Overview of the DOE's Small Business Innovation Research (SBIR) and Small Business Technology TRansfer (STTR) Programs

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DOE Solid-State Lighting R&D Workshop
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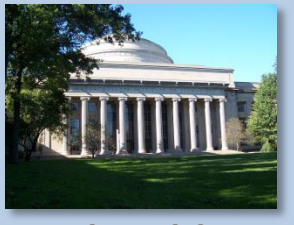
FEDERAL Extramural R&D

federal government

Extramural R&D
~$75B/year

businesses

federally funded laboratories



universities

SBIR/STTR
~$2.3B/year

small businesses

Program Goals

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

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

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

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

SBIR and STTR were reauthorized on December 31, 2011 (P.L. 112-81) through September 30, 2017

Major Differences between SBIR & STTR

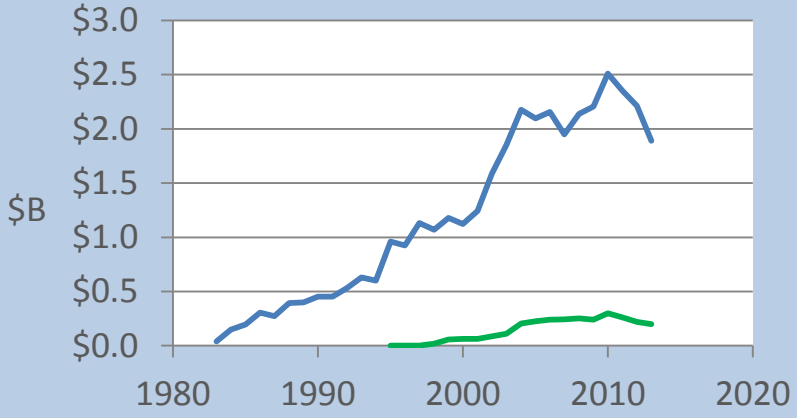
- STTR: Requires Collaboration with a Research Institution
  - Research Institution
    - College, University, Federal R&D Laboratory, other non-profit research organization
  - Mandatory Intellectual Property agreement
    - Small business and research institution must enter into an agreement that allocates intellectual property rights and rights to carry out follow-on research, development, or commercialization resulting from the above-mentioned project

- Principal Investigator primary employment
  - SBIR: employed by the small business
  - STTR: employed by the small business OR research institution
- Percentage of R/R&D conducted by the small business
  - SBIR
    - Phase I: minimum 2/3 by small business
    - Phase II: minimum 1/2 by small business
  - STTR:
    - Phase I & II: minimum 40% by small business; minimum 30% by research institution

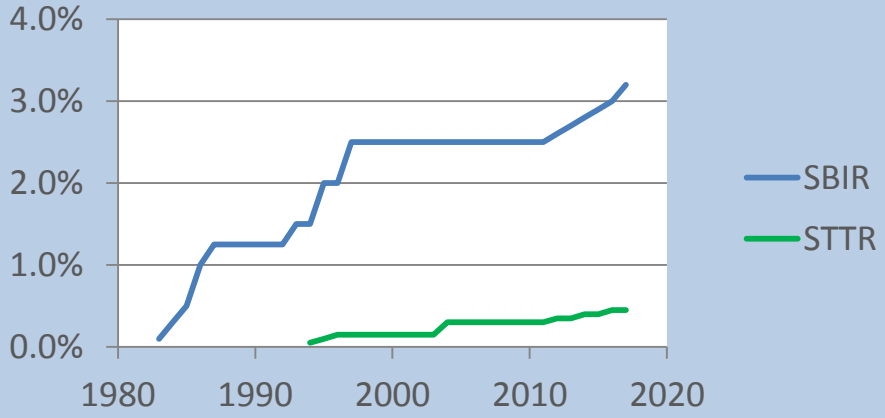
SBIR & STTR Funding Levels

- Agencies allocate a percentage of their extramural R/R&D budgets for the SBIR & STTR programs
  - SBIR: 2.9% (FY 2015), for agencies with >$100B in extramural R/R&D
  - STTR: 0.4% (FY 2015), for agencies with >$1B in extramural R/R&D
- Congress has increased the allocation percentages since the programs were initiated

