

Small Business Innovation Research
Small Business Technology Transfer Innovation
Energy Independence and Security Act
Annual Report
Fiscal Year 2016



Pursuant to the Energy Independence and Security Act of 2007 (Pub. L. No. 110-140) and Policy Directives issued by the SBA, Agencies must give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system R/R&D projects. Section 9(z) of the Small Business Act, 15 U.S.C. §638(z) requires that the annual report include a determination of whether the following priority described is being carried out: (A) ensure that such departments and agencies give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system research and development projects; and (B) include in the annual report to Congress under subsection (b)(7) a determination of whether the priority described in subparagraph (A) is being carried out.

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FY16 Agency Compliance with the Energy Independence and Security Act of 2007 (EISA)

Section 9(z) of the Small Business Act, 15 U.S.C. §638(z) requires that the annual report include a determination of whether the priority described below is being carried out:

(A) ensure that such departments and agencies give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system research and development projects; and

(B) include in the annual report to Congress under subsection (b)(7) a determination of whether the priority described in subparagraph (A) is being carried out.

Pursuant to the Energy Independence and Security Act of 2007 (Pub. L. No. 110-140) and Policy Directives issued by the SBA, Agencies must give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system R/R&D projects. Agencies utilize a variety of approaches to comply with EISA and the Policy Directives. For some, such as DOE, these efforts are engrained in the Agency mission and therefore easy to assess in very tangible ways. Mechanisms commonly used by Agencies – aside from specifically adding energy related topics in solicitations – include adding that solicitation proposals address any energy efficiency or renewable energy aspects related to the small businesses’ technological approach, delivery or technological applicability and often provide such proposals a competitive advantage in the award selection process. Cross-Agency collaborations, outreach efforts, and other initiatives also become critical to assessing the collective achievements of the program rather than focusing on individual Agency performance. Each Agency’s Annual Report addresses EISA compliance by including: examples of SBIR/STTR projects related to energy efficiency or renewable energy; procedures and mechanisms used during the reporting fiscal year to give priority to energy efficiency and renewable energy projects in SBIR/STTR; and, specific actions taken to promote and support energy efficiency and renewable energy research projects. Individual detailed reports on each Agencies’ EISA-related activities and initiatives are located at <https://www.sbir.gov/annual-reports-files>.

This report is a compilation of all the Agencies’ FY16 efforts to comply with the Energy Independence and Security Act of 2007 (EISA).

Department of Health and Human Services (HHS)

Examples of HHS SBIR and STTR projects related to Energy Efficiency and Renewable Energy

In FY 2016, there were no new awards made that relate to energy efficiency or renewable energy.

Procedures and mechanisms HHS used during the reporting fiscal year to give priority in the SBIR/STTR programs to Energy Efficiency and Renewable Energy projects

In direct response to the Independence and Security Act of 2007, HHS has, in previous years, developed targeted funding opportunity announcements (FOAs) focused on soliciting project ideas related to energy efficient or renewable energy systems research and development (R&D). Presently, the most recent FOAs have expired in 2012. HHS may utilize this targeted approach in future years again as appropriate to encourage participation and application submission from small businesses in this important targeted area.

Specific actions HHS has taken to promote and support Energy Efficiency and Renewable Energy Research projects

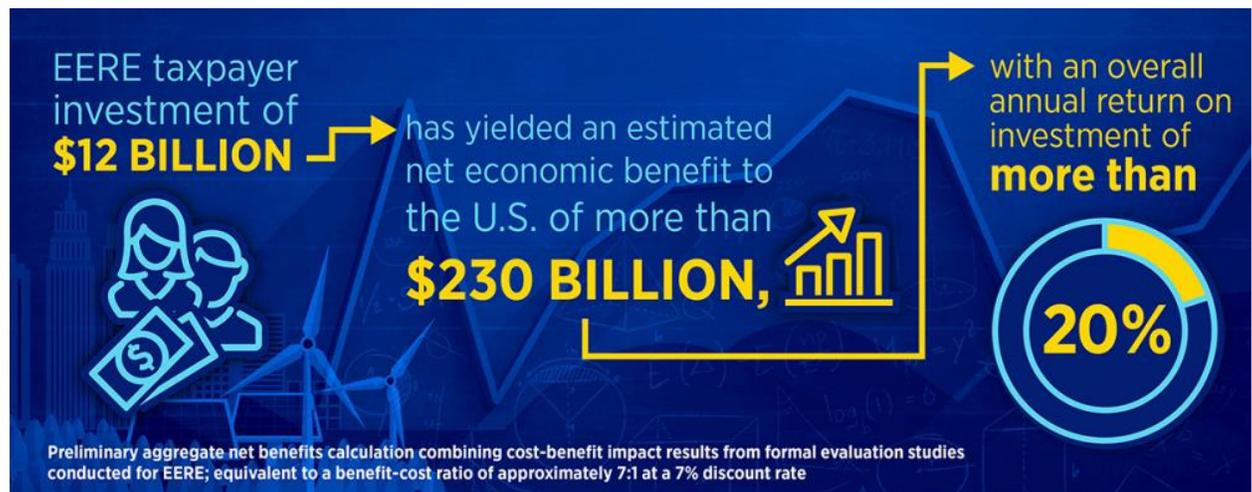
In addition to releasing targeted FOAs such as mentioned above, the HHS investigator-initiated funding model lends itself to receiving applications from the small business community throughout the year under NIH's annual Omnibus grant solicitations with several standard submission due dates. Under these solicitations, small business applicants can propose projects related to energy efficiency or renewable energy systems for Phase I, Phase II and Fast-Track options under the SBIR and STTR programs within the mission of HHS.

Department of Energy (DOE)

The Department of Energy is very active in funding R&D in the fields of energy efficiency and renewable energy through its Office of Energy Efficiency and Renewable Energy (EERE). The mission and goals of EERE are presented below. More information about EERE is available at their website: <https://energy.gov/eere/office-energy-efficiency-renewable-energy>.

MISSION

The mission of EERE is to create and sustain American leadership in the transition to a global clean energy economy. Its vision is a strong and prosperous America powered by clean, affordable, and secure energy.



To date, third-party evaluations have assessed one-third of EERE's research and development portfolio and found that an EERE taxpayer investment of \$12 billion has already yielded an estimated net economic benefit to the United States of more than \$230 billion, with an overall annual return on investment of more than 20%.

STRATEGIC GOALS

EERE aims to achieve the following strategic goals:

1. Accelerate the development and adoption of sustainable transportation technologies. Through **improvements in engine efficiency**, vehicle **weight reduction**, **battery performance**, drop-in biofuels, **fuel cell performance**, and reduced **biofuel** and **hydrogen** production costs, EERE can meet this goal. This includes supporting **advanced vehicles and alternative fuels**.
2. Increase the generation of electric power from renewable sources. Through reducing the cost of **hydropower** and **solar**, **wind**, **wave** and **tidal**, and **geothermal** power, EERE can increase renewable generation.

3. Improve the energy efficiency of our homes, buildings, and industries. *EERE has set milestones for providing energy savings of 25%–50% by 2020–2030. By developing new materials, technologies and processes for American **homes**, **buildings**, and **industry**, EERE will implement minimum **energy performance standards**, improve **building energy codes**, and support **home weatherization**.*

4. Stimulate the growth of a thriving domestic clean energy manufacturing industry. *Through reducing the life-cycle energy consumption of EERE-targeted manufactured goods by 50% by 2025, EERE will encourage the **manufacture of clean energy** technologies in the United States.*

5. Enable the integration of clean energy into a reliable, resilient, and efficient electricity grid. *Through new **grid-support technologies**, as well as standards, test procedures, sensors, communication protocols, cyber security, and resilience these technologies need, EERE can meet clean energy goals.*

6. Lead efforts to improve federal sustainability and implementation of clean energy solutions. *Through **EERE technical support to all federal agencies** and federal agency access to **third-party financing**, EERE can help federal agencies to be early leaders in deploying clean energy.*

7. Enable a high-performing, results-driven culture through effective management approaches and processes. *Through enhancing and maintaining EERE's workforce and establishing clear plans to deliver on **EERE's mission**, the organization will see a high-performing culture.*

Examples of DOE SBIR and STTR projects related to Energy Efficiency and Renewable Energy

There are two EERE success stories, one in the area of energy efficiency, and one in the area of renewable energy. The first concerns the improvements made by Sinode Systems Inc. in energy density of Li ion batteries, a critical parameter for advancing electric vehicle technology. This particular technology has transitioned to Phase III and obtained follow-on investment but is not yet commercial. The second success story concerns advancements made by Applied Nanotech Inc. in the manufacturing of solar cells. They were able to successfully commercialize advanced nanomaterial inks for use in solar cell current collectors.

National Aeronautics and Space Administration (NASA)

Examples of DOE SBIR and STTR projects related to Energy Efficiency and Renewable Energy

For FY 2016 NASA's SBIR/STTR program had specific subtopics that actively solicit for technology in energy generation and storage in the form of photovoltaics, advanced batteries, and nuclear technology, the topics include:

- A2.01-Flight Test and Measurements Technologies
- H8.01-Thermal Energy Conversion
- H8.02-Solid Oxide Fuel Cells and Electrolyzers
- H8.04-Advanced Next Generation Batteries
- S3.01-Power Generation and Conversion
- S3.02-Propulsion Systems for Robotic Science Missions
- S3.03-Power Electronics and Management, and Energy Storage
- S3.06-Terrestrial and Planetary Balloons
- S3.07-Thermal Control Systems
- T3.02-Self-Powered, Ultra-Miniature Devices

Phase I awards made in FY 2016 associated from these topics include:

Proposal Title	Contract#	Firm Name
A Battery Management and Control System using a Universal Reconfigurable Architecture for Extended Health of Batteries in Hybrid and/or All-Electric Propulsion Systems	NNX16CD23P	X-wave Innovations, Inc.
Thermal Energy Conversion	NNX16CP57P	Nanohmics, Inc.
A Novel Electrode Material for Thermionic Power Generation	NNX16CJ33P	Busek Company, Inc.
Methane-Oxygen Solid Oxide Fuel Cell System	NNX16CC29P	NexTech Materials, Ltd.
Aerogel-Ionic Liquid Hybrid Electrolytes	NNX16CC47P	Materials Modification, Inc.
Advanced Lithium Sulfur Battery	NNX16CC66P	Cornerstone Research Group, Inc.
High Energy Density Li-Ion Batteries Enabled By a New Class of Cathode Materials	NNX16CC91P	NEI Corporation
High Energy Long Life Betavoltaic Battery	NNX16CC50P	MicroLink Devices, Inc.
Propellant Gelation for Green In-Space Propulsion	NNX16CC32P	CFD Research Corporation
High Performance Configurable Electrical Power System for LEO Missions	NNX16CC75P	Tyvak Nano-Satellite System Inc
Ultracapacitor Based Power Supply for CubeSats	NNX16CC56P	FastCAP Systems Corporation
High Efficiency Hybrid Energy Storage Utilizing High Power Density Ultracapacitors For Long Duration Balloon Flights	NNX16CG37P	FastCAP Systems Corporation
Lightweight Flexible Thermal Energy Management Panels for CubeSats	NNX16CM36P	ROCCOR, LLC
Innovative High Energy Density Storage in Nano Vacuum Tubes (NVTs) Designed for Small Leakage Current	NNX16CM29P	Applied Material Systems Engineering, Inc. (AMSENG)

In addition, the following Phase II awards were made:

Proposal Title	Contract#	Firm Name
Toward Autonomous Stable Energy Management of Hybrid Electric Aircraft Propulsion Systems	NNX16CC06C	New Electricity Transmission Software Solutions (NETSS)
High-Efficiency Thermionic Power Generator	NNX16CP20C	Nanohmics, Inc.

