

<b>SOLICITATION/CONTRACT</b> BIDDER/OFFEROR TO COMPLETE BLOCKS 11, 13, 15, 21, 22, & 27		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)	RATING	PAGE OF PAGES 1 OF 71
2. CONTRACT NO.		3. AWARD/EFFECTIVE DATE	4. SOLICITATION NUMBER SOL-NC-17-00028	5. SOLICITATION TYPE <input type="checkbox"/> SEALED BIDS (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)
7. ISSUED BY RTTPOD US Environmental Protection Agency 109 T.W. Alexander Drive Mail Code: AA005 Research Triangle Park NC 27709		8. THIS ACQUISITION IS <input checked="" type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> 8(A)		<input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM <input type="checkbox"/> EDWOSB NAICS: 541715 SIZE STANDARD: 1,000
9. (AGENCY USE) NO COLLECT CALLS				

10. ITEMS TO BE PURCHASED (BRIEF DESCRIPTION)  
 SUPPLIES     SERVICES

11. IF OFFER IS ACCEPTED BY THE GOVERNMENT WITHIN _____ CALENDAR DAYS (60 CALENDAR DAYS UNLESS OFFEROR INSERTS A DIFFERENT PERIOD) FROM THE DATE SET FORTH IN BLOCK 9 ABOVE, THE CONTRACTOR AGREES TO HOLD ITS OFFERED PRICES FIRM FOR THE ITEMS SOLICITED HEREIN AND TO ACCEPT ANY RESULTING CONTRACT SUBJECT TO THE TERMS AND CONDITIONS STATED HEREIN.	12. ADMINISTERED BY CODE RTTPOD RTTPOD US Environmental Protection Agency 109 T.W. Alexander Drive Mail Code: AA005 Research Triangle Park NC 27709
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13. CONTRACTOR OFFEROR CODE _____ FACILITY CODE _____  TELEPHONE NO. _____ DUNS NO. _____ <input type="checkbox"/> CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER	14. PAYMENT WILL BE MADE BY CODE _____  SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK:
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15. PROMPT PAYMENT DISCOUNT	16. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION <input type="checkbox"/> 10 U.S.C. 2304 <input type="checkbox"/> 41 U.S.C. 253 (       )       (       )
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17. ITEM NO.	18. SCHEDULE OF SUPPLIES/SERVICES	19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
	2017 SBIR Phase I Solicitation				

23. ACCOUNTING AND APPROPRIATION DATA	24. TOTAL AWARD AMOUNT (FOR GOVERNMENT USE ONLY)
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25. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN _____ COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY CONTINUATION SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.	26. AWARD OF CONTRACT: YOUR OFFER ON SOLICITATION NUMBER SHOWN IN BLOCK 4 INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:
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27. SIGNATURE OF OFFEROR/CONTACTOR		28. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)	
NAME AND TITLE OF SIGNER (TYPE OR PRINT)	DATE SIGNED	NAME OF CONTRACTING OFFICER Christopher Baker	DATE SIGNED

**NO RESPONSE FOR REASONS CHECKED**

<input type="checkbox"/>	CANNOT COMPLY WITH SPECIFICATIONS	<input type="checkbox"/>	CANNOT MEET DELIVERY REQUIREMENT
<input type="checkbox"/>	UNABLE TO IDENTIFY THE ITEM(S)	<input type="checkbox"/>	DO NOT REGULARLY MANUFACTURE OR SELL THE TYPE OF ITEMS INVOLVED
<input type="checkbox"/>	OTHER (Specify)		
<input type="checkbox"/>	WE DO	<input type="checkbox"/>	WE DO NOT, DESIRE TO BE RETAINED ON THE MAILING LIST FOR FUTURE PROCUREMENT OF THE TYPE OF ITEMS INVOLVED

NAME AND ADDRESS OF FIRM (Include ZIP Code)	SIGNATURE
	TYPE OR PRINT NAME AND TITLE OF SIGNER

FROM:

AFFIX  
STAMP  
HERE

TO:  
 RTPPOD  
 RTPPOD  
 US Environmental Protection Agency  
 109 T.W. Alexander Drive  
 Mail Code: AA005  
 Research Triangle Park NC 27709

SOLICITATION NO. SOL-NC-17-00028

DATE AND LOCAL TIME \_\_\_\_\_

**ENVIRONMENTAL PROTECTION  
AGENCY**

**SMALL BUSINESS INNOVATION RESEARCH (SBIR)  
PROGRAM PHASE I SOLICITATION**

**SOL-NC-17-00028**

**ISSUE DATE: October 31, 2017**

**CLOSING DATE: December 19, 2017**

\*CAUTION - See Section VI., Paragraph J. (j)(c)(3), Instructions to Offerors, Concerning Late Proposals and Modifications. And Section VI., Paragraph J. (j)(d), offeror expiration date. Proposals submitted in response to this solicitation will be valid for 300 days.

Your proposal (including all appendices) **shall be submitted in Portable Document Format (PDF)**, and **shall be received via FedConnect by 12:00 p.m. (noon) Eastern Standard Time (EST) on December 19, 2017**. Your **entire proposal (including appendices)** shall be submitted through FedConnect as **ONE document in PDF**. Only proposals received via FedConnect as ONE PDF by the deadline identified above will be considered for award.

**Please read this entire solicitation carefully prior to submitting your proposal.**

**Proposals shall be submitted via the FedConnect web portal ([www.fedconnect.net](http://www.fedconnect.net)). In order to submit proposals, offerors must register in FedConnect at [www.fedconnect.net](http://www.fedconnect.net), see main page of FedConnect website for registration instructions. For assistance in registering or for other FedConnect technical questions please call the FedConnect Help Desk at (800) 899-6665 or email at [support@fedconnect.net](mailto:support@fedconnect.net).**

**IMPORTANT:**

**Please note Section VI., Paragraph J. j, Federal Acquisition Regulation Clause 52.215-1(c)(3), “Instructions to Offerors – Competitive Acquisitions” concerning Late Proposals, Modification of Proposals and Withdrawal of Proposals.**

**It is the responsibility of Offerors to submit proposals in FedConnect with sufficient time to ensure they are received by the date and time specified. Only proposals received by the date and time specified via FedConnect will be considered for award.**

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# PHASE I SOLICITATION FOR SMALL BUSINESS INNOVATION RESEARCH

## I. SBIR PROGRAM DESCRIPTION

### A. Purpose of EPA's SBIR Program

Every Federal agency with an extramural research and development (R&D) budget over \$100 million is required by law to have a Small Business Innovation Research (SBIR) program. For the Environmental Protection Agency (EPA), the SBIR program provides one way it can directly award R&D funding to small businesses. The goal of EPA's SBIR Program is to support commercialization of innovative technologies that help support EPA's mission of protecting human health and the environment. Each agency implements the program in a phased manner that follows the technology development continuum: research, development, demonstration, commercialization, and utilization. The number of phases an agency supports depends on its program needs and budget. Generally, there are two phases: the first is for proof of concept, and the second is intended to move the technology as far as possible toward full-scale commercialization. The objective of Phase III, where appropriate, is for the small business to pursue commercialization objectives resulting from the Phase I/II R/R&D activities. The SBIR program does not fund Phase III.

#### 1. Importance of Commercialization

For the EPA, success of its SBIR program means that the technologies it supports will in fact be used to solve the problems for which they are being developed; therefore, from the outset of the selection process, the EPA will consider commercialization potential to be as important as technical potential, and it will evaluate proposals accordingly.

Successful commercialization usually results from reversing the technology development continuum. That is, first identifying a need that can be addressed by technology, then assessing whether that need provides a viable market opportunity, and, after that, identifying or inventing a technology that can be developed and commercialized to meet that need in a profitable manner. An offeror is encouraged to conduct market research before submitting their proposal to this solicitation to demonstrate that there is a viable market opportunity.

Having had previous experience taking an innovative technology to market can be a positive indicator of future commercialization success and is factored into the commercialization requirements in Section IV. Having received an SBIR award to help do so is a special case. If a company receives an SBIR award from EPA or another agency, it gains an element of commercial legitimacy that can be helpful when the company seeks private investment, manufacturing partners, etc.

Having in the past received one or more SBIR awards is not in and of itself evidence of successful commercialization. Success is when those technologies achieve commercialization after completing Phases I and II.

EPA also requires the offeror to provide commercialization history information if they have received one or more SBIR Phase II awards from any agency. A [template](#) is provided for the history in Appendix 6. This information is incorporated into the solicitation as part of the evaluation criteria in section V.B. Phase I Commercialization Criteria, (2) Management Capabilities and PI Experience and Commitment.

#### 2. Life Cycle Impacts must be Addressed

In order to support the Agency's mission of protecting human health and the environment, the lifecycle environmental impacts of the technology, including (if applicable) minimizing resource use, minimizing toxicity of



materials, efficient use of water and energy, minimizing pollution, and minimizing the impacts of disposal should be considered. A formal Life Cycle Analysis (LCA) is not required.

### **3. Demonstration is Encouraged**

Demonstration is an important part of commercializing environmental technologies. This is because the effectiveness of the technologies in protecting human health and the environment is a critical consideration in the decision to adopt them. End users (e.g. companies and municipalities) are often reluctant to install innovative technologies that have not been demonstrated for extended periods of time. There may also be Federal, state and local regulations that only permit the use of technologies with demonstrated performance.

### **4. Two-Step Evaluation Process**

The EPA will follow a two-stage application evaluation process to make funding decisions. The two stages are: external peer review and internal programmatic review. The review processes and the evaluation criteria that will be used in each stage are described later in the solicitation.

## **B. Phase I**

The EPA anticipates making approximately twelve (12) Phase I awards, each in the amount up to \$100,000 and not to exceed a six (6) month term of performance. It is anticipated that these contracts will be awarded with a contract start date of August 01, 2018. The Phase I effort is for “proof of concept” of the proposed technology. All companies that successfully complete Phase I are eligible to compete for Phase II which is to further develop and commercialize the technology.

## **C. Performance Benchmark Requirements for Phase I Eligibility**

Each year, SBA assesses the Performance Benchmark rates for all applicable SBIR or Small Business Technology Transfer (STTR) awardees in the Company Registry. Rates are based on a company’s total SBIR/STTR awards, across all the participating agencies. Companies that fail to meet either of the two Performance Benchmark requirements are not eligible to receive a Phase I award for a period of one year from the assessment. Note that this does not affect a company’s eligibility for Phase II or Phase III awards.

All offerors for an SBIR or STTR award must be registered on [www.SBIR.gov](http://www.SBIR.gov). Offerors should be sure to update their information on the Company Registry at least once per year. To open or update an SBIR/STTR Company Registry account, go to [www.sbir.gov/user](http://www.sbir.gov/user) and register as a Small Business User. After the registration is complete, the SBA will issue your company a unique SBC Control ID and .pdf file to be attached to this application.

**NOTE: THE SBA NOTIFIES FIRMS EACH YEAR THAT DO NOT MEET THE ELIGIBILITY REQUIREMENTS DESCRIBED BELOW WILL NOT BE ELIGIBLE TO RECEIVE A PHASE I AWARD FOR ONE YEAR AFTER THE SBA NOTIFICATION.**

Before responding to this solicitation, all offerors should verify their Transition Rate eligibility for Phase I awards. Each year, the SBA will perform an evaluation of companies and the SBA will notify the companies of their status. Phase I offerors that meet the below criteria must meet the Phase I to Phase II Transition Benchmark requirements to be eligible for a new Phase I award. General information on the Performance Benchmark requirements is available on [www.SBIR.gov](http://www.SBIR.gov) on the “Performance Benchmarks” tab under the “Learn About” section.

The Phase I to Phase II Transition Rate requirement applies only to SBIR Phase I offerors that have received more than 20 Phase I awards over the past 5 fiscal years (excluding the most recent year). For these offerors, the ratio of

the number of Phase II awards (awarded during the past 5 fiscal years) to the number of Phase I awards (awarded during the past 5 years excluding the most recent year) must be at least 0.25.

SBA sends three notifications each year to companies affected by the benchmark performance requirements and will also communicate these to the EPA SBIR program. The SBA will also notify the EPA SBIR Program of those companies that have met the benchmarks as detailed above.

When logged in to the Company Registry at [www.sbir.gov](http://www.sbir.gov), awardees can view their last assessed Transition Rate and Commercialization Rate by clicking on the “Performance Benchmark” side-bar. These company-specific rates appear under the heading “At Last Assessment.” A thumbs-up/thumbs-down indicator shows whether or not the company passed the benchmark rates at the last assessment. If at any time, a company believes the award information on SBIR.gov is not correct, it should notify SBA using the dispute link provided. If a company’s dispute of the data used for the rates is under review, it will see “TBD” under the “At Last Assessment” heading. Companies with less than the threshold number of awards (21 Phase I awards for the Transition Rate) will see “N/A” displayed because the requirement did not apply to them.

Under the heading “Current (On-Going)”, the page displays a running calculation of the benchmark rates using the next years’ time periods (each period moved up by one year) and current data in the system. Companies should monitor these rates to anticipate their standing for each upcoming June 1 Assessment. Prior to proposal preparation, all offerors to this solicitation that have received more than 20 Phase I awards across all federal SBIR/STTR agencies over the past five (5) years should verify that their company will not have a failing status on the Transition Rate Benchmark at the time of award.

## **D. 2017 SBIR Phase I Research Topics**

Given EPA’s broad mission of protecting human health and the environment, it faces a broad range of problems that need solution and for which innovative technologies could help provide solutions. Each year EPA’s SBIR program selects from this broad range of problems a number of specific topics to include in its Phase I solicitation. The highest priority needs are identified and then the topics are written to address those needs. Many of the topics address more than one need – e.g., water and homeland security, and indoor air quality and reducing toxicity of materials. Agency strategy documents, multi-year plans, peer-reviewed research needs assessment and other materials are used in identifying the highest needs and in crafting the topics.

For this solicitation, the EPA’s needs are being expressed through a variety of very specific topics. Offerors must directly address and select just one of the specific topics described below.

The topics for this solicitation are:

### **1. Clean and Safe Water**

Per- and polyfluoroalkyl substances (PFAS) are a large family of man-made, globally-distributed chemicals. They include perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). PFAS have been widely used in consumer products such as non-stick cookware, carpets and carpet treatment products, food packaging, aqueous firefighting foams, and in the aerospace, automotive, construction, and electronics industries.

Once released into the environment, some PFAS are not easily broken down when exposed to air, water, or sunlight. Thus people can be exposed to PFAS that were manufactured months or years in the past. PFAS can travel long distances in the air and water with the result that people may be exposed to PFAS manufactured or emitted from production facilities many miles away from the point of exposure. Human exposure can also occur through contact with products containing PFAS.

A recent study of the effectiveness of currently-used treatment technologies for removal of PFAS from raw water or potable reuse sources found that granular activated carbon and anion exchange can under certain conditions treat long-chain PFAS and that costly nanofiltration and reverse osmosis could potentially treat most PFAS.

#### Removal of PFOA/PFOS from Drinking Water

In 2012, EPA included six PFAS compounds, including PFOA and PFOS, among the contaminants that were monitored under the third Unregulated Contaminants Monitoring Rule list. Results of this monitoring can be found on the publicly-available [National Contaminant Occurrence Database](#).

In 2016, EPA established a lifetime health advisory (LHA) level of 70 parts per trillion (ppt) for individual or combined concentrations of PFOA and PFOS in drinking water. This amount is equivalent to 0.07 parts per billion (ppb) or 0.07 micrograms/liter.

EPA would like to improve and advance processes, technologies, and treatment systems for the removal of the PFOA and PFOS families of PFAS from drinking water. As a result, EPA is interested in the following topic:

**Topic Code 1A: Removal of PFOA/PFOS from Drinking Water.** Innovative technologies that can remove PFOA and PFOS families of PFAS from drinking water. The technology should reduce the combined PFOA/PFOS concentration to below 0.07 ppb and be compatible with other water treatment processes, be affordable, and be easily used and maintained.

#### Removal of PFOA/PFOS from Wastewater

Per- and polyfluoroalkyl substances (PFAS) have been detected in the effluent of municipal, industrial, and military wastewater treatment plants.

In addition, a recent study found PFAS in the effluent of on-site septic systems, which serve about 25% of the US population.

The predominant compounds found in wastewater effluent have been perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), which are degradation products of PFAS. PFOA and PFOS are persistent, bioaccumulative, and toxic.

EPA would like to improve and advance processes, technologies, and treatment systems for the removal of the PFOA and PFOS families of PFAS from wastewater. As a result, EPA is interested in the following topic:

**Topic Code 1B: Removal of PFOA/PFOS from Wastewater.** Innovative technologies that can remove PFOA and PFOS families of PFAS from PFAS from wastewater treatment plant effluent. The technology should consistently reduce the combined PFOA/PFOS concentration to below 0.07 ppb and be compatible with other water treatment processes, be affordable, and be easily used and maintained.

#### Replacements for PVC and PE Water Pipes

Since ancient times, people have used pipes to transport water from source to point of use. The pipes have been made of many materials, including stone, concrete, wood, metal (lead, iron, copper) and, most recently, plastic.

