

Overview Information

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Federal Agency Name: Air Force Research Laboratory, AFRL/RYPH
Electromagnetics Technology Division

Broad Agency Announcement Title: Sensor Innovative Research

Broad Agency Announcement Type: This is the initial announcement.

Broad Agency Announcement Number: BAA 12-02-PKS

Catalog of Federal Domestic Assistance (CFDA) Number(s): 12.800_AF

THIS WILL BE A TWO-STEP SOLICITATION:

First Step: WHITE PAPER DUE DATE AND TIME: The BAA is open and effective until 05 April 2017. White Papers will be considered if received anytime prior to 1600 EST on 05 April 2017.

Second Step: PROPOSAL DUE DATE AND TIME: To be provided in response to the Requests for Proposals sent to offerors that submit White Papers considered to meet the needs of the Air Force.

NOTE: White Paper/Proposal receipt after the due date and time shall be governed by the provisions of FAR 52.215-1(c)(3). *It should be noted that this installation observes strict security procedures to enter the facility. These security procedures are NOT considered an interruption of normal Government processes, and proposals received after the above stated date and time as a result of security delays will be considered "late."* Furthermore, note that if offerors utilize commercial carriers in the delivery of proposals, they may not honor time-of-day delivery guarantees on military installations. Early white paper submission is encouraged.

Solicitation Request: Air Force Research Laboratory, AFRL/RYPH Electromagnetics Technology Division, Wright Research Site is soliciting white papers on the research effort described below. White Papers should be addressed to the Contracting Point of Contact (POC) stated in Section VII of the Full Text Announcement. This is an unrestricted solicitation. Small businesses are encouraged to propose on all or any part of this solicitation. The NAICS Code for this acquisition is 541712, and the small business size standard is 500 employees. White Papers/Proposals submitted shall be in accordance with this announcement. *There will be no other solicitation issued in regard to this requirement.*

Annual Updates: It should be noted that for the ease of reference this BAA will be republished at yearly intervals.

CCR Registration: Unless exempted by 2 CFR 25.110 all offerors must (1) Be registered in the Central Contractor Registration (CCR) prior to submitting an

application (for an assistance award) or proposal;(2) Maintain an active CCR registration with current information at all times during which it has an active Federal award or an application or proposal under consideration by an agency; and (3) Provide its DUNS number in each application or proposal it submits to the agency. On-line registration instructions can be accessed from the DISA CCR home page at <http://www.ccr.gov>.

On-line Representations and Certifications (ORCA): Potential offerors are notified that effective 01 Jan 2005 to be eligible for an award, they must submit annual Electronic Representations and Certifications, otherwise known as On-line Representations and Certifications Application (ORCA) via the Business Partner Network (BPN) at <http://www.bpn.gov/orca>. These FAR and DFARS level representations and certifications are required in addition to the representations and certifications specific to this acquisition. Before submitting the Electronic Representations and Certifications, contractors must be registered in the Central Contractor Registration (CCR) Database.

Type of Contract/Instrument: Cost Plus Fixed Fee, Cost (No Fee), Cost Sharing, and Task Orders under an IDIQ arrangement. Agreements/Assistance Instruments will be considered.

Estimated Program Cost: \$50K - \$1M per award. \$24.9 Million Overall Program Ceiling.

Anticipated Number of Awards: The Air Force anticipates awarding multiple awards for this announcement.

Brief Program Summary:

The Electromagnetics Technology Division (RYH), Sensors Directorate (RY), Air Force Research Laboratory (AFRL), conducts research in the following areas:

- **Antenna Technology:** The objective of this research is to advance antenna and electromagnetic technology for air, ground and space-based applications like radar, communications, satellite operations, and intelligence, surveillance, and reconnaissance systems, from VHF to W-Band frequencies.
- **Opto-Electronic Technology:** The objective of this work is basic and exploratory development of optical and optoelectronic components, subsystems, and algorithms for space and air image restoration/recognition, multispectral detection and tracking, threat warning, countermeasures, missile guidance and high bandwidth communications and data network systems.
- **Electromagnetic Scattering:** The objective of this research is to advance the field of detection, tracking, and fusion of data of difficult targets in rapidly varying environments utilizing electromagnetic scattering theory and situational awareness methodologies for characterization of plasma turbulence impacts to hypersonic sensors and Over-the-Horizon radars (OTHR), development of efficient schemes to overcome communication blackout in plasmas, and the development of architectures and algorithms for joint intelligence, surveillance, reconnaissance, navigation, communications, and situational awareness.

- ***Infrared Sensor Technology:*** The objective of this research is to promote novel sensors, sensor technologies or algorithms for chemical and biological detection and sensing, thermal imaging, solar cells, hyper- and multispectral sensing, thermal energy mitigation, and increasing detector efficiency.

Objectives

The primary research interests of the division are as follows:

- 1) Phased Array Antennas
- 2) Electrically Small Antennas
- 3) Theoretical and Computational Electromagnetics
- 4) Electromagnetically-Responsive Structures and Materials
- 5) Crystal Growth of Sensor Materials
- 6) Discrete and Integrated Quantum Optic Components
- 7) Advanced Sensors and Emitters
- 8) Image Recognition and Restoration in Cluttered Environments
- 9) Sensors Aboard Hypersonic Vehicles
- 10) Plasma Applications for Over-the-Horizon Radar Physics
- 11) Parametric Excitation of EM Whistler Waves in the Ionosphere
- 12) Electromagnetic and Optical Wave Interaction with Complex Media
- 13) Enhanced Sensing Applications for Metamaterials
- 14) Sensor Information Processing and Integration
- 15) Self-Assembled Plasmonic and Nanoresonant Arrays
- 16) Nanostructures & Gain Media for Photonic Synthetic Matter
- 17) Programmable Reconfigurable Sensors
- 18) Electronically-Reconfigurable Millimeter and Terahertz Wavelength Pyroelectric Detectors
- 19) Plasmonic-Based Chemical and Biological Sensors
- 20) Novel EO/IR, Spectral and Common Aperture EO/RF Hardware and Algorithms

Description of Effort

The primary research interests are described in detail below.

1) Phased Array Antennas

This topic addresses development of new concepts and improvements to the state-of-the-art of wideband and multiband, lightweight, planar and conformal phased array antennas operating at various power densities. Specific areas of interest include: (a) elements and radiating structures, matching networks, feed networks and structures, and array architectures; (b) integrated beamformer-radiator-radome structures that offer the radiation pattern flexibility of phased arrays using fewer controls than traditional arrays; (c) deterministic and stochastic methods of phased array control including limited scan architectures, analog and digital beamforming, array pattern synthesis, and efficient adaptivity to changing RF environments; (d) automated channel

equalization, array calibration, self-calibration, and built-in test and error correction. These technologies applied to wideband, lightweight, conformal, phased-array antennas on doubly-curved surfaces are of particular interest.

2) Electrically Small Antennas

This topic addresses development of antennas having the gain performance of conventional antennas in a significantly smaller physical space to reduce antenna size, weight, and co-site interference, for applications from VHF through L-band. Specific areas of interest include: (a) design, analysis, and testing of new, electrically-small antenna elements; (b) traditional and non-Foster impedance matching techniques; and (c) superdirective arrays.

3) Theoretical and Computational Electromagnetics

This topic addresses electromagnetic (EM) research in radiating, wave guiding, wave transforming, and electromagnetically-responsive structures and materials, with emphasis on integration of antennas and radiating structures with aircraft. Specific areas of interest include: (a) theoretical electromagnetic physics focusing on first principles, and mathematical derivation and solution of problems which offer rigorous, general case solutions, and asymptotic approximate solutions that achieve high numerical accuracy with reduced computational effort; (b) derivation of performance bounds for individual antenna radiators and arrays, and wave guiding and transforming networks; and (c) computational electromagnetic software development that address optimization, integration of commercial EM codes with rapid solvers, reduction of the solution space, and problem space partitioning and parallelization.

