BROAD AGENCY ANNOUNCEMENT
FOR THE AIR FORCE RESEARCH LABORATORY

ROCKET PROPULSION DIVISION
AEROSPACE SYSTEMS DIRECTORATE
RESEARCH AND DEVELOPMENT

BROAD AGENCY ANNOUNCEMENT (BAA)

FA9300-20-S-0001

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Edwards AFB, CA

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5 Pollux Drive, Edwards AFB, CA 93524-7048.

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BROAD AGENCY ANNOUNCEMENT
FA9300-20-S-0001

NAICS CODE: 541715 – Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (Guided Missiles and Space Vehicles, Their Propulsion Units and Propulsion Parts) with a small business size standard of **1,250** employees.

FEDERAL AGENCY NAME: Air Force Research Laboratory, Aerospace Systems Directorate (AFRL/RQ-West).

BROAD AGENCY ANNOUNCEMENT TITLE: AFRL Rocket Lab Hermes BAA

BROAD AGENCY ANNOUNCEMENT TYPE: This is an Open Broad Agency Announcement (BAA).

BROAD AGENCY ANNOUNCEMENT NUMBER: FA9300-20-S-0001

Solicitation Request: Air Force Research Laboratory, Aerospace Systems Directorate (AFRL/RQ-West) is establishing this open two-step BAA to solicit innovative research white papers of interest to the Air Force Research Laboratory – Rocket Propulsion Division (AFRL/RQR) research as described below. Potential offerors issuing white papers may be requested to provide a full proposal after white paper reviews. In addition to the white paper process, AFRL/RQR may issue calls under this BAA for specific research objectives. Calls issued under this BAA will include instructions to potential offerors, evaluation criteria, and include a common due date for proposals received in response to the call. The BAA will allow for submission of white papers during the open period of the BAA and will provide for specific proposal preparation times and due dates on individual calls identified during the open period of the BAA. White papers should be addressed to the White Paper Focal Point identified below. This is an unrestricted solicitation. Small businesses are encouraged to respond on all or any part of this solicitation. The NAICS Code for this acquisition is 541715, and the small business size standard is 1,250 employees. White papers/proposals submitted shall be in accordance with this announcement or with any specific calls issued as a part of this announcement. Offerors should remain vigilant for any specific calls or updates related to this BAA.

Communication related to this BAA, including submission of white papers and feedback on this solicitation shall be submitted to the following email address:

White Paper Focal Point*: mailto:AFTC.PZRA.BAAs@us.af.mil

Please CC the CPOC listed in VII-2 in all submissions. The Government CPOC will provide a confirmation of receipt for each white paper submitted. Offerors are advised only contracting officers are legally authorized to contractually bind or otherwise commit the Government.

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*DO NOT SUBMIT CLASSIFIED INFORMATION TO THE WHITE PAPER FOCAL POINT UNDER ANY CIRCUMSTANCE. IV-1.1.8. lists steps to be taken prior to the submission or handling of classified information.

Open Period: The AFRL Rocket Lab Hermes BAA has an open period of 20 years**.** For ease of reference, this BAA may be republished at a minimum of yearly intervals within the open period, but may be updated more frequently dependent on mission requirements.

Type of Contract/Instrument: The Air Force reserves the right to award the instrument best suited to the nature of research proposed. Awards of efforts as a result of this announcement will be in the form of contracts, purchase orders, grants, cooperative agreements or other transactions depending upon the nature of the work proposed. Accordingly, the Government may award any appropriate contract type.

Brief Program Summary: AFRL Rocket Lab Hermes BAA is a two-step open BAA with the ability of issuing future calls that enable study efforts on novel concepts, as well as research and development contracts to mature specific technologies to appropriate technology readiness levels (TRL) depending on end use. Specific award details are described below, but the Government anticipates awarding multiple contracts of varying duration and value. However, the maximum single award value issued against this BAA is less than $50M. This BAA allows consideration of white papers as well as calls issued by the Government when specific requirements are identified.

Proposals Due Date and Time: White papers must be submitted as described below. Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the white papers and any subsequent proposals received and the availability of funds. White papers may be submitted anytime during the open period. Calls issued by the Government against this BAA will specify a due date when proposals specific to each call are due.

I. PROGRAM DESCRIPTION

I-1. Statement of Needs

AFRL/RQRM Solid Rocket Motor Technology Development: AFRL/RQRM seeks to design, develop, and demonstrate propulsion technologies for advanced missiles and similar vehicles. The breadth of technology area includes strategic and tactical missiles, from component development to lifecycle management with a focus on facilitating technology transition to applications and users with strong emphasis on verification and validation on a system level. Topics of interest in this technology area include the following.

- RQRM Topic 1 – Development and demonstration of advanced components and manufacturing processes for solid rocket motors (SRMs) including inert components (the motor case, internal insulation, nozzle, thrust vector control and thrust vector actuators, etc.), energetic components (safe/arm, igniters, flight termination systems, destruct charges, etc.) and automated assembly operations.

- RQRM Topic 2 – Design and development of modeling and simulation (M&S) tools that more fully describe the physical processes that occur during manufacture and/or operation, and that reduce predictive uncertainty in design and analysis of SRMs over current State-of-the-Art (SOTA) methods. This area includes development of physicochemical models, coding and software, and unit level/subscale/full scale validation experiments.