Procedures and mechanisms NASA used during the reporting fiscal year to give priority in the SBIR/STTR programs to Energy Efficiency and Renewable Energy projects

NASA searches—via various wide-ranging research endeavors (including SBIR/STTR) — for novel concepts and technologies that provide advanced capabilities at ever improving levels of efficiency in missions and projects across all Mission Directorates. At the heart of NASA’s needs are advanced technologies for energy/power generation and storage – touching areas from photovoltaics, batteries, to nuclear technology for space exploration. NASA missions require maintaining power far from the Earth, for long periods of time, with no means of repair or refueling. Further, NASA technology must be resilient to survive the launch environment, as well as be light enough to be launched by existing launch vehicles. Therefore, there is no special priority required for technology associated with energy efficiency, as it is a critical thrust to all of NASA’s missions.

Specific actions NASA has taken to promote and support Energy Efficiency and Renewable Energy Research projects

There are a variety of NASA projects associated with renewable energy – projects associated with green aviation, environmental protection, clean energy, and sustainable systems. Information about these projects, in areas of biofuels, solar energy, and wind energy, and be found here: <http://www.nasa.gov/centers/ames/greenspace/index.html>. NASA’s efforts in the area of energy innovation associated with responses to climate change can be found here: http://climate.nasa.gov/energy_innovations

National Science Foundation (NSF)

Examples of NSF SBIR and STTR projects related to Energy Efficiency and Renewable Energy

The following table lists several NSF SBIR Phase I FY16 Renewable Energy and Energy Efficiency Related Project Examples:

Award Title or Description	NSF SBIR Phase I Awardee
Aerodynamic flow deflector for current and future wind turbines to increase the annual energy production by 10% and reduce the levelized cost of energy by 8%	XPEED Turbine Technology LLC
Methods for Creating Passive Solar Window Film using Using Novel Dyes for Improved Energy Efficiency in Buildings	ChromaNanoTech, LLC
Topological Interlocking Manufactured Concrete Block	Spherical Block LLC
Low-cost, wireless, energy harvesting environmental sensors	Radiator Labs, Inc.
PAX Rotor Development for Flexible Power Take-Off	PAX Scientific, Inc.

Department of Agriculture (USDA)

Examples of USDA SBIR and STTR projects related to Energy Efficiency and Renewable Energy

Examples of USDA SBIR Phase I and Phase II awarded projects that contained Energy Efficiency and Alternative and Renewable Energy technologies are listed in the following table:

Award Title	USDA SBIR Phase I Awardee
Technology of Transforming Waste Heat and Moisture into Energy in Poultry Barns	Energy Americas, LLC
Remote Sensing of Optimal Water and Nutrient Management for Crop Production	Ceres Imaging, Inc.
Autonomous, low-energy separation of n-butanol produced from lignocellulosic resources	Microvi Biotech Inc.
Efficient Process for the Production of a Drop-in Diesel Fuel Oxygenate from Bio-succinic Acid	TDA Research, Inc.
Seed-based lipase and phospholipase production for enzymatic biodiesel	Infinite Energy, LLC
Award Title	USDA SBIR Phase II Awardee
Continued Development Of A Novel Next Generation Airborne Wind Energy System For Small And Mid-Size Farms	eWind Solutions, Inc.
Validation of Segmented Flanges for Large Diameter Wind Turbine Towers	Keystone Tower Systems, Inc.
Catalytic Production of Hydrocarbon from Biomass	Visolis, Inc.
Carbon-conserving microbial production of 1-hexanol from bio-based feedstocks Biofuels and Biobased Products	ZymoChem, Inc.

The USDA SBIR program issues a request for application or program solicitation each fiscal year that lists 10 broad topic areas that encompass the full range of research and development priorities for USDA. From the beginning of the USDA SBIR program, topic areas have been discipline-specific, not technology specific. The 10 topic areas contained in the program solicitation are; Forests and Related Resources; Plant Production and Protection – Biology; Animal Production and Protection; Air, Water and Soils; Food Science and Nutrition; Rural and Community Development; Aquaculture; Biofuels and Biobased Products; Small and Mid-Size Farms; and Plant Production and Protection – Engineering. All of these technology areas have been supported and will continue to be supported.

The USDA SBIR Phase I and II Program Solicitation contains the following statement.

Energy Efficiency and Alternative and Renewable Energy

In an effort to find alternatives to fossil fuels and to reduce overall energy usage, the USDA established research on energy efficiency and alternative and renewable energy as a high priority.

Such research includes development of new energy crops, improved methods for producing biofuels, such as ethanol, butanol and biodiesel, producing hydrogen and other fuel gases from agricultural waste, and more efficient use of energy in agricultural production and in rural communities. Energy issues impact all aspects of agriculture and rural development and thus applications dealing with energy efficiency and alternative and renewable energy could be submitted to any of the topic areas.

Department of Homeland Security (DHS)

Examples of DHS SBIR and STTR projects related to Energy Efficiency and Renewable Energy

In FY2016, 208 Phase I proposals were received in response to the joint DHS SBIR Phase I solicitation. Of these, four offerors self-identified that their proposed efforts were either related to energy efficiency or renewable energy. One of the proposals was submitted for S&T Directorate Topic 004: Autonomous Indoor Navigation and Tracking of First Responders. Three of the proposals were submitted for S&T Directorate Topic 005: Internet of Things (IoT) Low-Cost Flood Inundation Sensor.

Of the four Phase I proposals that were submitted in response to the S&T Directorate's FY2016 topics that self-identified as being related to energy efficiency or renewable energy, two were funded in FY2016.

- Oceanit Laboratories, Inc. (HSHQDC-16-C-00067), FIND (First responder INdoor Determination), was awarded a Phase I contract at \$100,000.00
- Physical Optics Corporation (HSHQDC-16-C-00075), Real-time Flood Forecasting and Reporting, was awarded a Phase I contract at \$ 99,997.47.

It should be noted that the mission of the Homeland Security Advanced Research Projects Agency (HSARPA) within the S&T Directorate is to focus on identifying, developing, and transitioning technologies and capabilities to counter chemical, biological, explosive, and cyber terrorist threats, as well as protecting our nation's borders and infrastructure. Similarly, the Directorate's First Responder Group (FRG) has a mission to strengthen the response community's abilities to protect the homeland and respond to disasters. Program managers within HSARPA and FRG develop topics in support of their missions and stakeholders. When appropriate, topic descriptions from HSARPA and FRG address energy efficiency and/or renewable energy as they relate to their specific missions.

The DNDO projects are related to detection. However, low-power solutions are sought if viable for deployment. No energy related proposals were submitted to DNDO in FY2016.

Education Department (ED)

Examples of ED SBIR and STTR projects related to Energy Efficiency and Renewable Energy

The ED SBIR Program uses a contracts mechanism to provide up to \$1,050,000 in funding (\$150,000 for Phase I; \$900,000 for Phase II) to small business firms and partners for the research and development (R&D) of commercially viable education technology products for use by students and teachers in education and in special education settings.

At ED SBIR in FY2016, the program topic areas permitted proposals for the development of products to promote student learning and teacher instruction in areas of STEM, which includes energy efficiency and renewable energy. In FY2016, several proposals focused on science projects related to energy efficiency and renewable energy.

Within the ED SBIR portfolio, examples of projects directly focusing on student learning in the area of energy efficiency and renewable energy systems are as follows:

With a 2015 Phase II award, Strange Loop Games is developing Eco, a multi-player game to teach ecology and prepare middle schools students to be environmentally literate citizens, including learning about energy. To play the game, students enter a shared online world featuring a simulated ecosystem of plants and animals. Students co-create a civilization by measuring, modeling, and analyzing the underlying ecosystem. Students advocate for proposed plans to classmates and make decisions as a group. Cooperation and science-based decision making activities occur in order to prevent the destruction of the environment. The game includes teacher resources to support the alignment of game play to learning goals, and implementation.

Procedures and mechanisms ED used during the reporting fiscal year to give priority in the SBIR/STTR programs to Energy Efficiency and Renewable Energy projects

At ED/IES SBIR in FY2016, the program topic areas permitted proposals for the development of products to promote student learning and teacher instruction in areas of STEM, which includes energy efficiency and renewable energy. In FY2016, several proposals focused on science projects related to energy efficiency and renewable energy.

Specific actions ED has taken to promote and support Energy Efficiency and Renewable Energy Research projects

Specific actions ED SBIR agency has taken to promote and support energy efficiency and renewable energy research projects:

- 1) The ED SBIR program supports energy efficiency and renewable energy within priorities and topics in solicitations.
- 2) The ED SBIR program promotes energy efficiency and renewable energy initiatives at conferences and meetings.
- 3) The ED SBIR program tracks and report success stories demonstrating the impact of the SBIR programs on energy-related projects.
- 4) The ED SBIR program will consider new or additional initiatives/efforts to coordinate with other programs that support energy efficiency and renewable energy.

Department of Commerce (DOC)

NIST

In developing topics and subtopics and when reviewing applications, **NIST** gives high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system R&D projects. Standards for the Smart Grid, energy efficient lighting, photovoltaics, net-zero-energy buildings, and software for "smart" building are examples of NIST research areas related to energy use and conservation. NIST develops the testing, measurements, and reference materials needed to ensure the quality of energy related products and services and ensure fairness in the marketplace.

In FY16, **NIST** awarded a SBIR Phase I to XCSpec Inc. to develop an Air Movement Efficiency Monitor - a small, inexpensive, wireless micro-electromechanical system (MEMS) sensor that operates as a "fitness tracker" for buildings by continuously monitoring and reporting duct leakage, air balancing and fan efficiency at key points.

NOAA

In order to promote energy efficiency or renewable energy, **NOAA** utilizes them as tie-breakers during the evaluation of proposal. Per the FY2016 SBIR Phase I Solicitation (Page 38, Section 4.3), *"In the event of a "tie" between proposals, manufacturing-related projects as well as those regarding energy efficiency and renewable energy systems will receive priority in the award selection process."*

In FY16, there were no specific **NOAA** SBIR Phase I projects related to energy efficiency or renewable energy.

Department of Transportation (DOT)

Examples of DOT SBIR and STTR projects related to Energy Efficiency and Renewable Energy

FY16 DOT Phase I Topics and Awards that address energy efficiency or renewable energy include:

- DOT's 15.1 Solicitation contained a topic sponsored by the Federal Transit Administration (FTA) for "Innovative Transit Technology Devices, Applications, or Solutions Focused on Safety, Mobility, or Energy and Sustainability." One of the awards under that project focused on "An On-Board Eco-Approach and Departure System for Transit Vehicles".
- Additionally, DOT's 16.1 Solicitation contained topics focused on improving alternative low impact transportation methods. These topics were: "Technological Enhancements to Improve and Expand Casual Carpooling Systems", "Connected Bicycle: Communicating with Vehicles and Infrastructure" and "Pedestrian and Cyclist Detection Devices for Transit Buses"

FY16 DOT Phase II and IIB Awards that address energy efficiency or renewable energy include:

- Solar Roadways was awarded a Phase IIB for "Self-Sustaining Intelligent Pavement Systems" in November 2015. Solar Roadways continues to develop technology that covers asphalt and concrete surfaces with Solar Panels that will generate electricity and reduce the use of fossil fuels.
- Innovative Dynamics was awarded a Phase II for "Environmentally Neutral Energy Reclamation Electric Bike System (EnerGE-Bike system)".