Plastic pipes made of rigid polyvinyl chloride (PVC) are now widely used to carry drinking water and waste water in homes and other buildings, and sometimes outside of buildings, because they have many practical advantages. For example, they are derived from abundant petrochemicals and sodium chloride salt; their characteristics can be modified by the addition of various chemicals; they are light weight, non-corroding, chemically-resistant, non-

conducting, easy to cut and join, and cost-less to transport and handle than other types of pipes; and they seem to be long-lasting compared with pipes made with other commonly-used materials.

Considering the whole life cycle of PVC plastic pipes, however, there are many disadvantages in using them. For example, they require large amounts of energy to make; the source materials and intermediate products, including chlorine gas, are toxic; some chemical additives used in the manufacturing process are harmful and have the potential to leach into drinking water; the additives make recycling nearly impossible, with the result that nearly all discarded PVC goes to landfills; incineration creates dioxin; and high temperature and exposure to sunlight can result in degradation.

Recently, various forms of flexible polyethylene (PE), high density polyethylene (HDPE), and cross-linked polyethylene (PEX) pipe have been used to carry water in buildings because they can be used in confined areas and can be curved to change direction rather than cut and joined. It has been found, however, that they cause odor problems and can release regulated and unregulated contaminants into the water.

For these reasons, EPA is seeking innovative materials that can be used to make drinking water and waste water pipes for buildings and perhaps outside that have the advantages of PVC and PE, HDPE, and PEX pipes without their disadvantages across their entire lifecycle.

**Topic Code 1C: Replacements for PVC and PE Water Pipes.** Innovative pipes for drinking water and waste water in buildings and perhaps outside of buildings that are made from materials that have the advantages and not the disadvantages of currently-used plastic pipes.

## **2. Air Quality**

### Reducing Vehicle Emissions

There are more than 250 million vehicles in the United States that transport people and goods. Primarily powered by internal combustion engines, they emit 1.8 billion metric tons of carbon dioxide per year. A typical passenger vehicle emits 4.7 metric tons of carbon dioxide per year. The many older vehicles still in use are the major emitters, although newer, more fuel efficient vehicles still produce some emissions.

While technologies are being used to reduce emissions of other pollutants from vehicles, this is not the case for carbon dioxide emissions.

The main technological approaches for reducing carbon dioxide emissions are capture and conversion. Capture involves long-term sequestration or use of the captured carbon dioxide in a manner that will not later result in the release of carbon. Conversion can be accomplished using catalysis, non-catalytic synthesis, or other means. Both capture and use and conversion can result in the creation of various compounds and products that have economic value—e.g., urea, salicylic acid, cyclic carbonate, polyols, and ethanol.

Capture and conversion technologies are being used to reduce carbon dioxide emissions from stationary sources.

Because capture and conversion technologies for carbon dioxide emissions from gasoline or diesel-powered motor vehicles are not commercially available, there is potentially a market opportunity both domestically and world-wide for cost-effective retrofit technologies that can capture or convert carbon dioxide emissions from such vehicles.

EPA is interested in innovative technologies that can reduce carbon dioxide emissions from vehicles. The vehicle could use either gasoline or diesel fuel. The technologies would likely be drop-in components that are installed on a vehicle after the combustion emissions pass through other on-board catalytic and filter systems. EPA is most interested in the applicability to highway vehicles such as diesel-powered long-haul trucks.

**Topic Code 2A: Capturing Carbon Dioxide from Vehicles.** Innovative technology that captures or otherwise sequesters carbon dioxide emissions from mobile sources that use internal combustion engines. Important parameters include: types of vehicles being addressed the technology's interactions with other on-board emission treatment devices and exhaust gases, the target percentage of carbon dioxide captured or converted, the substances and products to be produced, the technology's durability and longevity, operation and maintenance requirements, cost, effect on vehicle mileage and fuel usage, and treatment and disposal of the technology and any wastes produced.

**Topic Code 2B: Converting Carbon Dioxide from Vehicles.** Innovative technology that converts carbon dioxide emissions from mobile sources that use internal combustion engines into harmless substances and/or materials and products that have economic value. The conversion can be achieved using catalysis, non-catalytic synthesis, or other means. Important parameters include: the types of vehicles being addressed, the technology's interactions with other on-board emission treatment devices and exhaust gases, the target percentage of carbon dioxide captured or converted, the substances and products to be produced, the technology's durability and longevity, O&M requirements, cost, effect on vehicle mileage and fuel usage, and treatment and disposal of the technology and any wastes produced.

#### Product Loss Prevention and/or Mitigation in the Oil and Natural Gas Sector

The oil and natural gas industry includes a wide range of operations and equipment, from wells to natural gas gathering lines and processing facilities, to storage tanks, and transmission and distribution pipelines. During these operations and uses of equipment, the industry loses—through leaks, temporal events, and other means—a significant amount of beneficial product that could otherwise go to market.

Associated with these product losses are releases of Volatile Organic Compounds (VOCs). VOCs contribute to the formation of ground-level ozone (smog). Exposure to ozone is linked to a wide range of health effects, including aggravated asthma, increased emergency room visits and hospital admissions, and premature deaths. Other product losses release “air toxics”, such as benzene, ethylbenzene, and n-hexane. Air toxics are chemicals that are known or suspected of causing cancer and other serious health effects.

**Topic Code 2C: Product Loss Prevention and/or Mitigation in the Oil and Natural Gas Sector.** EPA is seeking innovative technologies that can prevent and/or mitigate the loss of valuable product and the associated releases of VOCs and air toxics. More specifically, EPA is seeking prevention and/or mitigation technologies that can be used at well sites, natural gas gathering and processing facilities, storage tanks and sites, or transmission facilities. The prevention and/or mitigation technology implementation should cost less than \$2,700 per ton of reduced product loss. The technology may be targeted at but not limited to specific equipment such as natural gas driven equipment; maintenance activities such as the maintenance of compressors; design improvements to storage tank emission points such as thief hatches; and temporal emission events such as liquids unloading, blowdowns, and pigging.

#### Developing More Stable Metal Alloy Tubes for Use in High Temperature Processes

Recently it has been found that metal alloy tubes used in industrial processes that operate at high temperatures can degrade and emit toxic metals.

As a case in point, ethylene (C<sub>2</sub>H<sub>4</sub>) is widely used in the chemical industry as a feedstock in the production of industrial chemicals and consumer goods—e.g., plastics, antifreeze, solvents, and detergents. Ethylene is produced in furnaces by “cracking”—i.e., breaking apart—simpler hydrocarbons.

The hydrocarbons to be cracked are mixed with steam and quickly run through tubes that are inside the furnace, which operates at about 850 degrees Centigrade. The combination of high temperature and steam “steam cracks” the hydrocarbons inside the tubes. The tubes are made of an alloy consisting of the toxic metals Nickel (Ni) and Chromium (Cr) mixed with Iron (Fe).

Recent stack testing on cracking furnaces has revealed higher than expected emissions of Ni and Cr. This is probably due to the severe conditions in the furnaces degrading the Fe-Ni-Cr alloy tubes used in the furnaces.

The recent stack testing also found high Ni and Cr emissions during de-coking operations. De-coking is necessary because over time coke will build up inside the tubes, causing facilities to operate less and less efficiently until they reach a point of needing to remove the coke (via burning it off through the injection of steam and air into the tubes) before returning to normal cracking operations.

There are 400-500 ethylene cracking furnaces in the US. Due to the availability of cheap feedstocks from fracking and shale gas, the industry is undergoing rapid growth with new facilities being built.

There may be other industrial processes that use metal alloy tubes in a high temperature environment. Those tubes could also be degrading and emitting toxic metals. With this in mind, EPA is interested in the following topic:

**Topic Code 2D: Developing More Stable Metal Alloy Tubes for Use in High Temperature Processes.**

Innovative degradation-resistant tubes for use in ethylene cracking furnaces and other high temperature processes to replace tubes that are made with toxic metals. The tubes could be made of alternative metals, different percentages of the currently-used metals and/or other compounds, or non-metals. Compared with the currently-used tubes, the new tubes should produce lower or no Ni, Cr, and/or other toxic emissions during operation, last longer before needing to be replaced, reduce the down time necessary for de-coking and other intra-tube treatments, and cost less.

### **3. Land Revitalization**

EPA administers Superfund, the federal government's program to clean up the nation's uncontrolled hazardous waste sites.

#### Remediation of PFAS-Contaminated Soil and Sediment

Per- and polyfluoroalkyl substances (PFAS) are a class of man-made chemicals not found naturally in the environment. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body. To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA has established the health advisory levels at 0.07ppb.

PFAS have been used to provide water, oil, and stain repellency to textiles, carpets and leather; to create greaseproof and water-proof coatings for paper plates and food packaging; and to aid processing in fluoropolymer manufacturing among many other commercial and consumer applications. They also have been used in chrome plating, firefighting foams, liquid carpet and textile care treatments, and floor waxes and sealants.

The PFAS emitted or disposed into various media from these manufacturing processes resulted in PFAS contamination of soil and sediment. To date, soil contamination has been removed via excavation. EPA would like

to improve and advance processes, technologies, and treatment systems for the sampling, analysis, and cleanup of PFAS in soil and sediment. As a result, EPA is interested in the following topic:

**Topic Code 3A: Remediation of PFAS-Contaminated Soil and Sediment.** Innovative technologies that can sample, detect, analyze, remove, or destroy PFAS in and from soil and sediment. The technologies should be widely applicable—i.e., able to address various combinations of PFAS present; various soil types and other matrices to be remediated; and other types of contaminants present. The technologies should be effective, easy to use and maintain, and affordable.

Proposed projects can be either ex situ (analyzing or treating excavated or extracted media or waste above ground) or in situ (analyzing or treating in place). For sampling and analysis, technologies can either detect contamination for the purpose of identifying the presence of and delineating the extent of PFAS, or produce data to support various decisions at sites where PFAS is present. For cleanup, the technologies can address contamination by reducing its toxicity, mobility, or volume by removing, destroying, or immobilizing PFASs and co-occurring contaminants from the target media. Evaluating remediation performance using accepted criteria and procedures is a critical element. The overall life cycle should be addressed—e.g., showing that remediating contaminated soil at one site will not result in transferring the risk to other media or locations.

#### **4. Homeland Security**

The emergence of stateside Ebola cases highlighted the need for environmental cleanup methods for Category A pathogens in settings outside of the hospital as well as means to perform on-site waste management activities while minimizing worker exposure risk.

As a result, a National Security Council-led interagency group consisting of the U.S. Department of Transportation, U.S. Environmental Protection Agency, U.S. Department of Labor, Centers for Disease Control and Prevention, Assistant Secretary for Preparedness and Response drafted in January 2017 an “[Interim - Planning Guidance for the Handling of Solid Waste Contaminated with a Category A Infectious Substance](#)”.

The following two topics address these needs.

##### Products for Category A Virus Inactivation that are Effective for Porous Surfaces and Suitable for Sensitive Equipment

There are decontamination products for Ebola and other Category A viruses that are registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). They can kill viruses and other Category A pathogens including Ebola. They are approved, however, for use on hard, non-porous surfaces, while not approved (with unknown levels of effectiveness) for use on porous surfaces. They are also typically corrosive, which makes them not suitable for use on many likely materials and on sensitive equipment. The destructiveness, and inability to effectively decontaminate porous materials and sensitive equipment results in large volumes of waste being generated, which may be contaminated.

FIFRA: All pesticides distributed or sold in the United States must be registered (licensed) by EPA. Additional information on FIFRA can be found in Section VIII. Scientific and Technical Information Sources.

##### **Topic Code 4A. Decontamination of Category A Viruses on Porous Surfaces and Sensitive Equipment.**

Develop a virus inactivation product that is capable of a 4-log inactivation of Category A viruses

on a range of porous materials (e.g., upholstery, bedding, fabric, carpet, unpainted wood) and is non-corrosive to a range of potentially reusable household materials.

#### Waste Packaging Materials to Facilitate On-Site Fumigation and Transport of Items that Have Been Contaminated by Ebola Virus and Other Category A Infectious Agents

Currently available packaging for non-hospital Ebola and other Category A wastes is impermeable to fumigants, and not amenable to large and bulky items, which limits the ability to use on-site waste treatment. There needs to be a way to package large and small contaminated items in a building (either with bagging or wrapping) and take them to where they can be treated without workers having to re-open the bags.

On-site treatment would dramatically reduce the need for special transportation permits to access off-site treatment facilities. This would reduce the number and size of packing containers; the effort to pack, load, and unload them; the number, size, and fuel usage of transport vehicles; landfill usage; incineration operation; risk associated with transporting the waste; and costs.

There are three components of an on-site treatment system:

- i. The first is having a semi-permeable packaging material that will enable the entry and exit of fumigants, be non-bulky, be flexible, be able to withstand the fumigation conditions, and not permit contaminants (viral and/or bacterial) to escape. An analogous material could be the bags used for ethylene oxide sterilization chambers.
- ii. The second is having effective fumigants that can pass through the packaging material and disinfect the contaminated thing in the package. (Examples of Class A fumigants include: chlorine dioxide, hydrogen peroxide, methyl bromide, and formaldehyde.)
- iii. The third is having a fumigant delivery and removal system that includes both effective fumigants and the equipment and other materials required to deliver, treat, recover, and dispose of used fumigants. The design of the delivery system would depend on the fumigant that is used.

Demonstration of this technology is an important step towards commercialization. Demonstration of the desired performance of the materials, using the criteria described above, using wastes contaminated with Category A infectious agents or appropriate surrogates thereof, appropriate fumigants, and one or more delivery systems. To validate performance, EPA testing procedures can be used.

Demonstrations should use bags made of the developed material that have been filled with contaminated items that are larger (and preferably a lot larger) than a bread box or a doll house.

**Topic Code 4B: Packaging for On-Site Fumigation and Transport of Category A Virus Contaminated Materials.** Develop non-bulky waste packaging materials for on-site waste treatment that enable penetration of gaseous decontaminants and high temperature steam into the waste packages while preventing escape of the contaminants (viral and/or bacterial) (without requiring workers to open the waste packages).

The membrane/packaging material must not allow minor amounts of liquids or solids to escape. It should be rugged enough for normal handling procedures by workers in personal protective equipment (PPE). It should survive external decontamination with a dilute (10%) bleach solution. It should maintain its integrity after fumigation. It should be cost effective—i.e., marketable. The on-site treatment should dramatically reduce transportation requirements for waste requiring off-



site treatment and disposal. It should reduce the size of the waste containers and special permits required for off-site transportation.

## 5. Manufacturing

Executive Order 13329 directs the EPA to properly and effectively assist the private sector in its manufacturing innovation in order to sustain a strong manufacturing sector in the U.S. economy. These innovations often involve engineering and technical solutions that make the manufacturing operation and/or the manufactured product both more environmentally and economically sound.

The EPA is seeking innovative technologies that, when compared with currently available technologies, have dramatically better performance, decreased cost of production, and reduced health and environmental impacts.

### Greener Plastics

“Plastics” is a broad category of polymeric substances that have varied applications and widespread use. Typically derived from petroleum, natural gas, and coal, they generally contain carbon and hydrogen along with added nitrogen, oxygen, chlorine, and sulfur. Plastics can be made to have different characteristics by modifying the structure of the polymer and adding other substances. Examples of plastics include: polyvinyl chloride, polystyrene, acrylics, polypropylene, polyethylene, and composites such as fiber-reinforced plastic.

Plastics are used in the building construction, electronics, medical, packaging, consumer, transportation, and aerospace sectors. They constitute one of the largest US industrial sectors, which has been faring well economically in recent years—e.g., shipping more than \$500 billion worth of materials per year. Plastic products are so widely used because they have many advantageous properties—they can be durable, long-lasting, lightweight, corrosion resistant, easy to cut and join, easy to install and remove, different colors, and nonconductive.

Plastics can, however, have negative health and environmental effects throughout their life cycle. They are generally made with toxic materials in very energy-intensive processes, toxic fumes are often emitted during their manufacture and use, they can be hazardous when they come in contact with food and potable liquids that people ingest, they can degrade during use, they can trap and be ingested by wildlife on land and in the ocean, they can be difficult to recycle and reuse, they are a significant component of landfilled material, and they do not easily biodegrade.

Because of their economic importance, widespread utility, and possible negative health and environmental impacts, EPA is seeking greener plastics, as follows:

**Topic Code 5A: Greener Plastics Manufacturing.** For a specific type of plastic develop a greener manufacturing process that (a) eliminates the use of one or more toxic source materials, (b) eliminates toxic chemicals used in the manufacturing process, (c) greatly reduces the amount of energy used to carry out the process, and/or (d) eliminates one or more toxic pollutants that result from the process. Examples include: using non-petrochemical source materials and using biological rather than chemical transformation processes. Comparison with the currently used sources and manufacturing processes and assessing the overall life cycle of the plastic(s) are integral to this topic.