- RQRM Topic 3 – Development and testing of SRMs relevant to Air Force missions, including but not limited to air-launched missiles, large air-launched boosters for high-speed weapon applications, and other novel solid rocket motor applications.

- RQRM Topic 4 – Please see the Eternal Quiver Industry Day Primer slide deck for further information on the RQRM objectives. Please note that there is a Distribution D version that is available upon request to the CPOC. Interested vendors may submit any questions related to this BAA to the CPOC and the questions will be answered and posted along with this BAA. Vendors also have the opportunity to request a one-on-one meeting with the TCOP to discuss RQRM topics.

AFRL/RQRE Liquid Rocket Engine Technology Development: This technology area seeks to improve the utility of space launch system propulsion technology for resiliency and rapid launch applications. This includes, but is not limited to, a broad range of technologies, different degrees of development efforts, ground-based experiments, studies, and modeling and simulation activities. Topic areas of specific interest include the following.

- Topic 1 – Liquid Rocket Engines: Disruptive engine concepts/cycles for liquid propellant engines, engine system components, and control. Complete propulsion systems and engine components for National Security Space launch systems including combustion chambers, injectors, nozzles, turbomachinery, valves, and fluid delivery systems. This area includes plume phenomenology, embedded sensors, data recording and distribution, and modelling & simulation (M&S) tool development.

- Topic 2 – Modularity: Modular propulsion system components, and/or complete propulsion systems to benefit the space launch enterprise. Modularity includes multiple thrust chambers manifolded to a common propellant feed system with two or more pumps. Modular engine aspects address scalability, applicability, testability, and life cycle cost for National Security Space applications.

- Topic 3 – Advanced Material and Manufacturing: Advanced materials development and manufacturing processes as applied to liquid engine, liquid engine system components, and/or complete propulsion systems to address complexity, unpredictability, and mass of space launch systems.

- Topic 4 – Rapid Launch and Austere Location: Experimentation, development, optimization, and demonstration of enabling mission concepts, operational constructs, concepts of operations, and/or enabling architectures for rapid or responsive launch for disruptive space access. This includes full-scale concept development, demonstration, and system modeling of launch, employment of austere locations, reusability, modularity, launch vehicle-to-space vehicle integration, and related concepts to increase speed and reach of lethality.

- Topic 5 – Vehicle: Resilient and rapidly innovative technologies for space access, tactically responsive space access, and maneuvering, covering topics such as vehicle stages, main propulsion system, feed systems and control, flight controls and telemetry, health monitoring, concept of operations, payload adapters and ground service equipment. This area leverages Digital Engineering for architecture modeling, mission analysis and engineering, simulation & analysis (MS&A) of to-through-from space architectures, global rocket cargo transport, and global persistent awareness.

- RQRE Topic 6 – Rotating Detonation Rocket Engine/Combustors: Innovative rotating detonation concepts for improved high mass flux thrust chamber assemblies, injector components, combustor/nozzle materials, unsteady nozzles, gas generators, and preburners. This area solicits design innovations, as well as modeling and compact, high-speed sensor diagnostic technologies supporting leading to a full-scale rocket ground/flight demonstration program for rotating detonation technology transition.

AFRL/RQH High Speed Systems Technology Development: This technology area seeks to research, develop, demonstrate and validate advanced technologies and capabilities for high speed aerospace vehicles. These technologies enable the analysis, test, assembly and successful operation of aerospace platforms in Mach 3+ flight regimes, as well as in environments leading to and from the operating condition(s). The breadth of technology includes: fundamental science, research and development of high speed systems and components utilizing advanced analysis techniques, ground and flight test. This technical area also focuses on developing subsystems, advanced test methods, system studies, and integration of technologies into flight demonstration vehicles using appropriate model-based engineering approaches. The high speed systems research and development technology areas include but not limited to:

- RQH Topic 1 – Structures: Research, development, demonstration and validation of structures to enable high speed flight.

- RQH Topic 2 – Aerodynamics: Research, development, demonstration and validation of aerodynamic solutions (e.g. controls, predictions, designs) to enable high speed flight.

- RQH Topic 3 – Propulsion: Research, development, demonstration and validation of propulsion-related approaches to enable high speed flight and may include Aeropropulsion Integration (API).

- RQH Topic 4 – Integration and Assessment: Research, development, demonstration and validation of systems and vehicles to enable high speed flight.

AFRL/RQTF Fuels and Energy Technology Development: This technology area seeks to evaluate both petroleum-derived and synthetic aerospace fuels that can impact operational reliability, durability, mission flexibility, energy efficiency, and performance while reducing weight, fuel consumption, and cost. This includes developing concepts/cycles for fuel synthesis, chemical characterization, combustion performance analysis, ground and flight-based experiments, and modeling and simulation of fuel performance and operational applications. Topics of interests in this technology area include but are not limited to:

- RQTF Topic 1 – Sustainable In-Theater Fuel: Disruptive deployable fuel reactor concepts/cycles for synthesis of fuels to be used in air-breathing engines or rocket engines. Complete systems for fuel synthesis from ubiquitous carbon-containing feedstocks and hydrogen including systems that enable carbon dioxide capture, carbon dioxide reduction, water-gas shift reaction, Fischer-Tropsch reaction, alcohol to fuel reactions, methane reformation, and other hydrocarbon oligomerization reactions. This area includes thermocatalysts, electrocatalysts, micro-reactors, sorbents, advanced exchange membranes, mesoporous materials, and electrodes.