As part of the DOT's Call for Topics, DOT includes on the Topic Submission form a question asking if the project is related to energy efficiency or renewable energy and include the following statement: SBIR agencies are encouraged to give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system R&D projects. This information is provided to SBA.

Environmental Protection Agency (EPA)

Examples of EPA SBIR and STTR projects related to Energy Efficiency and Renewable Energy

In FY 2016, EPA awarded 13 new SBIR Phase I awards and 9 new Phase II awards. Three Phase I awards are energy efficiency and renewable energy related awards under P.L. 110-140. These awards (listed below) are for technologies that improve energy efficiency in buildings, technologies with improved energy efficiency over traditional technologies, or technology solutions for the renewable energy industry.

FY 2016 Phase I awards

- **EP-D-17-002 ASAT, INC. Cottage Grove, OR**
Developing/Manufacturing/Selling an Affordable Clean Burning Biomass Heating/Cooking/Lighting Integrated Stove
- **EP-D-17-003 Babington Technology, Inc. Rocky Mount, NC**
Babington Net-Power, Multi-liquid Fuel Heater/Cooker
- **EP-D-17-004 Hi-Z Technology, Inc. San Diego, CA**
Biofueled Thermoelectric Cookstove

Procedures and mechanisms EPA used during the reporting fiscal year to give priority in the SBIR/STTR programs to Energy Efficiency and Renewable Energy projects

EPA's SBIR Program includes energy as an overall criterion in selecting which environmental technologies it funds because EPA cares about the lifecycle environmental impacts of the technology and energy demand and usage are major factors in the environmental impact of a technology.

Specific language from the FY 2016 Phase I solicitation addressing lifecycle and energy is as follows and is used repeatedly in outreach about the program:

SBIR proposals should directly pertain to EPA's mission of protecting human health and the environment and should consider the lifecycle environmental impacts of the technology itself including (if applicable) minimizing resource use, minimizing toxicity of materials, **efficient use of water and energy**, minimizing pollution and minimizing impacts of disposal.

EPA also uses energy in specific topic descriptions to give priority to projects that address energy efficiency and renewable energy. For example, the EPA SBIR program solicitation includes energy efficiency and renewable energy criteria in almost all of its environmental topics including Air and Climate, Water, and Manufacturing. Specific language from the solicitation related to energy demand within the manufacturing topic is as follows:

The EPA is seeking more sustainable ways of manufacturing plastics that eliminate the use of toxic chemicals in their production, **greatly reduce the amount of energy** used, and eliminate toxic pollutants that result from the manufacturing process.

Specific actions EPA has taken to promote and support Energy Efficiency and Renewable Energy Research projects

EPA's SBIR program continues to emphasize energy efficiency and renewable energy related topics and priorities at national, regional and state SBIR conferences and includes energy efficiency and renewable energy as criteria for other topic areas including air and climate, water, and manufacturing. Emphasis has been placed on opportunities for small businesses to submit new technology proposals which emphasize energy efficiency (and therefore reduction of carbon emissions) in almost all topic areas in the EPA solicitation. This is emphasized as a way to demonstrate the lifecycle environmental benefits of the proposed technology.

Department of Defense (DOD)

Energy Efficiency and Renewable Energy Related SBIR/STTR Awards FY16				
Agency	Dollar Amount Phase I	Number of Awards Phase I	Dollar Amount Phase II	Number of Awards Phase II
Air Force	\$4,197,615	28	\$19,603,898	21
Army	\$2,847,295	19	\$9,501,654	11
CBD	-	-	-	-
DARPA	\$1,354,467	9	\$13,121,691	9
DHA	-	-	-	-
DLA	-	-	-	-
DTRA	-	-	-	-
MDA	\$0	0	\$2,999,804	3
Navy	\$17,486,931	174	\$47,477,140	62
OSD	0	0	\$999,758	1
SOCOM	\$0	0	2991208	2
DoD TOTAL	\$25,886,308	230	\$96,695,153	109

Examples of DoD SBIR and/or STTR projects related to Energy Efficiency and Renewable Energy

DoD SBIR/STTR releases three solicitations per year; included in these solicitations are topics related to and promoting energy efficiency and renewable energy. A list of projects promoting energy efficiency and renewable energy can be found in the below table:

Program	Firm	Proposal Number	Proposal Title	Award Amount	Lab	Project Status
SBIR	Psikick	A141-052-0006	Ultra Low-Power System on a Chip (SoC) for Physiological Status Monitoring (PSM)	\$149,638	MRMC	Completed Phase 1
SBIR	NextGen Aeronautics	A2-5762	Embedded Self-repairing Antenna Composite (ESAC)	\$995,332	CERDEC	Completed Phase 2
SBIR	Telaris Inc.	A2-6405	Quantum Noise Controlled Laser for Integrated Photonics	\$501,095	ARO	Active Phase 2
SBIR	Digital Solid State Propulsion Inc	B2-2055	Green Catalyst-free Electric Monopropellant (GEM) for Insensitive Munitions (IM) Compliance	\$999,993	MDA	Active Phase 2
SBIR	Solid Power, Inc.	B2-2068	All Solid-State Rechargeable Batteries for Throttleable Divert and Attitude Control Systems (TDACS)	\$999,823	MDA	Active Phase 2
SBIR	ADA Technologies, Inc.	B2-2090	Extreme Long Life High Energy Battery	\$999,988	MDA	Active Phase 2
SBIR	MaXentric Technologies LLC	D143-004-0118	High Performance, Integrated TransiDARPArs for On-Chip Power Supplies	\$99,940	DARPA	Completed Phase 1
SBIR	TRITON SYSTEMS, INC.	D153-001-0040	Soft Bio-Interfaces for Physiological Sensing and Modulation	\$154,619	DARPA	Active Phase 1
SBIR	TDA Research, Inc.	D153-001-0052	Conducting ElaDARPAmeric Electrodes for Bio-Interface Applications	\$149,999	DARPA	Active Phase 1
SBIR	Luna Innovations Incorporated	D153-001-0061	Flexible Low-Modulus Nanofiber-Based TIME Nerve Interfaces	\$149,997	DARPA	Active Phase 1

SBIR	Qualia Medical	D153-001-0094	Soft Bio-Interfaces for Physiological Sensing and Modulation	\$149,990	DARPA	Active Phase 1
SBIR	Physical Optics Corporation	D162-008-0034	Inter-ensemble Coherent Distributed Communication	\$149,997	DARPA	Active Phase 1
SBIR	Vadum	D162-008-0143	Distributed Coherent Communications	\$149,982	DARPA	Active Phase 1
SBIR	UtopiaCompression, Corporation	D162-008-0213	Distributed Beamforming for Air/Ground Communications	\$149,973	DARPA	Active Phase 1
SBIR	Intelligent Automation, Inc.	D162-008-0295	DIStributed COherent communication system (DISCO)	\$150,000	DARPA	Active Phase 1
SBIR	Mainstream Engineering Corporation	D2-1168	Pump for mixed phase refrigerant	\$2,533,797	DARPA	Active Phase 2
SBIR	Land Sea Air Autonomy	D2-1272	Hybrid Off-Road Motorcycle	\$1,499,647	DARPA	Completed Phase 2
SBIR	MicroLeads	D2-1367	Advanced Micro-System for Scalable Neural Recording and Stimulation	\$1,485,666	DARPA	Active Phase 2
SBIR	Ripple LLC	D2-1374	EXTENSIBLE HERMETIC NEURAL INTERFACE MICROSYSTEMS	\$1,498,516	DARPA	Active Phase 2
SBIR	Logos Technologies, Inc.	D2-1396	Multi-Fueled Hybrid Motorcycle for Covert Mobility	\$1,473,121	DARPA	Completed Phase 2
SBIR	UtopiaCompression, Corporation	D2-1413	Vision Based Sense and Avoid Solution for small UAS	\$1,499,956	DARPA	Active Phase 2
SBIR	Bashpole Software, Inc.	D2-1471	GISARO - SSP2	\$1,500,000	DARPA	Active Phase 2
SBIR	MaXentric Technologies LLC	D2-1484	High Performance, Integrated TransiDARPArs for On-Chip Power Supplies	\$999,953	DARPA	Active Phase 2
SBIR	Advanced Technologies Group, Inc.	F151-056-0541	Advanced Ram Air Turbine Auxiliary Power Unit for High Altitude Long Endurance Aircraft	\$149,961	RQ	Completed Phase 1
SBIR	Create LLC	F151-056-1151	Closed-Loop Turbo-Brayton Power System for High-Altitude Aircraft	\$149,962	RQ	Completed Phase 1
SBIR	NexTech Materials, Ltd.	F151-056-1293	SOFC Based APU for Unmanned Aerial Systems	\$149,999	RQ	Completed Phase 1

	dba Nexceris, LLC					
SBIR	Florida Turbine Technologies, Inc.	F151-059-0762	Advanced Component Cooling Design and Evaluation for Gas Turbine Engines	\$149,943	RQ	Completed Phase 1
SBIR	Mechanical Solutions, Inc.	F151-059-1697	Advanced Component Cooling Design and Evaluation for Gas Turbine Engines	\$149,995	RQ	Completed Phase 1
SBIR	Space Information Laboratories, LLC	F151-067-0220	Advanced Electrochemical Power Sources and Lithium-Ion Batteries for Space-Launch Vehicles	\$149,983	RQ	Completed Phase 1
SBIR	BST Systems Inc	F151-067-0961	Advanced Electrochemical Power Sources and Lithium-Ion Batteries for Space-Launch Vehicles	\$149,608	RQ	Completed Phase 1
SBIR	LaunchPoint Technologies, Inc.	F151-070-0734	Modular Motor Drive with Programming and Configuration Tools for the Development of Small Aircraft Electric Power and Propulsion Systems	\$149,921	RQ	Completed Phase 1
SBIR	BoDARPA Engineering Corporation	F151-070-1581	Modular Motor Drive with Programming and Configuration Tools for the Development of Small Aircraft Electric Power and Propulsion Systems	\$149,996	RQ	Completed Phase 1
SBIR	PC Krause and Associates, Inc.	F151-070-2195	Modular Motor Drive with Programming and Configuration Tools for the Development of Small Aircraft Electric Power and Propulsion Systems	\$149,996	RQ	Completed Phase 1
SBIR	Angstrom Designs, Inc.	F151-076-0970	Constellation Array Design and Analysis Study	\$149,601	RV	Completed Phase 1
SBIR	Vanguard Space Technologies, Inc.	F151-076-1713	Advanced Solar Array for Dual Launch GPS	\$149,579	RV	Completed Phase 1
SBIR	Create LLC	F151-084-0613	A Modular Power Converter for Austere Space Environments	\$149,896	RV	Completed Phase 1