**Topic Code 5B: Greener Plastic Products.** For a specific type of product that is made with plastic, develop a greener version of the product that (a) is not made with toxic materials, (b) does not emit toxic fumes, (c) is not toxic if ingested, (d) is easily recycled and reused, and/or (e) rapidly biodegrades in soil and water. Examples include: alternatives to products made with polyvinyl chloride or

polystyrene. Comparison with the performance and cost of the currently-used plastic product and assessing its overall life cycle are integral to this topic.

## **6. Building Construction Materials**

### Greener Interior Construction Materials

There is a need to use greener materials in constructing the interior floors, walls, and ceilings of buildings. “Greener” considers the whole life cycle of the materials that are used. The following are examples of this need:

- Many indoor construction materials emit toxic gases such as formaldehyde and produce airborne fine particles. It would be more protective of human health if greener materials were used that did not emit toxic fumes or fine particles.
- Flexible and laminate vinyl materials and rigid polyvinyl chloride (PVC) are made with toxic materials and processes, are difficult to recycle, and do not biodegrade. It would be more protective of the environment if greener materials were used.

With this in mind, EPA is interested in innovative technologies that address the following topic:

**Topic Code 6A: Greener Interior Construction Materials:** Greener materials for construction of floors, walls, and/or ceilings in buildings. Compared with currently-used materials, these materials should be less toxic, stronger, more durable, longer lasting, lower weight, lower in volume, easier to re-cycle and re-use, more biodegradable, and more affordable. The use of a life cycle perspective that embodies these and other related aspects is integral to this topic.

### Greener Exterior Construction Materials

Materials used in constructing the exterior of buildings wind up creating a large portion of the waste materials in the United States. These materials include concrete, wood, metal, glass, and plastic. Much of this material goes to landfills because they cannot be easily or cost-effectively re-cycled or reused. For example, nearly all polyvinyl chloride construction materials go to landfills. There is a need for greener materials that can be used in constructing the exterior of buildings. “Greener” considers the whole life cycle of the materials that are used.

With this in mind, EPA is interested in innovative technologies that address the following topic:

**Topic Code 6B: Greener Exterior Construction Materials:** Greener materials for use in constructing the exteriors of buildings. Compared with currently-used materials, these materials should be less toxic, stronger, more durable, longer lasting, lower weight, lower in volume, easier to re-cycle and re-use, more biodegradable, and more affordable. The use of a life cycle perspective that embodies these and other related aspects is integral to this topic.

## **E. Phase II**

**(THIS SOLICITATION IS FOR PHASE I PROPOSALS ONLY)**

### **Process**

Upon completion of their Phase I project, Phase I awardees are eligible to submit for follow-on Phase II funding. Phase II offerors should have made significant progress in their commercialization planning and implementation during their Phase I project.

Phase II is the principal R&D effort. It should be completed in 24 months. It has two objectives. The first is to continue the R&D initiated under Phase I, and take it at least through full-scale testing of the technology. The second

is to work with partners, investors, and customers to fully commercialize the technology and obtain widespread utilization.

The EPA recognizes that a full demonstration of a technology's capability and full-scale commercialization may require, in effect, a Phase III that utilizes non-EPA Federal and/or private sector funds; therefore, Phase II projects should work to establish strategic partners necessary to commercialize their technology.

The EPA anticipates making approximately six (6) Phase II awards, each in the amount of \$300,000 with a 24-month term of performance. In Phase II, the EPA is also offering a commercialization option of \$100,000 to companies that can secure third-party investment of \$100,000 or more for the commercialization of their technology. To implement this, the Agency requires a "Commercialization Option" under which Phase II offerors shall submit a proposal for up to \$100,000 of additional EPA funding.

The small business concern shall document the receipt of these latter funds from one or more third-party investors, such as a venture capital firm, an individual "angel" investor<sup>1</sup>, a state or local funding source, another company under a partnership, licensing, or joint venture arrangement, or any combination of third parties. The EPA funds must be designated solely for support of the R&D-related elements of the project. The entire Phase II proposal, including the commercialization option, will be evaluated together.

The EPA anticipates issuing the follow-on Phase II Solicitation on or about March 2019, with proposals due on/about May 2019.

## **Evaluation**

For Phase II, the EPA will use a two-stage evaluation process similar to that used for Phase I. There will be an external peer review, plus an internal review that considers programmatic balance, Agency priorities, and available funding. The following criteria will be used in the external peer review of the Phase II proposals.

Stage one is the peer review process. The following three (3) technology criteria and three (3) commercialization criteria will be used to evaluate Phase I proposals during peer review. All six (6) criteria are of equal importance. These criteria directly align with the requirements in the solicitation.

### **Phase II Technical Criteria**

- (1) **The Innovation** – Degree to which proposal addresses the innovation including such factors as: why technology is innovative and how it could benefit target customers; what must be done to reach the next stage of development; identification of key technical challenges for bringing the technology to market and how they will be overcome; and the intellectual property associated with this project and how it will be protected.
- (2) **Technical Approach** – Degree to which proposal addresses the technical approach including factors such as: what questions must be answered to determine the technical feasibility of the proposed concept and how these will be addressed; and adequacy of Quality Assurance Statement.
- (3) **Technical Challenges** – Degree to which proposal addresses the technical challenges including factors such as: key performance characteristics including costs, necessary to meet customer needs; description of competing technologies; a lifecycle approach to solving the problem addressing environmental benefits and costs associated with the inputs, manufacture, use, and reuse/recycle/treatment/disposal of the technology.

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<sup>1</sup> An angel investor is an investor who provides financial backing for a business start-up.

## **Phase II Commercialization Criteria**

- (4) **Market Opportunity** – Degree to which the proposal addresses the market opportunity including factors such as: target market for the innovation and how market was validated; the drivers for and barriers to selling to target market; description of customers and basic business model; and description of competition and how the competitive landscape is expected to change by the time product enters the market.
- (5) **Company/Team** – Degree to which proposal addresses the company/team (including Principal Investigator (PI)) and factors such as: how qualified company/team is to carry out the proposed work and is balanced between technical and business skills; has adequate resources available to carry out the proposed activities; and has a track record taking similar technologies (including SBIR-funded projects) to market.
- (6) **Commercialization Approach** – Degree to which proposal presents a commercialization approach that can successfully take technology from its current stage of development to market.

Stage two is the programmatic or relevancy review which will be conducted by EPA representatives using the criteria below.

## **Phase II Internal Programmatic Relevancy Review Criteria**

- (1) The potential of the technology to meet Agency program priorities.
- (2) The potential of the technology to advance sustainability, including environmental, economic, and societal benefits.
- (3) The potential of the technology to be widely used, have broad application, and/or to impact large segments of the population.

## **F. Phase III**

### **(THIS SOLICITATION IS FOR PHASE I PROPOSALS ONLY)**

The EPA strongly encourages Phase II awardees who do not think they will be able to achieve full-scale commercialization by the end of Phase II to diligently plan for and pursue during Phase II non-EPA SBIR sources of funding to achieve full-scale commercialization and utilization of their technology. That third phase could be funded by:

- (1) Non-Federal sources of capital—including investors, commercial partners, licensing, etc.
- (2) Federal non-SBIR sources that support any necessary continued R&D and product development.
- (3) Federal non-SBIR funds for purchasing and/or domestic and international marketing of the technology.

The objective of Phase III, where appropriate, is for the small business to pursue commercialization objectives resulting from the Phase I/II R/R&D activities. The SBIR program does not fund Phase III.

## **G. Guidelines**

Each offeror submitting a Phase I proposal must qualify as a small business for research or R&D purposes at the time of award of the Phase I and Phase II funding agreements. In addition, the primary employment of the principal investigator must be with the small business firm, both at the time of contract award and during the conduct of the proposed research. Principal investigators who appear to be employed by a university must submit a letter from the university stating that the principal investigator, if awarded a SBIR contract, will become a less-than-half-time employee of the university.

Also, a principal investigator who appears to be a staff member of both the offeror and a second employer must submit a letter from the second employer stating that, if awarded a SBIR contract, s/he will become a less than half-time employee of the second employer. Letters demonstrating that these requirements have been fulfilled shall be submitted prior to contract award to the Contract Specialist via the FedConnect web portal ([www.fedconnect.net](http://www.fedconnect.net)). Failure to do so may jeopardize award. Also, for Phase I, the research or R&D work must be performed in the United States. (For the definition of the “United States”, see Section II. J.)

## **H. Inquiries**

All inquiries concerning this solicitation shall be referred to the EPA Contract Specialist:

All inquiries concerning this solicitation shall be submitted to the EPA Contract Specialist, Adrienne Wells, via the FedConnect web portal ([www.fedconnect.net](http://www.fedconnect.net)).

## **I. Fraud, Waste, and Abuse**

To report fraud, waste, or abuse in EPA programs, contact the OIG Hotline by:

E-mail: [OIG\\_Hotline@epa.gov](mailto:OIG_Hotline@epa.gov)

Postal Mail:  
EPA Inspector General Hotline  
1200 Pennsylvania Avenue NW Mail code 2431T

Phone: 1-888-546-8740

Fax: 1-202-566-2599

## **II. DEFINITIONS**

For purposes of this solicitation, the following definitions apply:

### **A. Research or Research and Development (R/R&D)**

Any Activity that is:

- (1) A systematic, intensive study directed toward greater knowledge or understanding of the subject studied;
- (2) A systematic study directed specifically toward applying new knowledge to meet a recognized need; or
- (3) A systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

### **B. Funding Agreement**

Any contract, grant, or cooperative agreement entered into between any Federal Agency and any small business concern for the performance of experimental, developmental, or research work, including products or services, funded in whole or in part by the Federal Government.

### **C. Subcontract**

Any agreement, other than one involving an employer-employee relationship, entered into by an awardee of a funding agreement for purpose of obtaining supplies or services for the performance of the original funding agreement.

## **D. Small Business Concern**

A small business concern is one that, at the time of award of Phase I and Phase II contracts, meets all of the following criteria:

- (1) Is registered in System for Award (SAM) under North American Industry Classification System (NAICS) code 541715.
- (2) Is organized for profit, with a place of business located in the United States;
- (3) Is more than 50 percent owned and controlled by one or more individuals who are citizens of, or permanent resident aliens in, the United States, or by another for-profit business concern that is more than 50% owned and controlled by one or more individuals who are citizens of, or permanent resident aliens in, the United States; and
- (4) Has no more than 500 employees, including affiliates;
- (5) Is in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust, or cooperative, except that, where the form is a joint venture, there can be no more than 49 percent participation by business entities in the joint venture.

## **E. Socially and Economically Disadvantaged Small Business Concern**

A socially and economically disadvantaged small business concern is one that is at least 51% owned and controlled by one or more socially and economically disadvantaged individuals, or an Indian tribe, including Alaska Native Corporations (ANCs), a Native Hawaiian Organization (NHO), or a Community Development Corporation (CDC). Control includes both the strategic planning (as that exercised by boards of directors) and the day-to-day management and administration of business operations. See 13 CFR 124.109, 124.110, and 124.111 for special rules pertaining to concerns owned by Indian tribes (including ANCs), NHOs, or CDCs, respectively.

## **F. Socially and Economically Disadvantaged Individual**

A member of any of the following groups:

- (1) Black Americans;
- (2) Hispanic Americans;
- (3) Native Americans (American Indians, Eskimos, Aleuts, or Native Hawaiians);
- (4) Asian-Pacific Americans (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China (including Hong Kong), Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Fiji, Tonga, Kiribati, Tuvalu, or Nauru);
- (5) Subcontinent Asian Americans (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal); and
- (6) Other groups designated from time to time by SBA pursuant to Section 124.103(d) of the 13 CFR Ch.1 (1-1-02 Edition).

## **G. Woman-Owned Small Business Concern**

A small business concern that is at least 51 percent owned by and controlled by a woman or women. Control includes both the strategic planning (as that exercised by boards of directors) and the day-to-day management and administration of business operations.

## **H. Historically Underutilized Business Zone (HUBZone)**

A small business concern meeting the following requirements:

- (1) Is registered in System for Award Management (SAM) under North American Industry Classification System (NAICS) code 541715.
- (2) It must be a small business by SBA standards;
- (3) It must be owned and controlled at least 51% by U.S. citizens, or a Community Development Corporation, an agricultural cooperative, or an Indian tribe;
- (4) Its principal office must be located within a “Historically Underutilized Business Zone,” which includes lands considered “Indian Country” and military facilities closed by the Base Realignment and Closure Act;
- (5) At least 35% of its employees must reside in a HUBZone.

## **I. Primary Employment**

More than one-half of the principal investigator's time is spent in the employ of the small business concern.

## **J. United States**

The 50 States, the Territories and possessions of the Federal Government, the Commonwealth of Puerto Rico, the District of Columbia, the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau.

## **K. Commercialization**

The process of developing marketable products or services and producing and delivering products or services for sale (whether by the originating party or by others) to Government or commercial markets.

## **L. SBIR Technical Data**

All data generated during the performance of a SBIR award.

## **M. SBIR Technical Data Rights**

The rights a small business concern obtains in data generated during the performance of any SBIR Phase I, Phase II, or Phase III award that an awardee delivers to the Government during or upon completion of a Federally-funded project, and to which the Government receives a license.

## **III. CERTIFICATIONS**

The Section K Representations and Certifications are located in Appendix 4. Refer to IV., Proposal Preparation Instructions and Requirements, Section F. Attachment 3: Representations and Certifications for instructions on proposal preparation.

**Please Note: Majority Ownership in Part by Multiple Venture Capital, Hedge Fund, and Private Equity Firms.** For this EPA SBIR FY 2018 solicitation, the EPA’s SBIR Program will not accept proposals from or make awards to small business concerns that are owned in majority part by multiple venture capital operating companies, hedge funds, or private equity firms. **Small business concerns with such ownership will not be considered for award under this solicitation.**

## IV. PROPOSAL PREPARATION INSTRUCTIONS AND REQUIREMENTS

### A. Proposal Page Limit and Cover Sheet

Proposals shall be submitted in Portable Document Form (PDF) in response to this Phase I solicitation. Proposals shall not exceed a total of **25 pages**, one side only. Exceptions being the requirements set forth in Section IV. C. **Error! Reference source not found.** “Company SBIR Commercialization History” by submitting Appendix 6 and the one-page print out showing the company has registered in the SBA company registry (described in Section V. E). The **25 pages** shall include the cover page, budget, and all enclosures or attachments. Pages (including enclosures or attachments such as letters of recommendation) should be of standard size (8 ½ in x 11 in; 21.6 cm x 27.9 cm) with 2.5 cm margins and type no smaller than 10-point font size. All pages shall be consecutively numbered. Any additional attachments, appendices, or references beyond the 25-page limitation (unless specifically requested in this solicitation) shall result in the proposal not being considered for review or award. A letter of transmittal is not necessary. If a letter of transmittal is attached it will be counted as page 1 of the proposal.

**Proposals in excess of the 25-page limitation shall not be considered for review or award. Your entire proposal (including appendices) shall be submitted through FedConnect as ONE document in PDF. Only proposals received via FedConnect as ONE PDF by the deadline identified above will be considered for award.**

The offeror shall complete the Proposal Cover Sheet (Appendix 1) of this solicitation which has the relevant solicitation number and applicable research topic code and corresponding topic title and use it as page 1 of the proposal. The offeror shall select one (and only one) research topic code and the corresponding topic title on the cover sheet. It is the complete responsibility of offerors to select and identify the best research topic code and the corresponding topic title for their proposal. **No other cover sheet shall be permitted.** Do not use cover sheets from previous years’ solicitations; they include obsolete research topics and corresponding topic codes. When downloading the solicitation from the Internet, Appendix 1 may print on no more than two pages, but Appendix 1 will only count as one page. If Appendix 1 exceeds two pages, any additional pages will count toward the 25-page limitation. Offerors may reformat the forms to correct spacing and pagination errors; however, identical information shall be provided.

The cover sheet shall contain the signatures of the principal investigator and the corporate/business official authorized to sign the proposal. The total costs requested on Appendix 1 (Proposal Cover Sheet) must match the total costs proposed on Appendix 3 (SBIR Proposal Summary Budget). The amount must not exceed \$100,000 on Appendix 1 and 3. If your firm intends to incur any additional costs beyond the budget limit of \$100,000, please provide a statement indicating that your firm will be responsible for any additional cost beyond the budget limits.

Offerors should prepare their technical proposal as succinctly as possible. Quality of information is more important than quantity. Elaborate brochures or other presentations beyond those which are sufficient to present a complete and effective proposal are neither necessary nor desired and will not be read. Clarity, brevity and logical organization should be emphasized during proposal preparation.

### B. Project Summary

Each proposal must include a Project Summary which will be an important document for all stages of the review process. The offeror shall complete the Project Summary form (Appendix 2) and use it as page 2 of their proposal.



Offerors shall properly enter their Phase I Research Topic Code and Topic Title on both their Proposal Cover Sheet (Appendix 1) and Project Summary (Appendix 2).

The Project Summary **shall** be limited to one page and not to exceed 200 words. The Project Summary **shall** include the following information (must be publishable, i.e., not proprietary): The specific need for the technology, what the technology would do to meet that need, technical feasibility, application(s), end users, evidence of willing buyers, size of the potential market, performance compared to current technologies and potential for environmental benefits.