AMOUNT AWARDED*

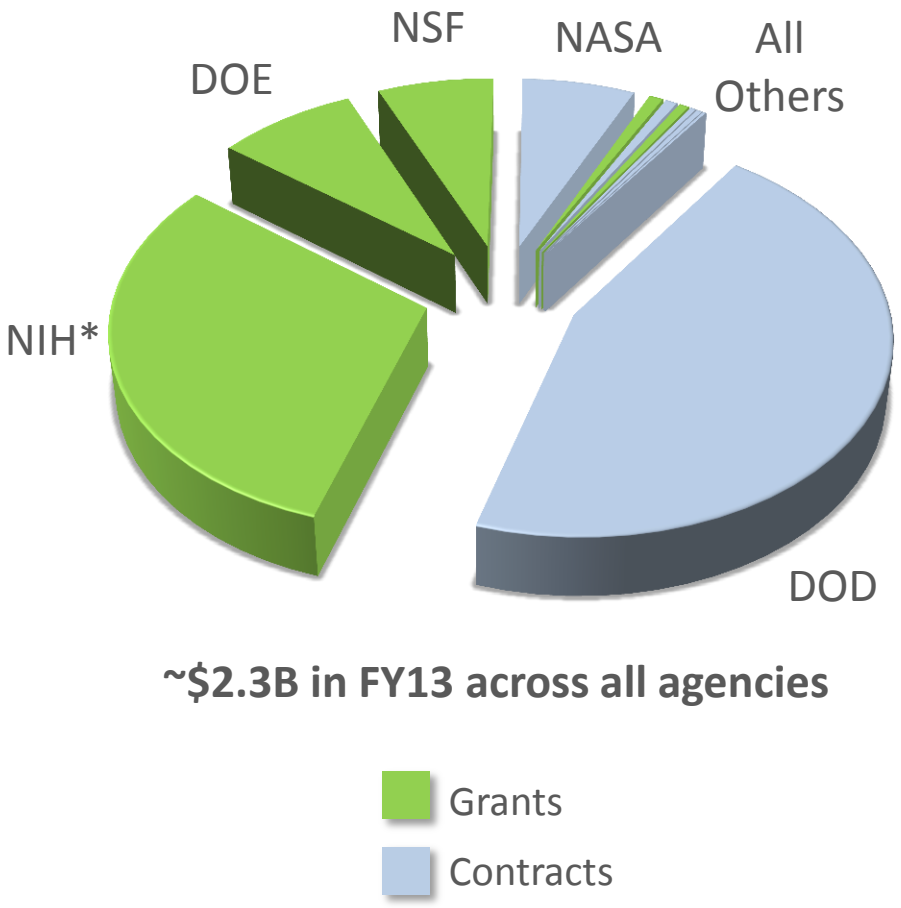


ALLOCATION PERCENTAGE



*source: SBIR.gov, 5/15/2014

SBIR/STTR Budgets by Agency, FY 2013



Agencies with SBIR & STTR Programs	Budget
Department of Defense (DOD)	$ 1.0 B
Department of Health and Human Services (HHS): National Institutes of Health (NIH)*	$697.0 M
Department of Energy (DOE), including Advanced Research Projects Agency (ARPA-E)	$183.9M
National Science Foundation (NSF)	$153.0 M
National Aeronautics and Space Administration (NASA)	$ 148.8 M

Agencies with SBIR Programs	Budget
U.S. Department of Agriculture (USDA)	$18.4M
Department of Homeland Security (DHS): Science and Technology Directorate (S&T) and Domestic Nuclear Detection Office (DNDO)	$15.7 M
Department of Education (ED)*	$13.4 M
Department of Transportation (DOT)	$7.6 M
Department of Commerce (DOC): National Oceanic and Atmospheric Administration (NOAA) and National Institute of Standards and Technology (NIST)*	$7.4 M
Environmental Protection Agency (EPA)	$3.8 M

**NIH and ED also issue contracts; Within DOC, NIST issues grants and NOAA issues contracts*

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 *(currently only NIH & ARPA-E)*
  - 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.