4) Electromagnetically-Responsive Structures and Materials

This topic addresses new structural approaches and RF metamaterials to provide additional degrees of freedom in electromagnetic design to reduce antenna size and weight, increase radiation efficiency, minimize co-site interference, reduce the signal processing load on the array back-end, and increase beam steering and beamforming performance with reduced numbers of controls. Applications include antennas, ground planes, feeds, passive RF circuits, matching networks, beamforming networks, wave transforming media, RF lenses, and radomes. These structures and RF metamaterials typically provide inhomogeneity, anisotropy, and non-linear electromagnetic characteristics which may be spatially variable, tunable, and passive or active.

5) Crystal Growth of Sensor Materials

This topic addresses development and exploitation of crystal growth methodologies to exploit the optical and electronic properties of advanced materials for non-linear optics, optoelectronics and high-

speed electronics. Specific areas of interest include: (a) solvothermal growth to produce large crystals of nitrides and oxides such as GaN, AlN, InN, ZnO, and MgZnO and other materials such as ZnSe, ZnTe; (b) hydride vapor phase epitaxy (HPVE) of optical parametric oscillators in the 2 μm to 11 μm range for next-generation infrared countermeasure systems using materials such as GaAs, GaP, ZnSe and GaN; (c) metal organic chemical vapor deposition (MOCVD) growth of III-Nitride materials for high speed electronic and optoelectronic devices; and (d) molecular beam epitaxy (MBE) to develop high-speed electronic and optoelectronic devices based on III-Arsenide/Antimonide/Bismide, Graphene, BN, α -Sn and SiGeSn semiconductors such as quantum cascade lasers, strain-layer superlattices, nBn detectors and high electron mobility devices.

6) Discrete and Integrated Quantum Optics Components

This topic addresses development of chip-scale integrated quantum optics components for advanced, high-precision sensors, ultra-secure communications channels and quantum information technology as well as a means to explore the fundamental quantum limits of the light-matter interaction. Specific areas of interest are: (a) integrated single photon on demand light sources; (b) low-loss dielectric and hybrid waveguides and precision integrated beam splitters; (c) high-Q plasmon-based cavities, and single-period quantum cascade lasers; (d) deterministic placement of quantum dots for integrated quantum optic circuits; and (e) computational algorithms, along with advanced computational techniques such as finite-difference time-domain, finite-element method, and finite-difference frequency-domain.

7) Advanced Sensors and Emitters

This topic addresses development of both light detectors and emitters based on advanced material systems and on novel operational modes covering wavelengths from the visible to the far infrared. Specific areas of interest are: (a) development of active and passive plasmonic-based materials and components for tunable light-matter interaction response; (b) metamaterials and photonic bandgap crystals for new sensor paradigms based on the hybrid integration of plasmonic and photonic waveguide structures with advanced light sources and detectors; and (c) integrated light emitters, as well as discrete components at wavelengths beyond those used for telecommunications for advanced imaging applications.

8) Image Recognition and Restoration through cluttered environments

This topic addresses development of methodologies and techniques for image restoration and recognition. Of particular interest are implementations using dynamic range compression and expansion techniques, real-time holography, digital (μ -law/A-law), and MEMS deformable mirrors with dynamic range compression.

9) Sensors Aboard Hypersonic Vehicles

This topic addresses the study and mitigation of issues faced by sensors aboard hypersonic vehicles resultant from high temperature flows, dense plasma sheathes, and cumulative heating of airframes, which adversely affects the performance of all on-board sensor systems such as GPS, telemetry, communication, command and control, radar, LIDAR, and electro-optical sensors to varying degrees. Specific areas of interest in the analysis and mitigation of these issues are: (a) signal attenuation; (b) communication blackout; (c) signal distortion due to turbulent flow; (d) radiation from heated optical windows; (e) emission from hot flows; (f) assessing the impact of the environment on spectral measurements and imaging; (g) the problem of mutual coupling and impedance mismatch effects on beam forming using wideband RF systems using conformal arrays; (h) beam pointing errors and wavefront distortions.

10) Plasma Applications for Over-the-Horizon Radar Physics

This topic addresses new approaches to analyze the adverse effects of plasma turbulence on Over-the-Horizon (OTH) radar performance in the mid-latitude ionosphere. Recent satellite data has revealed that energetic plasma flows in the plasmopause region of the earth's ionosphere (namely, the subauroral ion drifts [SAID] and subauroral polarization streams [SAPS]) are the source of plasma turbulence in the mid-latitude F-region. Since the SAID/SAPS region contains short-scale plasma waves and meso-scale coherent structures, high frequency (HF) electromagnetic wave propagation cannot be described by the traditional theories of propagation theory using random irregularities. Specific areas of interest include: (a) characterizing the mechanisms of penetration of energetic ion flows across the plasmopause region; (b) characterizing the excitation of plasma turbulence by plasma flows with velocity shear; (c) developing HF propagation models through turbulence regions with developed short-scale turbulence and meso-scale coherent structures in the F region of the ionosphere. Applications include: (a) OTH radar performance; (b) HF electromagnetic wave refraction and scattering; and (c) interpretation of experimental results in the Naval Research Laboratory plasma chamber related to military applications.

11) Parametric Excitation of EM Whistler Waves in the Ionosphere

This topic addresses new concepts for the use of the parametric antenna in the ionospheric plasma region of the atmosphere. Such antennas are capable of exciting electromagnetic radiation fields, specifically the creation of whistler waves generated at the very low frequency (VLF) range, which are also capable of propagating large distances away from the source region. The mechanism of whistler wave generation is considered a parametric interaction of quasi-electrostatic oscillations excited by conventional antennas. Specific

areas of applications include: (a) active space experiments involved in the excitation of powerful electromagnetic waves in the ionosphere; (b) communication via VLF waves; and (c) interaction of energetic electron flows with artificially excited VLF turbulence.

12) Electromagnetic and Optical Wave Interaction with Complex Media

This topic addresses developing theoretical and computational methods in the areas of modeling radar clutter in a diversity of environments and modeling clutter and detection in the following general areas of interest: target detection, geophysical remote sensing, weapon systems, and electromagnetic/optical characterizations of composite and nanophotonic materials. This topic seeks to develop full wave solutions from first physical principles, of large-scale, three-dimensional problems of random rough surfaces and discrete random media covering a range of physical scales, ranging from the Earth's terrain to nanomaterials. In addition, this research also seeks to develop non-traditional phenomenological modeling of electromagnetic scattering and refraction from generic 3-D objects. Specific areas of interest include: (a) urban environments; (b) subsurface sensing; (c) rough surface and volume scattering in vegetated and ocean surfaces; (d) electromagnetic and optical wave scattering and interactions with electronic devices and components; (e) plasmonic nanostructures; (f) scattering and propagation of radar signals through turbulence in the atmosphere and ionosphere; (g) scattering of targets embedded in complex environments; (h) polarimetric techniques for detecting targets (such as stationary, mobile, or fluctuating targets); (i) developing monostatic and bistatic models for radar clutter; (j) modeling the electro-magnetic spectra interaction with scattering and refracting manifolds; (k) mapping singularities-based description of radar, electro-optic and infrared images suitable for advance processing, target recognition and tracking, and image fusion.

13) Enhanced Sensing Applications for Metamaterials

This topic addresses the application of metamaterials to sensors. Metamaterials play a central role in the development of new technologies used by DoD in battlefield scenarios and in emerging sensing capabilities. A majority of the research in metamaterials has been in the interaction with electromagnetic radiation on a few application areas such as cloaking, superlens and super-resolution effects. This topic area will concentrate on the broader range of metamaterial properties that are important for resolving today's defense challenges. Specific areas of interest include: (a) novel applications of metamaterials for sensing in broad spectrum of electromagnetic waves; (b) characterization of the scattering and refracting properties of metamaterials in the process of image formation; (c) new approaches in coupling metamaterials with state-of-the-art integrated circuits to prevent reverse engineering and modifications.