In summarizing anticipated results, the implications of the approach and the potential commercial applications of the research shall be stated. **THE PROJECT SUMMARY IS USED EXTENSIVELY DURING THE EXTERNAL PEER REVIEW AND INTERNAL PROGRAMMATIC REVIEW.** The project summary and proposal title from Appendix 2 of the successful proposals will be published by EPA and, therefore, shall not contain proprietary information. No changes shall be allowed.

When downloading the solicitation from the Internet, Appendix 2 may print on no more than two pages, but Appendix 2 will only count as one page. Offerors may reformat the forms to correct spacing and pagination errors; however, identical information shall be provided. If Appendix 2 exceeds two pages, any additional pages will count toward the 25-page limitation.

### **C. Technical and Commercial Content: Phase I Proposal**

The Phase I proposal requirements are described in this section. Begin the main body of the Phase I technical and commercial proposal on page 3, after the proposal cover sheet and project summary. Note that there are THREE attachments required as part of the complete Phase I proposal as follows:

- Attachment 1: Phase I Quality Assurance Statement (See Section D);
- Attachment 2: Cost Breakdown/Proposed Budget (See Section E);
- Attachment 3: Representations and Certifications (See Section F).

The main body of the technical and commercial proposal shall contain sections that, respond to each of the following nine (9) requirements:

#### **Technical Requirements**

##### **(1) The Innovation**

- (a) Describe the innovation in sufficient technical depth for a knowledgeable reviewer to understand why it is innovative and how it could benefit the target customers
- (b) Describe the technology's current stage of development—bench/pilot/field—and what must be done to reach the next stage
- (c) Describe the demonstrations you will carry out to help move the technology to the next stage—including scale, facilities, partners, other resource needs and availability, etc.
- (d) Describe the key technical challenges for bringing the technology to market and how you will overcome them
- (e) Describe the current and planned intellectual property associated with this project and how you plan to protect it

**(2) Technical Approach**

- (a) What questions must be answered to determine the technical feasibility of the proposed concept?
- (b) What are the key objectives you plan to accomplish during Phase I to answer those questions?
- (c) Describe the technical milestones you plan to meet to achieve each objective
- (d) Provide a visual timeline projecting the planned achievement of these objectives and milestones during the project

**(3) Technical Challenges**

- (a) Describe the key performance characteristics, including costs, necessary to meet customer needs
- (b) Describe how competing technologies—both in the marketplace and being developed—perform against these metrics
- (c) Explain how your technology will perform against these metrics compared with the competing technologies
- (d) Describe the environmental benefits and costs associated with the lifecycle (inputs, manufacture, use, and reuse/recycle/treatment/disposal) of your technology. How will this Life Cycle Assessment be fleshed out in significant detail during Phase I and who will be responsible for doing so.

**Commercialization Requirements**

**(4) Market Opportunity**

- (a) Describe the target market for the innovation—including nature, size, business and economic dynamics, etc.
- (b) Describe how you validated the market opportunity—e.g., the number of interviews with customers and others, published studies (cite), industry journal articles, consultants, etc.
- (c) Describe the drivers for and barriers to selling to your target market, including regulatory
- (d) Describe your customers and your basic business model
- (e) Describe the competition. How do you expect the competitive landscape to change by the time your product enters the market?

**(5) Company/Team**

- (a) Describe the company founders and key participants (including Principal Investigator (PI)) in this proposed project and their role and level of effort as part of or in support of this project. How does the background and experience of the team enhance the credibility of the effort—e.g., have they previously taken similar technologies to market?
- (b) Will you have consultants or subcontractors working on this project? If so, what will be their expertise, affiliation, and contribution to the project?
- (c) Describe your vision for the company and the company's expected impact over the next five years

- (d) If the company has existing operations, describe how the proposed effort would fit into these activities. Describe the revenue history, if any, for the past three years. Include government funding and private investment

(6) **Commercialization Approach**

- (a) Describe your commercialization approach for taking the technology from its current stage of development to occupying a dominant position in the target market
- (b) Provide estimates of the revenue potential, detailing your underlying assumptions
- (c) What resources will you need to implement your commercialization approach?
- (d) Describe your plan and expected timeline to secure these resources
- (e) Describe the commercialization objectives you plan to accomplish during the Phase I project and provide milestones and a visual timeline for achieving them
- (f) What are the prospects for the technology to have commercial applications in addition to the proposed application and what would they be?

**Other Requirements**

- (7) **Similar or Closely Related SBIR Awards.** If the small business concern has received ANY prior Phase I or Phase II award(s) from EPA or any Federal agency for similar or closely related research in the prior 5 fiscal years, submit the name of the awarding agency, date of award, funding agreement number, amount, topic or subtopic title, follow-on agreement amount, source and date of commitment and current commercialization status. Describe the technical differences and reasons why the proposed Phase I research is difference from research conducted under prior SBIR awards. (This required proposal information **shall** be counted toward the 25-page proposal limitation.)
- (8) **Duplicate or Equivalent SBIR Proposals.** A firm may elect to submit essentially equivalent work under other federal program solicitations. In these cases, a statement shall be included in each such proposal indicating: the name and address of the agencies to which proposals were submitted or from which awards were received; date of proposal submission or date of award; title, number, and date of solicitations under which proposals were submitted or awards received; specific applicable research topics for each proposal submitted or award received; titles of research projects; name and title of project manager or principal investigator for each proposal submitted or award received. (This required proposal information **shall** be counted toward the 25-page proposal limitation.)
- (9) **Company SBIR Commercialization History.** A Company SBIR Commercialization History is required for all offerors certifying receipt of previous SBIR Phase II awards from any Federal agency. The Commercialization History Template in Appendix 6 **MUST** be used. All items must be addressed in the format outlined in this template. Changes to the template, additional narratives and/or commercialization history documents from other agencies are not permitted. (This required proposal information **will not** be counted toward the 25-page proposal limitation.)

## **D. Attachment 1: Phase I Quality Assurance Statement (QAS)**

Offerors must state whether or not their proposal involves data collection or processing, environmental measurements, modeling, or the development of environmental technology (whether hardware-based or via new techniques). The QAS describes the processes that will be used to assure that results of the research satisfy the intended project objectives. The EPA is particularly interested in the quality controls for data generation and acquisition, and how data validation and usability will be verified. This QAS **shall** not exceed one page, and it **shall** be counted toward the 25-page proposal limitation. The QAS shall briefly address each of the sections below. If a section does not apply, provide a brief justification of why.

- (1) Identify the individual who will be responsible for the quality assurance (QA) and quality control (QC) aspects of the research along with a brief description of this person's functions, experience and authority within the firm. Describe the firm's general approach for conducting quality research. (QA is a system of management activities to ensure that a process or product is of the type and quality needed for the project. QC is a system of activities that measure the attributes and performance of a process or product against the standards defined in the project to verify that they will meet those stated requirements.)
- (2) Discuss project objectives, including quality objectives, any hypotheses to be tested, and the quantitative and/or qualitative procedures that will be used to evaluate the success of the project. Include any plans for peer or other reviews of the study design or analytical methods.
- (3) Address the collection of new primary data, if applicable: (Note: In this case the word "sample" is intended to mean any finite part of a statistical population whose properties are studied to gain information about the whole. If certain attributes listed below do not apply to the type of samples to be used in the research, simply explain why those attributes are not applicable.)

Discuss the plan for sample collection and analysis. As applicable, include sample type(s), frequency, locations, sample sizes, sampling procedures, and the criteria for determining acceptable data quality (e.g., precision, accuracy, representativeness, and completeness, comparability, or data quality objectives). Describe the procedures for the handling and custody of samples including sample collection, identification, preservation, transportation, storage and how the accuracy of test measurements will be verified. Describe or reference each analytical method to be used, any QA or QC checks or procedures with the associated acceptance criteria, and any procedure that will be used in the calibration and performance evaluation of the analytical instrumentation. Discuss the procedures for overall data reduction, analysis and reporting. Include a description of all statistical methods to make inferences and conclusions, acceptable error rates and any statistical software to be used.

- (4) Address the use of existing/secondary data (i.e., data previously collected for other purposes or from other sources), if applicable: Describe or reference each analytical method to be used, any QA or QC checks or procedures with the associated acceptance criteria, and any procedures that will be used in the calibration and performance evaluation of the analytical instrumentation. Discuss the procedures for overall data reduction, analysis and reporting. Include a description of all statistical methods to make inferences and conclusions, acceptable error rates and any statistical software to be used.
- (5) Address method development, if applicable: (Note: The data collected for use in method development or evaluation should be described in the QAP as per the guidance in Sections 3 and/or 4 above.) Describe the scope and application of the method, any tests (and measurements) to be conducted to support the method development, the type of instrumentation that will be used and any required instrument conditions (e.g.,

calibration frequency), planned QC checks and associated criteria (e.g., spikes, replicates, blanks), and tests to verify the method's performance.

- (6) Address development or refinement of models, if applicable: (Note: The data collected for use in the development or refinement of models should be described in the QAP as per the guidance in sections 3 and/or 4 above.)

Discuss the scope and purpose of the model, key assumptions to be made during development/refinement, requirements for code development and how the model will be documented. Discuss verification techniques to ensure the source code implements the model correctly. Discuss validation techniques to determine that the model (assumption and algorithms) captures the essential phenomena with adequate fidelity. Discuss plans for long-term maintenance of the model and associated data.

- (7) Address development or operation of environmental technology, if applicable: (Note: The data collected for use in the development or evaluation of the technology should be described in the QAP as per the guidance in sections 3 and/or 4 above.)

Describe the overall purpose and anticipated impact of the technology. Describe the technical and quality specifications of each technology component or process that is to be designed, fabricated, constructed and/or operated. Discuss the procedure to be used for documenting and controlling design changes. Discuss the procedure to be used for documenting the acceptability of processes and components, and discuss how the technology will be benchmarked and its effectiveness determined. Discuss the documentation requirements for operating instructions/guides for maintenance and use of the system(s) and/or process(s).

- (8) Discuss data management activities (e.g., record-keeping procedures, data-handling procedures, and the approach used for data storage and retrieval on electronic media). Include any required computer hardware and software and address any specific performance requirements for the hardware/software configuration used.

A more detailed Proposal Quality Assurance Plan shall be required in Phase II. The plan shall be required as part of the first monthly report under the Phase II contract.

## **E. Attachment 2: Phase I Cost Breakdown/Proposed Budget**

Complete the budget form in Appendix 3 and incorporate the budget form bearing the signature immediately after proposal Section IV.E. Attachment 1: Phase I Quality Assurance Statement. The completed budget form will count as one page in the 25-page limit. If budget explanation pages are included, they will count toward the 25-page limit. Offerors are encouraged to include travel expenses on the budget form to attend a one-day SBIR Phase I Kick-Off Meeting in Washington, DC, soon after the Phase I awards are made.

NOTE: In accordance with the SBIR/STTR Reauthorization Act of 2011, the EPA is able to provide discretionary commercialization assistance to SBIR awardees. The Agency may provide up to \$5,000 of SBIR funds for technical assistance per award. The EPA intends to provide Phase I awardees with technical assistance through a separate EPA arrangement. For Phase I, this assistance will be in addition to the award amount. If you wish to receive commercialization assistance from the EPA vendor (Foresight), you do not need to include this in your budget.

## **F. Attachment 3: Representations and Certifications**

Attachment 3 (see Appendix 4) is a Representations and Certifications Package. Please fill out completely, sign, and return with the proposal. Failure to complete fully and sign this package and return with the proposal could delay award. (This required proposal information **shall not** be counted toward the 25-page proposal limitation.)

## **V. METHOD OF SELECTION AND EVALUATION CRITERIA**

All Phase I proposals will be initially screened to determine responsiveness. As noted in Section IV, proposals exceeding the 25-page limitation (unless specifically requested in this solicitation) will not be considered for review or award. Also, as noted in Section I, any proposal (a) addressing more than one research topic, (b) and/or failing to identify the research topic by topic code on the cover page, (c) and/or failing to stay within the exact language of the topic will not be considered for review or award.

Proposals passing this initial screening will be subject to a two-stage evaluation process. Proposals will be peer reviewed for technical and commercial merit by external peer reviewers, using the technical and commercialization evaluation criteria described below. Then proposals that receive ratings of “Highly Recommend” and “Recommend” from the external peer review panel will be reviewed by internal programmatic reviewers that consider programmatic balance, Agency priorities, and available funding. EPA is under no obligation to fund any proposal or any specific number of proposals in a given topic. It also may elect to fund several or none of the proposed approaches to the same topic or subtopic.

### **A. External Peer Review**

All Phase I proposals determined responsive to the solicitation will be evaluated and judged on a competitive basis by peer reviewers from outside of the EPA. All peer reviewers will be required to sign an agreement to protect the confidentiality of all proposal material. A copy of the confidentiality agreement is available upon request. While members of the public may obtain copies of these forms, the identities of the reviewers will not be released. The peer reviewers will rate each proposal on its own merits. The external peer review panel will review all proposals using the evaluation criteria described in Section B below. Based on this review, the panel will assign adjectival ratings of “Highly Recommend,” “Recommend”, or “Not Recommend” to each proposal. Proposals rated “Not Recommend” will not be considered for award.

The evaluation criteria that the reviewers will use, which are provided below, give equal weight to factors affecting the likely commercial success of the project and the likely technical success. The reviewers will rate individual proposals, and then meet as one or more panels that will produce a final rating for each proposal.

The EPA does not permit current Phase I contractors, Phase I offerors, or Phase II offerors to participate in the peer review. All proposals will be reviewed by external (non-EPA) peer reviewers. All peer reviewers are required to describe their SBIR contracts and proposals, sign an agreement to protect the confidentiality of all proposal materials they review and the discussions within the peer review panel, and certify that no conflict of interest exists between them and the offeror. While members of the public may obtain copies of these forms, the identities of the reviewers will not be released.

### **B. Phase I Evaluation Criteria**

The following three (3) technology criteria and three (3) commercialization criteria will be used to evaluate Phase I proposals. All six (6) criteria are of equal importance. These criteria directly align with the requirements in the solicitation.

### **Phase I Technical Criteria**

- (1) **The Innovation** – Degree to which proposal addresses the innovation including such factors as: why technology is innovative and how it could benefit target customers; what must be done to reach the next stage of development; identification of key technical challenges for bringing the technology to market and how they will be overcome; and the intellectual property associated with this project and how it will be protected.
- (2) **Technical Approach** – Degree to which proposal addresses the technical approach including factors such as: what questions must be answered to determine the technical feasibility of the proposed concept and how these will be addressed; and adequacy of Quality Assurance Statement.
- (3) **Technical Challenges** – Degree to which proposal addresses the technical challenges including factors such as: key performance characteristics including costs, necessary to meet customer needs; description of competing technologies; a lifecycle approach to solving the problem addressing environmental benefits and costs associated with the inputs, manufacture, use, and reuse/recycle/treatment/disposal of the technology.

### **Phase I Commercialization Criteria**

- (4) **Market Opportunity** – Degree to which the proposal addresses the market opportunity including factors such as: target market for the innovation and how market was validated; the drivers for and barriers to selling to target market; description of customers and basic business model; and description of competition and how the competitive landscape is expected to change by the time product enters the market.
- (5) **Company/Team** – Degree to which proposal addresses the company/team including factors such as: how qualified company/team (including Principal Investigator (PI)) is to carry out the proposed work and is balanced between technical and business skills; has adequate resources available to carry out the proposed activities; and has a track record taking similar technologies (including SBIR-funded projects) to market.
- (6) **Commercialization Approach** – Degree to which proposal presents a commercialization approach that can successfully take technology from its current stage of development to market.

Per the clause entitled “Principal Investigator (PI) Substitution due to Death, Resignation or Illness”, if the need for PI substitution is substantiated, offerors acknowledge and affirm this is not considered discussions, that there will be no competitive range determination, and that no discussions will be conducted. The qualifications of the substitute will be evaluated in accordance with the stated criteria.

## **C. EPA Programmatic Relevancy Review**

Phase I proposals that receive ratings of “Highly Recommend” and “Recommend” from the external peer review panel will be subject to an internal programmatic relevancy review by EPA program managers. Please note that not all of the proposals rated “Highly Recommend” and “Recommend” will receive a contract award. Many of these proposals are worthy of funding but EPA does not have sufficient SBIR budget to fund them. Proposals will be rated using the Phase I Programmatic Relevancy review criteria described below. Projects will not be funded if EPA determines the proposed research is already being supported by EPA or another source. Each of the programmatic relevancy review criteria are of equal importance.

### **Phase I Internal Programmatic Relevancy Review Criteria**

- (1) The potential of the technology to meet Agency program priorities as addressed in the solicitation topic.
- (2) The potential of the technology to advance sustainability, including environmental, economic, and societal benefits.

- (3) The potential of the technology to be widely used, have broad application, and/or to impact large segments of the population.

#### **D. Release of Proposal Review Information**

The technical evaluation of the offeror's proposal will be provided to the offeror. The identity of the reviewer(s) shall not be disclosed.