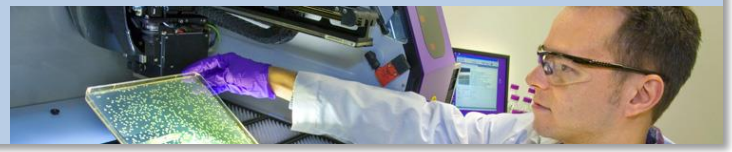
3 Phases

PHASE I: FEASIBILITY, PROOF OF CONCEPT

- Award Amount: $150,000 (guideline), $225,000 (max.)
- Project Duration: 6-12 months

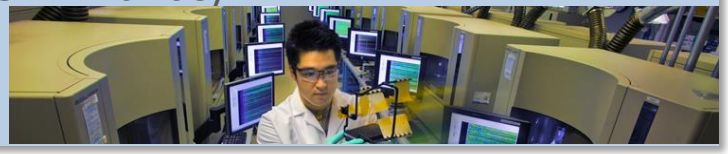
PHASE II: CONTINUE R/R&D FOR PROTOTYPES OR PROCESSES

- Award Amount: $1,000,000 (guideline), $1,500,000 (max.)
- Project Duration: 2 years



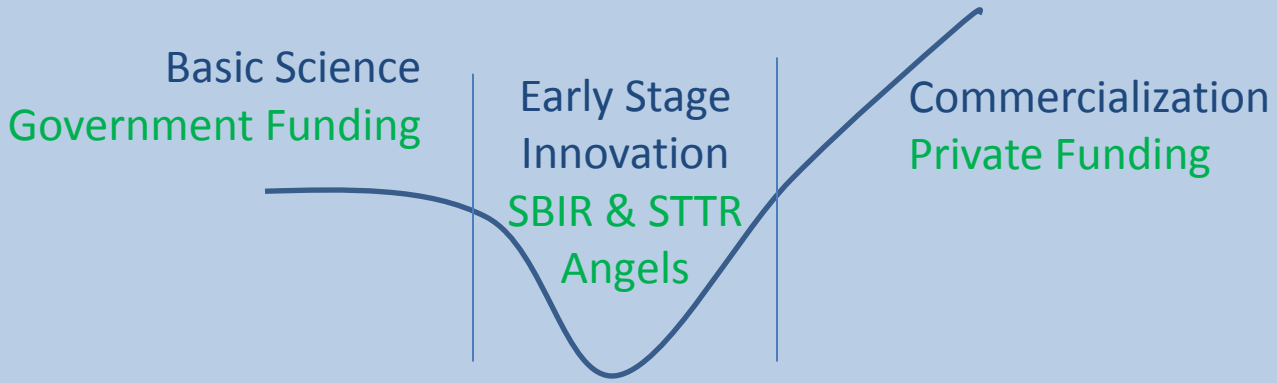
PHASE III: COMMERCIALIZATION

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



SBIR and STTR Awards

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



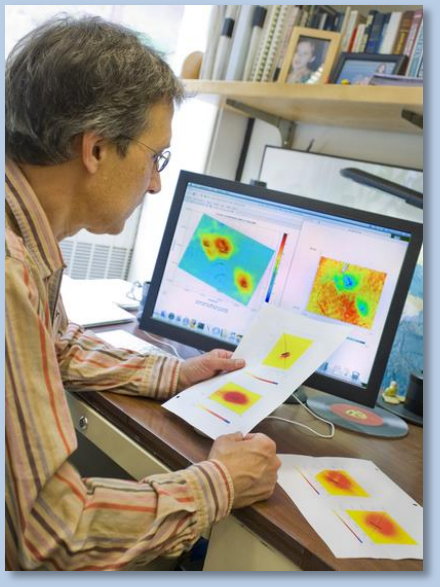
Intellectual Property

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

http://www.uspto.gov/

Data Protection

- Protection Period
  - Data generated from your R/R&D is protected from public disclosure for a minimum of 4 years (civilian agencies) or 5 years (DOD) after the conclusion of your award (Phase I, Phase II, or federally funded Phase III)
- Government Use
  - The Government retains a royalty-free license for Government use of any technical data delivered under an SBIR award, whether patented or not