14) Sensor Information Processing and Integration

This topic addresses new approaches to the integration and understanding of massive amounts of data coming from diverse sensor platforms with the goal of developing actionable intelligence and achieving autonomous or semi-autonomous situation awareness. The fundamental difficulties include computational complexity, massive amounts of disparate information, the need to integrate human and sensory input, cultural backgrounds, and the ability to identify and seek missing information. Specific areas of interest include: (a) robust tracking and navigation using multiple sensor platforms; (b) cognitively-inspired methods for data integration; (c) integration of human and sensory inputs; (d) learning abstract concepts from sensor data; (e) situation modeling and learning.

15) Self-Assembled Plasmonic and Nanoresonant Arrays

This topic addresses new theoretical and fabrication approaches to design self-assembled plasmonic materials and resonant media to provide improved gain, enhanced signal-to-noise ratio, improved selectivity, real-time tunability and added functionality using nanoparticle and resonant nanostructure arrays. Specific areas of interest include: (a) theoretical development, design, analysis, and testing of novel nanoparticle arrays; (b) development of fabrication techniques that provide fast and inexpensive means to manufacture large-scale nanoarrays; and (c) multifunctional nanoarrays. Applications include optical sources, nonlinear optical media, detector arrays, optical interconnects, optical-to-electrical conversion devices, splitters, couplers, waveguides, and modulators.

16) Nanostructures

This topic addresses nanostructures exhibiting novel electromagnetic properties, such as negative refractive index, negative, near-zero, or extreme-value permittivity and permeability, chirality, wavelength or bandwidth tunability, polarization sensitivity, low loss or gain. Passive, as well as active structures for overcoming losses and increasing device bandwidth are of interest. Plasmonics, metamaterials, and quantum dots are all included under this topic. The wavelength regime of interest ranges from the ultraviolet to the far-infrared. Emphasis should be stressed on improving losses, bandwidth, and efficiency. Theoretical modeling, computational simulation, design, fabrication, characterization, and analysis of such structures are desired, as well as synthesis techniques with some pre-defined electromagnetic properties. Functionalization and self-assembly of nanostructures, 3D large-scale fabrication demonstration, and conformal fabrication techniques are of particular interest. Applications include thermal energy mitigation, optical beam-steering, increased efficiency detectors and solar cells, light-emitting devices, photovoltaics, spectroscopy, interconnects, and

forward looking devices for simultaneous transmit/receive electromagnetic warfare applications.

17) Programmable Reconfigurable Sensors

This topic addresses a new concept which proposes to create a novel class of digital materials that represent an ensemble of coordinated similar submillimeter-sized functional elements – microrobots. Under programmable control, these metamaterials should be able to dynamically change its shape, density, permittivity, reflectivity, absorption, conductivity, transmissivity, and anisotropic structure to provide a desired electromagnetic response. For example, this substance could form a reflective dish antenna in one orientation or a shaped lens in another orientation, or for use in dynamically reconfigurable antennas for surveillance and reconnaissance. Building this material requires a broad multidisciplinary research and development effort that combines the design and processing of autonomous sub-cubic millimeter micro-robots, exploration of the programming of massively distributed systems, as well as modeling and simulation of the electromagnetic properties of such programmable materials.

18) Electronically Reconfigurable Millimeter and Terahertz Wavelength Pyroelectric Detectors

This topic addresses research and development of an uncooled reconfigurable detector for spectroscopy and imaging application in the millimeter wavelength and THz frequency regimes. This work is dedicated to the design and fabrication of a room-temperature, electronically reconfigurable detector using pyroelectric thin films that can be exploited to form low cost mm-wavelength and THz-frequency focal plane arrays. This technology has tremendous potential for scientific, industrial, medical, and military applications because it offers the combination of high spatial resolution imaging as a result of short wavelengths and rich spectral information due to the large number of molecular resonances. The novel proposed detector is ideal for exploiting this potential because it would provide an affordable path to low-cost mm-wavelength and THz-frequency imaging. Additionally, this technology would have the unique ability to be electronically reconfigurable based on the detected polarization or frequency. As a result, the spatial mm-wavelength and THz-frequency images could also include polarimetric and spectral information, dramatically improving analysis and detection capabilities.

19) Plasmonic-Based Chemical and Biological Sensors

This topic addresses the development of localized surface plasmon resonance (LSPR) and surface-enhanced Raman scattering (SERS) chemical and biological sensors built upon existing or newly developed plasmonic nanoparticle structures and nanoparticle arrays. Specific areas of interest include: (a) development, design, fabrication, analysis,

and testing of novel nanoparticle arrays as transducers for chemical/biological sensors; (b) development of novel chemical and biochemical recognition elements, including, but not limited to, nucleic acids, antibodies, enzymes, cell receptors, and organelles; (c) nanoparticle functionalization and recognition element derivatization chemistries for novel immobilization schemes; and (d) multiple analyte sensing schemes.

20) Novel EO/IR, Spectral and Common Aperture EO/RF Hardware and Algorithms

This topic addresses the development of innovative hardware and algorithms to detect low-signal targets in noisy and cluttered environments using EO, IR, hyperspectral, multispectral, and common-aperture EO/RF sensors. Included in this area are new ideas for design and development of sensors, focal plane arrays (FPA), hybrid FPAs and infrared cameras for high-resolution, low-power, lightweight, low-cost, portable midwave and longwave infrared sensing. Specific areas of interest include: (a) high-temperature operation; (b) multispectral-sensing; (c) tunable wavelength devices; (d) algorithms using a minimal number of bands for detection; (e) computational intelligence methods for target detection and identification; (f) data fusion methods for common EO/RF apertures; and (g) algorithms to help define engineered focal plane characteristics prior to design, in order to maximize detection of pre-defined target sets; (h) compressive sensing hardware and algorithms; (i) computational imaging hardware and algorithms.

Address technical questions to: Michael Noyola, 2241 Avionics Circle Wright-Patterson AFB, OH 45433, 937-528-8981, Michael.Noyola@wpafb.af.mil

Address contracting questions to: Brian Lowe, 2310 8th Street, Area B, Bldg 167, Wright-Patterson AFB, OH 45433-7801, 937-255-3585, Brian.Lowe@wpafb.af.mil

Full Text Announcement

I. Program Description: Air Force Research Laboratory, AFRL/RYP is soliciting white papers (and later technical and cost proposals) on the following research effort:

1. Statement of Objective/Needs:

The objective of this BAA is to advance the technology and/or increase knowledge and understanding of:

- 1) Phased Array Antennas
- 2) Electrically Small Antennas

- 3) Theoretical and Computational Electromagnetics
- 4) Electromagnetically-Responsive Structures and Materials
- 5) Crystal Growth of Sensor Materials
- 6) Discrete and Integrated Quantum Optic Components
- 7) Advanced Sensors and Emitters
- 8) Image Recognition and Restoration in Cluttered Environments
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- 19) Plasmonic-Based Chemical and Biological Sensors
- 20) Novel EO/IR, Spectral and Common Aperture EO/RF Hardware and Algorithms

2. Deliverable Items:

a. Data Items:

A001 Scientific and Technical Reports (DI-MISC-80711/T) – Final Report (one)

A002 Funds and Man Hour Expenditure Report (DI-FNCL-80331/T) – Monthly

A003 Status Reports (DI-MGMT-80368T) – Monthly or Qtrly

A004 Presentation Material (DI-ADMN-81373/T) – ASREQ

*The above listed Contract Data Requirements List (CDRL) is provided for your reference. Other data items may apply.

b. Software: To be determined (TBD) depending on the nature of the work proposed.

c. Hardware: TBD depending on the nature of the work proposed.

d. Other: TBD depending on the nature of the work proposed.