#### **E. Company Registry Requirements**

- (1) The Small Business Administration (SBA) maintains and manages a Company Registry at [www.SBIR.gov](http://www.SBIR.gov) to track ownership and affiliation requirements for all companies applying to the SBIR Program. The SBIR Policy Directive requires each small business concern (SBC) applying for a Phase I or Phase II award to register in the Company Registry prior to submitting a proposal.
- (2) Offerors must provide a .pdf copy of their SBA SBC registration and shall append this document to the last page of your technical proposal. This page will NOT count towards the 25-page limit.
- (3) All SBCs will report and/or update ownership information to SBA prior to each SBIR proposal submission or if any information changes prior to award. For example, if a concern that registers on the Company Registry becomes majority-owned by multiple venture capital operating companies, hedge funds, or private equity firms after the time it submitted its initial proposal (or other formal response) to a Phase I or Phase II SBIR announcement or solicitation, the SBC must update the Company Registry.

### **VI. CONSIDERATIONS**

#### **A. Awards**

The EPA anticipates for SBIR Phase I the award of approximately twelve (12) firm-fixed-price contracts of up to \$100,000 each, including profit. It is expected that these contracts will be awarded with a contract start date of August 01, 2018. The period of performance for the contracts should not exceed six (6) months. The primary consideration in selecting proposals for award will be the technical and commercial merit of the proposal. Proposals shall be evaluated in accordance with the Technical Evaluation Criteria stated in V.A., above. Source selection will not be based on a comparison of cost or price. However, cost or price will be evaluated to determine whether the price, including any proposed profit, is fair and reasonable, and whether the offeror understands the work and is capable of performing the contract.

This current solicitation is for Phase I only, and the EPA is not obligated to fund any specific Phase I proposal. Funds are not presently available for this contract.

The EPA anticipates for SBIR Phase II the award of approximately six (6) Phase II awards, each in the amount of \$300,000 with a 24-month term of performance.

The EPA's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the EPA for any payment may arise until funds are made available to the Contracting Officer for this contract, and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer.

#### **B. Phase I Contract Reporting Requirements**

- (1) During the duration of the contract, the contractor shall furnish a monthly report stating progress.



One (1) copy of the report shall be submitted electronically to the EPA Contract level Contracting Officer Representative, the EPA Technical Specialist(s), and the EPA Contract Specialist. All reports shall include the following information: EPA contract number, company name, project title and period covered by report. Specific areas of interest shall include progress and difficulties encountered during the reporting period, and a statement of activities anticipated during the subsequent reporting period. The report shall include any changes in personnel associated with the project. **Also, the first month's report shall contain an updated work plan and schedule of accomplishments for the subsequent months of the project.** The Monthly Report shall include, as an attachment, a copy of the monthly invoice for the same period. The monthly reports shall be submitted within 7 calendar days after the end of the reporting periods.

- (2) One copy of a comprehensive final report on the Phase I project shall be submitted electronically by the completion date of the contract. One (1) copy of the report shall be submitted electronically to the EPA Contract level Contracting Officer Representative, the EPA Technical Specialist(s) and the EPA Contract Specialist. This final report shall include a single-page project summary as the first page, identifying the purpose of the research, a brief description of the conducted research, research findings or results, verification reports, and commercial applications of the research in a final paragraph. The balance of the report shall indicate in detail the research objectives, research work carried out, results obtained, and estimates of technical feasibility. A copy of the latest commercialization plan developed during Phase I shall be included in the final report. The contractor shall submit the Final Report Certification with the Final Report (see Appendix 4 Representation and Certifications K.8).
- (3) One (1) copy of a 2- to 3-page executive summary of the final report for Phase I shall be submitted electronically to the Contract level Contracting Officer Representative, the EPA Technical Specialist(s), and the EPA Contract Specialist by the completion date of the contract. The report shall be cleared for the general public and will be published on EPA's SBIR Web site ([www.epa.gov/sbir](http://www.epa.gov/sbir)). This shall be a true summary of the report, including the purpose of the project, work carried out and results. The summary should stress innovation and potential commercialization. The executive summary shall be submitted by the completion date of the contract.
- (4) EPA support shall be credited in any and all reports, publications, presentations, and announcements with the following statement: *"This work was supported by the EPA SBIR Program under contract number EP-D-17-xxx."*

## C. Payment Schedule

Monthly Phase I progress payments will be made at eighteen percent (18%) of the total contract price upon receipt and acceptance of a proper invoice with each of the first five monthly reports. The remainder shall be paid upon receipt and acceptance of the final report. Pursuant to the provisions of FAR 52.232-25, PROMPT PAYMENT (JAN 2017), payment will be rendered within thirty (30) days after receipt of a proper invoice for each reporting period. Appropriate provisions will be included in the contract.

## D. Innovations, Inventions, and Patents

### LIMITED RIGHTS INFORMATION AND DATA

- (a) PROPRIETARY INFORMATION.

Information contained in unsuccessful proposals will remain the property of the offeror. The EPA may, however, retain copies of all proposals. Public release of information in any proposal submitted will be subject to existing statutory and regulatory requirements.

If proprietary information is provided by an offeror in a proposal, which constitutes a trade secret, proprietary commercial or financial information, confidential personal information or data affecting the national security, it will be treated in confidence, to the extent permitted by law. This information must be clearly marked by the offeror with the term "confidential proprietary information" and the following legend must appear on the cover page of the proposal:

"This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed—in whole or in part—for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of—or in connection with—the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained on pages \_\_\_; of this proposal."

Any other legend may be unacceptable to the EPA and may constitute grounds for removing the proposal from further consideration, without assuming any liability for inadvertent disclosure. The EPA will limit dissemination of such information to within official channels.

- (b) ALTERNATIVE TO MINIMIZE PROPRIETARY INFORMATION. **Offerors shall limit proprietary information to only that absolutely essential to their proposal.**
- (c) RIGHTS IN DATA DEVELOPED UNDER SBIR FUNDING AGREEMENTS.

(1) The Contractor is authorized to affix the following "SBIR Rights Notice" to SBIR data delivered under this contract and the Government will thereafter treat the data within the provisions of FAR 52.227-20, RIGHTS IN DATA--SBIR PROGRAM (MAY 2014). If the Contractor does not affix the Notice to data delivered to the Government in performance of the contract, the Government will have unlimited rights to all data delivered, except for copyright data approved by the Contracting Officer and registered under Title 17 U.S.C. 401 or 402. If the claim to copyright data is made, the Contractor shall affix the applicable copyright notice. The SBIR RIGHTS NOTICE (DEC 2007) is as follows:

"These SBIR data are furnished with SBIR rights under Contract No. \_\_\_\_\_ (and Subcontract if appropriate). For a period of four (4) years, unless extended in accordance with FAR 27.409(h), after acceptance of all items to be delivered under this contract, the Government agrees to use these data for Government purposes only, and they shall not be disclosed outside the Government (including disclosure for procurement purposes) during such period without permission of the Contractor, except that, subject to the foregoing use and disclosure prohibitions, these data may be disclosed for use by support Contractors. After the protection period, the Government has a paid-up license to use, and to authorize others to use on its behalf, these data for Government purposes, but is relieved of all disclosure prohibitions and assumes no liability for unauthorized use of these data by third parties. This Notice shall be affixed to any reproductions of these data, in whole or in part."

- (2) SBIR technical data rights apply to all SBIR awards, including subcontracts to such awards, that fall within the statutory definition of Phase I, II, or III of the SBIR Program, as described in §4 of this Policy Directive. The scope and extent of the SBIR technical data rights applicable to Federally-funded Phase III awards is identical to the SBIR data rights applicable to Phases I and II SBIR awards. The data rights protection period lapses only:
- (i) upon expiration of the protection period applicable to the SBIR award; or
  - (ii) by agreement between the awardee and the agency.
- (d) **COPYRIGHTS.** With prior written permission of the Contracting Officer, the Awardee normally may copyright and publish (consistent with appropriate national security considerations, if any) material developed with EPA support. The EPA receives a paid-up license for the Federal Government and requires that each publication contain an appropriate acknowledgment and disclaimer statement.
- (e) **PATENTS.** Small business concerns normally may retain the principal worldwide patent rights to any invention developed with Government support. The EPA receives a paid-up license for Federal Government use, reserves the right to require the patent holder to license others in certain circumstances, and requires that anyone exclusively licensed to sell the invention in the United States must normally manufacture it domestically. To the extent authorized by 35 U.S.C. 205, the Government will not make public any information disclosing a Government-supported invention for a four-year period to allow the Awardee a reasonable time to pursue a patent.
- (f) **Invention reporting.** Include requirements for reporting inventions. Include appropriate information concerning the reporting of inventions, for example:
- “SBIR awardees must report inventions to the awarding agency within 2 months of the inventor's report to the awardee. The reporting of inventions may be accomplished by submitting paper documentation, including fax.”

Note: Some agencies provide electronic reporting of inventions through the NIH iEdison Invention Reporting System (iEdison System). Use of the iEdison System satisfies all invention reporting requirements mandated by 37 CFR part 401, with particular emphasis on the Standard Patent Rights Clauses, 37 CFR 401.14. Access to the system is through a secure interactive Internet site, <http://www.iedison.gov>, to ensure that all information submitted is protected. All agencies are encouraged to use the Edison System. In addition to fulfilling reporting requirements, the Edison System notifies the user of future time sensitive deadlines with enough lead-time to avoid the possibility of loss of patent rights due to administrative oversight.

## **E. Cost Sharing**

Cost sharing is permitted for proposals under this Program Solicitation; however, cost sharing is neither required nor will it be an evaluation factor when considering your proposals.

## **F. Profit or Fee**

Reasonable fee (estimated profit) will be considered under this solicitation. For guidance purposes, the amount of profit shall not exceed 10 percent (10%) of total project costs.

## **G. Joint Ventures or Limited Partnerships**

Joint ventures and limited partnerships are eligible provided the entity created qualifies as a small business concern as defined in this Program Solicitation.

## **H. Research and Analytical Work**

- (1) For a SBIR Phase I proposal, a minimum of two-thirds of the research and/or analytical effort, as measured by the budget, must be performed by the proposing small business concern, and the balance of one third may be outsourced to a consultant or subcontract or a combination of the two.
- (2) For a Phase II proposal, a minimum of one-half of the research and/or analytical effort, as measured by the budget, must be performed by the proposing small business concern and the balance of one-half may be outsourced to a consultant or subcontract or a combination of the two.

## **I. Contractor Commitments**

Upon award of a contract, the Awardee will be required to make certain legal commitments through acceptance of numerous clauses in the Phase I funding agreements. The outline that follows is illustrative of the types of clauses to which the Contractor would be committed. This list should not be understood to represent a complete list of clauses to be included in Phase I contracts, or to represent the specific wording of such clauses. Copies of the complete terms and conditions are available upon request.

- (1) **STANDARDS OF WORK.** Work performed under the funding agreement must conform to high professional standards.
- (2) **INSPECTION.** Work performed under the contract is subject to Government inspection and evaluation at all times.
- (3) **EXAMINATION OF RECORDS.** The Comptroller General (or a duly authorized representative) shall have the right to examine any directly pertinent records of the awardee involving transactions related to this contract.
- (4) **DEFAULT.** The Government may terminate the contract if the Contractor fails to perform the work contracted.
- (5) **TERMINATION FOR CONVENIENCE.** The contract may be terminated at any time by the Government if it deems termination to be in its best interest of the Government, in which case the Contractor will be compensated for work performed and for reasonable termination costs.
- (6) **DISPUTES.** Any dispute concerning the contract that cannot be resolved by agreement shall be decided by the Contracting Officer with the right of appeal.
- (7) **CONTRACT WORK HOURS.** The awardee may not require an employee to work more than 8 hours a day or 40 hours a week unless the employee is compensated accordingly (for example, overtime pay).
- (8) **EQUAL OPPORTUNITY.** The awardee will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.
- (9) **AFFIRMATIVE ACTION FOR VETERANS.** The awardee will not discriminate against any employee or applicant for employment because s/he is a disabled veteran or veteran of the Vietnam era.
- (10) **AFFIRMATIVE ACTION FOR HANDICAPPED.** The awardee will not discriminate against any employee or

applicant for employment because s/he is physically or mentally handicapped.

- (11) **OFFICIALS NOT TO BENEFIT.** No Government official shall benefit personally from the SBIR contract.
- (12) **COVENANT AGAINST CONTINGENT FEES.** No person or agency has been employed to solicit or secure the contract upon an understanding for compensation except bonafide employees or commercial agencies maintained by the Contractor for the purpose of securing business.
- (13) **GRATUITIES.** The contract may be terminated by the Government if any gratuities have been offered to any representative of the Government to secure the contract.
- (14) **PATENT INFRINGEMENT.** The Contractor shall report each notice or claim of patent infringement based on the performance of the contract.
- (15) **AMERICAN MADE EQUIPMENT AND PRODUCTS.** When purchasing equipment or a product under the SBIR contract, the contractor shall purchase only American-made items whenever possible.

## **J. Additional Information**

- (a) The Program Solicitation is intended for informational purposes and reflects current planning. If there is any inconsistency between the information contained herein and the terms of any resulting SBIR contract, the terms of the contract shall be controlling.
- (b) Before making an award of an SBIR funding agreement, the EPA may request the offeror to submit certain organizational, management, personnel, and financial information to assure the responsibility of the offeror.
- (c) The EPA is not responsible for any monies expended by the offeror before award of any contract.
- (d) This Program Solicitation is not an offer by the EPA and does not obligate the EPA to make any specific number of awards. Also, awards under the SBIR program are contingent upon the availability of funds.
- (e) The EPA SBIR program is not a substitute for existing unsolicited proposal mechanisms. Unsolicited proposals shall not be accepted under the EPA SBIR program in either Phase I or Phase II.
- (f) If an award is made pursuant to a proposal submitted under this Program Solicitation, the Contractor will be required to certify that s/he has not previously been, and is not currently being, paid for essentially equivalent work by any agency of the Federal Government.
- (g) Notwithstanding the relatively broad definition of R/R&D in Section II, Definitions, hereof, awards under this solicitation are limited to APPLIED forms of research. Proposals that are surveys, including market, state-of-the-art, and/or literature surveys, which should have been performed by the offeror prior to the preparation of the proposal, or the preparation of allied questionnaires and instruction manuals, shall not be accepted. If such proposals are submitted, they shall not be considered in compliance with the solicitation intent and, therefore, they shall be considered technically unacceptable.
- (h) The requirement that the offeror designate a topic, and only one topic, (see Section IV.A above) is also mandatory. The EPA receives hundreds of proposals each year, and it has special panels of reviewers for review of each research topic. In order to assure that proposals are evaluated by the correct panel, it is the complete responsibility of the offeror to select and identify the best topic.
- (i) The following clauses are incorporated by reference:

FAR 52.232-25, PROMPT PAYMENT (JAN 2017)

- (j) Instructions to Offerors – Competitive Acquisition, FAR 52.215-1 (Jan 2017).
- (a) *Definitions.* As used in this provision- Discussions are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.
- In writing, writing, or written* means any worded or numbered expression that can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.
- Proposal modification* is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.
- Proposal revision* is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.
- Time*, if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.
- (b) *Amendments to solicitations.* If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).
- (c) *Submission, modification, revision, and withdrawal of proposals.*
- (1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.
- (2) The first page of the proposal must show:
- (i) The solicitation number;
- (ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);
- (iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;
- (iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and
- (v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been

previously furnished to the issuing office.

(3) *Submission, modification, revision, and withdrawal of proposals.*

- (i) Offerors are responsible for submitting proposals and any modifications or revisions so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.
- (ii) (A) Any proposal, modification or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is “late” and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and—
  - (1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or
  - (2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or
  - (3) It is the only proposal received.(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.
- (iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.
- (iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.
- (v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

- (4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.
  - (5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.
  - (6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.
  - (7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.
  - (8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.
- (d) *Offer expiration date.* Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).
- (e) *Restriction on disclosure and use of data.* Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall-
- (1) Mark the title page with the following legend: This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed-in whole or in part-for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of-or in connection with-the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and
  - (2) Mark each sheet of data it wishes to restrict with the following legend: Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.
- (f) *Contract award.*
- (1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.
  - (2) The Government may reject any or all proposals if such action is in the Government's interest.
  - (3) The Government may waive informalities and minor irregularities in proposals received.
  - (4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would



otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

- (5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.
- (6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.
- (7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.
- (8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.
- (9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.
- (10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.
- (11) If a post-award debriefing is given to requesting offerors, the Government shall disclose the following information, if applicable:
  - (i) The agency's evaluation of the significant weak or deficient factors in the debriefed offeror's offer.
  - (ii) The overall evaluated cost or price and technical rating of the successful and the debriefed offeror and past performance information on the debriefed offeror.
  - (iii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection.
  - (iv) A summary of the rationale for award.
  - (v) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.
  - (vi) Reasonable responses to relevant questions posed by the debriefed offeror as to whether source-selection procedures set forth in the solicitation, applicable regulations, and other applicable authorities were followed by the agency.