DOE SBIR & STTR Programs: Technology Areas

U. S. Department of Energy Mission

- **The mission of the Department of Energy** 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 **clean 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 SBIR/STTR

- Electricity Delivery & Energy Reliability
- Energy Efficiency & Renewable Energy
- Fossil Energy
- Nuclear Energy
- Advanced Scientific Computing Research
- Basic Energy Sciences
- Biological & Environmental Research
- Fusion Energy Sciences
- High Energy Physics
- Nuclear Physics
- Defense Nuclear Nonproliferation
- Environmental Management

Recent Topics in Solid State Lighting (FY 2015)

Office of Science

- Office of Basic Energy Sciences
  - MATERIALS FOR ENHANCED SOLID STATE LIGHTING
    - Efficiency and Performance Advancements in III-V Nitride Light Emitting Diodes
    - Materials and Device Innovations in Organic Light Emitting Diodes
- Related topics
  - Office of High Energy Physics
    - LASER TECHNOLOGY R&D FOR ACCELERATORS
      - Ultrafast Infrared Laser Systems at High Peak and Average Power
  - Office of Advanced Scientific Computing Research
    - ADVANCED DIGITAL NETWORK TECHNOLOGIES AND MIDDLEWARE SERVICES
      - Optical Network Components
  - Office of Nuclear Physics
    - NUCLEAR PHYSICS ELECTRONICS DESIGN AND FABRICATION
      - Advanced Devices and Systems