3. Schedule:

a. Overall effort: It is anticipated that the period of performance for individual awards will vary between six and thirty-six months.

b. Data Items: Specified on individual CDRL(s)

4. Other Requirements

- a. Program security classification: Program Security Classification/DD Form 254, International Traffic in Arms Regulations (ITAR), Export Controlled Items, Certified DD Form 2345 Military Critical Technical Data Agreement, PL 98-94, Government Furnished Property, and Base Support/Network Access will be considered for each award.
- b. Export Control: Information involved in this research effort will be subject to Export Control (International Traffic in Arms Regulation (ITAR) 22 CFR 120-131, or Export Administration Regulations (EAR) 15 CFR 710-774). If effort is subject to export control then Certified DD Form 2345, Militarily Critical Technical Data Agreement, will be required to be submitted with proposal.
- c. General OPSEC procedures, policies and awareness is required in an effort to reduce program vulnerability from successful adversary collection and exploitation of critical information. OPSEC will be applied throughout the lifecycle of the contract. The Critical Information List will be provided upon request by the RYY Security Office. While working on the government installation OPSEC will be provided by the RYOY Security Office.
- d. The Contractor shall participate with the Government in the development of a Program Protection Plan (PPP), to include the identification of Critical Program Information (CPI), and shall also participate with the Government in determining countermeasures needed to safeguard the CPI throughout the acquisition process. The Contractor shall plan for and execute program protection in accordance with the PPP and program guidance.
- e. Export Controlled Items: As prescribed by DFARS 204.7303, DFARS 252.204-7008, Export-Controlled Item (APR 2010) is contained in this solicitation (as shown below). This clause shall be contained in ALL solicitations and resulting contracts.

EXPORT-CONTROLLED ITEMS (APR 2010)

(a) *Definition.* "Export-controlled items," as used in this clause, means items subject to the Export Administration Regulations (EAR) (15 CFR Parts 730-774) or the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130). The term includes:

(1) "Defense items," defined in the Arms Export Control Act, 22 U.S.C. 2778(j)(4)(A), as defense articles, defense services, and related technical data, and further defined in the ITAR, 22 CFR Part 120.

(2) "Items," defined in the EAR as "commodities", "software", and "technology," terms that are also defined in the EAR, 15 CFR 772.1.

(b) The Contractor shall comply with all applicable laws and regulations regarding export-controlled items, including, but not limited to, the requirement for contractors to register with the Department of State in accordance with the ITAR. The Contractor shall consult with the Department of State regarding any questions relating to compliance with the ITAR and shall consult with the Department of Commerce regarding any questions relating to compliance with the EAR.

(c) The Contractor's responsibility to comply with all applicable laws and regulations regarding export-controlled items exists independent of, and is not established or limited by, the information provided by this clause.

(d) Nothing in the terms of this contract adds, changes, supersedes, or waives any of the requirements of applicable Federal laws, Executive orders, and regulations, including but not limited to—

(1) The Export Administration Act of 1979, as amended (50 U.S.C. App.2401, *et seq.*);

(2) The Arms Export Control Act (22 U.S.C. 2751, *et seq.*);

(3) The International Emergency Economic Powers Act (50 U.S.C. 1701, *et seq.*);

(4) The Export Administration Regulations (15 CFR Parts 730-774);

(5) The International Traffic in Arms Regulations (22 CFR Parts 120-130); and

(6) Executive Order 13222, as extended;

(e) The Contractor shall include the substance of this clause, including this paragraph (e), in all subcontracts.

(End of clause)

5. Other Information:

a. Government Furnished Property (GFP) availability:

GFP is not anticipated to be made available under any resulting contract.

- b. Base Support/ Network Access: Contractors may require Common Access Cards, office space, and telephone service in order to facilitate performance of work in the Government Lab.
- c. Multiple awards subject to Fair Opportunity are not anticipated.
- d. Due to the nature of the funding for this effort, all work proposed must be completed in-house within RYH Laboratory space.
- e. Descriptions of laboratory space and equipment available for research use by contractors under any proposed effort will be posted as an attachment on the FedBizOps website for this contract announcement approximately 15 May 2012. Until that time, questions on space and equipment can be posed to the Program Manager.
- f. Data Rights Desired:
 - (1) Technical Data: Unlimited Rights
 - (2) Non-Commercial Software (NCS): Unlimited Rights
 - (3) NCS Documentation: Unlimited Rights
 - (4) Commercial Computer Software Rights: Customary License

The Air Force Research Laboratory is engaged in the discovery, development, and integration of warfighting technologies for our air, space, and cyberspace forces. As such, rights in technical data and NCS developed or delivered under this contract are of significant concern to the government. The Government will therefore carefully consider any restrictions on the use of technical data, NCS, and NCS documentation which could result in transition difficulty or less-than full and open competition for subsequent development of this technology.

In exchange for paying for development of the data, the Government expects technical data, NCS, and NCS documentation developed entirely at Government expense to be delivered with Unlimited Rights.

Technical data, NCS, and NCS documentation developed with mixed funding are expected to be delivered with at least Government Purpose Rights. Offers that propose delivery of technical data, NCS, or NCS documentation subject to Government Purpose Rights should fully explain what technical data, NCS, or NCS documentation developed with costs charged to indirect cost pools and/or costs not allocated to a Government contract will be incorporated, how the incorporation will benefit the program, and address whether those portions or processes are segregable. The Government expects that delivery of technical data,

NCS, and NCS documentation subject to Government Purpose Rights will fully meet program needs.

Offers that propose delivery of technical data, NCS, or NCS documentation subject to Limited Rights, Restricted Rights, or Specifically Negotiated License Rights will be considered. Proposals should fully explain what technical data, NCS, or NCS documentation developed with costs charged to indirect cost pools and/or costs not allocated to a government contract will be incorporated and how the incorporation will benefit the program.

Offerors are reminded that the Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software (the assertions list), required under DFARS 252.227-7013 and DFARS 252.227-7014, is included in Section K and due at time of proposals. Assertions must be completed with specificity with regard to each item, component, or process listed. Nonconforming assertions lists will be rejected.

Note that DFARS 252.227-7014(d) describes requirements for incorporation of third party computer software (commercial and noncommercial). Any commercial software to be incorporated into a deliverable must be clearly identified in the proposal. Because many commercial software licenses are not transferrable or may not be acceptable to the Government, commercial software licenses proposed for delivery to the Government must be approved by the contracting officer prior to award.

As used in this subparagraph, the terms Unlimited Rights, Government Purpose Rights, Specifically Negotiated License Rights, and Limited Rights in technical data are as defined in DFARS 252.227-7013. The terms Unlimited Rights, Government Purpose Rights, Specifically Negotiated License Rights, and Restricted Rights in noncommercial computer software and noncommercial software documentation are as defined in DFARS 252.227-7014. The term Commercial Computer Software is as defined in DFARS 252.227-7014.

II. Award Information

1. **Anticipated Award Date:** Award dates will vary. White papers will be accepted for review through 05 April 2017.
2. **Anticipated funding** for the program (not per contract): FY12/\$4.98M; FY13/\$4.98M; FY14/\$4.98M; FY15/\$4.98M; FY16/\$4.98M
This funding profile is an estimate only and will not be a contractual

obligation for funding as all funding is subject to change due to Government discretion and availability

3. Number of awards anticipated: Multiple

III. Eligibility Information

1. **Eligible Offeror:** This is an unrestricted solicitation. Small businesses are encouraged to propose on all or any part of this solicitation.
2. **Cost Sharing or Matching:** Cost Sharing is not required. Ratio: 0 / 0
3. **Federally Funded Research and Development Centers:** The following guidance is provided for Federally Funded Research and Development Centers (FFRDCs) contemplating submitting a proposal, as either a prime or subcontractor, against this BAA. FAR 35.017-1(c)(4) prohibits an FFRDC from competing with any non-FFRDC concern in response to a Federal agency request for proposal for other than the operation of an FFRDC (with exceptions stated in DFARS 235.017-1(c)(4)). There is no regulation prohibiting an FFRDC from responding to a solicitation. However, the FFRDC's sponsoring agency must first make a determination that the effort being proposed falls within the purpose, mission, general scope of effort, or special competency of the FFRDC, and that determination must be included in the FFRDC's proposal. In addition, the non-sponsoring agency (in this case AFRL) must make a determination that the work proposed would not place the FFRDC in direct competition with domestic private industry. Only after these determinations are made would a determination be made concerning the FFRDC's eligibility to receive an award.
4. **Other:**
 - a. Foreign participation: Not Permitted
 - b. This acquisition involves data that are subject to export control laws and regulations. Only contractors who are registered and certified with the Defense Logistics Services Center (DLSC) and have a legitimate business purpose may participate in this solicitation. Contact the Defense Logistics Services Center, 74 Washington Avenue N., Battle Creek, Michigan 40917-3084 (1-800-352-3572) for further information on the certification process. You must submit a copy of your approved DD Form 2345, Militarily Critical Technical Data Agreement, with your proposal.
 - c. There are no limits to the number of white papers/proposals an offeror may submit.
 - d. You may be ineligible for award if all requirements of this solicitation are not met on the white paper (and later proposal) due date as identified above.