SBIR	UltraCell LLC	F2-7633	RIPPED UAV - Renewable Integrated Propulsion Power Electric Delivery for UAV's	\$750,000	RQ	Active Phase 2
SBIR	McGaw Technology, Inc.	F2-7687	Robust Cryogenic Compatible Turbo-machinery and Liquid Rocket Engine coatings	\$740,874	RQO	Active Phase 2
SBIR	Escape Communications, Inc.	F2-7727	W and V Band Satellite Transceiver	\$736,186	RV	Active Phase 2
SBIR	Solid State Scientific Corporation	F2-7740	Active, frequency-selective meta-surfaces for reduced antenna footprint and jamming mitigation	\$749,753	RV	Active Phase 2
SBIR	AMERGINT Technologies, LLC	F2-7748	Software-Only Front-End Processors for Satellite Command and Control	\$733,840	RV	Active Phase 2
SBIR	Guerci Consulting	F2-7786	Cognitive Fully Adaptive Radar (CoFAR)	\$749,956	RY	Active Phase 2
SBIR	Picomatrix LLC	F2-7820	Panel Step/Gap Mismatch Measurement	\$1,440,980	RX	Active Phase 2
SBIR	METSS Corporation	F2-7933	Find substitute for Methylene Chloride in depaint operations at Hill AFB	\$750,000	AFSC-Hil	Active Phase 2
SBIR	Defense Research Associates, Inc.	F2-7945	Laser Technologies Adapted for UAS Sense and Avoid (SAA) Applications	\$1,490,275	RY	Active Phase 2
SBIR	Securboraton Inc	F2-7946	Link Analysis of Knowledge Derived from Social Media Sources	\$1,049,981	RI	Active Phase 2
SBIR	The Design Knowledge Company	F2-7977	ICEE-SA: Integrated Civil Engineering Environment-Situation Awareness	\$1,472,891	RY	Completed Phase 2
SBIR	EDaptive Computing, Inc.	F2-8147	Integration of Risk Analysis into Acquisition Cost, Schedule, and Performance Evaluation Tools	\$1,499,439	RY	Active Phase 2
SBIR	Mainstream Engineering Corporation	F2-8174	Rapidly Configurable Turbomachines for Air Cycle Machine Emulation	\$749,418	RQ	Active Phase 2

SBIR	New Eagle Consulting LLC	F2-8235	Generic Power/Propulsion Microcontroller for Unmanned Aircraft Systems (UAS)	\$745,983	RQ	Active Phase 2
SBIR	Hyper Tech Research Inc.	F2-8259	Lightweight Electric Wires and Cables from CNT-Cu Composites for Airborne Platforms	\$750,000	RQ	Active Phase 2
SBIR	FTL Labs Corporation	F2-8356	Enhanced Fuel Cells for Wastewater Treatment	\$749,906	AFSC	Active Phase 2
SBIR	TDA Research, Inc.	N142-087-0377	Expeditionary Portable Oxygen Generation System	\$150,000	MARCOR	Completed Phase 1
SBIR	ATA Engineering, Inc	N142-088-0018	High Efficiency Insulating Barrier for Expeditionary Shelters	\$154,458	MARCOR	Completed Phase 1
SBIR	Altex Technologies Corporation	N151-001-0791	Improved Softwall Shelter Heating System	\$79,994	MARCOR	Completed Phase 1
SBIR	AEROPHASE	N151-001-0839	Portable Multi-fuel Shelter Heater	\$79,308	MARCOR	Completed Phase 1
SBIR	BlazeTech Corp.	N151-001-1007	Improved Softwall Shelter Heating System	\$80,000	MARCOR	Completed Phase 1
SBIR	Davis Technologies Intl., Inc.	N151-003-0128	Low Complexity Suspension System for Amphibious Vehicles	\$79,177	MARCOR	Completed Phase 1
SBIR	Loc Performance Products, Inc	N151-003-0488	Best Value Suspension System	\$79,964	MARCOR	Completed Phase 1
SBIR	Great Lakes Sound & Vibration, Inc.	N151-004-0167	Compact Auxiliary Power System for Amphibious Combat Vehicle	\$79,930	MARCOR	Completed Phase 1
SBIR	CornerDARPAne Research Group, Inc.	N151-004-0561	Hybrid Electric Auxiliary Power System for Amphibious Combat Vehicle	\$80,000	MARCOR	Completed Phase 1
SBIR	Busek Co. Inc.	N151-004-0872	Compact Auxiliary Diesel Generator Enhanced with Electronic Fuel Injection	\$79,983	MARCOR	Completed Phase 1
SBIR	Diversified Technologies, Inc.	N151-016-0327	Direct Replacement Ignition Upgrade for Present and Future CombuDARPArs and Augmentors	\$79,683	NAVAIR	Completed Phase 1
SBIR	Creare LLC	N151-016-0579	Design Tools for Implementing Advanced	\$79,959	NAVAIR	Completed Phase 1

			Augmentor Ignition Systems			
SBIR	Knite Inc.	N151-016-0831	Direct Replacement Ignition Upgrade for Present and Future CombuDARPARs and Augmentors	\$79,977	NAVAIR	Completed Phase 1
SBIR	KCF Technologies, Inc	N151-027-0351	ADVANCED SUBMARINE CONDITION MONITORING	\$84,989	NAVSEA	Completed Phase 1
SBIR	PneumatiCoat Technologies	N151-048-0331	Long Life, Highly Efficient All-Solid-State Batteries for Sensor Systems	\$80,000	NAVSEA	Completed Phase 1
SBIR	CFD Research Corporation	N151-048-0429	A High Capacity Solid State Battery for Wireless Sensor Applications	\$79,912	NAVSEA	Completed Phase 1
SBIR	Physical Sciences Inc.	N151-048-0504	High Energy, Long Life Cells for On-Board Sensors	\$79,919	NAVSEA	Completed Phase 1
SBIR	MTECH LABORATORIES LLC	N151-065-0384	Innovative Power Electronic Switch for Naval Applications in Extreme Temperatures	\$80,000	ONR	Completed Phase 1
SBIR	Arkansas Power Electronics International, Inc.	N151-065-0766	A Modular High Voltage (> 10 kV), High Power Density SiC Power Package for Extreme Environments	\$79,971	ONR	Completed Phase 1
SBIR	Mainstream Engineering Corporation	N151-065-1085	Extreme Temperature, Low Loss CuDARPA Power Switch	\$79,960	ONR	Completed Phase 1
SBIR	BoDARPA Engineering Corporation	N151-066-0292	BI-FLEX: Soft ElaDARPAmeric Technology for Rapidly Deployable Manipulation Capability	\$79,997	ONR	Completed Phase 1
SBIR	RE2, Inc.	N151-066-0505	Underwater Dual Manipulator “Inflatable (UDMI)	\$79,993	ONR	Completed Phase 1
SBIR	Other Lab Inc.	N151-066-0517	Soft ElaDARPAmeric Manipulators for Underwater Vehicles	\$79,960	ONR	Completed Phase 1
SBIR	Physical Sciences Inc.	N151-068-0556	Novel Electrical Power Generation Technology for Hypersonic Flight Vehicles	\$79,191	ONR	Completed Phase 1

SBIR	eM-TECH, Inc	N151-068-0800	Ultra-High Temperature Thermoelectrics	\$79,997	ONR	Completed Phase 1
SBIR	Directed Vapor Technologies International, Inc.	N151-070-0920	Development of Marinized Protective Coatings for Higher Temperature Operations of Marine Gas Turbine Engines	\$79,891	ONR	Completed Phase 1
SBIR	IBC Materials & Technologies	N151-070-1071	Enhanced Oxide Layer Formation through Plasma Electrolytic Diffusion Processing of Hot Section Components	\$79,714	ONR	Completed Phase 1
SBIR	K2 Energy Solutions, Inc.	N151-073-0229	Enhanced Cell Designs for Improved Internal Heat Transfer for High Rate and Power Capable, Large-Format Batteries	\$79,626	ONR	Completed Phase 1
SBIR	InvenTek Corporation	N151-073-0512	Enhanced Cell Designs for Improved Internal Heat Transfer for High Rate and Power Capable, Large-Format Batteries	\$80,000	ONR	Completed Phase 1
SBIR	Mainstream Engineering Corporation	N151-073-1099	Ultra-High Internal Battery Heat Transfer	\$79,975	ONR	Completed Phase 1
SBIR	Art Anderson Associates	N151-075-0145	Technology for Ship to Shore Connector Concepts with Combined High Speed and Payload Fraction	\$80,000	ONR	Completed Phase 1
SBIR	Navatek Ltd	N151-075-0534	Technology for Ship to Shore Connector Concepts with Combined High Speed and Payload Fraction	\$79,289	ONR	Completed Phase 1
SBIR	Ablaze Development Corp	N151-075-1001	Technology for Ship to Shore Connector Concepts with Combined High Speed and Payload Fraction	\$79,839	ONR	Completed Phase 1
SBIR	Tridentis, LLC	N151-075-1095	Landing Craft Utility - Surface Effect Ship	\$79,993	ONR	Completed Phase 1
SBIR	NDI Engineering Company	N152-086-0073	Flight Deck Lighting Addressable Smart Control Modules	\$80,000	NAVAIR	Completed Phase 1
SBIR	C3I, Inc.	N152-086-0459	Flight Deck Lighting Addressable Smart Control Modules	\$78,888	NAVAIR	Completed Phase 1

SBIR	InnoSys	N152-086-0552	Flight Deck Lighting Addressable Smart Control Modules	\$79,998	NAVAIR	Completed Phase 1
SBIR	MetaStable Instruments, Inc.	N152-089-0175	High Peak Power 1.9 um Thulium-Doped Solid-State Lasers for Next-Generation Compact and Robust High Peak-Power Blue Lasers	\$79,998	NAVAIR	Completed Phase 1
SBIR	Arete Associates	N152-089-0451	High Peak Power 1.9 um Thulium-Doped Solid-State Lasers for Next-Generation Compact and Robust High Peak-Power Blue Lasers	\$84,998	NAVAIR	Completed Phase 1
SBIR	Physical Sciences Inc.	N152-093-0114	Development of High Performance Li-S Based Battery	\$79,977	NAVAIR	Completed Phase 1
SBIR	Lynntech, Inc.	N152-093-0127	Advanced Cathode for High Energy Li-Air Batteries	\$79,999	NAVAIR	Completed Phase 1
SBIR	Giner, Inc.	N152-093-0464	Innovative Cathode Structure for Rechargeable Lithium/Oxygen Battery with Increased Energy Density and Cycle Life	\$79,998	NAVAIR	Completed Phase 1
SBIR	Navitas Advanced Solutions Group	N152-093-0526	High Rate, Long Cycle Life Lithium Sulfur Batteries	\$80,000	NAVAIR	Completed Phase 1
SBIR	TDA Research, Inc.	N152-093-0540	High-Energy, Long-Life Lithium-Sulfur Batteries	\$80,000	NAVAIR	Completed Phase 1
SBIR	Physical Optics Corporation	N152-096-0121	Joint Avionics Reconfigurable Virtual Information System	\$79,996	NAVAIR	Completed Phase 1
SBIR	WW Technology Group	N152-096-0416	Mission Processing Architecture for Rotorcraft Avionics	\$80,000	NAVAIR	Completed Phase 1
SBIR	QuickFlex, Inc	N152-096-0591	FlexDuo – FPGA Accelerated, Flexible Execution Mission Processing Architecture	\$80,000	NAVAIR	Completed Phase 1
SBIR	Creare LLC	N152-097-0392	Mobile Plasma Gasification System for Waste-to-Energy Conversion	\$79,909	NAVFAC	Completed Phase 1
SBIR	Community Power Corporation	N152-097-0429	Low Emissions Waste to Energy Disposal	\$79,155	NAVFAC	Completed Phase 1

