Broad Agency Announcement (BAA)
One Step Process

BAA INFORMATION

Federal Agency Name: U.S. Department of Transportation, Research and Innovative Technology Administration/John A. Volpe National Transportation Systems Center

BAA Title: Alternative Aviation Fuels

BAA Number: **DTRT57-11-R-20001**

BAA Schedule:

BAA Initial Announcement:	**DTRT57-11-R-20001**
Proposal Due:	**NOVEMBER 30, 2010**
Anticipated Award(s) Date:	NO LATER THAN 02/28/11

NOTE: Proposal receipt after the due date and time shall be governed by the provisions of Federal Acquisition Regulation (FAR) Provision 52.215-1(c)(3).

BAA Solicitation: BAA solicitation Number DTRT57-11-R-20001 may be reviewed and downloaded at the Federal Business Opportunities (Fedbizopps) website at http://www.fbo.gov . This BAA Announcement describes a one-step process for proposal submission and evaluation. Amendments issued under this BAA will also be posted at the http://www.fbo.gov website.

This Announcement constitutes the public announcement, in accordance with FAR Subpart 6.102-(d)(2), and no formal solicitation regarding this Announcement will be issued.

Solicitation Request: U.S. Department of Transportation, Research and Innovative Technology Administration/John A. Volpe National Transportation Systems Center is soliciting technical and cost proposals on the research areas identified under this BAA One Step process. 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 1000 employees.

BAA Point of Contact: Inquiries regarding the content or procedures of this BAA shall be sent electronically to the below named Contract Specialist/Contracting Officer. Any inquiries pertaining to this BAA shall be received no later than 10 days after issuance of this BAA. Telephone inquiries will not be accepted.

Donna M. Brickley
Contract Specialist/Contracting Officer
Phone (617) 494-3661
Email: Donna.Brickley@dot.gov

Exchanges of information must be consistent with procurement integrity requirements of FAR Subpart 3.104. There shall be no discussion of proposals submitted by other offerors nor will evaluation information be released.

Offeror Eligibility Requirement: Offerors are notified that in order to be eligible for an award, it must have completed its annual Electronic Representations and Certifications Application (ORCA) via the Business Partner Network (BPN) at http://www.bpn.gov/orca. These FAR level representations and certifications are required in addition to any representations and certifications specific to this BAA. Before submitting the Electronic Representations and Certifications, offerors must also be registered in the Central Contractor Registration (CCR) Database. On-line registration instructions can be accessed from the CCR home page at http://www.ccr.gov. Offerors are required to include with its proposal an ORCA hardcopy.

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ALTERNATIVE AVIATION FUELS

Background

Aviation is integral to the global economy and transportation system. Despite ongoing short term market volatility, aviation is projected to grow in the future. Growth in aviation may lead to increased aircraft emissions and associated environmental impacts unless well informed optimally balanced mitigation measures are implemented in a timely manner.

The United States is implementing an efficient, flexible, scalable and dynamic Next Generation Air Transportation System (NextGen) to meet projected aviation growth. NextGen was enacted in 2003 under Vision 100 – Century of Aviation Reauthorization Act (http://www.jpdo.gov/nextgen.asp). In order to balance the economic and mobility benefits of air transportation with environmental concerns, one of the stated environmental goals of NextGen is to limit or reduce the impacts of aviation emissions on global climate. Alternative jet fuels, with both air quality and climate change benefits provide a key tool in addressing aviation environmental impacts and contribute to both the environmental sustainability and economic security of the industry and the services provided to the flying public. In combination with NextGen improvements in aircraft/engine technology, operational procedures, and enhancements in the national airspace system, sustainable alternative fuels development and deployment offers the possibility of environmental, energy security and economic improvements even as the system grows.

The U.S. Department of Transportation/Research and Innovative Technology Administration/ John A. Volpe National Transportation Systems Center (Volpe Center) and the Federal Aviation Administration (FAA) are working with stakeholders through the Commercial Aviation Alternative Fuels Initiative (CAAFI) to add new classes of fuels to the recently approved alternative fuel standard by ASTM International (ASTM D7566), improve the alternative fuel certification process (ASTM D4054), participate in commercial aircraft flight tests using alternative fuels, and conduct tests and analyses to ascertain their emissions characteristics and lifecycle greenhouse gases. CAAFI has focused on leveraging resources and efforts for sustainable aviation fuels with the commercial aviation sector, Department of Defense, Department of Energy, Department of Agriculture, Environmental Protection Agency, and the energy industry. For more information on CAAFI see www.caafi.org.