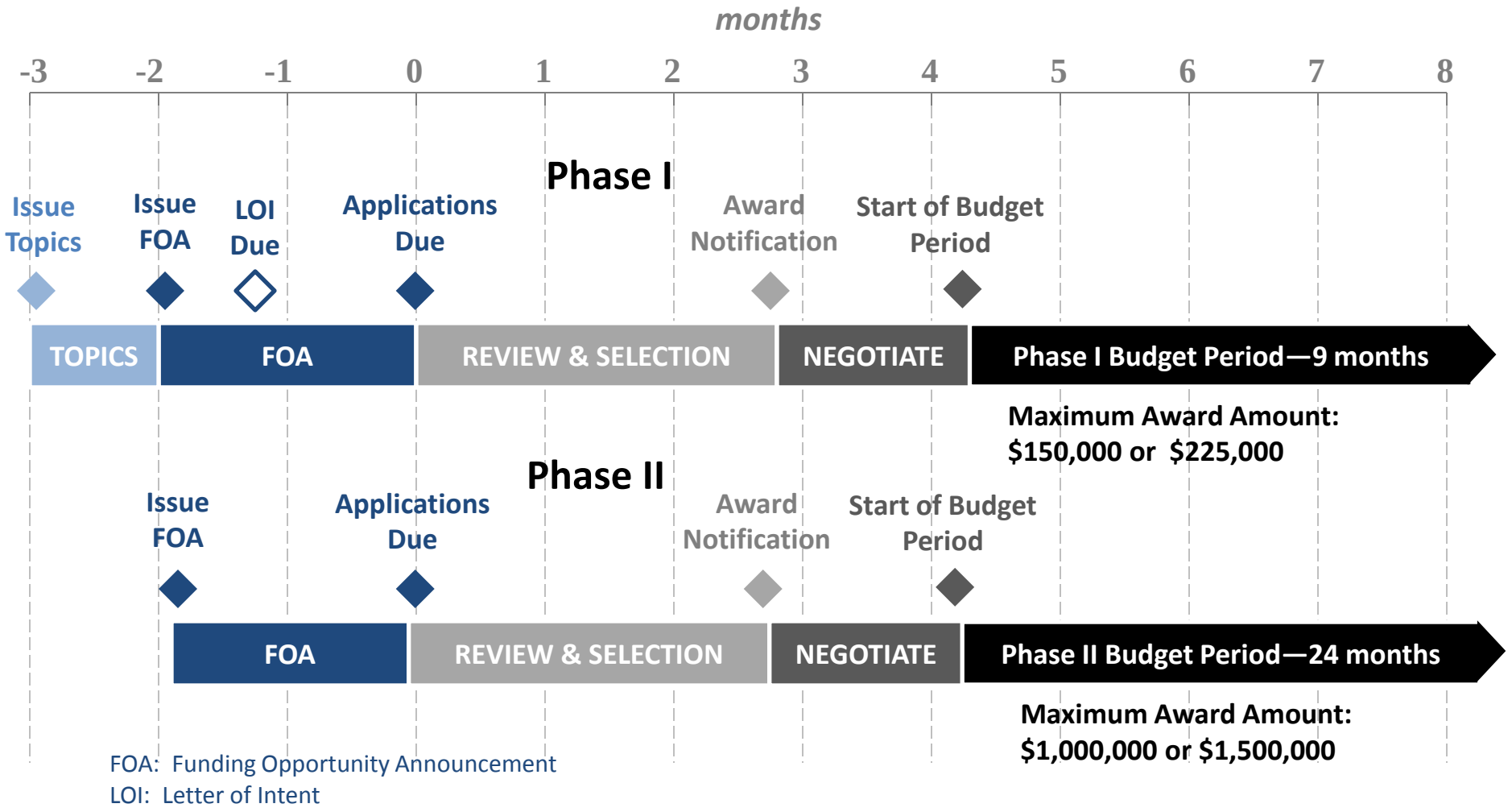
Recent Topics in Solid State Lighting (FY 2015)

Office of Energy Efficiency and Renewable Energy

- **BUILDINGS**
  - Energy Efficient Solid-State Lighting Luminaires, Products, and Systems
- **ADVANCED MANUFACTURING**
  - Wide Bandgap Semiconductors for Energy Efficiency and Renewable Energy

DOE SBIR & STTR Programs: Application & Award Process

Application & Award Timelines



FOA: Funding Opportunity Announcement
LOI: Letter of Intent

Sequential Phase II Awards

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

FY2015 SBIR/STTR Phase I Funding Opportunity Announcements

Phase I Release 1

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

Phase I Release 2

- Office of Defense Nuclear Nonproliferation (NA)
- Office of Electricity Delivery and Energy Reliability (OE)
- Office of Energy Efficiency and Renewable Energy (EERE)
- Office of Fossil Energy (FE)
- Office of Fusion Energy Sciences (FES)
- Office of High Energy Physics (HEP)
- Office of Nuclear Energy (NE)

Schedule: FY16 Phase I, Releases 1&2

Phase I FOA Schedule	Release 1	Release 2
Topics Issued	July 20, 2015	November 2, 2015
Topic Webinars	Week of July 27, 2015	Week of November 9, 2015
Funding Opportunity Announcement Issued	August 17, 2015	November 30, 2015
FOA Webinar	August 21, 2015	December 4, 2015
Letters of Intent Due	September 8, 2015	December 21, 2015
Full Applications Due	October 19, 2015	February 9, 2016
Award Notification	early January 2016*	early May 2016*
Grant Start Date	late-February 2016*	early June 2016*