AFRL/RQV Air Vehicle Technologies Development and Demonstration: This technology area focuses on technologies, at all levels of maturity, which enhance the performance or efficiency of current or future military air vehicles of any class or mission. Performance and efficiency may be of any measure, to include metrics of cost. Across the area of interest, the use and advancement of models-based systems engineering and other digital engineering principles and practices to rapidly advance the state of the art, accelerate maturation and enhance the transitionability of the subject technology products is of paramount interest.

- RQV Topic 1 – Aerodynamic Technologies: Discovery, development, validation, and demonstration of integrated aerodynamic technologies that enable revolutionary capability for future military air vehicles. This area seeks to discover and understand aerodynamic and fluid dynamic processes using foundations of theory, experiment, simulation, and analysis. This knowledge is

then used to support the design, analysis and demonstration of new aerodynamic technologies and components, and their integration on military air vehicles.

- RQV Topic 2 – Airframe Structures: Drive step function improvements in cost, life, performance, and time to market of tomorrow's military aircraft structures. Develop technologies to enable affordable yet capable limited life structures for attritable aircraft concepts, including new approaches to airworthiness certification. Develop innovative structural concepts, materials and manufacturing methods that can dramatically reduce airframe weight and/or manufacturing cost for all classes of air vehicles. Explore concepts for multifunctional structures (electrical, thermal, power, etc.) for all sizes of aircraft. Understand structural aspects of morphing and adaptive structures that can eliminate the use of conventional articulated surfaces and enable multi-state flight performance optimization. For all applications, develop the accompanying structural test and analysis methods, particularly with regard to their application to digitally-based aircraft structural design, certification and health monitoring / failure prediction.

- RQV Topic 3 – Multidisciplinary Design, Analysis and Optimization (MDAO): Discover, develop and demonstrate MDAO methods and technologies to enable next-generation aerospace vehicles and provide Air Force decision makers risk-quantified effectiveness assessments of concepts and technologies. Areas of interest include but are not limited to multidisciplinary, multi-fidelity system level effectiveness based design optimization, risk-quantified multi-fidelity coupled analyses and sensitivities, goal oriented adaptive analyses, risk-quantified gradient and non-gradient based design space exploration including machine learning, physics- and statistics-based Reduced Order Models (ROMs), optimization methods, uncertainty quantification methods, model based systems engineering, robust model construction methods, data assimilation methods, digital engineering design methods, multidisciplinary technologies (such as active aeroelastic wing, active flutter suppression, multifunctional structures, etc..), additive manufacturing for design and testing, and experimental validation via ground or flight testing.

- RQV Topic 4 – Development and Demonstration of Advanced Military Air Vehicle Capabilities: Analysis, development, maturation and demonstration of advanced technology concepts, at the subsystem or system level. Of interest are both technologies integrated onto existing Air Force weapon systems as capability enhancements and into new systems as new capabilities to address current or projected warfighting shortfalls. Technologies may be applicable to air vehicles of all classes and speed regimes accomplishing any military mission germane to current, emerging or envisioned Air Force missions.

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Additional technology areas may be added in updates to this BAA. Contractors are responsible for monitoring this BAA for changes.

I-2. Deliverable Items

I-2.1. Contract Data Requirements List (CDRLs): CDRLs may include but are not limited to Status Reports, Scientific and Technical Reports, Performance and Cost Reports and Presentation Material. At minimum, a final report shall be delivered. Specific CDRL requirements will be identified within a letter request for proposal (RFP), specific calls, or contracts issued under this BAA. If less than unlimited data rights is included in any deliveries, it shall be provided in a separate section.

I-2.2. Scientific and Technical Reports, Final Report: Approval to be based on technical content, including a complete accounting of all activities performed under the technical effort with sufficient detail to allow a follow-on activity to pick up where the technical effort ended and for replication of the results, and format, including compliance with ANSI/NISO Z39.18. The Government will have 30 days to review, edit, and approve/disapprove for technical content and format. The updated final report shall be delivered 30 days after receiving the Government's review. Further guidance on the Test/Inspection Report CDRL will be outlined in the associated DD Form 1423.

I-2.3. Software: Specific software deliverable requirements will be identified within letter RFPs, specific calls, or awards issued under this BAA.

I-2.4. Hardware: Specific hardware deliverable requirements will be identified within letter RFPs, specific calls, or awards issued under this BAA.

1-2.5. Contractor-Acquired Property (CAP): Property acquired or fabricated under this contract and with contract funds shall be considered Government property IAW FAR 52.245-1 Government Property. Delivery of residual contractor-acquired property is required. Delivery is due thirty days after end of technical effort of each contract if residual hardware is developed. The proposal shall include related costs associated with packaging and shipping CAP to AFRL/RQR in accordance with specific details in individual contracts.

I-2.6. Other: All other deliverables will be identified within letter RFPs, specific calls, or awards issued under this BAA. Cost reimbursement type contracts awarded under the BAA will include a Not Separately Priced (NSP) CAP Contract Line Item Number (CLIN) in order to provide for disposition of CAP not anticipated at time of contract award or otherwise not specified for delivery on an existing CLIN.

