patent 10,131,903	Nov 19, 2018
Method for Depositing Transparent Conducting Oxi...	Issued Patent 10,131,991	Nov 19, 2018
Carbon Dioxide Transformation Facilitated by Earth ...	Issued Patent 10,131,996	Nov 19, 2018

Energy I-Corps: Bridging the Lab/Industry Knowledge Gap

Enhancing *Capabilities* of Researchers and Technology Transfer Offices

Trains scientists how breakthrough discoveries can transition into *high-impact, real-world technologies* for commercialization by the private sector.

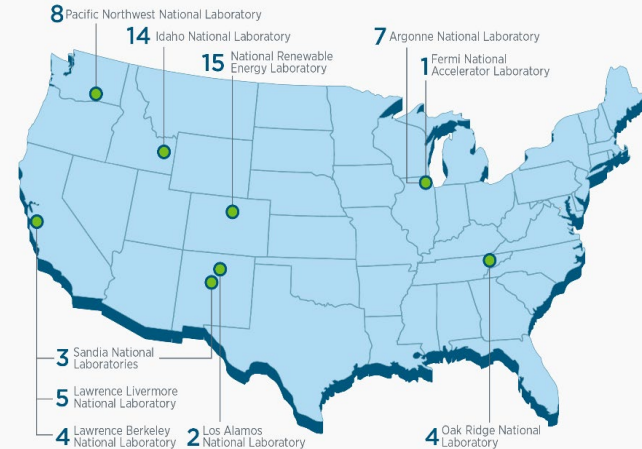
Aimed at accelerating the transfer of energy technologies from national laboratories to the commercial market.

DOE-tailored version of successful NSF

I-Corps program adopted across many agencies. DOE co-led establishment of current Community of Practice through OSTP.

- 10 National Labs participating
- Sixth class began October 2017
- Expansion to NE, EM, OE for 6th class
- 63 teams, more than 63 industry mentors and more than 4500 customer discovery interviews
- At least 5 teams have incorporated or launched a new small business
- \$10 million in follow-on funding
- Exploring privately-funded teams

63 TEAMS | 10 NATIONAL LABORATORIES



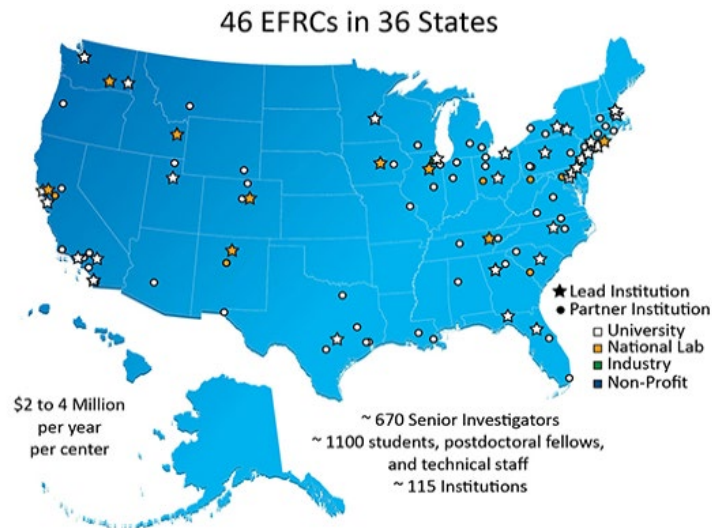
Energy Innovation Hubs

- Consortium for Advanced Simulation of Light Water Reactors
- Joint Center for Artificial Photosynthesis.
- Joint Center for Energy Storage Research
Argonne, LBNL, PNNL, SNL, SLAC
U of Ill Champaign-Urbana & Chicago, U of Chicago, UM, Northwestern, and Advanced Materials
Johnson Controls, Clean Energy Trust and Dow Chemical

Advanced Manufacturing Consortia



Energy Frontier Research Centers (EFRCs)



An open re-competition in 2018 resulted in 42 awards for a total of \$380 million: 11 two-year extensions of existing EFRCs, 9 four-year renewals of existing EFRCs, and 22 four-year awards for new EFRCs.

Bioenergy Research Centers (Genomic Science Program)



BRCs produced 2,696 peer-reviewed publications, 619 invention disclosures, 397 patent applications, 199 licenses or options, 101 patents, and 14 company startups.

DOE Announces Notice of Intent to Issue a Funding Opportunity Establishing a Cybersecurity Institute for Energy Efficient Manufacturing:

<https://www.energy.gov/articles/doe-announces-notice-intent-issue-funding-opportunity-establishing-cybersecurity-institute>

ARPA-E and SBIR/STTR:

<https://www.arpa-e.energy.gov/?q=faq/current-funding-opportunities>

<https://science.energy.gov/sbir/funding-opportunities/>

All EERE:

<https://eere-exchange.energy.gov/>

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SBIR/STTR Programs Office

Director

Manny Oliver

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(301) 903-0309

WHAT DO WE FUND?

- **Mission**
 - Leadership in energy technologies
 - Leadership in basic science and engineering in the physical sciences
 - Enhancement of nuclear security
- **SBIR/STTR Research Areas**
 - Renewable energy, energy efficiency, grid modernization, advanced fossil fuel technologies, nuclear energy, fusion energy
 - Advanced scientific instrumentation in the physical sciences, advanced computing, atmospheric and environmental monitoring, accelerator technology
 - Nuclear nonproliferation, environmental remediation and clean up
 - More details: <https://science.energy.gov/sbir/research-areas-and-impact/>



HOW DO WE OPERATE?

- **Phase I**
 - Issue two Funding Opportunities Announcements annually, DOE issues **GRANTS**
 - Typically very focused topics areas, approximately 70 topics per year
 - Awards up to \$200,000, 6-12 months duration, ~ 400 per year
- **Phase II**
 - Phase I awardees compete Phase II Awards the following year
 - Awards up to \$1,100,000 or \$1,600,000 (varies by topic) and 2 years duration, ~180 per year
- **Second Phase II**
 - Phase II grantees can compete for a Second Phase II awards after completion of Phase II
 - Awards up to \$1,100,000 and 2 years duration
- **Third Phase II (new for FY 2019)**
 - Requires 1:1 Matching Funds
 - Awards up to \$1,100,000 and 2 years duration
- **Schedule:** <https://science.energy.gov/sbir/funding-opportunities/>



TAKE ADVANTAGE OF . . .

- **Applicants**

- Phase 0 Applicant Assistance Program for first time applicants (www.dawnbreaker.com/doephase0)
- Partnership with DOE National Labs (<https://science.energy.gov/sbir/applicant-resources/national-labs-profiles-and-contacts/> and <https://www.labpartnering.org/partnering>)

- **Awardees**

- Commercialization Assistance Program (<http://www.larta.org/doecap>)



CONTACT US

- **DOE SBIR/STTR Website:** www.science.energy.gov/sbir
– You can join our mailing list on our homepage
- **Telephone:** 301-903-5707
- **Email:** sbir-sttr@science.doe.gov



Session Evaluations

Reminder:

**Please complete the Speaker/Session
Evaluation Form located in the
Mobile App.**

Thank you!