SBIR	Mainstream Engineering Corporation	N152-097-0770	Deployable Clean Pyrolysis Waste Remediation System for Remote Operations	\$79,622	NAVFAC	Completed Phase 1
SBIR	GridBridge, Inc	N152-098-0105	Modular Energy Router for Enabling Intelligent Naval Microgrids	\$79,998	NAVFAC	Completed Phase 1
SBIR	Intelligent Power & Energy Research Corporation	N152-098-0441	Modular Smart Micro/Nano-Grid Power Management System	\$79,928	NAVFAC	Completed Phase 1
SBIR	Diversified Technologies, Inc.	N152-098-0632	Modular Smart Micro/Nano-Grid Power Management System	\$79,803	NAVFAC	Completed Phase 1
SBIR	Paragon Space Development Corporation	N152-099-0476	Buswork Integrated Cooling System (BICS)	\$79,691	NAVSEA	Completed Phase 1
SBIR	RCT Systems, Inc.	N152-099-0751	Cooled BusWork for Shipboard Distribution and Energy DARParage	\$79,802	NAVSEA	Completed Phase 1
SBIR	Combustion Research and Flow Technology, Inc.	N152-100-0044	Navy Air Cushions Vehicles (ACVs) Lift Fan Impeller Optimization	\$80,000	NAVSEA	Completed Phase 1
SBIR	Creare LLC	N152-100-0382	Performance and Cost Optimization of an Advanced Lift Fan Blade for Hovercraft	\$79,841	NAVSEA	Completed Phase 1
SBIR	Sentient Corporation	N152-109-0462	Reliability Centered Additive Manufacturing Design Framework	\$79,998	ONR	Completed Phase 1
SBIR	Analatom Incorporated	N152-109-0762	Reliability Centered Additive Manufacturing Design Framework	\$79,997	ONR	Completed Phase 1
SBIR	QuinStar Technology, Inc.	N152-114-0033	W-band GaN IMPATT Devices	\$79,978	ONR	Completed Phase 1
SBIR	White Light Power Inc.	N152-114-0243	GaN Avalanche Devices for RF Power Generation	\$79,848	ONR	Completed Phase 1
SBIR	Advanced Cooling Technologies, Inc.	N152-115-0234	A Software Toolkit for Dynamic Control of Active Thermal Management Systems	\$79,999	ONR	Completed Phase 1
SBIR	Dynsan	N152-115-0553	Active Thermal Control System Optimization	\$79,990	ONR	Completed Phase 1
SBIR	CU Aerospace	N152-115-0571	Thermal Management System Toolkit for Naval Warfare Applications	\$79,999	ONR	Completed Phase 1
SBIR	PC Krause and Associates, Inc.	N152-115-0572	Software Toolset for Dynamic Thermal	\$80,000	ONR	Completed Phase 1

			Management Analysis, Controls, and Optimization			
SBIR	Creare LLC	N152-118-0348	Advanced Carbon Nanotube Flywheel for Pulsed Power Applications	\$79,854	ONR	Completed Phase 1
SBIR	Physics, Materials, and Applied Mathematics Research L.L.C.	N152-118-0505	Novel Hybrid Carbon Nanotube Based Flywheel Energy DARPArage for Shipboard Pulse Load Operation	\$79,998	ONR	Completed Phase 1
SBIR	Gloyer-Taylor Laboratories LLC	N152-118-0606	CNT enhanced KineticCore FES system	\$79,918	ONR	Completed Phase 1
SBIR	San Diego Composites, Inc.	N152-118-0700	Improved Strength Materials and Manufacturing Through Nanomaterial Integration for High-Energy Capacity Filament Wound Composite Flywheels	\$79,873	ONR	Completed Phase 1
SBIR	MicroLink Devices	N153-124-0169	Harvestable Energy System for Use in Covered Locations	\$80,000	MARCOR	Active Phase 1
SBIR	Mide Technology Corporation	N153-124-0205	BISCEP (Biomass Incinerating Stirling Cycle Energy Producer)	\$80,000	MARCOR	Active Phase 1
SBIR	Pioneer Valley Renewables	N153-124-0239	Hydrokinetic Energy System for Use in Covered Locations	\$79,999	MARCOR	Active Phase 1
SBIR	Physical Optics Corporation	N153-125-0062	Compact Omnidirectional Multiband Counter-Sniper System	\$79,997	MARCOR	Active Phase 1
SBIR	Intelligent Automation, Inc.	N153-125-0244	SPOTTER: Shot Precise Origin Tracking	\$80,000	MARCOR	Active Phase 1
SBIR	Cyan Systems	N153-125-0266	Compact High Definition Small Arms Sensor	\$78,681	MARCOR	Active Phase 1
SBIR	TRITON SYSTEMS, INC.	N153-127-0019	Low Power Water Purification System	\$79,974	MARCOR	Active Phase 1
SBIR	Physical Optics Corporation	N153-127-0079	Electro-Desalination and Neutralization System	\$79,997	MARCOR	Active Phase 1
SBIR	Vesitech, Inc	N153-127-0182	Multi-Stage Squad-sized Water Purification System Incorporating Hybrid CDI Technology	\$79,957	MARCOR	Active Phase 1

SBIR	Physical Optics Corporation	N153-128-0064	Ultra-compact Low-emission Tactical Real-time Augmented/See-through Digital Night Vision Display	\$79,999	MARCOR	Active Phase 1
SBIR	Nanohmics, Inc	N153-128-0164	Light Secure, See-Through Display	\$79,999	MARCOR	Active Phase 1
SBIR	Six15 Technologies	N153-128-0206	Light Secure, See-Through Display	\$78,715	MARCOR	Active Phase 1
SBIR	Wecoso LLC	N153-129-0071	Ultra-Lightweight Expeditionary Power System (U-LEPS)	\$79,069	MARCOR	Active Phase 1
SBIR	Windlift	N153-129-0166	Ultra-lightweight and Compact Hybrid System	\$80,000	MARCOR	Active Phase 1
SBIR	APECOR	N153-129-0268	Compact Highly Integrated Hybrid Power System	\$79,962	MARCOR	Active Phase 1
SBIR	ALLVIA, Inc.	N153-130-0147	Three-Dimensional (3D) Interconnect Technology to Improve Size, Weight, Power, and Cost (SWAP-C) of Current and Future Electronic Systems	\$79,900	NSMA	Active Phase 1
SBIR	Voxel Inc.	N153-130-0255	Multi-Wafer-Stack Three-Dimensional (3D) Interconnect Manufacturing Technology	\$84,998	NSMA	Active Phase 1
SBIR	Novati Technologies	N153-130-0286	Three-Dimensional (3D) Interconnect Technology to Improve Size, Weight, Power, and Cost (SWAP-C) of Current and Future Electronic Systems	\$79,921	NSMA	Active Phase 1
SBIR	Nour, LLC	N161-005-0036	III-Nitride Based Compact 320-355 nm UV Lasers	\$79,996	NAVAIR	Active Phase 1
SBIR	Adroit Materials	N161-005-0620	Development of high-power near-UV semiconductor laser diodes	\$80,000	NAVAIR	Active Phase 1
SBIR	Arete Associates	N161-005-0789	Compact Ultraviolet (UV) Laser Emitter in the 320-355 Nanometer (nm) Spectral Range	\$84,998	NAVAIR	Active Phase 1
SBIR	TPhotonics	N161-005-0962	Compact Ultraviolet (UV) Laser Emitter in the 320-355 Nanometer (nm) Spectral Range	\$79,672	NAVAIR	Active Phase 1

SBIR	Prime Photonics, LC	N161-011-0717	Filtered Rayleigh Scattering Approach for Multi-Property Flow Measurement in Tactical Aircraft Inlets	\$79,926	NAVAIR	Active Phase 1
SBIR	Applied University Research, Inc	N161-011-0866	Turbomachinery DiDARPArtion Characterization by Non-intrusive Measurement Methods	\$79,999	NAVAIR	Active Phase 1
SBIR	DARPAregenergy Technologies, Inc.	N161-012-0082	High-Capacity SnSb Alloy Anode Fabricated by Centrifugal Spinning Method	\$79,972	NAVAIR	Active Phase 1
SBIR	SIILLION, INC.	N161-012-0130	Low-cost micron-Si Anodes for Non-flammable, High Energy-Density Lithium-ion Batteries	\$80,000	NAVAIR	Active Phase 1
SBIR	Nanotek Instruments, Inc.	N161-012-0362	Cost-Effective Manufacturing of High-Energy Lithium-Ion Batteries Utilizing Next Generation, Graphene-Protected Silicon Anodes and Non-Flammable Electrolytes	\$79,999	NAVAIR	Active Phase 1
SBIR	CAMX Power LLC	N161-012-0543	High Energy, Long Life, Li-Ion Battery System Employing Novel Anode Architecture.	\$79,899	NAVAIR	Active Phase 1
SBIR	Navitas Advanced Solutions Group	N161-012-0598	Reinforced Microporous Silicon Alloy Anodes for Next Generation Lithium Batteries	\$80,000	NAVAIR	Active Phase 1
SBIR	Global Strategic Solutions LLC	N161-016-0181	iPhone Operating System (iOS) Framework and Application Development for Electronic Kneeboard	\$76,886	NAVAIR	Active Phase 1
SBIR	Big Nerd Ranch	N161-016-0186	iPhone Operating System (iOS) Framework and Application Development for Electronic Kneeboard	\$79,930	NAVAIR	Active Phase 1
SBIR	Soar Technology, Inc.	N161-016-0341	Pioneering Architecture for Tablet EElectronic Kneeboard Applications (PATELLA)	\$79,869	NAVAIR	Active Phase 1
SBIR	Applied Technical Systems Inc.	N161-016-0865	Applying a User-Centered Design Process to the Creation of an	\$79,892	NAVAIR	Active Phase 1

			Electronic Kneeboard Application Suite			
SBIR	Advanced Conductor Technologies LLC	N161-026-0662	Fault Current Limiting CORC Distribution Cables	\$80,000	NAVSEA	Active Phase 1
SBIR	AMERICAN SUPERCONDUCTOR	N161-026-0734	Fault Current Limiting (FCL) Distribution Cable	\$79,997	NAVSEA	Active Phase 1
SBIR	Diversified Technologies, Inc.	N161-026-0889	Fault Current Limiting Liquid Nitrogen Cooled Circuit Breaker	\$79,893	NAVSEA	Active Phase 1
SBIR	OpenWater Power	N161-030-0037	Safe High Density Undersea Power Source	\$79,718	NAVSEA	Active Phase 1
SBIR	Radiation Monitoring Devices, Inc.	N161-030-0513	Long duration hybrid power source for undersea operations	\$79,996	NAVSEA	Active Phase 1
SBIR	Bettergy Corp.	N161-030-0671	A Safe High Energy Density Power Source for Undersea Applications	\$79,968	NAVSEA	Active Phase 1
SBIR	Mosaic Materials, Inc.	N161-040-0079	Development of Diamine-Appended Metal-Organic Frameworks as ADARPArents for Submarine Life Support Systems	\$79,914	NAVSEA	Active Phase 1
SBIR	Proton Energy Systems	N161-040-0118	Electrochemical Capture of Carbon Dioxide from Air for Life Support in Closed Environments	\$80,000	NAVSEA	Active Phase 1
SBIR	Lynntech, Inc.	N161-040-0365	High Surface Area Modified Resins for Carbon Dioxide Capture	\$79,993	NAVSEA	Active Phase 1
SBIR	TDA Research, Inc.	N161-040-0667	MOF Sorbents for CO2 Removal from Submarines	\$79,995	NAVSEA	Active Phase 1
SBIR	Howell Laboratories, Inc.	N161-044-0026	OHIO Class External Hull Antifouling	\$76,320	NAVSEA	Active Phase 1
SBIR	Lynntech, Inc.	N161-044-0565	Low Cost Antifouling Solution	\$80,000	NAVSEA	Active Phase 1
SBIR	Analysis, Design & Diagnostics, Inc.	N161-044-0714	OHIO Class External Hull Antifouling	\$80,000	NAVSEA	Active Phase 1
SBIR	BoDARPA Engineering Corporation	N161-044-0729	OHIO Class External Hull Antifouling	\$79,991	NAVSEA	Active Phase 1