**preliminary dates subject to change*

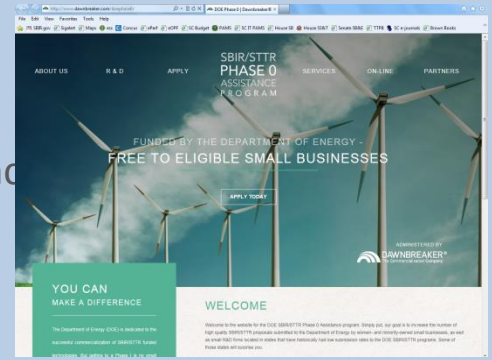
Schedule: FY16 Phase II, Releases 1&2

Phase II FOA Schedule	Release 1	Release 2
Funding Opportunity Announcement Issued	October 26, 2015	February 16, 2016
Letters of Intent Due (Sequential Phase II only)	November 16, 2015	March 16, 2016
Full Applications Due	December 15, 2015	April 6, 2016
Award Notification	late February 2016*	mid-June 2016*
Grant Start Date	early April 2016*	early August 2016*

**preliminary dates subject to change*

New for FY 2015: Phase 0 Assistance Program

- Goal
  - increase the number of responsive, high quality proposals submitted to the DOE within targeted states with historically low SBIR/STTR applications to the DOE, and amongst women- and minority-owned businesses nationally.
- Services
  - Letter of Intent (LOI) writing assistance
  - Phase I proposal preparation, review and submission assistanc
  - Small business development training and mentoring
  - Communication and market research assistance
  - Technology advice and consultation
  - Indirect rate and financial information
- Cost
  - Since this program is entirely funded by the DOE there is no cost to participants.
- Website: http://www.dawnbreaker.com/doephase0/.
- DOE's Under Represented States
  - AK, DC, GA, HI, IA, ID, IN, KS, LA, ME, MN, MS, MT, NC, ND, NE, NY, OK, PA, PR, RI, SC, SD, WA, WI

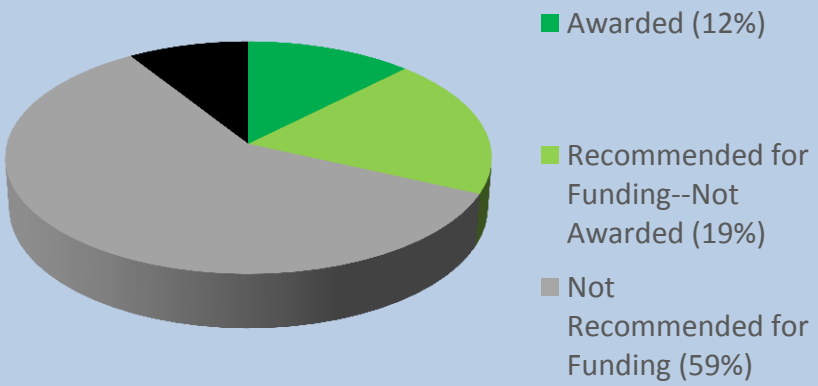


Application Review and Award Selection

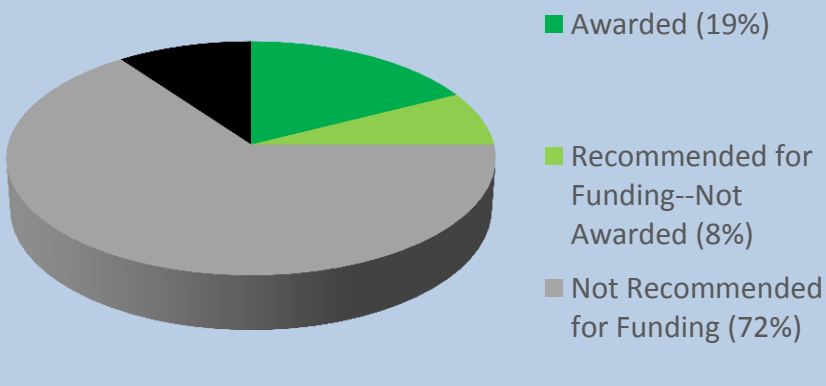
- DOE primarily uses external peer review to evaluate your applications
  - Typically at least 3 technical reviewers
  - 1 reviewer for the Phase II commercialization plan
- Review Criteria (equally weighted)
  - Strength of the Scientific/Technical Approach
  - Ability to Carry Out the Project in a Cost Effective Manner
  - Impact
- 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. Use this feedback constructively to improve future applications