IV. White Paper/Proposal Preparation Instructions:

1. **Application Package:** This Announcement consists of a Two-Step Process described in detail below. White Papers/Proposals submitted shall be in accordance with this announcement. *There will be no other solicitation issued in regard to this requirement.* ONLY WHITE PAPERS ARE BEING SOLICITED AT THIS TIME. Offerors should be alert for any BAA amendments that may permit extensions to the white paper submission date. There is no additional information to be provided.

2. First Step (White Paper) Instructions:

- a. General: The *FIRST STEP* requests a white paper and a rough order of magnitude (ROM) cost. The white paper shall include a discussion of the nature and scope of the research and the offeror's proposed technical approach. The Government will evaluate the white papers in accordance with the *FIRST STEP* evaluation criteria, set forth in Section V. below. Based on this evaluation, the Government will determine which of them have the potential to best meet the Air Force's needs. Offerors will be notified of the disposition of their white paper. It is anticipated that Government review of the white papers submitted will take 30 working days. Those offerors submitting white papers assessed as meeting Air Force needs will be asked to submit a technical and cost proposal. Those offerors not requested to submit a technical and cost proposal will be notified but may, however, still elect to submit a technical and cost proposal. An offeror submitting a proposal without first submitting a white paper **will not** be eligible for an award. The cost of preparing white papers in response to this Solicitation is not considered an allowable direct charge to any resulting or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost as specified in FAR 31.205-18.
- b. Page Limitation: The White Paper shall be limited to three (3) pages, prepared and submitted in Word format. Font shall be standard 10-point business font Arial. Character spacing must be "normal," not condensed in any manner. Pages shall be double-spaced, single-sided, 8.5 by 11 inches, with at least one-inch margins on both sides, top and bottom. Lines between text lines must also be 10-point. All text, including text in tables and charts, must adhere to all font size and line spacing requirements listed herein. Font and line spacing requirements do not have to be followed for illustrations, flowcharts, drawings, and diagrams. These exceptions shall not be used to circumvent formatting requirements and page count limitations by including lengthy narratives in such items. Pages shall be numbered starting with the cover page being Page 1, and the last page being Page 3. The page limitation covers all information including indices, photographs, foldouts (counted as 1 page for each 8.5 by 11 portion) tables, charts, appendices, attachments, resumes, etc. The Government will not consider pages in excess of these limitations. Offerors must submit proposals via e-mail to afrlryinnovative@wpafb.af.mil.

- c. Format: The white paper will be formatted as follows: Section A: Title of Program, Name of Company, Company's Commercial and Government Entity (CAGE) number, Dun & Bradstreet (D&B) Data Universal Numbering System (DUNS) number, Contracting POC and Technical POC with appropriate telephone numbers, fax numbers, and email addresses for the POCs; Section B: Period of Performance and Task Objectives; Section C: Technical Summary; and Section D: Cost of Task (Rough Order of Magnitude (ROM)).
- d. Technical Portion: The technical portion of the white paper shall include a discussion of the nature and scope of the research and the offeror's proposed technical approach/solution. It may also include any proposed deliverables. Resumes, descriptions of facilities and equipment, a proposed Statement of Work are not required at this point.
- e. Cost Portion: The cost portion of the white paper shall include a ROM cost estimate. No detailed price or cost support information should be forwarded; only a time-phased bottom line figure should be provided.
- f. Other Information: Multiple white papers within the purview of this announcement may be submitted by each offeror. If the offeror wishes to restrict its white papers, they must be marked with the restrictive language stated in FAR 15.609(a) and (b).
- g. White Paper/Proposal Content Summary: You may be ineligible for award if all requirements of this solicitation are not met on the proposal due date. Reference Section VIII for a Checklist of the requirements.
- h. White Paper Due Date and Time: See Overview Information at the beginning of the Solicitation.

3. Second Step (Proposal) Instructions:

- a. General: The *SECOND STEP* consists of offerors submitting a technical and cost proposal within 30 working days of the proposal request. After receipt, proposals will be evaluated in accordance with the award criteria in Section V. below. Proposals will be categorized and subsequently selected for negotiations. Offerors should apply the restrictive notice prescribed in the provision of FAR 52.215-1(e) Instructions to Offerors—Competitive Acquisition. Offerors should consider proposal instructions contained in the **Broad Agency Announcement (BAA) Guide for Industry**, which can be accessed on line at <http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=9218>. This guide is specifically designed to assist the offeror in understanding the BAA proposal process. Technical/management and cost volumes should be submitted in separate volumes, and must be valid for 180 days. Proposals must reference the announcement number BAA 12-02-PKS. Offerors must submit proposals via e-mail to afrlryinnovative@wpafb.af.mil. Offerors are advised that only contracting officers are legally authorized to contractually bind or otherwise commit the government. The cost of preparing proposals in response to the Request for Proposals is not considered an allowable direct charge to any

resulting or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost as specified in FAR 31.205-18.

- b. Page Limitations: The following describes the page limitations on the proposal submittal:
- (a) Technical Proposals shall be limited to 30 pages, prepared and submitted in Word format.
 - (b) Font shall be standard 10-point business font Arial.
 - (c) Character spacing must be "normal," not condensed in any manner.
 - (d) Pages shall be double-spaced, single-sided, 8.5 by 11 inches, with at least one-inch margins on both sides, top and bottom. Lines between text lines must also be 10-point.
 - (e) All text, including text in tables and charts, must adhere to all font size and line spacing requirements listed herein. Font and line spacing requirements do not have to be followed for illustrations, flowcharts, drawings, and diagrams. These exceptions shall not be used to circumvent formatting requirements and page count limitations by including lengthy narratives in such items.
 - (f) Pages shall be numbered starting with the cover page being Page 1, and the last page being Page 30. The page limitation covers all information including indices, photographs, foldouts (counted as 1 page for each 8.5 by 11 portion) tables, charts, appendices, attachments, resumes, etc.
 - (g) The proposal page limit does not include the offeror's proposed Statement of Work (SOW) or Cost Proposal; however the same formatting rules apply. There is a five (5) page limit for the SOW and no page limit for the Cost proposal.
 - (h) A CD with the WORD version of your Technical/Management Proposal and the SOW must be submitted with the hard copies of the proposal, and must match the hard copy.
 - (i) **Due to continuing attempts by numerous offerors to obtain an unfair advantage by failing to conform to the formatting rules above, the Government will check the proposal and SOW for conformance to the stated requirements. Any pages in excess of the stated page limitation after the format check will not be considered. In addition if the proposal or SOW does not conform to the above requirements, a notification will be sent to the offeror's company management to advise of the nonconformance.**
- c. Technical/Management Section: The proposal shall include a discussion of the nature and scope of the research and the technical approach. Additional information on prior work in this area, descriptions of available equipment, data and facilities and resumes of

personnel who will be participating in this effort should also be included as attachments to the technical proposal. This volume shall include a SOW detailing the technical tasks proposed to be accomplished under the proposed effort and suitable for contract incorporation. ***Do not include any proprietary information in the SOW.*** Refer to the BAA Guide for Industry referenced above to assist in SOW preparation. If Government Furnished Property is requested you are required to submit the following information with your offer—

(a) A list or description of all Government property that the offeror or its subcontractors propose to use on a rent-free basis. The list shall identify the accountable contract under which the property is held and the authorization for its use (from the contracting officer having cognizance of the property);

(b) The dates during which the property will be available for use (including the first, last, and all intervening months) and, for any property that will be used concurrently in performing two or more contracts, the amounts of the respective uses in sufficient detail to support prorating the rent;

(c) The amount of rent that would otherwise be charged in accordance with FAR 52.245-9, Use and Charges; and

(d) The voluntary consensus standard or industry leading practices and standards to be used in the management of Government property, or existing property management plans, methods, practices, or procedures for accounting for property.