The FAA also supports alternative fuels research and development activities via the Continuous Lower Energy, Emissions and Noise (CLEEN) Program. Supported activities include testing and demonstration of aircraft and engine technologies including alternative jet fuels. Under CLEEN, FAA and industry are cost-sharing maturation of promising technologies to reduce aircraft environmental impacts and energy usage.

Via a Congressional Interest Item, funding was provided to the FAA to 1) Accelerate research, development and deployment of alternative jet fuels; 2) Accelerate alternative fuel qualification/certification; and 3) Quantify emissions and develop life cycle analysis (LCA) for certified alternative fuels. The technical research areas identified in this BAA will support these objectives.

Objective

The specific objectives of the four technical research areas identified in this BAA are:

A. Accomplish thorough specification and fit for purpose testing on a quantity of alternative aviation fuel proposed for delivery by the offeror.
B. Conduct an alternative jet fuel Quality and Performance Control Study to be used to enable performance and quality standardization and identify alternative jet fuel property trends.
C. Conduct a Sustainability Study for alternative jet aviation fuels, to be used as a basis for establishing a future standard procedure.
D. Develop an improved hydroprocessed renewable jet (HRJ) fuel performance and durability R&D and data processing method.

Technical Research Areas

Several key technical research areas in Alternative Aviation Fuels are identified in Sections A through D below. Offerors may submit a proposal for any or all of these technical research areas according to their capabilities and expertise. However if an offeror is responding to more than one technical research area, it shall submit a separate proposal package in accordance with the requirements of this BAA addressing each technical research area separately. The project objectives, period of performance, and project deliverables and schedules are identified within each technical research area. Deliverables required for each technical research area shall be submitted to the Contracting Officer (CO) and the Contracting Officer's Technical Representative (COTR).

A. Future Alternative Aviation Fuels Statement of Objectives

The Volpe Center and the FAA support efforts to enable availability of the maximum number of feasible, sustainable alternative jet fuel options regardless of feedstock source and/or conversion process as long as it meets safety, performance and environmental requirements[1] and are considered "drop-in." A "drop-in" alternative fuel can be used either neat or in a blend without modification to existing aircraft fuel and propulsion systems and transportation and storage infrastructure. While ASTM International has issued specification # ASTM D7566 that has approved a blend of Jet A fuels containing synthesized hydrocarbons via the Fischer Tropsch

[1] ASTM D7566, http://www.astm.org/Standards/D7566.htm

(FT) process and is expected to soon approve a blend with Hydroprocessed Renewable Jet (HRJ), there are a number of other promising alternative aviation fuels at earlier stages of development, outside the current scope of the ASTM D7566 specification, that require additional characterization and qualification testing support. The FAA is interested in funding proposals from alternative aviation fuel suppliers to produce novel alternative jet fuels that may have generated some encouraging early results but have not yet passed beyond CAAFI's Fuel Readiness Level (FRL) 3 or 4[2]. *The specific objective of this research area is to develop, deliver and accomplish thorough specification and fit for purpose testing on a quantity of alternative aviation fuel.* The proposed fuel(s), it is hoped, once delivered, will promise improvements over existing alternative aviation fuels in their potential for feedstock availability, production scalability, cost of conversion and life cycle sustainability and greenhouse gas footprint.

Offerors are invited to propose promising "drop-in" sustainable alternative aviation fuels, or fuel blending components, for fit for purpose and fuel characterization testing. Such fuels could use synthetic biological processes that rely on genetically-engineered organisms, advanced catalysts, advanced gasification processes or other novel feedstocks and processes not yet contained in ASTM D7566 to produce pure hydrocarbon components for jet fuel. Examples are renewable hydrocarbon jet fuels produced via fermentation, pyrolysis or other promising novel pathways. The offeror will supply the fuel necessary to produce data to accelerate the qualification and certification of additional alternative aviation fuels in the research and development (R&D) pipeline and complete testing listed under FRL level 6.1

Fuel testing will advance the fuel readiness of "drop-in" sustainable alternative aviation fuels and could take place in partnership with federal government or industry testing facilities. However, fit for purpose and fuel characterization testing of an offeror's alternative aviation fuel delivered is not part of this technical research area. The Government will test the alternative aviation fuel delivered through a separate contractual arrangement and will provide the results of the testing to the offeror so that it may complete the remaining deliverables required under this technical research area. Also, this solicitation is <u>not</u> targeting very early feedstock or process research and development. Neither is it targeting commercialization or scale-up activities of HRJ or FT process fuels.