SBIR	Physical Optics Corporation	N161-061-0041	Active-Feedback Laser Surface Preparation System	\$79,998	ONR	Active Phase 1
SBIR	Surfx Technologies LLC	N161-061-0242	Non-aqueous Environmentally Benign Surface Preparation for Aluminum Pre-treatment Processes	\$79,999	ONR	Active Phase 1
SBIR	Luna Innovations Incorporated	N161-061-0606	Air Plasma Preparation of Aluminum Alloy Surfaces for Pretreatments	\$79,999	ONR	Active Phase 1
SBIR	CU Aerospace	N161-062-0170	Sacrificial Fiber Anisotropic Recuperator (SFAR)	\$79,999	ONR	Active Phase 1
SBIR	Creare LLC	N161-062-0494	Recuperator for SWaP-C Sensitive Cryocooler Applications	\$79,998	ONR	Active Phase 1
SBIR	Micro Cooling Concepts, Inc.	N161-062-0579	Anisotropic Ceramic-Metal Heat Exchanger for Cryogenic Applications	\$79,667	ONR	Active Phase 1
SBIR	GeneSiC Semiconductor Inc.	N161-066-0489	Robust SiC MOSFET based Power Modules	\$80,000	ONR	Active Phase 1
SBIR	United Silicon Carbide, Inc	N161-066-0533	6500V-100A SiC JFET-Based Half-Bridge Module	\$79,848	ONR	Active Phase 1
SBIR	NexTech Materials, Ltd. dba Nexceris, LLC	N161-072-0214	Lightweight Solid Oxide Fuel Cell System	\$79,999	SPAWAR	Active Phase 1
SBIR	Precision Combustion, Inc.	N161-072-0490	Power-dense, Scalable, JP-5/JP-8/DF2 Fueled, SOFC Power Generator	\$79,984	SPAWAR	Active Phase 1
SBIR	Physical Optics Corporation	N162-107-0185	Cobalt Oxide Nanocubane-based Oxygen Generator System	\$79,995	NAVSEA	Active Phase 1
SBIR	Proton Energy Systems	N162-107-0383	Increased Utilization of Non-Strategic Metals for PEM Electrolyzers	\$79,999	NAVSEA	Active Phase 1
SBIR	Giner, Inc.	N162-107-0500	Virginia Class PEM Electrolyzer Cost Reduction by Reduced PGM Loadings	\$79,906	NAVSEA	Active Phase 1
SBIR	TDA Research, Inc.	N162-107-0700	Advanced PEM Electrocatalysts for Submarine Oxygen Generators	\$79,998	NAVSEA	Active Phase 1

SBIR	Progeny Systems Corporation	N2-4581	Cost-Effective Technologies for Fabrication of PiezoCrystal Vector Velocity Sensors	\$742,421	ONR	Completed Phase 2
SBIR	TIAX LLC	N2-4668	Capacitor-Battery Hybrid Cell	\$500,000	NAVFAC	Completed Phase 2
SBIR	Creare LLC	N2-4684	A Nanophosphate Lithium-ion Chemistry Source for Crossover Power Sources	\$749,928	NAVSEA	Active Phase 2
SBIR	Edward Pope Dr dba MATECH	N2-4689	Reduced Cost 2700F CMC Component Manufacturing	\$518,566	ONR	Active Phase 2
SBIR	Mainstream Engineering Corporation	N2-4696	Advanced and Additive Materials Manufacturing for Energy Applications using Superconducting Electron Beam Technology	\$863,318	ONR	Active Phase 2
SBIR	Transparent Armor Solutions	N2-4726	Lightweight Gemini™ Transparent Armor for Land Vehicle Applications	\$540,151	ONR	Active Phase 2
SBIR	LaunchPoint Technologies, Inc.	N2-4744	Helicopter Electric Tail Rotor Drive	\$499,941	ONR	Completed Phase 2
SBIR	Kyma Technologies, Inc.	N2-4757	Millimeter Thick, Periodically Oscillating Polarity GaN Grown via HVPE	\$517,616	ONR	Completed Phase 2
SBIR	Engineering Research and Analysis Company	N2-4806	Technologies for the Suppression of Combustion Instability or Screech	\$618,151	NAVAIR	Completed Phase 2
SBIR	IAP Research, Inc.	N2-4833	Affordable Point of Use Conversion (PUC) Module for 400Hz Power System Applications	\$999,890	NAVSEA	Active Phase 2
SBIR	Aurora Flight Sciences Corporation	N2-4835	High-Efficiency Propulsion for EMATT Sprint Speed Capability	\$999,986	NAVSEA	Active Phase 2
SBIR	The David Ross Group	N2-4841	Subsea Long Haul Optical Transponder	\$950,462	NAVSEA	Completed Phase 2
SBIR	Eagle Harbor Technologies, Inc.	N2-4880	A Variable Pulse Width, Voltage, and Repetition Frequency IGBT-based High Power Radio Frequency Source Driver	\$500,984	ONR	Active Phase 2

SBIR	AMERICAN SUPERCONDUCTOR	N2-4896	Compact, Lossless, Ruggedized, Electromagnetically Shielded Connectors for Power and Signals	\$501,859	ONR	Active Phase 2
SBIR	D&P LLC	N2-4920	Multiscale Lagrangian-Eulerian Algorithm for Determining the Vorticity Confinement Term for Rotorcraft Computational Fluid Dynamics (CFD) Co	\$999,946	NAVAIR	Active Phase 2
SBIR	Orbital Traction LTD	N2-4958	High Efficiency, Compact, Variable Speed Engine Accessory Drives	\$483,798	MARCOR	Completed Phase 2
SBIR	Vescent Photonics	N2-4967	Waveguide Based Laser Beamsteerers: A Simple, Low Cost and Low SWaP Solution to a Long-Standing Problem	\$750,000	NAVAIR	Active Phase 2
SBIR	Anchor Technology Inc	N2-4974	Automated Method for Developing Concept Level Fluid Distribution Systems	\$999,992	NAVSEA	Active Phase 2
SBIR	EOSPACE Inc	N2-4987	Novel, Very Wide-Bandwidth Characterization Technique	\$1,000,000	NAVSEA	Active Phase 2
SBIR	Nanohmics, Inc	N2-4988	Adaptive Diesel Engine Control	\$499,986	MARCOR	Active Phase 2
SBIR	ELECTRO-MECHANICAL ASSOCIATES	N2-4991	Adaptive Diesel Engine Control Via Variable Valve Timing	\$735,708	MARCOR	Active Phase 2
SBIR	Mainstream Engineering Corporation	N2-5008	Low-Cost Phase-Distribution Enhancement for Two-Phase Heat Exchangers	\$490,832	ONR	Active Phase 2
SBIR	Mainstream Engineering Corporation	N2-5012	Fabrication of Ultra-Long Carbon Nanotubes through Segregated-Flow Chemical Vapor Deposition	\$496,451	ONR	Active Phase 2
SBIR	Makai Ocean Engineering, Inc.	N2-5017	Underwater Sensor System Autonomous Burial and Operation	\$1,508,395	NAVSEA	Active Phase 2
SBIR	Global Technology Connection, Inc.	N2-5020	Multi-Stage, Multi-Phase, High Efficiency, Intelligent, Electrical Energy Conversion Unit for Navy and USMC	\$499,520	ONR	Active Phase 2
SBIR	Advanced Ceramic Fibers, LLC	N2-5036	Robust 2700 F MC/C Fiber Reinforced Matrices for Turbine Engines	\$469,282	ONR	Active Phase 2

SBIR	Princeton Optronics, Inc.	N2-5038	Improved Reliability Laser Based Ignition System	\$749,470	NAVAIR	Active Phase 2
SBIR	QuesTek Innovations LLC	N2-5041	Computational Design of Aluminum Alloys for Use in Additive Manufacturing	\$547,454	ONR	Active Phase 2
SBIR	Corrdesa	N2-5069	Innovative Approaches for Predicting Galvanic Effects of Dissimilar Material Interfaces	\$495,148	ONR	Active Phase 2
SBIR	Texas Research Institute Austin, Inc.	N2-5097	Alternative Energy Sources for Heating Rations	\$499,791	MARCOR	Active Phase 2
SBIR	Nuvotronics	N2-5123	Monolithic Microwave Integrated Circuit (MMIC) Compatible Phase Shifters for Phased-Array Radars	\$999,724	NAVSEA	Active Phase 2
SBIR	TDA Research, Inc.	N2-5144	Expeditionary Portable Oxygen Generation System	\$499,990	MARCOR	Active Phase 2
SBIR	Qualtech Systems, Inc.	N2-5180	Sense and Respond Technology Enabling Condition Based Maintenance (CBM)	\$984,648	NAVSEA	Active Phase 2
SBIR	Luna Innovations Incorporated	N2-5215	Self-Powered Condition Monitoring System for Advanced Submarine Maintenance	\$972,380	NAVSEA	Active Phase 2
SBIR	SI2 Technologies, Inc.	N2-5234	Novel, Low-Cost Phased arrays Manufactured by 3D Printing (1000-325)	\$749,994	ONR	Active Phase 2
SBIR	RDRTec Inc.	N2-5246	More Efficient GaN - SiGe based MMICs for Communication and Radar Systems	\$749,954	NAVAIR	Active Phase 2
SBIR	MaxPower, Inc.	N2-5261	High Power Battery for Long-Range Air-to-Surface Missile	\$742,385	NAVAIR	Active Phase 2
SBIR	International Electronic Machines	N2-5281	Wireless Hydraulic Actuator Monitor (WHAM) Phase II	\$986,217	NAVSEA	Active Phase 2