Any questions concerning the technical proposal or SOW preparation shall be referred to the Technical POC cited in Section VII.

d. Cost/Business Section:

- i. Separate the proposal into a business section and cost section. Adequate price competition is not anticipated. The business section should contain all business aspects to the proposed contract, such as type of contractual instrument, any exceptions to terms and conditions of the announcement model contract, any information not technically related, etc. Provide rationale for exceptions. Cost proposals have no page limitations; however, offerors are requested to keep cost proposals to 100 pages as a goal. The proposal shall be furnished with supporting schedules and shall contain a person hour breakdown per task. Refer to the BAA Guide for Industry mentioned in paragraph IV.3.a. above for detailed proposal instructions.
- ii. Subcontracting plans, for efforts anticipated to exceed \$650,000, shall be submitted along with the technical and cost proposals. Reference FAR 19.704, DFARS 219.704, and AFFARS 5319.704(a)(1) for

subcontracting plan requirements. Small business concerns are exempt from this requirement. If an ID/IQ contract arrangement is anticipated, the basis for the subcontracting plan should reflect the entire ceiling amount.

Please Note: If you intend to submit a grant or assistance instrument, go on to Section IV.4. below which discusses how to find the grant opportunity, prepare the cover page, and complete the certification. This section also provides the process for electronic submission of proposals for grants and cooperative agreements. If however, you intend to propose a contract, skip Section IV.4. of this solicitation.

4. (Second Step) Proposals for Grants and Cooperative Agreements

- a. Grant Opportunity: Go to <http://Grants.Gov> to find the grant opportunity. The initial screen will provide the synopsis for that specific grant opportunity. To view the entire opportunity open the "Full Announcement" box in the upper center of the synopsis page and select from the documents available under "Announcement Group." NOTE: <http://Grants.Gov> has tools and guiding documents in the left margin under "Applicant Resources" to help you find and apply for grant opportunities. Grants.gov requires Adobe Reader version 8.13 to open, download, save, and submit an application electronically. Adobe Reader version 8.13 is available for free from Grants.gov under "Applicant Resources," "Download Software."
- b. Proposal Cover Page – SF 424 (R&R) Form: All proposals for grants or assistance, whether submitted electronically or in hard copy must include an SF 424 (R&R) as the cover page. The SF 424 (R&R) should be downloaded from the "Application" box in the upper right hand corner of the synopsis page. Click on "download" under the column "Instructions and Application." Select "Download Application Package" and complete the SF 424 (R & R).
- c. Certifications: To access the requisite Certifications, select the "Application" box in upper right hand corner of the synopsis page. Click on "Instructions and Application" and select "Download Application Instructions" to view the Certifications. To complete the Certifications you must check Block 18 of the SF 424 (R&R), and by signing it (either by pressing the "submit" button for Grants.gov or by hand if submitting it in hard copy), you are certifying that you have read and agree to abide by the terms in the Certifications. You do not need to submit any additional documentation unless you have lobbying activities to disclose on an SF – LLL.
- d. Proposals for Grants or Assistance Instruments: Proposals for grants or assistance instruments may be submitted either (1) directly with a hard

copy to the AFRL/Det 1 contracting POC listed in this announcement or (2) electronically through the Grants.gov government-wide electronic portal. **You must notify your contracting POC if you decide to submit your proposal electronically or your proposal will not be considered.**

- e. For Hard Copy Submission: The original proposal and the number of copies specified in this announcement must be delivered directly to the contracting POC in AFRL Det 1 at the time and date specified in this announcement.
- f. For Electronic Submission:
 - i. Advance Preparation – Electronic proposals must be submitted through Grants.gov. There are several one-time actions your organization must have completed. Long before the proposal submission deadline, you should verify that the persons authorized to submit proposals for your organization have completed these actions. If not, it may take them up to **21 days** to complete the actions before they will be able to submit proposals.
 - ii. Electronic Submission Process: The process your organization must complete includes obtaining a Dun and Bradstreet Data Universal Numbering System (DUNS) number, registering with the Central Contract Registry (CCR), registering with the credential provider, and registering with Grants.gov. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called MPIN are important steps in the registration process. Go to http://www.grants.gov/applicants/get_registered.jsp.
 - iii. Your organization's E-Business POC, identified during CCR Registration, must authorize someone to become an Authorized Organization Representative (AOR). This safeguards your organization from individuals who may attempt to submit proposals without permission. *Note: In some organizations, a person may serve as both an E-Business POC and an AOR.*
 - iv. The Grants.gov Organization Registration Checklist is located at <http://www.grants.gov/assets/OrganizationRegCheck.pdf> to guide you through the process.
 - v. If a proposal is submitted through Grants.gov, Adobe Reader version 8.13 or later will need to be downloaded. This small, free program will allow you to access, complete, and submit applications electronically and securely. Reference IV. 4.a. above for instructions on how to obtain a free version of the software.

- vi. Should you have questions relating to the registration process, system requirements, how an application form works or the submittal process, call Grants.gov at 1-800-518-4726 or support@Grants.gov <<mailto:support@Grants.gov>> .
- g. Submitting the Electronic Proposal
 - i. Application forms and instructions are available at Grants.gov. To access these materials, go to <http://grants.gov> <<http://grants.gov>> Select "Apply for Grant", and then select "Download Application Package". Enter the CFDA number (typically 12.800). You should also enter the BAA number, and then follow the prompts to download the application package.
 - ii. The applicant will receive a confirmation page upon completing the submission to Grants.gov. This confirmation page is a record of the time and date stamp that is used to determine whether the proposal was submitted by the deadline. A proposal received after the deadline is "late" and will not be considered for an award.
- h. Future Broad Agency Announcements for basic research that may result in grants or assistance instruments issued by this office will invite electronic proposal submission through the grants.gov government-wide portal.
- i. **Section 3 above "Second Step (Proposal) Instructions" applies to grants and cooperative agreement (in hard copy or electronic) and contract proposals."**

5. Intergovernmental Review: None

6. Funding Restrictions: Not Applicable

7. Other Submission Requirements: Proposals must be submitted to:
Det 1 AFRL/PKSE Bldg 167, 2310 8th St., Wright-Patterson AFB, OH 45433-7801.

V. White Paper / Proposal Review Information

1. FIRST STEP – White Paper Evaluation Criteria: The Government will evaluate White Papers to determine which of them have the potential to best meet the Air Force's needs based on the following criteria, which are listed in **descending** order of importance:

- a. Is the technical approach consistent with the technologies listed in the BAA?

- b. Is the research of interest to the government?
- c. Is appropriate funding available?

2. SECOND STEP – Proposal Evaluation Criteria: The selection of one or more sources for award will be based on an evaluation of each offeror's proposal (both technical and cost/price aspects) to determine the overall merit of the proposal in response to the announcement. The technical aspect, which is ranked as the first order of priority, shall be evaluated based on the following criteria that are of **descending** order of importance as well as on Agency need and funding availability:

a. Technical:

- i. Unique and innovative approach proposed to accomplish the technical objectives. New and creative solutions and/or advances in knowledge, understanding, technology, and the state of the art.
- ii. The offeror's understanding of the scope of the technical effort.
- iii. Soundness of the offeror's technical approach.
- iv. The potential for AFRL to transition the research and development deliverables to future Government needs. Any proposed restriction on technical data or computer software will be considered.
- v. Availability of qualified technical personnel and their experience with the applicable technologies.
- vi. Availability, from any source, of necessary research, test, laboratory, or shop facilities.

b. Cost/Price: Cost/Price includes the reasonableness and realism of the proposed cost and fee and consideration of proposed budgets and funding profiles. Cost/Price is a substantial factor, but ranked as the second order of priority.

c. Proposal Risk Assessment: Proposal risk for technical, cost, and schedule will be assessed as part of the evaluation of the above evaluation criteria. Proposal risk relates to the identification and assessment of the risks associated with an offeror's proposed approach as it relates to accomplishing the proposed effort. Tradeoffs of the assessed risk will be weighed against the potential payoff.