I-2.7. Additional Data: Alternate or additional data items that would streamline or enhance the effectiveness of the effort are solicited. Proposals shall show a list of CDRL items included in the price of the proposal. Electronic submission of data items shall be required on all efforts.

I-3. Schedule

Each award is anticipated to be between 6 to 60 months; however, period of performance will be tailored to each award.

I-4. Other Information

I-4.1. Program Security Classification/DD form 254, Operations Security (OPSEC), International Traffic in Arms Regulations (ITAR) 22 CFR 120-131, Export Administration Regulations (EAR) 15 CFR 710-774), and specific Base Support (including network access) will be considered for each award on a case-by-case basis.

I-4.2. Conferences: Offerors should plan for participation in appropriate conferences and workshops in order to present current results. This participation will serve as a mechanism to report current progress to the community.

I-4.3. Government Furnished Property or Information (GFP or GFI): GFP and/or GFI may be available for any individual contract. All offerors are encouraged to engage with an appropriate Government POC to identify possible ways to leverage GFP or GFI. Specific calls may have specific requirements and/or GFP or GFI available. In accordance with FAR 45.201(b), the contractor is responsible for all costs related to making the property available for use, such as payment of all transportation, installation or rehabilitation costs.

I-4.4. 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 air, space, and cyberspace forces. As such, rights in technical data and NCS developed or delivered under this BAA 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.

Offerors that propose delivery of technical data, software, NCS, and NCS documentation developed entirely at Government expense are to be delivered with Unlimited Rights.

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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 how the data was developed at private expense. Specifically, offers must explain what technical data, NCS, or NCS documentation developed with costs charged to indirect cost pools and/or costs not allocated to a Government award will be incorporated, how the incorporation will benefit the program, and address whether those portions or processes are segregable.

Offerors that propose delivery of technical data, NCS, or NCS documentation subject to Limited Rights, Restricted Rights, or Specifically Negotiated License Rights will be considered. White papers or proposals submitted in response to individual calls 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 award will be incorporated and how the incorporation will benefit the program and whether those portions or processes are segregable.

Offerors responding to the letter RFP within the white paper process or to a specific call shall include the data rights assertions as required by DFARS 252.227-7017*,* Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software. Assertions must be completed with specificity. Each assertion must identify the data and each such item, component, or process listed. Data rights assertions do not count towards page limits provided within this BAA.

Terms used in this section are defined in the clauses at 252.227-7013, Rights in Technical Data-Noncommercial Items, and 252.227-7014, Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation.

Additional information/instruction regarding data rights may be identified in letter RFPs.

I-4.5. Model Contract: A model contract may be provided to prospective offerors with letter RFPs or provided as attachments to specific calls. Model agreements may be provided when a non-FAR based agreement is pursued.

II. AWARD INFORMATION

II-1. Anticipated Funding

Individual awards are not anticipated to exceed $50M per contract; however there is no pre-defined minimum or maximum. Anticipated funding includes future year funding that has not been appropriated as of the release of this BAA. No award will be made under this solicitation until funds are available by appropriate budging agencies. The Government reserves the right to cancel this solicitation at any time. The Government has no obligation

to reimburse an offeror for any costs related to responses to this solicitation (ie. white papers or proposals).

II-2. Anticipated Number of Awards

The Air Force anticipates awarding multiple awards over the course of this BAA. Calls issued under this BAA may identify the number of anticipated awards specific to each call, subject to the availability of funds.

II-3. Anticipated Award Date

Awards made as a result of a white paper submission are subject to full proposal evaluation, successful negotiations, and funds availability.

III. ELIGIBILITY INFORMATION

III-1. Eligible Offeror/Applicants

This is an unrestricted solicitation. Small businesses are encouraged to propose on all or any part of this solicitation. Foreign persons or foreign-owned firms are precluded from proposing and participating on subsequent awards.

III-2. Military Critical Technical Data Agreement

All offerors shall register and certify with the Defense Logistics Services Center (DLSC), Federal Center, Battle Creek, MI, 49017-3084 (1-800-352-3572). Contractors that are registered with the DLSC must submit a copy of the approved DD Form 2345, Military Critical Technical Data Agreement, with white paper proposals to the CPOC for verification. The DD Form 2345 submission does not count towards page limits provided in this BAA.

III-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 RFP 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 FFRDC, and that determination must be included in the FFRDC's proposal. In addition, the non-sponsoring agency (in this case AFRL/RQR) 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.

III-4. Government Agencies

If a Government agency is interested in performing work, contact the Program Office identified in the BAA. If those discussions result in a mutual interest to pursue agency's participation, the effort may be pursued independent of this announcement.

IV. WHITE PAPER AND PROPOSAL PREPARATION/SUBMISSION INFORMATION

IV-1. Application Package

This announcement is an open BAA, which includes possible awards to white papers. White papers shall be submitted in accordance with this announcement or associated call. The Government will review white papers received. The Government may select white papers for further consideration and award some, all, or none of the work described within the white paper received. Negotiations may/may not occur after a full proposal is received in response to a white paper submission.