SBIR	Bettergy Corp.	N2-5287	A Solid State Bipolar Battery for High Power Sonobuoy Applications	\$749,957	NAVAIR	Active Phase 2
SBIR	Advanced Cooling Technologies, Inc.	N2-5288	Affordable, Scalable, Ocean Energy Harvesting System	\$374,993	ONR	Active Phase 2
SBIR	TRS Ceramics, Inc.	N2-5345	High Speed and High Voltage Capacitors for Naval HPRF Directed Energy Applications	\$499,852	ONR	Active Phase 2
SBIR	Ballistic Devices Inc	N2-5350	High Speed and High Voltage Capacitors for Naval HPRF Directed Energy Applications	\$249,199	ONR	Active Phase 2
SBIR	Knite Inc.	N2-5369	Active Combustion Control (ACC) of Augmentor Dynamics	\$747,419	NAVAIR	Active Phase 2
SBIR	PolyPlus Battery Company	N2-5371	Lithium-Seawater Battery Development for a Deep Drifting Passive Sonobuoy System	\$749,960	ONR	Active Phase 2
SBIR	ATA Engineering, Inc	N2-5387	High Efficiency Insulating Barrier for Expeditionary Shelters	\$499,312	MARCOR	Active Phase 2
SBIR	Creare LLC	N2-5398	A Robust Heat Exchanger for Gas Turbine Exhaust Heat Recovery	\$1,425,304	ONR	Active Phase 2
SBIR	Dynaflow, Inc.	N2-5448	Testing of a Non-Abrasive Diver Operated Propeller Cleaning System Using Enhanced Cavitating Jets, DYNAJETS® – Field Tests on a Navy Ship.	\$70,005	ONR	Active Phase 2
SBIR	Mide Technology Corporation	N2-5468	Innovative Energy Absorbing Aerial Refueling (AR) Hose	\$938,763	NAVAIR	Active Phase 2
SBIR	Vescent Photonics Inc	N2-5491	High Throughput, Waveguide Based, Non-Mechanical Laser Beam Steering	\$749,510	NAVSEA	Active Phase 2
SBIR	Mainstream Engineering Corporation	N2-5550	Extreme Temperature, Low Loss CuDARPA Power Switch	\$749,295	ONR	Active Phase 2
SBIR	Navatek Ltd	N2-5561	Technology for Ship to Shore Connector Concepts with Combined High Speed and Payload Fraction	\$748,677	ONR	Active Phase 2

SBIR	Advanced Cooling Technologies, Inc.	O2-1528	Environmental Control Unit with Integrated Thermal DARPArage	\$999,758	Army	Active Phase 2
SBIR	CornerDARPAne Research Group, Inc.	S2-0235	TALOS Hybrid Electric Power Unit	\$1,495,208	SOCOM	Active Phase 2
SBIR	CornerDARPAne Research Group, Inc.	S2-0306	TALOS Integrated Battery Power Unit (IBPU)	\$1,496,000	SOCOM	Active Phase 2
STTR	Combustion Research and Flow Technology, Inc.	A15A-002-0054	Advanced Computational Technologies for Multiphase Internal/External Coupled Ballistic Flows	\$149,999	ARDEC	Completed Phase 1
STTR	Simmetrix, Inc.	A15A-002-0093	Tools for Parallel Adaptive Simulation of Multiphase Ballistic Flows	\$149,127	ARDEC	Completed Phase 1
STTR	Intraband LLC	A15A-003-0064	High-Power, Monolithic THz Sources via Difference Frequency Generation in Phase-Locked Arrays of Quantum Cascade Lasers	\$149,973	ARO	Completed Phase 1
STTR	OptiGrate Corp.	A15A-003-0171	Solid state narrowband THz emitter	\$150,000	ARO	Completed Phase 1
STTR	Synclisis	A15A-004-0079	DARPAchastic Electromagnetic / Circuit Analysis	\$149,982	ARO	Completed Phase 1
STTR	EMAG Technologies, Inc.	A15A-004-0128	DARPAchastic Electromagnetic / Circuit Analysis	\$149,988	ARO	Completed Phase 1
STTR	Lynntech, Inc.	A15A-006-0021	Lightweight Thermoacoustic Device Using Novel Materials for Noise Cancellation of Military Vehicles	\$150,000	ARO	Completed Phase 1
STTR	Structured Materials Industries	A15A-006-0073	Graphene Based Thermoacoustic Materials for Noise Cancellation of Military Ground Combat Vehicles	\$150,000	ARO	Completed Phase 1
STTR	NuMat Technologies	A15A-014-0010	Scaling & Supramolecular Engineering of Metal-Organic Frameworks (MOFs)	\$150,000	ECBC	Completed Phase 1
STTR	Inmondo Tech, Inc.	A15A-014-0085	Scaling & Supramolecular	\$149,925	ECBC	Completed Phase 1

			Engineering of Metal-Organic Frameworks (MOFs)			
STTR	Pixelligent Technologies LLC	A15A-018-0039	Fuel Efficient Nanofluid Gear Oil	\$150,000	TARDEC	Completed Phase 1
STTR	Applied Colloids	A15A-018-0101	Fuel Efficient Nanofluid Gear Oil	\$149,706	TARDEC	Completed Phase 1
STTR	Epitaxial Laboratory, Inc.	A16A-003-0067	Green Diode Lasers (480-550 nm Spectral Regime)	\$150,000	ARO	Active Phase 1
STTR	AKELA, Inc.	A16A-004-0074	Acoustically/Vibrationally Enhanced High Frequency Electromagnetic Detector for Buried Landmines	\$149,850	ARO	Active Phase 1
STTR	White River Technologies	A16A-004-0091	Acoustically/Vibrationally Enhanced High Frequency Electromagnetic Detector for Buried Landmines	\$149,945	ARO	Active Phase 1
STTR	Vadum	A16A-004-0105	Vibration-Enhanced Sensing of Buried Landmines	\$149,998	ARO	Active Phase 1
STTR	Nano Terra, Inc	A16A-015-0048	Manufacturing of Flame Resistant (FR) Combat Printed Nonwoven Material	\$149,357	PM FCS BCT	Active Phase 1
STTR	Luna Innovations Incorporated	A16A-015-0070	Novel Flame Resistant Nonwoven Fabrics for Uniforms	\$149,807	PM FCS BCT	Active Phase 1
STTR	SI2 Technologies, Inc.	A2-5753	Printed, Flexible Ultracapacitors Based on Novel, High-Performance Carbon Nanomaterials (1000-298)	\$592,574	ARDEC	Completed Phase 2
STTR	QmagiQ, LLC	A2-5773	VLWIR SLS Digital FPA for Hyperspectral Imaging	\$528,651	CERDEC	Completed Phase 2
STTR	Fulcrum Bioscience	A2-5774	Bioelectrocatalyzed Nitrogen Fixation under Standard Conditions	\$999,501	ARO	Completed Phase 2
STTR	Staib Instruments, Inc.	A2-5781	Chemical Analyzer System for In Situ and Real Time Surface Monitoring for Composition Control During Synthesis of Compound Semiconductor Fil	\$999,615	ARO	Completed Phase 2

STTR	Astute Doctor Education Inc	A2-6048	Tunable High-Power Infrared Lasers for Standoff Detection Applications	\$503,897	ECBC	Active Phase 2
STTR	Q-Chem, Inc.	A2-6270	Parallel Two-Electron Reduced Density Matrix Based Electronic Structure Software for Highly Correlated Molecules and Materials	\$495,770	ARO	Active Phase 2
STTR	Synclisis	A2-6292	DARPAchastic Electromagnetic / Circuit Analysis	\$493,641	ARO	Active Phase 2
STTR	Lynntech, Inc.	A2-6302	Lightweight Thermoacoustic Device Using Novel Materials for Noise Cancellation of Military Vehicles	\$499,412	ARO	Active Phase 2
STTR	Intraband LLC	A2-6311	High-Power, Monolithic THz Sources via Difference Frequency Generation in Phase-Locked Arrays of Quantum Cascade Lasers	\$499,988	ARO	Active Phase 2
STTR	HyPerComp, Inc.	D2-1327	Modeling and Optimizing Turbines for Unsteady Flow	\$999,992	DARPA	Completed Phase 2
STTR	Spectral Energies, LLC	F15A-T20-0183	MHZ-RATE NONLINEAR SPECTROSCOPY AND IMAGING PLATFORM FOR TRANSIENT AND NONEQUILIBRIUM FLOWS	\$149,928	RQ	Completed Phase 1
STTR	Spectral Energies, LLC	F16A-T13-0181	High-Speed Measurements of Dynamic Flame Stabilization Processes in High-Pressure Combustion Systems	\$149,944	RQ	Active Phase 1
STTR	CFD Research Corporation	F16A-T14-0094	Development of Adaptive Closure Models for Large Eddy Simulations of Lean Blow-Out Conditions	\$149,917	RQ	Active Phase 1
STTR	Metacomp Technologies, Inc.	F16A-T14-0128	Modeling and Simulation of Lean Blowout in High-Pressure Swirl-Stabilized Combustion Systems	\$149,989	RQ	Active Phase 1
STTR	Spectral Energies, LLC	F16A-T15-0191	Experimentally Derived Scaling Laws from	\$149,814	RQ	Active Phase 1

			Spatiotemporally Resolved Measurements in High-Pressure CombuDARPARs			
STTR	Truentic LLC	F16A-T15-0206	Spatiotemporally Resolved Infrared Spectroscopy in High-Pressure Turbulent CombuDARPARs	\$149,938	RQ	Active Phase 1
STTR	Agiltron Corporation	N14A-003-0117	Light-Weight, Solar Cells with High Specific Power and Conversion Efficiency	\$149,049	NAVAIR	Completed Phase 1
STTR	MicroLink Devices	N14A-003-0118	Ultra-Lightweight, High-Efficiency Epitaxial Lift-Off Solar Cells and Arrays	\$150,000	NAVAIR	Completed Phase 1
STTR	Knite Inc.	N14A-004-0313	Augmentor Screech Instability Control through Directed Plasma Discharge	\$149,963	NAVAIR	Completed Phase 1
STTR	Intelligent Automation, Inc.	N14A-005-0318	Coupled Multi-physics Analysis and Design Optimization of nozzles (COMANDO)	\$150,000	NAVAIR	Completed Phase 1
STTR	Create LLC	N14A-006-0191	A Multi-Tiered Lithium-ion Battery Thermal Fault Mitigation Architecture	\$149,924	NAVAIR	Completed Phase 1
STTR	EIC Laboratories, Inc.	N14A-006-0279	Development of a Safer Lithium-ion (Li-ion) Battery for Naval Aircraft Applications Through Thermal Management Design	\$149,990	NAVAIR	Completed Phase 1
STTR	RDRTec Inc.	N14A-007-0068	Combining GaN and SiGe MMICs for Efficient and Innovative Radar Systems	\$149,884	NAVAIR	Completed Phase 1
STTR	ASR Corporation	N14A-018-0161	Compact Megavolt Switch Utilizing Novel Switching Mediums	\$148,503	ONR	Completed Phase 1
STTR	SI2 Technologies, Inc.	N14A-021-0125	Novel, Low-Cost Phased Arrays Manufactured by 3D Printing (1000-295)	\$149,994	ONR	Completed Phase 1
STTR	Space Information Laboratories, LLC	N15A-001-0005	Robust Mission and Safety Critical Li-Ion BMS for Aerospace Applications	\$79,994	NAVAIR	Completed Phase 1
STTR	Invocon, Inc.	N15A-001-0025	Reliable, Safe, Lithium-ion Battery Enabled by a	\$79,988	NAVAIR	Completed Phase 1