3. SECOND STEP /PROPOSAL - Review and Selection Process

a. Categories: The technical and cost proposals will be evaluated at the same time and categorized as follows:

- i. **Category I:** Proposal is well conceived, scientifically and technically sound, pertinent to the program goals and objectives, and offered by a responsible contractor with the competent scientific and technical staff

and supporting resources needed to ensure satisfactory program results. Proposals in Category I are determined to be acceptable, but will be recommended for award based on availability of funds. They are normally displaced only by other Category I proposals.

- ii. **Category II:** Proposal is scientifically or technically sound, but requires further development, and may be recommended for award, but at a lower priority than Category I.
 - iii. **Category III:** Proposal is not technically sound or does not meet agency needs.
- b. No other evaluation criteria will be used. The technical and cost proposals will be evaluated at the same time. The Air Force reserves the right to select for award any, all, part or none of the proposal received.

VI. Award Administration Information

1. **Award Notices:** Offerors will be notified whether their proposal is recommended for award, by letter or e-mail. The notification is not to be construed to mean the award of a contract is assured, as availability of funds and successful negotiations are prerequisites to any award.
2. **Administrative Requirements:** See Section I.
3. **Reporting:** See paragraph I.2.a. Data Items (CDRLs)

VII. Agency Contacts

1. **Address technical questions to:** Michael Noyola, 2241 Avionics Circle Wright-Patterson AFB, OH 45433, 937-528-8981, Michael.Noyola@wpafb.af.mil
2. **Address contracting questions to:** Brian Lowe, 2310 8th Street, Area B, Bldg 167, Wright Patterson AFB, OH 45433-7801, 937-255-3585, Brian.Lowe@wpafb.af.mil

VIII. Other Information

1. **Acquisition of Commercial Items:** Based upon market research, the Government is not using the policies contained in Part 12, Acquisition of Commercial Items, in its solicitation for the described supplies or services. However, interested persons may identify to the contracting officer their interest and capability to satisfy the Government's requirement with a commercial item within 15 days of this notice.

2. **Support contractors:** Offerors are advised that employees of commercial firms under contract to the Government may be used to administratively process proposals, monitor contract performance, or perform other administrative duties requiring access to other contractors' proprietary information. These support contracts include nondisclosure agreements prohibiting their contractor employees from disclosing any information submitted by other contractors or using such information for any purpose other than that for which it was furnished.

3. **Wide Area Work Flow:** NOTICE: Any contract award resulting from this solicitation will contain the clause at DFARS 252.232-7003, *Electronic Submission of Payment Requests and Receiving Reports (Mar 2008)*, which requires electronic submission of all payment requests. The clause cites three possible electronic formats through which to submit electronic payment requests. Pursuant to that clause, the Department of Defense is adopting Wide Area Work Flow-Receipt and Acceptance (WAWF-RA). Any contract resulting from this solicitation will establish a requirement to use WAWF-RA for invoicing and receipt/acceptance, and provide coding instructions applicable to this contract. Contractors are encouraged to take advantage of available training (both web-based and through your local DCMA office), and to register in the WAWF-RA system. Information regarding WAWF-RA, including the web-based training and registration, can be found at <https://wawf.eb.mil>. Note: This WAWF-RA requirement does not apply to Universities that are audited by an agency other than DCAA.

4. **Item Identification and Valuation.** Any contract award resulting from this solicitation may contain the clause at DFARS 252.211-7003, *Item Identification and Valuation*, (Aug 2008) which requires unique item identification and valuation of any deliverable item for which the Government's unit acquisition cost is \$5,000 or more; subassemblies, components, and parts embedded within an item valued at \$5,000 or more; or items for which the Government's unit acquisition cost is less than \$5,000 when determined necessary by the requiring activity for serially managed, mission essential, or controlled inventory. Also included are any DoD serially managed subassembly, component, or part embedded within a delivered item and the parent item that contains the embedded subassembly, component, or part. Per DFARS 211.274-3 *Policy for Valuation*, it is DoD policy that contractors shall be required to identify the Government's unit acquisition cost for all items delivered, even if none of the criteria for placing a unique item identification mark applies. Therefore, your proposal must clearly break out the unit acquisition cost for any deliverable items. Per DFARS 211.274-3, *Policy for Valuation*, "The Government's unit acquisition cost is the Contractor's estimated fully burdened unit cost at time of delivery to the Government for cost type or undefinitized line, subline, or exhibit line items" (Per DoD, "fully burdened unit costs" to the Government would include all direct, indirect, G&A costs, and an appropriate portion of fee.). If

you have questions regarding the Unique Item Identification requirements, please contact the Contracting Point of Contact listed above. For more information, see the following website:

<http://www.acq.osd.mil/dpap/pdi/uid/index.html>.

5. **Limitations on Pass-Through Charges.** As prescribed in FAR 52.408(n)(1) & 52.408(n)(2), provisions 52.215-22, "Limitations on Pass Through Charges – Identification of Subcontract Effort (Oct 2009)," and 52.215-23, "Limitations on Pass-Through Charges (Oct 2009)," are contained in this solicitation (as shown below). Any contract valued greater than the threshold for cost or pricing data threshold, except fixed price contracts awarded on the basis of adequate price competition, resulting from this solicitation, shall contain the Clause at FAR 52.215-23 (or Alt I).

**52.215-22 – Limitations on Pass-Through Charges—
Identification of Subcontract Effort (Oct 2009)**

- (a) Definitions. "Added value, excessive pass-through charge, subcontract, and subcontractor," as used in this provision, are defined in the clause of this solicitation entitled "Limitations on Pass-Through Charges" (FAR 52.215-23).
- (b) General. The offeror's proposal shall exclude excessive pass-through charges.
- (c) Performance of work by the Contractor of a subcontractor.
- (1) The offeror shall identify in its proposal the total cost of the work to be performed by the offeror, and the total cost of the work to be performed by each subcontractor, under the contract, task order, or delivery order.
- (2) If the offeror intends to subcontract more than 70 percent of the total cost of work to be performed under the contract, task order, or delivery order, the offeror shall identify in its proposal—
- (i) The amount of the offeror's indirect costs and profit/fee applicable to the work to be performed by the subcontractor(s); and
- (ii) A description of the added value provided by the offeror as related to the work to be performed by the subcontractor(s).
- (3) If any subcontractor proposed under the contract, task order, or delivery order intends to subcontract to a lower-tier subcontractor more than 70 percent of the total cost of work to

be performed under its subcontract, the offeror shall identify in its proposal—

(i) The amount of the subcontractor's indirect costs and profit/fee applicable to the work to be performed by the lower-tier subcontractor(s); and

(ii) A description of the added value provided by the subcontractor as related to the work to be performed by the lower-tier subcontractor(s).

(End of Provision)

52.215-23 – Limitations on Pass-Through Charges (Oct 2009)

(a) *Definitions.* As used in this clause--

"Added value" means that the Contractor performs subcontract management functions that the Contracting Officer determines are a benefit to the Government (e.g., processing orders of parts or services, maintaining inventory, reducing delivery lead times, managing multiple sources for contract requirements, coordinating deliveries, performing quality assurance functions).