IV-1.1. White Paper Instructions:

IV-1.1.1. General: A white paper shall include discussion of the nature and scope of the research, the offeror's proposed technical approach, and a rough order of magnitude (ROM) cost. The Government will review the white papers in accordance with the review criteria, set forth in Section V. Based on this review, the Government will determine which have the potential to best meet the Air Force's needs. Offerors may be notified of the disposition of their white paper. White papers will be kept for up to one year (para. V-2.1) Those offerors submitting white papers assessed as meeting Air Force needs will be asked to submit a technical and cost proposal. The cost of preparing white papers in response to this announcement is not considered an allowable direct charge to any resulting or any other award; however, it may be an allowable expense to the normal bid and proposal indirect cost as specified in FAR 31.205-18. White papers may be ineligible for further award consideration if all requirements of this solicitation are not met.

IV-1.1.2. Page Limitations:

IV-1.1.2.1. The white paper shall be limited to five (5) pages, prepared and submitted in .pdf format. The white paper shall be legible, use a standard business font no smaller than 10 point, character spacing must be "normal" not condensed in any manner, and pages should be double-spaced (each side counts as one page), 8.5 by 11 inches, with at least one-inch margins on both sides, top and bottom.

Contractors who submit white papers that are not legible will be asked to resubmit a legible white paper in order to be considered for award.

IV-1.1.2.2. Lines between text lines should be the same font size as the text lines. All text, including text in tables and charts, should 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, although any text on these items must be legible.

IV-1.1.2.3. Pages should be numbered starting with the title page being Page 1. The page limitation covers all information including indices, photographs, foldouts (counted as one 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 should submit one (1) electronic copy of the white paper to the CPOC, identified in Section VII-2.

IV-1.1.3. Format: The white paper shall be formatted as follows:

- Section A (Title Page): Title of Program, identification of the technology area the white paper is being submitted under (see para. I-1 above for a list of technology areas within this BAA), Name of Company, Company's Commercial and Government Entity (CAGE) number, Dun & Bradstreet (D&B) Data Universal Numbering System (DUNS) number, Contractor's Contracting POC and Technical POC with appropriate telephone numbers, fax numbers, and email addresses for the POCs, confirmation of whether the company would like to participate in the interested contractor capability repository (see para. IV-6);
- Section B: Period of Performance and Task Objectives;
- Section C: Technical Summary and Proposed Deliverables; and
- Section D: Estimated cost of program.

IV-1.1.4. Title Page: Single page, self-explanatory. See attached Title Page form as a tool to be used in white paper submissions. The title page does not count towards the page count described in para. IV-1.1.2.1. above.

IV-1.1.5. Period of Performance and Task Objectives: Dates on proposed program shall be stated simply and obviously. Tasks shall be written as a summary, preferably with task titles and supporting bullets defining the task. Task names/numbering shall be consistent throughout the proposal for clarity.

IV-1.1.6. Technical Summary and Proposed Deliverables: 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, and a proposed Statement of Work (SOW) are not required within the white paper.

IV-1.1.7. Cost Portion: The cost portion of the white paper shall include a rough-order-of-magnitude cost estimate. No detailed price or cost support information should be forwarded; only a time-phased bottom line figure of the major tasks should be provided.

IV-1.1.8. 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 52.215-1(e).

Offerors are asked to contact the CPOC, prior to submitting any white papers that are classified in nature, for handling instructions.

IV-1.2. Proposal Instructions:

IV-1.2.1. General: Notification from the government of interest in the submitted white paper will take the form of a letter Request-for-Proposal (RFP)/solicitation/application. This letter will identify the required proposal content (e.g., technical section, cost section, etc.). At a minimum the Government will evaluate responses to the letter for technical and cost/price criteria. Additional criteria may be required in order to adequately evaluate an offerors proposed approach (e.g., management criteria, past performance, etc.) and will be described in the letter. In addition to content, the letter will identify other instructions such as the proposal due date, format, and submission method. Offerors are advised only contracting officers/agreements officers are legally authorized to contractually bind or otherwise commit the Government. The cost of preparing a response to the letter is not considered an allowable direct charge to any resulting or any other award; however, it may be an allowable expense to the normal bid and proposal indirect cost as specified in FAR 31.205-18.

IV-1.2.2. Statement of Work (SOW): Each response to a letter RFP/solicitation/application will include a non-proprietary version of the SOW. The SOW shall contain a summary description of the technical methodology as well as detailed task descriptions. Offerors are cautioned to include only the essential information for a clear, logical, and reasonable SOW. This document will be made

part of any resulting award. **Do not include any proprietary information in the SOW.** The SOW section structure below is based on the SOW description in the BAA Guide for Industry referenced in para. Part I-V of the BAA; offerors should refer to that document for more information. All subsections of the SOW are to be numbered in outline form according to the number of the main section (i.e. 1.1, 1.2, 1.2.1.1, 1.2.1.2, etc.).

1.0 BACKGROUND

The background information should identify the requirement in very general terms; describe why the project is being pursued, and how it relates to other projects. Summarize any statutory authority or regulations affecting the overall requirement.

2.0 SCOPE

This section should provide a brief statement of what the offeror expects to accomplish under the award — the breadth and limitations of the effort. It should not include specific work tasks or a description of deliverable products since this will be included in the "Tasks" section.

3.0 OBJECTIVES

This section should provide a concise overview of the effort goals and objectives; and how the results or end products will be used.

4.0 TASKS/TECHNICAL REQUIREMENTS

This section defines the tasks that the contractor or recipient shall complete during performance of the effort and would have a task description for each step of the Work Breakdown Schedule (WBS). The description of task requirements will depend on the approach that is selected to describe the required effort. Tasks shall be detailed to a WBS-third-level equivalent to give reviewers sufficient detail to evaluation work and costs.