(k) ORGANIZATIONAL CONFLICTS OF INTEREST (EPAAR 1552.209-71) (MAY 1994) ALTERNATE

I (MAY 1994)

- (a) The Contractor warrants that, to the best of the Contractor's knowledge and belief, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as defined in FAR Subpart 9.5, or that the Contractor has disclosed all such relevant information.
  - (b) Prior to commencement of any work, the Contractor agrees to notify the Contracting Officer immediately that, to the best of its knowledge and belief, no actual or potential conflict of interest exists or to identify to the Contracting Officer any actual or potential conflict of interest the firm may have. In emergency situations, however, work may begin but notification shall be made within five (5) working days.
  - (c) The Contractor agrees that if an actual or potential organizational conflict of interest is identified during performance, the Contractor will immediately make a full disclosure in writing to the Contracting Officer. This disclosure shall include a description of actions which the Contractor has taken or proposes to take, after consultation with the Contracting Officer, to avoid, mitigate, or neutralize the actual or potential conflict of interest. The Contractor shall continue performance until notified by the Contracting Officer of any contrary action to be taken.
  - (d) Remedies - EPA may terminate this contract for convenience, in whole or in part, if it deems such termination necessary to avoid an organizational conflict of interest. If the Contractor was aware of a potential organizational conflict of interest prior to award or discovered an actual or potential conflict after award and did not disclose it or misrepresented relevant information to the Contracting Officer, the Government may terminate the contract for default, debar the Contractor from Government contracting, or pursue such other remedies as may be permitted by law or this contract.
  - (e) The Contractor agrees to insert in each subcontract or consultant agreement placed hereunder provisions which shall conform substantially to the language of this clause, including this paragraph, unless otherwise authorized by the Contracting Officer.
- (I) UNIQUE ENTITY IDENTIFIER (FAR 52.204-6) (OCT 2016)
- (a) Definition. As used in this provision—

“*Electronic Funds Transfer (EFT) indicator*” means a four-character suffix to the unique entity identifier. The suffix is assigned at the discretion of the commercial, nonprofit, or Government entity to establish additional System for Award Management records for identifying alternative EFT accounts (see subpart 32.11) for the same entity.

“*Unique entity identifier*” means a number or other identifier used to identify a specific commercial, nonprofit, or Government entity. See [www.sam.gov](http://www.sam.gov) for the designated entity for establishing unique entity identifiers.
  - (b) The Offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation “Unique Entity Identifier” followed by the unique entity identifier that identifies the Offeror’s name and address exactly as stated in the offer. The Offeror also shall enter its EFT indicator, if applicable.
  - (c) If the Offeror does not have a unique entity identifier, it should contact the entity designated at

[www.sam.gov](http://www.sam.gov) for establishment of the unique entity identifier directly to obtain one. The Offeror should be prepared to provide the following information:

- (1) Company legal business name.
- (2) Tradestyle, doing business, or other name by which your entity is commonly recognized.
- (3) Company physical street address, city, state and Zip Code.
- (4) Company mailing address, city, state and Zip Code (if separate from physical).
- (5) Company telephone number.
- (6) Date the company was started.
- (7) Number of employees at your location.
- (8) Chief executive officer/key manager.
- (9) Line of business (industry).
- (10) Company headquarters name and address (reporting relationship within your entity).

(m) SYSTEM FOR AWARD MANAGEMENT (FAR 52.204-7) (OCT 2016)

(a) Definitions. As used in this provision—

*“Electronic Funds Transfer (EFT) indicator”* means a four-character suffix to the unique entity identifier. The suffix is assigned at the discretion of the commercial, nonprofit, or Government entity to establish additional System for Award Management records for identifying alternative EFT accounts (see subpart 32.11) for the same entity.

*“Registered in the System for Award Management (SAM) database”* means that—

- (1) The Offeror has entered all mandatory information, including the unique entity identifier and the EFT indicator, if applicable, the Commercial and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see subpart 4.14), into the SAM database;
- (2) The offeror has completed the Core, Assertions, and Representations and Certification, and Points of contact sections of the registration in the SAM database;
- (3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The Offeror will be required to provide consent for TIN validation to the Government as a part of the SAM registration process.
- (4) The Government has marked the record “Active”.

(b)

- (1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the SAM database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing

agreement resulting from this solicitation.

- (2) The Offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation “Unique Entity Identifier” followed by the unique entity identifier that identifies the Offeror’s name and address exactly as stated in the offer. The Offeror also shall enter its EFT indicator, if applicable. The unique entity identifier will be used by the Contracting Officer to verify that the Offeror is registered in the SAM database.
- (c) If the offeror does not have a unique entity identifier, it should contact the entity designated at [www.sam.gov](http://www.sam.gov) for establishment of the unique entity identifier directly to obtain one. The Offeror should be prepared to provide the following information:
- (1) Company legal business name.
  - (2) Tradestyle, doing business, or other name by which your entity is commonly recognized.
  - (3) Company physical street address, city, state and Zip Code.
  - (4) Company mailing address, city, state and Zip Code (if separate from physical).
  - (5) Company telephone number.
  - (6) Date the company was started.
  - (7) Number of employees at your location.
  - (8) Chief executive officer/key manager.
  - (9) Line of business (industry).
  - (10) Company Headquarters name and address (reporting relationship within your entity).
- (d) If the Offeror does not become registered in the SAM database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror.
- (e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.
- (f) Offerors may obtain information on registration at <https://www.acquisition.gov>.
- (n) SMALL BUSINESS PROGRAM REPRESENTATIONS (FAR 52.219-1) (Oct 2014)
- (a) *Definitions.* As used in this provision—

“Economically disadvantaged women-owned small business (EDWOSB) concern” means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States and who are economically disadvantaged in accordance with 13 CFR part 127. It automatically qualifies as a women-owned small business concern eligible under the WOSB Program.

“Service-disabled veteran-owned small business concern”—

- (1) Means a small business concern—
  - (i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and
  - (ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a service-disabled veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.
- (2) “Service-disabled veteran” means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

“Small business concern” means a concern, including its affiliates that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (b) of this provision.

“Small disadvantaged business concern, consistent with 13 CFR 124.1002,” means a small business concern under the size standard applicable to the acquisition, that--

- (1) Is at least 51 percent unconditionally and directly owned (as defined at 13 CFR 124.105) by--
  - (i) One or more socially disadvantaged (as defined at 13 CFR 124.103) and economically disadvantaged (as defined at 13 CFR 124.104) individuals who are citizens of the United States, and
  - (ii) Each individual claiming economic disadvantage has a net worth not exceeding \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and
- (2) The management and daily business operations of which are controlled (as defined at 13 CFR 124.106) by individuals who meet the criteria in paragraphs (1)(i) and (ii) of this definition.

“Veteran-owned small business concern” means a small business concern--

- (1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and
- (2) The management and daily business operations of which are controlled by one or more veterans.

“Women-owned small business concern” means a small business concern--

- (1) That is at least 51 percent owned by one or more women; or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and
- (2) Whose management and daily business operations are controlled by one or more women.

“Women-owned small business (WOSB) concern eligible under the WOSB Program (in accordance with 13 CFR part 127),” means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more

women who are citizens of the United States.

(b)

- (1) The North American Industry Classification System (NAICS) code for this acquisition is 541715.
- (2) The small business size standard is 500 employees.
- (3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(c) *Representations.*

- (1) The offeror represents as part of its offer that it  is,  is not a small business concern.
- (2) *[Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]* The offeror represents that it  is,  is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.
- (3) *[Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]* The offeror represents as part of its offer that it  is,  is not a women-owned small business concern.
- (4) Women-owned small business (WOSB) concern eligible under the WOSB Program. *[Complete only if the offeror represented itself as a women-owned small business concern in paragraph (c)(3) of this provision.]* The offeror represents as part of its offer that—
  - (i) It  is,  is not a WOSB concern eligible under the WOSB Program, has provided all the required documents to the WOSB Repository, and no change in circumstances or adverse decisions have been issued that affects its eligibility; and
  - (ii) It  is,  is not a joint venture that complies with the requirements of 13 CFR part 127, and the representation in paragraph (c)(4)(i) of this provision is accurate for each WOSB concern eligible under the WOSB Program participating in the joint venture. *[The offeror shall enter the name or names of the WOSB concern eligible under the WOSB Program and other small businesses that are participating in the joint venture: \_\_\_\_\_.]* Each WOSB concern eligible under the WOSB Program participating in the joint venture shall submit a separate signed copy of the WOSB representation.
- (5) Economically disadvantaged women-owned small business (EDWOSB) concern. *[Complete only if the offeror represented itself as a women-owned small business concern eligible under the WOSB Program in (c)(4) of this provision.]* The offeror represents as part of its offer that—
  - (i) It  is,  is not an EDWOSB concern eligible under the WOSB Program, has provided all the required documents to the WOSB Repository, and no change in circumstances or adverse decisions have been issued that affects its eligibility; and
  - (ii) It  is,  is not a joint venture that complies with the requirements of 13 CFR part 127, and the representation in paragraph (c)(5)(i) of this provision is accurate for each EDWOSB

concern participating in the joint venture. *[The offeror shall enter the name or names of the EDWOSB concern and other small businesses that are participating in the joint venture: \_\_\_\_\_.]* Each EDWOSB concern participating in the joint venture shall submit a separate signed copy of the EDWOSB representation.

- (6) *[Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]* The offeror represents as part of its offer that it  is,  is not a veteran-owned small business concern.
  - (7) *[Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(6) of this provision.]* The offeror represents as part of its offer that is  is,  is not a service-disabled veteran-owned small business concern.
  - (8) *[Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.]* The offeror represents, as part of its offer, that –
    - (i) It  is,  is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material changes in ownership and control, principal office, or HUBZone employee percentage have occurred since it was certified in accordance with 13 CFR part 126; and
    - (ii) It  is,  is not a HUBZone joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (c)(8)(i) of this provision is accurate for each HUBZone small business concern participating in the HUBZone joint venture. *[The offeror shall enter the names of each of the HUBZone small business concerns participating in the HUBZone joint venture: \_\_\_\_\_.]* Each HUBZone small business concern participating in the HUBZone joint venture shall submit a separate signed copy of the HUBZone representation.
- (d) *Notice.*
- (1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.
  - (2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a business concern that is small, HUBZone small, small disadvantaged, service-disabled veteran-owned small, economically disadvantaged women-owned small, or women-owned small eligible under the WOSB Program in order to obtain a contract to be awarded under the preference programs established pursuant to section 8, 9, 15, 31, and 36 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall –
    - (i) Be punished by imposition of fine, imprisonment, or both;
    - (ii) Be subject to administrative remedies, including suspension and debarment; and
    - (iii) Be ineligible for participation in programs conducted under the authority of the Act.

- (o) PAYMENT BY ELECTRONIC FUNDS TRANSFER- SYSTEM FOR AWARD MANAGEMENT (FAR 52.232-33) (JUL 2013)
- (a) *Method of payment.*
- (1) All payments by the Government under this contract, shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term “EFT” refers to the funds transfer and may also include the payment information transfer.
  - (2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either—
    - (i) Accept payment by check or some other mutually agreeable method of payment; or
    - (ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).
- (b) *Contractor's EFT information.* The Government shall make payment to the Contractor using the EFT information contained in the System for Award Management (SAM) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the SAM database.
- (c) *Mechanisms for EFT payment.* The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.
- (d) *Suspension of payment.* If the Contractor's EFT information in the SAM database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the SAM database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.
- (e) *Liability for uncompleted or erroneous transfers.*
- (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for—
    - (i) Making a correct payment;
    - (ii) Paying any prompt payment penalty due; and
    - (iii) Recovering any erroneously directed funds.
  - (2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and—
    - (i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or



- (ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.
- (f) *EFT and prompt payment.* A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.
- (g) *EFT and assignment of claims.* If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register separately in the SAM database and shall be paid by EFT in accordance with the terms of this clause. Notwithstanding any other requirement of this contract, payment to an ultimate recipient other than the Contractor, or a financial institution properly recognized under an assignment of claims pursuant to Subpart 32.8, is not permitted. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.
- (h) *Liability for change of EFT information by financial agent.* The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.
- (i) *Payment information.* The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the SAM database.
- (p) **PROTEST AFTER AWARD FAR 52.233-3 (AUG 1996)**
  - (a) Upon receipt of a notice of protest (as defined in 33.101 of the FAR) the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Contracting Officer shall either—
    - (1) Cancel the stop-work order; or
    - (2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.
  - (b) If a stop-work order issued under this clause is canceled either before or after a final decision in the

protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if—

- (1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and
  - (2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; provided, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal submitted at any time before final payment under this contract.
- (c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.
  - (d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.
  - (e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.
  - (f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the Contractor and the Government.
- (q) TEMPORARY CLOSURE OF EPA FACILITIES (EPA-H-42-103) (Local Clause)
- (a)
    - (1) The Environmental Protection Agency observes the following days as federal holidays. The term “Federal holidays” as used in this clause shall mean only the following enumerated days and any other days hereafter declared National holidays by the President of the United States. Holidays falling on a Sunday will be observed on the following Monday. Holidays falling on a Saturday will be observed on the preceding Friday.  
  
January 1 ..... New Year’s Day  
January ..... Third Monday - Martin Luther King Day  
February ..... Third Monday - Washington’s Birthday  
May..... Last Monday - Memorial Day  
July 4 ..... Independence Day  
September..... First Monday - Labor Day  
October ..... Second Monday - Columbus Day  
November 11 ... Veterans Day  
November ..... Fourth Thursday - Thanksgiving Day

December 25.... Christmas Day

- (2) Holiday observances of such days by Government personnel shall not be cause for additional period of performance or entitlement to compensation except as set forth in the contract. If the Contractor's personnel work on a holiday, no form of holiday or other premium compensation will be reimbursed either as a direct or indirect cost, unless authorized pursuant to an overtime clause elsewhere in the contract.
- (b)
- (1) EPA may close an EPA facility for all or a portion of a business day as a result of:
    - (i) Granting administrative leave to non-essential EPA employees (e.g., unanticipated holiday);
    - (ii) Inclement weather;
    - (iii) Failure of Congress to appropriate operational funds;
    - (iv) Any other day designated by Federal law, Executive Order or Presidential Proclamation; or
    - (v) Other reason as determined by the EPA (e.g., designated furlough day for federal workers).
  - (2) In such cases, Contractor personnel not determined by the Contracting Officer to be excepted (e.g., not performing mission-critical round-the-clock services/tasks) who are not already on duty at the facility shall not report to the facility. Such Contractor personnel already present shall be dismissed and shall leave the facility.
  - (3) The Contractor agrees to continue to provide sufficient personnel to perform round-the-clock requirements of mission-critical services/tasks already in operation or scheduled for performance during the period in which EPA employees are dismissed, and shall be guided by any specific instructions of the Contracting Officer or his/her duly authorized representative. In formulating instructions the Contracting Officer or authorized representative may consider recommendations from regional/local EPA facilities management/operations staff.
- (c) When Contractor personnel services are not required or provided due to closure of an EPA facility as described in paragraph (b), the contract price will be adjusted as follows:
- (1) For fixed-price contracts, deductions in the Contractor's price will be computed as appropriate for the particular firm fixed price contract in question, e.g.,
    - (i) The deduction rate in dollars per day will be equal to the per-month contract price divided by 21 days per month. (In this example, the 21-days-per-month figure was calculated as follows:  
$$365 \text{ calendar days/year} - 10 \text{ Federal holidays} - 104 \text{ Saturdays/Sundays} = 251 \text{ days/12 months} \\ = 20.92 \text{ days/month, rounded up to 21 days/month}$$
    - (ii) The deduction rate in dollars per day will be multiplied by the number of days services are not required or provided. If services are provided for portions of days, appropriate adjustment will be made by the Contracting Officer to ensure that the Contractor is compensated for services provided.
  - (2) For cost-reimbursement, time-and-materials and labor-hour type contracts, EPA shall not reimburse, as direct costs, salaries or wages of Contractor personnel for the period during which such personnel are dismissed from, or do not have access to, the facility.

(d) The Contractor shall place identical requirements, including this paragraph, in all subcontracts that require performance of work on-site unless otherwise instructed by the Contracting Officer.

(r) Principal Investigator (PI) Substitution due to Death, Resignation or Illness (AUG 2013) (Custom Clause)

The SBIR solicitation, evaluation, and award process is an elaborate chain of events involving hundreds of proposals and multiple offices within EPA. It entails the coordination of external peer review panels, the evaluation of proposals, and the ultimate determination of eligibility for award. Consequently, this process can be quite time consuming and delays may be encountered. Accordingly, every effort should be made by an offeror to retain the Principal Investigator (PI) initially identified in its proposal. When circumstances occur beyond an offeror's control, such as death, illness, or resignation of a PI, the offeror shall provide acceptable documentation that could include a letter of resignation, copy of an obituary, or a signed statement by the PI that s/he is unable to perform based on medical reasons, etc. An offeror, upon notification that its proposal is being considered for award, will be required to agree to the alternate evaluation of the substitute PI, and will have an opportunity to submit a timely resume for a qualified substitute PI. Note, however, that the evaluation of a substitute PI will not improve an offeror's rating, and could actually result in an offeror's failure to receive an award based on inadequate substitute PI qualifications.