"Excessive pass-through charge," with respect to a Contractor or subcontractor that adds no or negligible value to a contract or subcontract, means a charge to the Government by the Contractor or subcontractor that is for indirect costs or profit/fee on work performed by a subcontractor (other than charges for the costs of managing subcontracts and any applicable indirect costs and associated profit/fee based on such costs).

"No or negligible value" means the Contractor or subcontractor cannot demonstrate to the Contracting Officer that its effort added value to the contract or subcontract in accomplishing the work performed under the contract (including task or delivery orders).

"Subcontract" means any contract, as defined in FAR 2.101, entered into by a subcontractor to furnish supplies or services for performance of the contract or a subcontract. It includes but is not limited to purchase orders, and changes and modifications to purchase orders.

"Subcontractor," as defined in FAR 44.101, means any supplier, distributor, vendor, or firm that furnishes supplies or services to or for a prime Contractor or another subcontractor.

(b) *General.* The Government will not pay excessive pass-through charges. The Contracting Officer shall determine if excessive pass-through charges exist.

(c) *Reporting.* Required reporting of performance of work by the Contractor or a subcontractor. The Contractor shall notify the Contracting Officer in writing if—

(1) The Contractor changes the amount of subcontract effort after award such that it exceeds 70 percent of the total cost of work to be performed under the contract, task order, or delivery order. The notification shall identify the revised cost of the subcontract effort and shall include verification that the Contractor will provide added value; or

(2) Any subcontractor changes the amount of lower-tier subcontractor effort after award such that it exceeds 70 percent of the total cost of the work to be performed under its subcontract. The notification shall identify the revised cost of the subcontract effort and shall include verification that the subcontractor will provide added value as related to the work to be performed by the lower-tier subcontractor(s).

(d) *Recovery of excessive pass-through charges.* If the Contracting Officer determines that excessive pass-through charges exist;

(1) For other than fixed-price contracts, the excessive pass-through charges are unallowable in accordance with the provisions in FAR subpart 31.2; and

(2) For applicable DoD fixed-price contracts, as identified in 15.408(n)(2)(i)(B), the Government shall be entitled to a price reduction for the amount of excessive pass-through charges included in the contract price.

(e) *Access to records.*

(1) The Contracting Officer, or authorized representative, shall have the right to examine and audit all the Contractor's records (as defined at FAR 52.215-2(a)) necessary to determine whether the Contractor proposed, billed, or claimed excessive pass-through charges.

(2) For those subcontracts to which paragraph (f) of this clause applies, the Contracting Officer, or authorized representative, shall have the right to examine and audit all the subcontractor's records (as defined at FAR 52.215-2(a)) necessary to determine whether the subcontractor proposed, billed, or claimed excessive pass-through charges.

(f) *Flowdown*. The Contractor shall insert the substance of this clause, including this paragraph (f), in all cost-reimbursement subcontracts under this contract that exceed the simplified acquisition threshold, except if the contract is with DoD, then insert in all cost-reimbursement subcontracts and fixed-price subcontracts, except those identified in 15.408(n)(2)(i)(B)(2), that exceed the threshold for obtaining cost or pricing data in accordance with FAR 15.403-4.

(End of clause)

Alternate I (OCT 2009). As prescribed in 15.408(n)(2)(iii), substitute the following paragraph (b) for paragraph (b) of the basic clause:

(b) *General*. The Government will not pay excessive pass-through charges. The Contracting Officer has determined that there will be no excessive pass-through charges, provided the Contractor performs the disclosed value-added functions.

6. **Ombudsman**: The Ombudsman clause, 5352.201-9101 Ombudsman (Aug 2005) will be contained in any contracts or agreements resulting from this Solicitation. The AFRL Ombudsman is Barbara G. Gehrs, Director of Contracting, AFRL/PK, (937) 904-4407, email: Barbara.Gehrs@wpafb.af.mil.
7. **Post-Award Small Business Program Rerepresentation**: As prescribed in FAR 19.308, FAR Clause 52.219-28, "Post-Award Small Business Program Rerepresentation (Apr 2009)," is incorporated by reference in this solicitation. This clause will be contained in any contracts resulting from this solicitation. This clause requires a contractor to rerepresent its size status when certain conditions apply. The clause provides detail on when the rerepresentation must be complete and what the contractor must do when a rerepresentation is required.
8. **Employment Eligibility Verification**: As prescribed by FAR 22.1803, FAR Clause 52.222-54, "Employment Eligibility Verification (Jan 2009)," is hereby incorporated by reference in this solicitation. Any contract awarded as a result of this BAA that is above the Simplified Acquisition Threshold, and

contains a period of performance greater than 120 days, shall include this clause in its contract. This clause provides the requirement of contractors to enroll as a Federal Contractor in the E-Verify program within 30 days after contract award.

9. **Reporting Executive Compensation and First-Tier Sub-contract/Sub-recipient Awards:** As prescribed by FAR 4.1403(a), FAR 52.204-10, "Reporting Executive Compensation and First-Tier Subcontract Awards," is hereby incorporated by reference in this solicitation. Any contract valued at \$25,000 or more, excluding classified contracts or contractors with individuals, must contain this clause. Any grant or agreement award resulting from this announcement may contain the award term set forth in 2 *CFR, Appendix A to Part 25* <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=c55a4687d6faa13b137a26d0eb436edb&rgn=div5&view=text&node=2:1.1.1.4.1&idno=2#2:1.1.1.4.1.2.1.1>.
10. **Updates of Publicly Available Information Regarding Responsibility Matters:** Any contract or assistance award that exceeds \$500,000.00; and when an offeror checked "has" in paragraph (b) of the provision 52.209-7, shall contain the clause/article, 52.209-9, "Updates of Publicly Available Information Regarding Responsibility Matters (Jan 2011)."
11. **Contractor Business Systems:** DFARS 252.242-7005, Contractor Business Systems, is hereby incorporated by reference.
12. **White Paper/Proposal Content Checklist:** You may be ineligible for award if all requirements of this solicitation are not met on the proposal due date.
 - a. *Step One:* White Papers are to be submitted to afrlryinnovative@wpafb.af.mil.
 - b. *Step One:* White Papers are due no later than the due date and time specified in this announcement.
 - c. *Step One and Step Two:* White Paper and Proposal page limits are strictly enforced. See Section IV.2.b. and IV.3.b. of the solicitation for page limits.
 - d. *Step One and Step Two:* Proposals and White Papers must be submitted in the format specified in Section IV.
 - e. *Step Two:* Completed Certifications and Representations (Section K) are due with the proposal. Certifications and Representations (Section K) can be found at <http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=6790> under the Sample Contract Documents title of the Business Resources Header. In the interests of transformation and streamlining and in order to be in position to award within days of completion of the technical evaluation, it is imperative that you review the model contract appropriate for your

business type and provide with your proposal any exceptions to terms and conditions.

- f. *Step Two*: The Cost/Business Proposal must contain all information described in Section IV. 3.d.
- g. *Step Two*: For any subcontracts proposed, the Cost/Business Proposal must contain a subcontractor analysis IAW FAR 15.404-3(b).
- h. *Step Two*: The Cost/Business Proposal must contain any exceptions to the sample Model Contract Terms and Conditions. (See <http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=6790> for sample model contracts.) However, be advised that the document awarded may include contract line items (CLINs)/clauses/articles in addition to those in the models, and/or some of the CLIN/clauses/articles in the models may be deleted, depending on the specific circumstances of the individual program. Any additions or deletions will be discussed with the offeror prior to award of the document.
- i. *Step Two*: Offerors other than small businesses are to include a subcontracting plan in Microsoft Word Readable Format on a CD ROM as well as a hard copy.
- j. *Step Two*: Offerors who have Forward Pricing Rate Agreements (FPRA's) and Forward Pricing Rate Recommendations (FPRR's) should submit them with their proposal.
- k. *Step Two*: If a DD254 is applicable, offerors must verify their Cognizant Security Office information is current with Defense Security Service (DSS) @ www.dss.mil.
- l. *Step Two*: If export control is applicable, offerors must submit a Certified DD Form 2345, Militarily Critical Technical Data Agreement, with proposal.