5.0 DELIVERABLES

This section should clearly state all deliverables including CDRLs and material.

6.0 PERIOD OF PERFORMANCE

The period of performance shall be clearly stated using in units of months after contract award. Milestones shall be stated as a number of months after award. These milestones

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shall include the end of technical effort and end of the period of performance of the effort.

IV-1.2.3. Guidelines for Submission of Other than Cost or Pricing Data: The contracting officer has anticipated that adequate price competition (APC) does not exist when considering award of a research effort based on receipt of a white paper. Offerors are/will be requested to submit in its proposal information described in FAR 15.403-5, Instructions for Submission of Certified Cost or Pricing Data and Data Other Than Certified Cost or Pricing Data. This information will be used to support price reasonableness and cost realism. The agreements officer may ask for enough detail to determine the non-FAR based award to be fair and reasonable.

IV-1.2.4. Proposal Validity Period: Offerors must state, on the cover page of each volume of their proposal, that their proposal is valid for at least 180 days from submission. Any proposal received that does not include this information in the specified location will be assumed valid for 360 days from the submission date. Proposals submitted shall be in accordance with this announcement and any subsequent call.

IV-2. Call Instructions

Calls issued under this BAA will identify specific proposal instructions. Information may include but is not limited to anticipated funding, number of awards, award date, and data rights instruction. Contractors that are registered with the DLSC must submit a copy of the approved DD Form 2345, Military Critical Technical Data Agreement in response to a call to the (CPOC) for verification.

IV-2.1. Call Review Information
The Government will define the evaluation criteria within each call. Each call shall, at a minimum, contain technical and price/cost evaluation criteria.

IV-2.2. Call Review and Selection
Proposals will be evaluated in accordance with evaluation criteria identified in each call. After evaluation, proposals will be categorized as identified in BAA section VI-5 and funding selection will occur. This marks the end of the proposal evaluation period. The Government reserves the right to enter into negotiations with those companies selected for award in order to arrive at a final fair and reasonable price.

IV-3. Other Instructions
All offerors must comply with all provisions of FAR 52.215-1 “Instructions to Offerors – Competitive Acquisitions.” Proposals should be marked in accordance with FAR 52.215-1(e). A copy of this provision is available from acquisition.gov. Properly marked

proprietary information will be treated in accordance with DFARS 252.227-7016, Rights in Bid or Proposal Information. Proposals must reference the BAA announcement number. **Offerors are advised that only contracting officers are legally authorized to contractually bind or otherwise commit the Government.**

IV-4. Amendments

Offerors should be alert for any BAA amendments to this announcement or any subsequent calls. Any additional information will be posted on the Government Wide Point of Entry (i.e. the Federal Business Opportunities website, beta.sam.gov) and awareness of any change is the offeror's responsibility.

IV-5. BAA Guide

A copy of the Broad Agency Announcement (BAA) Guide for Industry is available at https://cs2.eis.af.mil/sites/10059/afcc/knowledge_center/Pages/5335.aspx.

IV-6. Capability Repository

A capability statement repository will be kept as an attachment to the BAA. This is meant to encourage teaming and provide a tool for subcontracting opportunities. Offerors may upload a maximum 1 page, 12 font, Times New Roman, capabilities statement document that includes their company name, Cage Code/DUNS number, size considering the NAICS 541715 (1,250 employees), socioeconomic status (e.g., Historically Underutilized Business Zone, Service Disabled Veteran-Owned, Economically Disadvantaged Women Owned, etc.), and a POC along with a brief description of their company capabilities. No classified or proprietary information shall be included in the information provided to the government as this statement will be posted with the BAA and will be accessible to the public. Offerors are solely responsible for information provided for this subcontractor capability repository and providing any documents implies voluntary acceptance of any liability associated therein. This can be submitted along with white papers or separately from white papers. This submission does not count against page limitations established in para. IV-1.1.2. The list will be updated on beta.sam.gov at least quarterly. Participation is completely voluntary. This list will not be used as consideration for award decisions made under this BAA.

IV-7. Highest Security Classification

Some areas, or specific calls, associated with the BAA may require access to classified information up to and including Top Secret, Sensitive Compartmented Information (TS/SCI). A DD254 will be considered before awarding any contract under this BAA.

V. PROPOSAL REVIEW INFORMATION

V-1. White Paper Review Information

The Government will review white papers to determine which of them have the potential to best meet the Air Force's needs based on the following relative criteria:

V-1.1. Is the technical approach consistent with the technologies listed in para. I-1. of this BAA, specifically with the technology topic cited on the title page of the white paper?

V-1.2. Is the research of interest to the Government?

V-1.3. Is appropriate funding available?

V-2. Review and Selection Process

V-2.1. White Paper Review and Selection

The Government may award all, some, or none of the submitted white papers. White papers that are reviewed will be reviewed IAW para. V-1 above, and when appropriate funding is available, may be selected for award. Prospective offerors selected for award will receive a letter RFP/solicitation/application IAW para. IV-1.2. above at which time the Government reserves the right to enter into negotiations IAW para. VI-6 below. All other white papers will be kept for up to one year after receipt. Awards will not be made under this BAA beyond the open period defined above.