Proposals should address at a minimum the following:

- Schedule and resources for project completion
- Any analysis or estimates of the fuel's potential feedstock availability and conversion costs, life cycle sustainability and environmental footprint and the potential for large-scale deployment.
- The production of a sufficient quantity (100 gallon minimum) of alternative aviation fuel, or fuel blending component, for all required specification and fit for purpose testing

[2] http://www.caafi.org/information/fuelreadinesslevel.html

- For proposal planning purposes, the delivery of the fuel to the Wright Patterson Air Force Base, Ohio 45433, in accordance with 49 CFR 171-180.
- Technical support, i.e., answer Government questions, during and after fuel testing via email and telephone.

Schedule and Deliverables:

Technical Research Area A Deliverables: The offeror shall produce, at a minimum, 100 gallons of alternative aviation fuel, or fuel blending component, for all required specification and fit for purpose testing. The below deliverable table does not include a due date for the alternative aviation fuel delivery for this technical research area. Rather, the Government has determined that the quantity of alternative aviation fuel could be delivered as soon as within a year or as far out as four years from the date of a contract award. The offeror shall explicitly identify in its technical proposal for this technical research area a fixed date it intends to deliver, at a minimum, 100 gallons of alternative aviation fuel, or fuel blending component, for all required specification and fit for purpose testing.

Due dates for other deliverables that are part of Technical Research Area A, including a meeting, briefings, and reports during Contract Year 1, Contract Year 2 (if necessary), Contract Year 3 (if necessary) and Contract Year 4 (if necessary) are shown below:

Deliverable	**Format**	**Due Date After Date of Contract Award**
Contract Years 1, 2, 3, or 4 ***(TO BE DETERMINED BY OFFEROR)***		
A project schedule and proposed resources	Microsoft Project	Within two weeks
Kick-off meeting at the Contractor's location, to be set up by Contractor	Meeting attendance	Within two months
Quarterly technical and financial status reports	Microsoft Word	At three, six, nine, and twelve months of each year
Annual briefing within the Continental US, to be set up by Government	Meeting attendance, presentation in Microsoft PowerPoint	12th month of each year
Alternative Aviation Fuel, 100 gallons	**To Be Determined by the Offeror**	**To Be Determined by the Offeror**
Final report incorporating results of fuel characterization and fit for purpose testing	Microsoft Word	Within three months of receiving the Government's alternative aviation fuel test results
Final briefing in Washington, DC, to be set up by Government	Meeting attendance, presentation in Microsoft PowerPoint	Within six months of receiving the Government's alternative aviation fuel test results

B. Advanced Jet Fuel Quality and Performance Control Research and Development (R&D) Study Statement of Objectives

The impending introduction of alternative jet aviation biofuels through market- and Government-driven R&D has generated questions regarding any unique quality control requirements that the production and distribution of these advanced fuels will require. With the introduction of novel feedstocks and processing technologies, increased attention will be directed to any "quality turnbacks", particularly those from new sources into aviation. *The objective of this research area is to address this concern via an Advanced Jet Fuel Quality and Performance Control R&D Study.*

In the beginning of this effort, the offeror will propose a thorough review of current jet fuel production and distribution quality and performance control and investigate the application of these practices to advanced alternative jet fuels. The following topics will be addressed in this study:

- Current best practices among petroleum jet fuel producers in maintaining aviation jet fuel quality and performance;
- Gaps in current quality and performance procedures or guidance that may emerge with introduction of advanced alternative jet fuels; and
- Discussion of possible improvements to current jet fuel quality control practices necessary to accommodate the introduction of advanced alternative fuels, including a report on a "Plan for Future Jet Fuel Distribution Quality Control".

The results of this R&D study, to be published in a research article within eight months of the date of contract award, will be used as an R&D platform from which the offeror will then collaborate with key aviation fuel stakeholders to ultimately develop a process for maximizing the quality and performance of advanced alternative jet fuel entrants.

As experience is gained with the production of bio-derived jet fuels, the quality of those fuels can be examined relative to this R&D Control Study by the ASTM Aviation Fuels Subcommittee and by stakeholders that are engaged in the supply chain that produces, distributes and uses the jet fuel.

As a follow-up to the R&D Study, the offeror will propose an improved method of cataloging new entrants into the jet fuel market, such as a fuel properties tracking system designed to efficiently collect actual fuel property data and quality measurements for the current supply of conventional jet fuel to form the basis of a database. This will allow for future comparison between conventional and alternative jet fuel and will provide a basis for identifying enhancements to the current system. This improved method of cataloging would be implemented within six months of the date of award and maintained for a period of 12 months.