			Robust Battery Management System			
STTR	Creare LLC	N15A-001-0088	Fail Safe Battery Management System for Aircraft Lithium-Ion Batteries	\$79,879	NAVAIR	Completed Phase 1
STTR	Progeny Systems Corporation	N15A-001-0109	Flight-Certified Lithium-Ion Battery	\$79,744	NAVAIR	Completed Phase 1
STTR	Texas Research Institute Austin, Inc.	N15A-001-0123	Reliable, Safe, Lithium-Ion Battery Enabled by a Robust Battery Management System	\$80,000	NAVAIR	Completed Phase 1
STTR	Computational Sciences, LLC	N15A-002-0045	Improved Turbulence Modelling Across Disparate Length Scales for Naval Computational Fluid Dynamics Applications	\$84,779	NAVAIR	Completed Phase 1
STTR	Combustion Research and Flow Technology, Inc.	N15A-002-0064	Improved Turbulence Modelling Across Disparate Length Scales for Naval Computational Fluid Dynamics Applications	\$79,999	NAVAIR	Completed Phase 1
STTR	Continuum Dynamics, Inc.	N15A-002-0130	Advanced Wake Turbulence Modelling for Naval CFD Applications	\$79,820	NAVAIR	Completed Phase 1
STTR	Kord Technologies, Inc.	N15A-002-0190	Grid-Spacing-Independent and Discretization-Order-Independent Simulation for Naval Single-Phase and Two-Phase Flow Applications	\$79,840	NAVAIR	Completed Phase 1
STTR	BoDARPan Engineering Corporation	N15A-012-0044	Naval Special Warfare (NSW) Diver Thermal Human Interface	\$79,995	NAVSEA	Completed Phase 1
STTR	WEIkins, LLC	N15A-012-0126	Naval Special Warfare (NSW) Diver Thermal Human Interface	\$79,991	NAVSEA	Completed Phase 1
STTR	Advanced Conductor Technologies LLC	N15A-016-0042	Hybrid High Ampacity Electric Power Cable	\$80,000	ONR	Completed Phase 1
STTR	Tai-Yang Research Company DBA Energy to Power Solutions (E2P)	N15A-016-0131	Novel Approach to Hybrid High Temperature Superconducting Cable	\$79,998	ONR	Completed Phase 1

STTR	Innovative Scientific Solutions, Inc.	N15A-021-0043	Time-resolved Measurements of Temperature and Product Mass Fractions within Detonation-based Combustion Devices at Elevated Pressures and Te	\$79,969	ONR	Completed Phase 1
STTR	Spectral Energies, LLC	N15A-021-0081	Absorption Spectroscopy System for Measurements of H2O, CO2 and CO Temperatures and Concentrations in Rotating-Detonation-Engines at 800 kHz	\$79,940	ONR	Completed Phase 1
STTR	Southwest Sciences, Inc.	N15A-021-0124	Ultrafast Multispecies Gas Sensor for Combusting Flows	\$80,000	ONR	Completed Phase 1
STTR	Radiation Detection Technologies, Inc.	N15A-023-0016	Advanced Silicon Diode Switch for HPRF Systems	\$79,994	ONR	Completed Phase 1
STTR	Applied Physical Electronics, L.C.	N15A-023-0146	Advanced Solid State Switch (Diode) Materials for High Rep Rate Pulse Power Systems and High Power Radio Frequency (HPRF) Applications	\$79,999	ONR	Completed Phase 1
STTR	Kyma Technologies, Inc.	N15A-023-0196	GaN for High Rep Rate Pulsed Power	\$80,000	ONR	Completed Phase 1
STTR	Radiation Monitoring Devices, Inc.	N16A-006-0069	Perovskite Solar Cells	\$79,995	NAVAIR	Active Phase 1
STTR	MicroLink Devices	N16A-006-0116	Novel, High-Efficiency, Light-weight, Flexible Solar Cells as Electrical Power Generation Source	\$79,999	NAVAIR	Active Phase 1
STTR	ADA Technologies, Inc.	N16A-008-0050	Nanoporous block polymer separators for high performance and safe Li-ion batteries	\$79,999	NAVAIR	Active Phase 1
STTR	Oceanit Laboratories, Inc.	N16A-008-0068	Novel Separator Materials for Achieving High Energy/Power Density, Safe, Long-Lasting Lithium-ion Batteries for Navy Aircraft Applications.	\$80,000	NAVAIR	Active Phase 1

STTR	Avomeen Analytical Services	N16A-008-0216	Novel Separator Materials for Achieving High Energy/Power Density, Safe, Long-Lasting Lithium-ion Batteries for Navy Aircraft Applications.	\$79,999	NAVAIR	Active Phase 1
STTR	Tai-Yang Research Company DBA Energy to Power Solutions (E2P)	N16A-011-0033	Fully Encapsulating Dielectrics for Gaseous Helium Cooled Superconducting Power Cables	\$79,999	NAVSEA	Active Phase 1
STTR	Advanced Conductor Technologies LLC	N16A-011-0132	Fully Encapsulating Dielectrics for Gaseous Helium Cooled Superconducting CORC Power Cables	\$80,000	NAVSEA	Active Phase 1
STTR	Engineering and Scientific Innovations, Inc.	N16A-014-0057	Low-cost Thermal Management Technology for Combat Systems Computers	\$79,748	NAVSEA	Active Phase 1
STTR	Mainstream Engineering Corporation	N16A-014-0212	Modular Thermal Management System for Electronics Enclosures	\$79,991	NAVSEA	Active Phase 1
STTR	Nevada Composites, Inc.	N16A-015-0140	Reduced Cost, Repeatable, Improved Property Washout Tooling for Composite Fabrication	\$79,996	ONR	Active Phase 1
STTR	Advanced Ceramics Manufacturing	N16A-015-0163	Reduced Cost, Repeatable, Improved Property Washout Tooling for Composite Fabrication	\$79,998	ONR	Active Phase 1
STTR	ReliaCoat Technologies, LLC	N16A-019-0102	Durable, Multifunctional, Thermal Barrier Coatings for Marine Gas Turbines	\$79,936	ONR	Active Phase 1
STTR	Directed Vapor Technologies International, Inc.	N16A-019-0179	Thermal Barrier Coatings for Long Life in Marine Gas Turbine Engines	\$79,925	ONR	Active Phase 1
STTR	Structured Materials Industries	N16A-023-0100	Epitaxial Gallium Oxide Growth System for Ultra High Voltage Power Electronics	\$79,993	ONR	Active Phase 1
STTR	Agnitron Technology Inc.	N16A-023-0146	A New MOCVD Platform for Commercially Scalable Growth of $\text{AlGaInGa}_2\text{O}_3$ Device Structures	\$79,957	ONR	Active Phase 1

STTR	Kyma Technologies, Inc.	N16A-023-0189	Epitaxial Technologies for Gallium Oxide Ultra High Voltage Power Electronics	\$79,994	ONR	Active Phase 1
STTR	Electric Drivetrain Technologies LLC.	N2-4781	Hybrid, Ultra-High-Speed, High Efficiency, Power Dense, Electronically Controlled Energy Conversion Unit for Ship Systems, Unmanned Vehicles, and Robo	\$497,839	ONR	Active Phase 2
STTR	Physical Sciences Inc.	N2-4785	High-Temperature Metamaterial Emitter For Thermophotovoltaics	\$488,523	ONR	Completed Phase 2
STTR	Robotic Research LLC	N2-4798	LEARNING-BASED APPROACH FOR RELEVANT DATA EXTRACTION (LARDE)	\$521,166	ONR	Completed Phase 2
STTR	Mohawk Innovative Technology, Inc.	N2-4801	Development of Next-Generation Composite Flywheel Design for Shock and Vibration Tolerant, High Density Rotating Energy DARPArage	\$488,740	ONR	Completed Phase 2
STTR	VISHWA ROBOTICS AND AUTOMATION LLC	N2-4823	Prehensor for one atmosphere diving suit	\$497,084	NAVSEA	Completed Phase 2
STTR	MP Technologies, LLC	N2-4869	Ring-Cavity Surface-Emitting Quantum Cascade Laser Array	\$249,994	NAVAIR	Completed Phase 2
STTR	Intraband LLC	N2-4909	Surface-Emitting, Monolithic Beam-Combined Mid-Wave IR Quantum Cascade Lasers	\$253,750	NAVAIR	Completed Phase 2
STTR	Intelligent Automation, Inc.	N2-5264	Coupled Multi-physics Analysis and Design Optimization of nozzles (COMANDO)	\$749,994	NAVAIR	Active Phase 2
STTR	Agiltron Corporation	N2-5340	Light-Weight Solar Cells with High Specific Power and Conversion Efficiency	\$749,996	NAVAIR	Active Phase 2
STTR	MicroLink Devices	N2-5351	Light-Weight, Solar Cells with High Specific Power	\$755,002	NAVAIR	Active Phase 2

			and Conversion Efficiency			
STTR	ASR Corporation	N2-5391	Compact Megavolt Switch Utilizing Novel Switching Mediums	\$752,029	ONR	Active Phase 2

Procedures and Mechanisms Used to Give Priority to Energy-Related Projects

DoD employs a multitude of procedures and mechanisms to give priority to energy-related projects. Components include Energy and Power Technology focus areas, as well as, Power and Directed Energy focus areas as part of SBIR/STTR solicitations.

Actions Taken Toward Promoting and Supporting Energy Efficiency and Renewable Energy Projects

DoD SBIR/STTR participating components promote energy efficiency and renewable energy projects is through information sharing and networking via component specific websites. These websites bring together the small business community, researchers, Programs of Record, and prime contractors for possible collaboration new and ongoing SBIR/STTR projects. Another successful method for promoting energy efficiency and renewable energy projects is through collaboration with various stakeholders. These groups provide unique insights into alternative fuels, energy efficiency, and power generation as the relate to reducing logistic requirements and meeting Army and DoD goals.

Components also track and report SBIR/STTR success DARPAries through these same websites, as well as brochures such as the Army Commercialization Brochure. These brochures are an excellent opportunity for organizations and Small Businesses to share information about their SBIR/STTR projects and the success of their projects. These brochures are typically distributed at conferences providing exposure to these exceptional SBIR/STTR projects.

Additional component specific examples of actions taken toward promoting and supporting energy efficiency and renewable energy are found below:

a. DARPA recently continues to use the Materials for Transduction (MATRIX) program to develop new transductional materials, reducing significant size, weight, and power (SWAP) for military devices and systems. MATRIX takes a systems approach that integrates state-of-the-art materials science, predictive modeling methods, and domain-specific expertise to rapidly validate and optimize new functional architectures that offer transformative defense-related capabilities. Potential applications include:

1. Thermoelectrics – Energy transfer, thermal management, and refrigeration
2. Multiferroics – Enhanced sensors, actuation, micro-power generation, tunable RF and microwave field engineering
3. Phase-Change Materials – Fast switching and sensor application

b. The MDA SBIR/STTR programs, in support of the Ballistic Missile Defense System, continue to explore new ways for promoting and facilitating energy efficiency and renewable energy products. Examples of MDA SBIR/STTR projects related to energy include long-term electronics power sources, advanced reserve battery technologies, lithium oxyhalide battery separator material, low-cost green propellant, and green monopropellant thruster technology maturation.

c. The Army SBIR program is collaborating with the National Defense Center for Energy and Environment (NDCEE) to encourage continued research efforts for promising SBIR projects in the areas of the environment, safety and occupational health, and energy performance and efficiency. The programs are sharing information about applicable SBIR activities and encourage transition activities with the NDCEE. The Army has an ongoing Phase II Enhancement/CRP project co-funded by the Army SBIR program and the NDCEE for a Sulfur-Tolerant Solid Oxide Fuel Cell Stack effort sponsored by the Army's Tank Automotive Research, Development, and Engineering Center (TARDEC).