VI. AWARD ADMINISTRATION INFORMATION

VI-1. White Paper Process

This process is used to request full technical and cost proposals following receipt of a white paper IAW para IV above. The proposals are evaluated in accordance with the solicitation criteria identified above.

VI-2. Closed Process

This approach allows for proposal submittals at a specified date and time as set forth in this BAA. Late proposal provisions (IAW FAR 52.215-1(c)(3)) will be included in the individual calls.

VI-3. Awards

The Government intends to review white papers, evaluate proposals, and award contracts, purchase orders, grants, cooperative agreements or other transactions. Awards may be issued on all, part, or none of the scope of proposals received without negotiations/discussions; however, the Government reserves the right to negotiate with offeror(s) whose proposal(s) is(are) selected for funding.

VI-4. Award Notices

Offerors will be notified whether their proposal (i.e., a proposal in response to letter RFP or provided in response to a call) 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 if necessary, successful negotiations are prerequisites to any award.

VI-5. Proposal Categories

The following proposal categories will be used during evaluations conducted after receipt of proposals in response to a call.

VI-5.1. Highly Recommended: Proposals are recommended for acceptance if sufficient funding is available, and normally are displaced only by other Highly Recommended proposals.

VI-5.2. Selectable: Proposals are recommended for acceptance if sufficient funding is available but at a lower priority than Highly Recommended proposals. These proposals may require additional development. To ensure a diversity of approaches, a Selectable proposal may be prioritized over a Highly Recommended proposal if the Selectable proposal presents a unique approach unlike any of the Highly Recommended proposals.

VI-5.3. Not Selectable: Proposals determined Not Selectable are not recommended for award.

VI-5.4. The Government reserves the right to award some, all, or none of proposals received in response to this BAA. When the Government elects to award only part of a proposal, the selected part may be categorized as Highly Recommended or Selectable, though the proposal as a whole may not merit such a categorization.

VI-6. Negotiations

After the evaluation process is complete, the Government may enter into negotiations with companies selected for funding. Award will be contingent upon successful negotiations. The Government reserves the right to discontinue negotiations with any contractor should the parties fail to reach agreement on contract terms, conditions or cost/price within a reasonable time.

VII. BAA AGENCY CONTACTS

Any correspondence must reference the BAA title and number. E-mail correspondence is preferred over all other methods.

VII-1. Technical Points of Contact (TPOC)

Questions of a technical nature shall be directed to the TPOC, as specified below:

Name: Mr. James Singleton
Address: AFRL/RQR
5 Pollux Drive
Edwards AFB, CA 93524
Telephone: 661-275-5907
Email: james.singleton.7@us.af.mil

VII-2. Contracting Points of Contact (CPOC)

Questions of a contractual/business nature shall be directed to the contracting office, as specified below:

Contracting Officer:
Name: Ms. Jenna A. Jacobson
Address: AFTC/PZRA
5 South Wolfe Avenue, Bldg. 2800
Edwards AFB, CA 93524
Telephone: 661-277-2094
Email: jenna.jacobson@us.af.mil

VII-3 Ombudsmen

In accordance with AFFARS 5301.91, an Ombudsman has been appointed to hear and facilitate the resolution of concerns from offerors, potential offerors, and others for this acquisition announcement. Before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the contracting officer listed above for resolution. AFFARS Clause 5352.201-9101 Ombudsman will be incorporated into all contracts awarded under this BAA. The Ombudsman is as follows:

Air Force Test Center Vice Commander
1 South Rosamond Blvd
Edwards AFB, CA 93524-3784
Phone: 661-277-2810 / Fax: 661-277-7593
E-mail: afftc.pk.workflow@edwards.af.mil

See AFFARs 5301.91, found at https://www.acquisition.gov/affars/5301#docid_23, for further information regarding concerns, issues, disagreements, and recommendations that cannot be resolved at the Ombudsmen level.

VIII. OTHER INFORMATION

VIII-1. Communication

VIII-1.1. General

All communication related to this solicitation shall include the CPOC identified in VII-2. Dialogue between prospective offerors and Government representatives is encouraged until submission of full proposals either in response to a letter RFP/solicitation/application via the white paper process or in response to a call. E-mail communication is highly encouraged. Discussions with any of the points of contact shall not constitute a commitment by the Government to subsequently fund or award any proposed effort. Only contracting officers/agreements officers are legally authorized to commit the Government.

VIII-1.2. Communication Guidelines

In any communication with government acquisition team member points of contact, the following guidelines apply.

VIII-1.2.1. The government cannot attempt to replace the contractor's original ideas with their own ideas or program office's preferred approach.

VIII-1.2.2. The government will not share ideas or technical solutions provided in conversations, white papers, or proposals to a competing offeror or anyone outside of the government acquisition team.

VIII-1.2.3. If a offeror is provided with information that expands, contradicts, retracts, or otherwise changes a topic contained in the published announcement, this same information must be made publicly available to all potential offerors in a Questions and Answers document and/or an amendment to the BAA.

VIII-1.2.5. In addition to the above, the following guidelines apply for one-on-one communications with program management (PM) points of contact.

VIII-1.2.5.1. The PM may discuss whether a contractor or recipient is "on-track" and/or consistent with the needs of the Air Force. However, while the contractor may be viewed as "on-track" it is in no way intended to imply the contractor or recipient will be awarded a contract.

VIII-1.2.5.2. Any one-on-one communications are not viewed as pre-screening processes. Any discussion related to an offerors proposed approach is not be considered a pre-approval.