(s) UTILIZATION OF FEDCONNECT FOR CONTRACT ADMINISTRATION (MAR 2013) (EPA-H-42-102) (Local Clause)

EPA will utilize the FedConnect® web portal in administering this contract. The contractor must be registered in FedConnect® and have access to the FedConnect website located at <https://www.fedconnect.net/Fedconnect/>. For assistance in registering or for other FedConnect® technical questions please call the FedConnect® Help Desk at (800) 899-6665 or email at [support@fedconnect.net](mailto:support@fedconnect.net)

(t) TECHNICAL QUESTIONS (EPA-L-15-102) (Local Clause)

Offerors must submit all technical questions concerning this solicitation electronically through FedConnect. In order to submit questions, offerors must register in FedConnect at [www.fedconnect.net](http://www.fedconnect.net), see main page for registration instructions. For assistance in registering or for other FedConnect technical questions please call the FedConnect Help Desk at (800) 899-6665 or email at [support@fedconnect.net](mailto:support@fedconnect.net). Only those technical questions posted through FedConnect will be accepted. EPA must receive technical questions no later than 12:00 p.m. (noon) Eastern Standard Time (EST) on **November 14, 2017**. EPA will utilize FedConnect to issue amendments to the solicitation (e.g., to answer technical questions which may affect proposal submittal). EPA will not reference the source of the questions.

## VII. SUBMISSION OF PROPOSALS

Your proposal (including all appendices) **shall be submitted in Portable Document Format (PDF)**, and **shall be received via FedConnect by 12:00 p.m. (noon) Eastern Standard Time (EST) on December 19, 2017**. Your **entire proposal (including appendices) shall be submitted through FedConnect as ONE document in PDF**. Only proposals received via FedConnect as ONE PDF by the deadline identified above will be considered for award.

**Proposals shall be submitted via the FedConnect web portal ([www.fedconnect.net](http://www.fedconnect.net)). In order to submit proposals, offerors must register in FedConnect at [www.fedconnect.net](http://www.fedconnect.net), see main page of FedConnect website**

for registration instructions. For assistance in registering or for other FedConnect technical questions please call the FedConnect Help Desk at (800) 899-6665 or email at [support@fedconnect.net](mailto:support@fedconnect.net).

**IMPORTANT: Please note Section VI., Paragraph J.j, Federal Acquisition Regulation Clause 52.215(c)(3), “Instructions to Offerors – Competitive Acquisitions” concerning Late Proposals, Modification of Proposals and Withdrawal of Proposals.**

**It is the responsibility of Offerors to submit proposals in FedConnect with sufficient time to ensure they are received by the date and time specified. Only proposals received by the date and time specified via FedConnect will be considered for award.**

## VIII. SCIENTIFIC AND TECHNICAL INFORMATION SOURCES

The following documents are referenced in Section D. 2017 SBIR Phase I Research Topics. The purpose of the documents is to provide more information on some of the specific topics. All but one of the sources are EPA websites or publications, and they provide more detail on EPA regulations and technology approaches related to the proposed research areas. One website references a link outside of EPA that describes cookstove research.

All references are listed below by topic.

### Clean and Safe Water

- <http://www.waterrf.org/PublicReportLibrary/4322.pdf>
- <https://www.ncbi.nlm.nih.gov/pubmed/18653937>
- <http://pubs.acs.org/doi/pdf/10.1021/acs.estlett.6b00260>
- <https://www.ncbi.nlm.nih.gov/pubmed/26990839>
- [https://www.researchgate.net/publication/316250264\\_Role\\_of\\_wastewater\\_treatment\\_plant\\_WWTP\\_in\\_environmental\\_cycling\\_of\\_poly-\\_and\\_perfluoroalkyl\\_PFAS\\_compounds](https://www.researchgate.net/publication/316250264_Role_of_wastewater_treatment_plant_WWTP_in_environmental_cycling_of_poly-_and_perfluoroalkyl_PFAS_compounds)
- [https://www.des.nh.gov/organization/divisions/water/dwgb/dwspp/documents/pfc\\_panel.pdf](https://www.des.nh.gov/organization/divisions/water/dwgb/dwspp/documents/pfc_panel.pdf)
- <https://link.springer.com/content/pdf/10.1007/s11356-013-2044-8.pdf>
- <https://www.ncbi.nlm.nih.gov/pubmed/25466637>
- [https://www.uni-bell.org/files/Reports/Life\\_Cycle\\_Assessment\\_of\\_PVC\\_Water\\_and\\_Sewer\\_Pipe\\_and\\_Comparative\\_Sustainability\\_Analysis\\_of\\_Pipe\\_Materials.pdf](https://www.uni-bell.org/files/Reports/Life_Cycle_Assessment_of_PVC_Water_and_Sewer_Pipe_and_Comparative_Sustainability_Analysis_of_Pipe_Materials.pdf)
- <https://www.awwa.org/publications/journal-awwa/abstract/articleid/55379304/>
- <https://www.researchgate.net/publication/282425339>

### Air Quality

- Transportation Energy Data Book Edition 35 at <http://cta.ornl.gov/data/index.shtml>
- Carbon Capture, Storage and Use, Kuckshinrichs, W. (Ed), Hake, J. (Ed) (2015)
- Porous Materials for Carbon Dioxide Capture, Lu, A. (Ed), Dai, S. (Ed) (2014)
- Carbon Dioxide Capture: An Effective Way to Combat Global Warming, Creamer, A. E., Gao, B. (2015)
- Carbon Capture, Wilcox, J. (2012)
- <http://onlinelibrary.wiley.com/doi/10.1002/cssc.v10.6/issuetoc>
- <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry>
- <https://www.epa.gov/natural-gas-star-program>

## Land Revitalization

- <https://www.epa.gov/pfas/basic-information-about-and-polyfluoroalkyl-substances-pfass>
- <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>

## Homeland Security

- [https://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Interim\\_Planning\\_Guidance\\_for\\_Handling\\_Category\\_A\\_Solid\\_Waste.pdf](https://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Interim_Planning_Guidance_for_Handling_Category_A_Solid_Waste.pdf)
- <https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants>
- <https://www.epa.gov/test-guidelines-pesticides-and-toxic-substances/series-810-product-performance-test-guidelines>
- <https://www.epa.gov/homeland-security-research/publications-homeland-security-research-topics>

## **IX. SUBMISSION FORMS AND CERTIFICATIONS**

The attached forms (listed below) should be completed as indicated under Section IV, Proposal Preparation Instructions and Requirements. Include Appendix 1 as the first page of your proposal and Appendix 2 as the second page of your proposal.

- Appendix 1: Proposal Cover Sheet (Number as Page 1)
- Appendix 2: Project Summary (Number as Page 2)
- Appendix 3: SBIR Proposal Summary Budget
- Appendix 4: Representations and Certifications
- Appendix 5: Frequently Asked Questions (FAQ's)
- Appendix 6: Commercialization History

APPENDIX 1

U.S. ENVIRONMENTAL PROTECTION AGENCY  
SMALL BUSINESS INNOVATION RESEARCH PROGRAM  
SBIR PHASE I SOLICITATION NO. SOL-NC-17-00028  
PROPOSAL COVER SHEET

\_\_\_\_\_  
Proposal Title

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Street Address

_____ City	_____ State	_____ ZIP+4
_____ \$ Amount Requested (Not to exceed \$100,000)	_____ Website	_____ 6 Months Proposed Duration (Phase I)
		_____ No. of Employees

\*\*\*\*\*Proposals submitted in response to this solicitation will be valid for 300 days\*\*\*\*\*

**Research Topic Code and Topic Title (select only one)**

- 1A: Removal of PFOA/PFOS from Drinking Water
- 1B: Removal of PFOA/PFOS from Wastewater
- 1C: Replacements for PVC and PE Water Pipes
- 2A: Capturing Carbon Dioxide from Vehicles
- 2B: Converting Carbon Dioxide from Vehicles
- 2C: Product Loss Prevention and/or Mitigation in the Oil and Natural Gas Sector
- 2D: Developing More Stable Metal Alloy Tubes for Use in High Temperature Processes
- 3A: Remediation of PFAS-Contaminated Soil and Sediment
- 4A: Decontamination of Category A Viruses on Porous Surfaces and Sensitive Equipment
- 4B: Packaging Materials for On-Site Fumigation and Transport of Category A Virus Contaminated Materials
- 5A: Greener Manufacturing of Plastics
- 5B: Greener Plastic Materials and Products
- 6A: Greener Interior Construction Materials
- 6B: Greener Exterior Construction Materials

**Certification and Authorizations** (Check Y (Yes) or N (No))

- Y  N The above concern certifies that it is a small business concern and meets the definition as stated in the program solicitation.
- Y  N The above concern certifies that a minimum of 2/3 of the research and/or analytical effort will be performed by the proposing firm.
- Y  N The above concern certifies that it is a woman owned small business concern and meets the definition as stated in the solicitation\*
- Y  N The above concern certifies that it is a socially and economically disadvantaged small business concern and meets the definition as stated in the solicitation\*
- Y  N The above concern certifies that the principal investigator is a woman and meets the definition as stated in the solicitation\*
- Y  N The above concern certifies that is a socially and economically disadvantaged individual and meets the definition as stated in the solicitation\*
- Y  N The above concern certifies it is a HUBZone small business concern and meets the definition as stated in the solicitation\*

\*For Statistical Purposes only.

If the proposal does not result in an award, is the Government permitted to disclose the title and technical project summary of your proposed project, and the name, address, and telephone number of the official of the proposing firm to any inquiring parties?

Yes  No

Do you plan to send, or have you sent this proposal or a similar one to any other federal agency?  Yes  No

\_\_\_\_\_  
If yes, which? Use acronym(s) for each agency, (e.g., DOD, NIH, DOE, NASA, etc.)

Choose one of the following to describe your organization type:

Individual       Partnership       Corporation       LLC

Please provide the following information:

\_\_\_\_\_  
Tax Identification Number

\_\_\_\_\_  
Dun & Bradstreet Number

\_\_\_\_\_  
Small Business Concern  
(SBC) Control ID

The Offeror is in full agreement with the terms, conditions and provisions included in this solicitation, as evidenced by signatures below.

**Contact Information**

Principal Investigator

Business Representative

\_\_\_\_\_  
First Name      MI      Last Name

\_\_\_\_\_  
First Name      MI      Last Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
Signature      Date

\_\_\_\_\_  
Signature      Date

**Proprietary Notice**

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed—in whole or in part—for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of—or in connection with—the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained on pages \_\_\_\_\_; of this proposal.



APPENDIX 2

U.S. ENVIRONMENTAL PROTECTION AGENCY  
SMALL BUSINESS INNOVATION RESEARCH PROGRAM  
SBIR PHASE I SOLICITATION NO. SOL-NC-17-00028  
PROJECT SUMMARY

---

Company Name

---

Street Address

---

City

State

ZIP+4

---

Proposal Title

---

Research Topic Code and Topic Title

---

Principal Investigator

Telephone

Email Address

**Project Summary**

**The project summary (shall be limited to one page and not to exceed 200 words; must be publishable, i.e., not proprietary) should address the following:** The specific need for the technology, what the technology would do to meet that need, technical feasibility, application(s), end users, evidence of willing buyers, size of the potential market, performance compared to current technologies and potential for environmental benefits.

### INSTRUCTIONS FOR APPENDIX 3

The purpose of this form is to provide a vehicle whereby the offeror submits to the Government a pricing proposal of estimated costs with detailed information for each cost element, consistent with the offeror's cost accounting system.

If the completed summary is not self-explanatory and/or does not fully document and justify the amounts requested in each category, such documentation should be contained, as appropriate, on a budget explanation page immediately following the budget in the proposal.

- A. Direct Labor – List individually all personnel included, the estimated hours to be expended and the rates of pay (salary, wages, and fringe benefits).
- B. Overhead - Specify current rate(s) and base(s). Use current rate(s) negotiated with the cognizant federal negotiating agency, if available. If no rate(s) has (have) been negotiated, a reasonable rate(s) may be requested for Phase I which will be subject to approval by EPA. Offerors may use whatever number and types of overhead rates that are in accordance with their accounting systems and approved by the cognizant federal negotiating agency, if available.
- C. Other Direct Costs - List all other direct costs which are not otherwise included in the categories described above, i.e., computer services, publication costs, subcontracts, etc. List each item of permanent equipment to be purchased, its price, and explain its relation to the project.
- D. Travel - Address the type and extent of travel and its relation to the project. Include travel expenses for a one-day SBIR Phase I Kick-Off Meeting in Washington, DC.
- E. Consultants - Indicate name, daily compensation, and estimated days of service.
- F. General and Administrative (G&A) - Same as B. Above.
- G. Profit - Reasonable fee (estimated profit) will be considered under this solicitation. For guidance purposes, the amount of profit should not exceed 10% of total project costs.

**Total Project Price (Total Costs + Profit)** – The total costs proposed on Appendix 3 **must** match the total costs requested on Appendix 1.

*If the proposed budget exceeds the maximum amount, or the amount requested in Appendix 3, a detailed explanation of funding source(s) for the additional proposed costs must be provided. Additionally, a proposal that submits a budget that exceeds the maximum amount or the amount requested must affirmatively state they the offeror understands that no award will exceed the maximum amount or the amount requested. Offerors are further advised that if the proposed budget is less than the maximum award or the amount requested, an award would provide only the budgeted amount. The failure to explain additional cost proposed and/or acknowledgment that the offeror understands no award will exceed the maximum will result in the **REJECTION OF THE OFFER**.*



## Appendix 4

### REPRESENTATIONS AND CERTIFICATIONS

#### K.1 ANNUAL REPRESENTATIONS AND CERTIFICATIONS ((FAR) 52.204-8) (JAN 2017).

- (a)
- (1) The North American Industry Classification System (NAICS) code for this acquisition is 541715.
  - (2) The small business size standard is 500 employees.
  - (3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.
- (b)
- (1) If the provision at 52.204-7, System for Award Management, is included in this solicitation, paragraph (d) of this provision applies.
  - (2) If the provision at 52.204-7 is not included in this solicitation, and the offeror is currently registered in the System for Award Management (SAM), and has completed the Representations and Certifications section of SAM electronically, the offeror may choose to use paragraph (d) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:
    - (i)  Paragraph (d) applies.
    - (ii)  Paragraph (d) does not apply and the offeror has completed the individual representations and certifications in the solicitation.
- (c)
- (1) The following representations or certifications in SAM are applicable to this solicitation as indicated:
    - (i) 52.203-2, Certificate of Independent Price Determination. This provision applies to solicitations when a firm-fixed-price contract or fixed-price contract with economic price adjustment is contemplated, unless—
      - (A) The acquisition is to be made under the simplified acquisition procedures in Part 13;
      - (B) The solicitation is a request for technical proposals under two-step sealed bidding procedures; or
      - (C) The solicitation is for utility services for which rates are set by law or regulation.
    - (ii) 52.203-11, Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed \$150,000.
    - (iii) 52.203-18, Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements or Statements—Representation. This provision applies to all solicitations.
    - (iv) 52.204-3, Taxpayer Identification. This provision applies to solicitations that do not include the provision at 52.204-7, System for Award Management.
    - (v) 52.204-5, Women-Owned Business (Other Than Small Business). This provision applies to solicitations that—

- (A) Are not set aside for small business concerns;
  - (B) Exceed the simplified acquisition threshold; and
  - (C) Are for contracts that will be performed in the United States or its outlying areas.
- (vi) [52.209-2](#), Prohibition on Contracting with Inverted Domestic Corporations—Representation.
  - (vii) [52.209-5](#), Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.
  - (viii) [52.209-11](#), Representation by Corporations Regarding Delinquent Tax Liability or a Felony Conviction under any Federal Law. This provision applies to all solicitations.
  - (ix) [52.214-14](#), Place of Performance—Sealed Bidding. This provision applies to invitations for bids except those in which the place of performance is specified by the Government.
  - (x) [52.215-6](#), Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.
  - (xi) [52.219-1](#), Small Business Program Representations (Basic & Alternate I). This provision applies to solicitations when the contract will be performed in the United States or its outlying areas.
    - (A) The basic provision applies when the solicitations are issued by other than DoD, NASA, and the Coast Guard.
    - (B) The provision with its Alternate I applies to solicitations issued by DoD, NASA, or the Coast Guard.
  - (xii) [52.219-2](#), Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract will be performed in the United States or its outlying areas.
  - (xiii) [52.222-22](#), Previous Contracts and Compliance Reports. This provision applies to solicitations that include the clause at [52.222-26](#), Equal Opportunity.
  - (xiv) [52.222-25](#), Affirmative Action Compliance. This provision applies to solicitations, other than those for construction, when the solicitation includes the clause at [52.222-26](#), Equal Opportunity.
  - (xv) [52.222-38](#), Compliance with Veterans’ Employment Reporting Requirements. This provision applies to solicitations when it is anticipated the contract award will exceed the simplified acquisition threshold and the contract is not for acquisition of commercial items.
  - (xvi) [52.222-57](#), Representation Regarding Compliance with Labor Laws (Executive Order 13673). This provision applies to solicitations expected to exceed \$50 million which are issued from October 25, 2016 through April 24, 2017, and solicitations expected to exceed \$500,000, which are issued after April 24, 2017.