Application & Award Statistics for FY 2014

- Phase I
  - 1618 applications
  - 201 awards

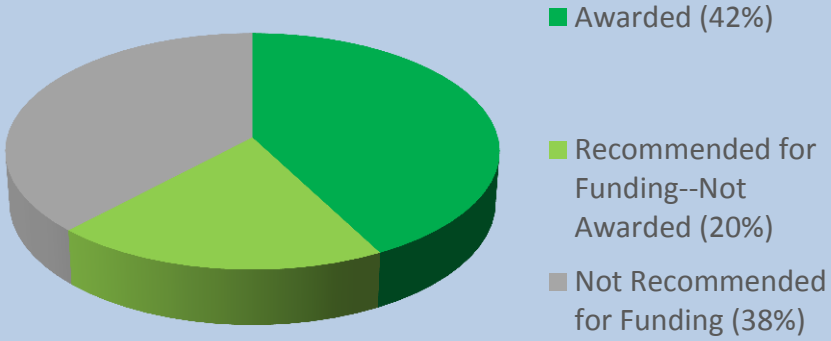


- Fast-Track
  - 72 applications
  - 14 awards

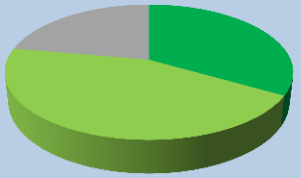


Application & Award Statistics for FY 2014

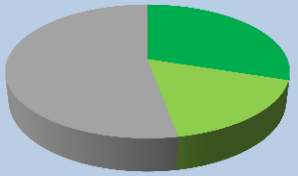
- Phase II
  - 279 applications
  - 118 awards



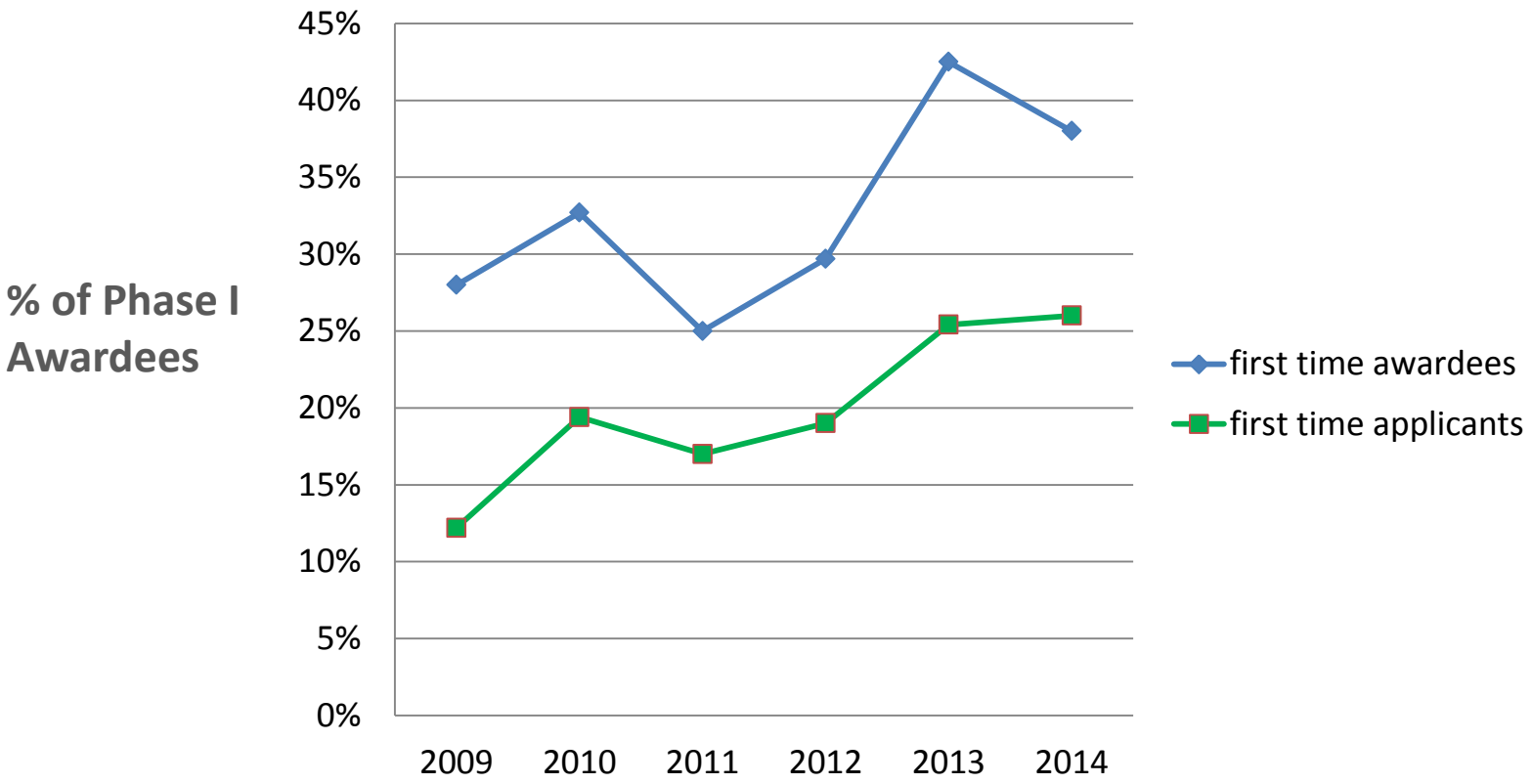
- Phase IIA
  - 9 applications
  - 3 awards