VIII-1.2.5.3. The PM cannot address individual proposal elements, e.g., subcontractors, materials, labor hours, etc.

VIII-1.2.5.4. Notwithstanding anything discussed during a one-on-one communication all terms and conditions of the BAA remain unchanged unless and until an amendment is issued by the Contracting Officer.

VIII-2. Debriefings

When requested, a debriefing will be provided for full submitted proposals (i.e., in response to a letter RFP or a call). The debriefing process will follow the guidelines IAW FAR 15.505 and FAR 15.506. Feedback may be requested on white paper submissions.

VIII-3. Wide Area Work Flow Notice

Any contract award resulting from this announcement will contain the clause at DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports, which requires electronic submission of all payment requests. The clause cites three possible electronic formats through which to submit electronic payment requests and receiving reports. Effective 01 October 2006, the Department of Defense adopted Wide Area Work Flow-Receipt and Acceptance (WAWF-RA), as the electronic format for submission of electronic payment requests. Any contract resulting from this announcement 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 cognizant 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: WAWF-RA requirement does not apply to Universities that are audited by an agency other than DCAA.

Non-FAR based awards will include similar language leveraging WAWF-RA resources for payment.

VIII-4. Item Identification and Valuation

Any contract award resulting from this announcement may contain the clause at DFARS 252.211-7003, Item Identification and Valuation, 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, the 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). Any questions regarding the unique item identification requirements can be directed to the CPOC listed above. For more information, visit http://www.acq.osd.mil/dpap/pdi/uid/.

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VIII-5. Forward Pricing Rate Agreements

Offerors who have Forward Pricing Rate Agreements (FPRA's) and Forward Pricing Rate Recommendations (FPRR's) shall submit them with their proposal.

VIII-6. Pre-Award Clearance

Pursuant to FAR 22.805, a pre-award clearance may be required and must be obtained from the U.S. Department Of Labor, Employment Standards Administration, Office Of Federal Contract Compliance Program's (OFCCP) prior to award of a contract (or subcontract) of $10,000,000 or more unless the contractor is listed in OFCCP's National Pre-award Registry http://www.dol-esa.gov/preaward. This registry indicates that the contractor has been found to be "in compliance" within the past two years with the Equal Employment Opportunity (EEO) regulations that the OFCCP is mandated to enforce. The registry is updated nightly and facilities reviewed more than 2 years ago are removed and new ones are added. Award may be delayed if an offeror is are not currently listed in the registry and the contracting officer must request a pre-award clearance from the OFCCP.

VIII-7. Excessive Pass-Through Charges

Any contract award resulting from this announcement may contain the clause at FAR 52.215-23, Limitations on Pass – Through Charges which requires the contractor to identify in its proposal the percentage of effort to be performed by the prime contractor and the percentage expected to be performed by each subcontractor. If the contractor intends to subcontract more than 70% of the total cost of work under the contract then it shall identify the amount of the contractor's indirect costs and profit applicable to the subcontract work and a description of the value added by the contractor. If any subcontractor intends to subcontract to a lower tier subcontractor more than 70% of the total cost of its work, then it shall identify the amount of the subcontractor's indirect costs and profit applicable to the lower tier subcontract work and a description of the value added by the subcontractor.

VIII-8. Post-Award Small Business Program Re-representation

As prescribed in FAR 19.308, FAR Clause 52.219-28, Post-Award Small Business Program Re-representation, will be incorporated by reference in this solicitation. This clause will be contained in any contracts resulting from this solicitation. This clause requires a contractor to re-represent its size status when certain conditions apply. The clause provides detail on when the re-representation must be complete and what the contractor must do when a re-representation is required.

VIII-9. System for Award Management Registration

FAR 52.204-7, System for Award Management (SAM) and DFARS 252.204-7004, Alternate A, System for Award Management (SAM) are included by reference. SAM is the primary Government repository for prospective federal awardee information and the

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centralized Government system for certain contracting, grants, and other assistance related processes. 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. Contractors may obtain information on registration and annual confirmation requirements via the SAM accessed through https://www.acquisition.gov or by calling 866-606-8220.

VIII-10. Non-Government Advisors

Offerors are advised that data submitted to the Government in response to this solicitation may be released to individuals who work for the following:

Sierra Lobo, Inc.
AS and D, LLC
Engineering Research and Consulting, Inc.
Jacobs Technology, Inc.

The companies listed above may have access to the submissions for both administrative purposes and to act as non-Government advisors. Offerors not wishing to have their submission released to companies listed above must notify the CPOC listed in VII-2 above before submission.

VIII-11. Safeguarding Covered Defense Information and Cyber Incident

DFARS clause 252.204-7014 is likely to be include in each award issued as a result of this BAA. Therefore, DFARS provision 252.204-7012 is incorporated into this BAA. Non-FAR based awards may include similar language to the provision and clause referenced in this para.

VIII-12. Compliance with Safeguarding Covered Defense Information Controls

As prescribed in DFARS 204.7304(a), DFARS Provision 252.204-7008 Compliance with Safeguarding Covered Defense Information Controls (Oct 2016) is incorporated by reference. The security requirements required by contract clause 252.204-7012 shall be implemented for all covered defense information on all covered contractor information systems that support the performance of any contracts resulting from this solicitation.