**Note to paragraph (c)(1)(xvi):** By a court order issued on October 24, 2016, 52.222-57 is enjoined indefinitely as of the date of the order. The enjoined paragraph will become effective immediately if the court terminates the injunction. At that time, DoD, GSA, and NASA will publish a document in the Federal Register advising the public of the termination of the injunction.

- (xvii) [52.223-1](#), Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA–designated items; or include the clause at

- [52.223-2](#), Affirmative Procurement of Biobased Products Under Service and Construction Contracts.
- (xviii) [52.223-4](#), Recovered Material Certification. This provision applies to solicitations that are for, or specify the use of, EPA–designated items.
- (xix) [52.223-22](#), Public Disclosure of Greenhouse Gas Emissions and Reduction Goals—Representation. This provision applies to solicitations that include the clause at [52.204-7](#).
- (xx) [52.225-2](#), Buy American Certificate. This provision applies to solicitations containing the clause at [52.225-1](#).
- (xxi) [52.225-4](#), Buy American—Free Trade Agreements—Israeli Trade Act Certificate. (Basic, Alternates I, II, and III.) This provision applies to solicitations containing the clause at [52.225-3](#).
- (A) If the acquisition value is less than \$25,000, the basic provision applies.
- (B) If the acquisition value is \$25,000 or more but is less than \$50,000, the provision with its Alternate I applies.
- (C) If the acquisition value is \$50,000 or more but is less than \$79,507, the provision with its Alternate II applies.
- (D) If the acquisition value is \$79,507 or more but is less than \$100,000, the provision with its Alternate III applies.
- (xxii) [52.225-6](#), Trade Agreements Certificate. This provision applies to solicitations containing the clause at [52.225-5](#).
- (xxiii) [52.225-20](#), Prohibition on Conducting Restricted Business Operations in Sudan—Certification. This provision applies to all solicitations.
- (xxiv) [52.225-25](#), Prohibition on Contracting with Entities Engaging in Certain Activities or Transactions Relating to Iran-Representation and Certifications. This provision applies to all solicitations.
- (xxv) [52.226-2](#), Historically Black College or University and Minority Institution Representation. This provision applies to solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions.
- (2) The following certifications are applicable as indicated by the Contracting Officer:  
[Contracting Officer check as appropriate.]
- (i) \_\_\_ [52.204-17](#), Ownership or Control of Offeror.
- (ii) \_\_\_ [52.204-20](#), Predecessor of Offeror.
- (iii) \_\_\_ [52.222-18](#), Certification Regarding Knowledge of Child Labor for Listed End Products.
- (iv) \_\_\_ [52.222-48](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment- Certification.\
- (v) \_\_\_ [52.222-52](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Certification.
- (vi) \_\_\_ [52.223-9](#), with its Alternate I, Estimate of Percentage of Recovered Material Content for EPA–Designated Products (Alternate I only).
- (vii) \_\_\_ [52.227-6](#), Royalty Information.
- (A) \_\_\_ Basic.
- (B) \_\_\_ Alternate I.
- (viii) \_\_\_ [52.227-15](#), Representation of Limited Rights Data and Restricted Computer Software.
- (d) The offeror has completed the annual representations and certifications electronically via the SAM

website accessed through <https://www.acquisition.gov>. After reviewing the SAM database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in paragraph (c) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [offeror to insert changes, identifying change by clause number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR Clause # Title Date Change

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Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on SAM.

**K.2 REPRESENTATION BY CORPORATIONS REGARDING DELINQUENT TAX LIABILITY OR A FELONY CONVICTION UNDER ANY FEDERAL LAW. (FAR 52.209-11) (FEB 2016)**

- (a) As required by sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), and similar provisions, if contained in subsequent appropriations acts, the Government will not enter into a contract with any corporation that—
  - (1) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless an agency has considered suspension or debarment of the corporation and made a determination that suspension or debarment is not necessary to protect the interests of the Government; or
  - (2) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless an agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.
- (b) The Offeror represents that—
  - (1) It is  is not  a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; and
  - (2) It is  is not  a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

**K.3 ORGANIZATIONAL CONFLICT OF INTEREST CERTIFICATION (EPAAR 1552.209-72) (APR 1984)**

The offeror [ ] is [ ] is not aware of any information bearing on the existence of any potential organizational conflict of interest. If the offeror is aware of information bearing on whether a potential conflict may exist, the offeror shall provide a disclosure statement describing this information.

**K.4 SOCIAL SECURITY NUMBERS OF CONSULTANTS AND CERTAIN SOLE PROPRIETORS AND PRIVACY ACT STATEMENT (EPAAR 1552.224-70) (APR 1984)**

- (a) Section 6041 of Title 26 of the U.S. Code requires EPA to file Internal Revenue Service (IRS) Form 1099 with respect to individuals who receive payments from EPA under purchase orders or contracts. Section 6109 of Title 26 of the U.S. Code authorizes collection by EPA of the social security numbers of such individuals for the purpose of filing IRS Form 1099. Social security numbers obtained for this purpose will be used by EPA for the sole purpose of filing IRS Form 1099 in compliance with Section 6041 of Title 26 of the U.S. Code.
- (b) If the offeror or quoter is an individual, consultant, or sole proprietor and has no Employer Identification Number, insert the offeror's or quoter's social security number on the following line.

**K.5 SIGNATURE BLOCK**

I hereby certify that the responses to the above Representations, Certifications and other statements are accurate and complete.

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**K.6 CONGRESSIONAL DISTRICT/DUN AND BRADSTREET NUMBER**

A. Congressional district for offeror's place of business: \_\_\_\_\_

Congressional district for offeror's place(s) of performance: \_\_\_\_\_

B. Dun and Bradstreet Number: \_\_\_\_\_

C. Tax Identification Number: \_\_\_\_\_



## **K.7 SBIR FUNDING AGREEMENT CERTIFICATION**

All small businesses that are selected for award of an SBIR funding agreement must complete this certification at the time of award and any other time set forth in the funding agreement that is prior to performance of work under this award. This includes checking all of the boxes and having an authorized officer of the awardee sign and date the certification each time it is requested.

Please read carefully the following certification statements. The Federal government relies on the information to determine whether the business is eligible for a Small Business Innovation Research (SBIR) Program award. A similar certification will be used to ensure continued compliance with specific program requirements during the life of the funding agreement. The definitions for the terms used in this certification are set forth in the Small Business Act, SBA regulations (13 C.F.R. Part 121), the SBIR Policy Directive and also any statutory and regulatory provisions referenced in those authorities.

If the funding agreement officer believes that the business may not meet certain eligibility requirements at the time of award, they are required to file a size protest with the U.S. Small Business Administration (SBA), who will determine eligibility. At that time, SBA will request further clarification and supporting documentation in order to assist in the verification of any of the information provided as part of a protest. If the funding agreement officer believes, after award, that the business is not meeting certain funding agreement requirements, the agency may request further clarification and supporting documentation in order to assist in the verification of any of the information provided.

Even if correct information has been included in other materials submitted to the Federal government, any action taken with respect to this certification does not affect the Government's right to pursue criminal, civil or administrative remedies for incorrect or incomplete information given in the certification. Each person signing this certification may be prosecuted if they have provided false information.

*The undersigned has reviewed, verified and certifies that (all boxes must be checked):*

- (1) *The business concern meets the ownership and control requirements set forth in 13 C.F.R. §121.702*  
 Yes    No
- (2) *If a corporation, all corporate documents (articles of incorporation and any amendments, articles of conversion, by-laws and amendments, shareholder meeting minutes showing director elections, shareholder meeting minutes showing officer elections, organizational meeting minutes, all issued stock certificates, stock ledger, buy-sell agreements, stock transfer agreements, voting agreements, and documents relating to stock options, including the right to convert non-voting stock or debentures into voting stock) evidence that it meets the ownership and control requirements set forth in 13 C.F.R. §121.702.*  
 Yes    No    N/A Explain why N/A:
- (3) *If a partnership, the partnership agreement evidences that it meets the ownership and control requirements set forth in 13 C.F.R. §121.702.*  
 Yes    No    N/A Explain why N/A:
- (4) *If a limited liability company, the articles of organization and any amendments, and operating agreement and amendments, evidence that it meets the ownership and control requirements set forth in 13 C.F.R. §121.702.*  
 Yes    No    N/A Explain why N/A:
- (5) *The birth certificates, naturalization papers, or passports show that any individuals it relies upon*

*to meet the eligibility requirements are U.S. citizens or permanent resident aliens in the United States.*

- Yes  No  N/A Explain why N/A:
- (6) *It has no more than 1,00 employees, including the employees of its affiliates.*  
 Yes  No
- (7) *SBA has not issued a size determination currently in effect finding that this business concern exceeds the 500 employee size standard.*  
 Yes  No
- (8) *During the performance of the award, the principal investigator will spend more than one half of his/her time as an employee of the awardee or has requested and received a written deviation from this requirement from the funding agreement officer.*  
 Yes  No  Deviation approved in writing by funding agreement officer: %
- (9) *All, essentially equivalent work, or a portion of the work proposed under this project (check the applicable line):*  
 *Has not been submitted for funding by another Federal agency.*  
 *Has been submitted for funding by another Federal agency but has not been funded under any other Federal grant, contract, subcontract or other transaction.*  
 *A portion has been funded by another grant, contract, or subcontract as described in detail in the proposal and approved in writing by the funding agreement officer.*
- (10) *During the performance of award, it will perform the applicable percentage of work unless a deviation from this requirement is approved in writing by the funding agreement officer (check the applicable line and fill in if needed):*  
 *SBIR Phase I: at least two-thirds (66 2/3%) of the research.*  
 *SBIR Phase II: at least half (50%) of the research.*  
 *Deviation approved in writing by the funding agreement officer: %*
- (11) *During performance of award, the research/research and development will be performed in the United States unless a deviation is approved in writing by the funding agreement officer.*  
 Yes  No  Waiver has been granted
- (12) *During performance of award, the research/research and development will be performed at my facilities with my employees, except as otherwise indicated in the SBIR application and approved in the funding agreement.*  
 Yes  No
- (13) *It has registered itself on SBA's database as majority-owned by venture capital operating companies, hedge funds or private equity firms.*  
 Yes  No  N/A Explain why N/A:
- (14) *It is a Covered Small Business Concern (a small business concern that: (a) was not majority owned by multiple venture capital operating companies (VCOCs), hedge funds, or private equity firms on the date on which it submitted an application in response to an SBIR solicitation; and (b) on the date of the SBIR award, which is made more than 9 months after the closing date of the solicitation, is majority-owned by multiple venture capital operating companies, hedge funds, or private equity firms).*  
 Yes  No

Authorized Company Officer:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Principal Investigator:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**K.8 CERTIFICATION (FINAL REPORT)**

Submission of this certification is required with the final report:

*I certify that the Principal Investigator currently is\_\_\_, is not\_\_\_ “primarily employed” by the firm as defined in the SBIR solicitation.*

*I certify that the work under this project has\_\_\_, has not\_\_\_, been submitted for funding to another Federal agency and that it has\_\_\_, has not\_\_\_ been funded under any other Federal grant, contract, or subcontract.*

*I certify that to the best of my knowledge the work for which payment is hereby requested was performed in accordance with the award terms and conditions and that payment is due and has not been previously requested.*

*I certify that to the best of my knowledge, (1) the statements herein (excluding scientific hypotheses and scientific opinions) are true and complete; and (2) the text and graphics in this report as well as any accompanying publications or other documents, unless otherwise indicated, are the original work of the signatories or individuals working under their supervision.*

*I understand that the willful provision of false information or concealing a material fact in this report or any other communication submitted to EPA is a criminal offense (U.S. Code, title 18, Section 1001).*

Company Name:

Contract No.:

Authorized Company Officer:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Principal Investigator:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix 5

### FREQUENTLY ASKED QUESTIONS (FAQS)

**Q.** Where can I find information about the current SBIR Solicitation?

**A.** The Solicitation requirements are posted on the NCER/SBIR website (<http://www.epa.gov/sbir/>). A SBIR Fact Sheet is posted on this site which provides additional information about the program.

**Q.** Is our company eligible for a SBIR contract?

**A.** The Small Business Innovation Research (SBIR) program is a phased process across the Federal Government of soliciting proposals and awarding funding agreements for research (R) or research and development (R&D) to meet stated agency needs or missions. Only small business concern businesses are eligible to participate. A small business concern is described in full in the solicitation. For more information on eligibility and the SBIR Program in general, see [www.SBIR.gov](http://www.SBIR.gov).

**Q.** After submitting a proposal, what is the next step?

**A.** Once a proposal has been submitted and considered to be responsive, it will be forwarded for External Peer Review. You may expect to receive written feedback on or around March of 2018. Proposals evaluated “Highly Recommend” and “Recommend” will also undergo an EPA Programmatic Review, as described in the solicitation. It is anticipated that approximately 12 contract awards will be made in or around August 2018.

**Q.** If a brief description/summary is provided about an offeror’s technology, could a representative from the EPA recommend the topic that best fits our technology?

**A.** It is the complete responsibility of the offeror to select and identify the best topic for its proposal as stated in Section I of the Solicitation.

**Q.** Can more than one proposal be submitted?

**A.** The same proposal cannot be submitted under more than one topic. An organization may, however, submit separate proposals on different topics, or different proposals on the same topic, as long as the proposals are not duplicates of the same research principle modified to fit the topic. If such duplicates are submitted, only one will be reviewed. Refer to Sections IV, V, and VI for additional requirements.

**Q.** Can we request a copy of the Solicitation or supporting Appendices?

**A.** This office does not mail copies of the solicitation. However, the solicitation and appendices are available on the following website: [www.fedconnect.net](http://www.fedconnect.net)

**Q.** Do we have to have a Tax Identification number before submitting a proposal?

**A.** No. BUT a Tax Identification is required at time of award.

**Q.** How do we submit our proposal?

**A.** The EPA is using an electronic proposal submission system, FedConnect. All companies must register in FedConnect before submitting a proposal. In addition, FedConnect requires that companies be registered with the System for Award Management (SAM).

**Q.** Do we need a DUNS number in order to submit a proposal?

**A.** Yes, firms need a DUNS number to register with the System for Award Management (SAM). All responsive firms must obtain a DUNS number and be registered with the System for Award Management (SAM) at <https://www.sam.gov/portal/public/SAM/> prior to registering in FedConnect.

## Appendix 5

### FREQUENTLY ASKED QUESTIONS (FAQS) CONTINUED

**If you have any problems registering in SAM, contact the Federal service desk at 1-866-606-8220. Tell the representative that you need to register your company name and information (which is your name and address). Once you register, it may take 2-3 weeks to become active in the system.**

**Q.** “What is” and “Who should be” the “Endorser” in regards to the proposal?

**A.** The Endorser is usually the Principal Investigator or President of the Company.

**Q.** What is the best way to protect proprietary information contained in our proposal?

**A.** A Proprietary Notice is located on the bottom of Appendix A, “Proposal Cover Sheet”.

**Q.** Can we use a consultant or subcontractor?

**A.** As stated in the Solicitation, for a SBIR Phase I proposal, a minimum of two-thirds of the research and/or analytical effort, as measured by the budget, must be performed by the proposing small business concern, and the balance of one third may be outsourced to a consultant or subcontractor or a combination of the two.

**Q.** Can a modification or update to a proposal be issued?

**A.** An Offeror can submit [changes and/or updates] prior to the closing date. After the closing date, there is NO opportunity to modify or update a proposal unless the change is requested by the Contracting Officer.

## Appendix 6

### COMMERCIALIZATION HISTORY

**This form should only be filled out by companies that have previously received an SBIR phase II Award from any federal agency.**

**Provide all information requested below for any SBIR Phase II Awards from any federal agency within the time period of calendar years (CY) 2011 to 2016.**

Company Name: \_\_\_\_\_

Year Company Founded: \_\_\_\_\_

Identify any name change your business has gone through within the past five years: \_\_\_\_\_

List the parent company if you subsidiary or a spin-off: \_\_\_\_\_

List subsidiaries and spin-off if you are a parent company: \_\_\_\_\_

Percentage of company revenues for each of the past three (3) fiscal years from federal SBIR/STTR funding (includes Phase I and Phase II awards):

Current Year: \_\_\_\_\_

2 Years Ago: \_\_\_\_\_

3 Years Ago: \_\_\_\_\_

Provide a table of each Phase II SBIR/STTR award below and provide the requested information.

- Grant/Contract Number
- Name of Federal Agency
- Topic of Sub-Topic Title
- Project Title
- Date of Award (Month/Day/Year)
- End of Award Period (Month/Day/Year)
- Total Amount of Award (including supplements) (\$K)
- Total Revenues (includes Sales, Service and/or Licensing Revenues) (\$K)
- Follow-on Federal Funding Amount (\$K)
- Subsequent Private-Sector Investment Amount (\$K)
- Subsequent State or Local Government Investment Amount (\$K)
- Current Commercialization Status