- Phase IIB
  - 70 applications
  - 21 awards

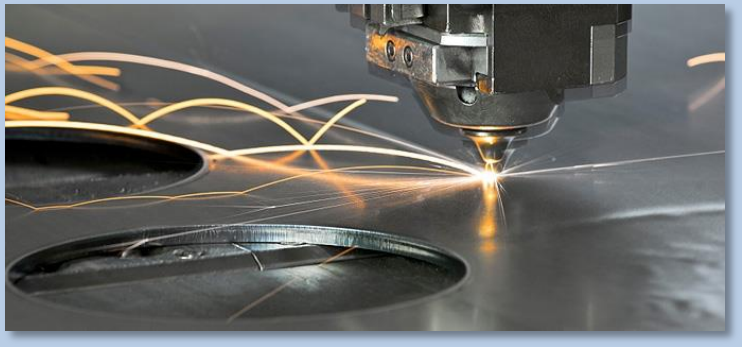


Phase I Awardees:
First Time Winners & Applicants



Commercialization

- DOE topics are drafted by program managers who are aware of the technology roadblocks but may not be aware of the commercialization challenges
- Small business applications are expected to address the commercialization challenges and ensure that there is a profitable business opportunity
  - Phase I & II Commercialization Plans
- DOE performs follow-up surveys to track commercialization outcomes of its SBIR/STTR awards



Commercialization Assistance

- DOE Commercialization Assistance
  - Provided by Dawnbreaker
  - Phase I assistance
    - Commercialization Readiness Assessment
    - Focused assistance with development of Phase II commercialization plans
  - Phase II assistance
    - Flexible offerings to meet a variety of commercialization needs
  - http://science.energy.gov/sbir/commercialization-assistance/
- Company-selected commercialization assistance vendor
  - Reauthorization permits companies to select their own vendors to provide commercialization assistance
  - Company must include this vendor as a subcontractor or consultant in their Phase I or II application

Questions?

Contact information:

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

Our Website:

- DOE SBIR/STTR Website: www.science.energy.gov/sbir

Join our Mailing List:

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