Proposals should address at a minimum the following:

- Schedule and resources for project completion
- The review and documentation of current quality control practices of conventional jet fuel producers, including reference documents, procedures, and specifications
- The review and documentation of current quality control practices of fuel handlers across the distribution infrastructure such as pipelines, terminals, and airports, including reference documents, procedures and specifications
- The review and documentation of procedures and organizations used to facilitate quality control audits
- A collaboration with key aviation fuel stakeholders such as the Air Transport Association (ATA) Fuel Quality Council, aircraft engine manufacturers, engine maintenance providers, the American Petroleum Institute (API), the Joint Inspection Group (JIG) and Fixed Base Operators (FBOs), to develop a plan for future jet fuel distribution quality control that includes the following elements:
    - Recommends current best practices for the production and distribution quality control of jet fuel
    - Identifies gaps in current quality control and handling practices
    - Identifies areas for improvement in current quality control and handling practices
- An improved method of collection of random fuel property and quality measurements, in accordance with current quality control practices and the establishment of a catalog of current jet fuel properties. This method will be discussed in the Final Report.
- Implementation and maintenance of the proposed fuel properties catalog for 12 months. This activity will be discussed in the Final Report.

Schedule and Deliverables:

Deliverable	**Format**	**Due Date After Date of Contract Award**
A project schedule and proposed resources	Microsoft Project	Within two weeks
Kick-off meeting at the Contractor's location, to be set up by Contractor	Meeting attendance	Within two months
R&D Control Study	Microsoft Word	Six months
Research Article	Microsoft Word	Eight months
Jet Fuel Properties Catalog Monthly Updates	CD-ROM Microsoft Word	Six months 7th through 18 months
Final Report	Microsoft Word	18 months
Final briefing within the Continental US, to be set up by Government	Meeting attendance, presentation in Microsoft PowerPoint	18 months

C. Alternative Jet Fuel Sustainability Evaluation Report Statement of Objectives

The specific objective of this research area is to research and evaluate existing sustainability rating systems that could be adopted for aviation alternative fuels to assess environmental performance in terms of Greenhouse Gas (GHG) emissions and assess environmental and/or social sustainability. The research will identify scope, key issues, risks, and concerns and provide recommendations as to what criteria and systems should be reasonably considered in the development of a future government system or standard for the purchase of alternative jet fuels.

To support the quantification of emissions and environmental impact of alternative jet fuels, this project seeks to research sustainability of alternative jet fuels. Research and Development (R&D) in this area will first assess the various sustainability evaluation programs that are being considered by the international community, suppliers and purchasers of alternative fuels. This assessment will evaluate how these programs meet requirements called for by legislation or corporate commitments, such as the Energy Independence and Security Act, Section 526, and the U.S. Environmental Protection Agency's Renewable Fuel Standards (RFS/2). A summary of existing research and programs will be provided in a letter report within three months of the date of award.

Both United States and international Life Cycle Analysis (LCA) and sustainability criteria will need to be addressed in this technical research area. Such sustainability criteria must be carefully considered to ensure better environmental performance, without diminishing the market for government and commercial alternative fuel use. Examples of alternative fuel sustainability criteria and rating systems include those being explored by the Global Bioenergy Partnership (GBEP), the Roundtable on Sustainable Biofuels (RSB), and the International Organization for Standardization (ISO) under ISO 14025 for the formulation of Product Category Rules (PCRs). PCRs are specific sets of rules, requirements and guidelines for developing Environmental Product Declarations (EPDs), which could offer internationally agreed upon guidance as a means to harmonize environmental comparisons. The goal of an EPD is to assist the sellers and purchasers of products in uniformly assessing the life cycle environmental performance of similar products coming from different manufacturers and/or sources. The ISO 14000 Series includes the performance of LCAs and sustainability evaluations and is not limited to the impacts of greenhouse gas (GHG) emissions. Discussion of such standards and their format/structure is needed to provide information to alternative jet fuel suppliers and purchasers about the environmental performance of the alternative jet fuels being brought to market. A draft Sustainability Evaluation Report is due within nine months of the date of contract award, and a Final Report is due within 12 months of the date of award.

Proposals should address at a minimum the following:

- Schedule and resources for project completion
- An assessment of internationally proposed guidance and methods, such as those endorsed by ISO, the RSB, GBEP and others.
- A review of formats of existing evaluation standards (e.g. PCRs and EPDs) for similar energy products
- A review of jet fuel LCA and sustainability measures and guidance currently being utilized in initiatives of industry and the Federal Government in purchasing fuels with better environmental performance than conventional fuel sources.
- Approach to address scope, key issues, risks, and concerns and provide recommendations of criteria and sustainability evaluation systems to be considered in the development of a future standard for alternative jet fuels
- Approach for developing a suitable peer review by "interested party" participants for the development of the rating system

Schedule and Deliverables:

Deliverable	**Format**	**Due Date After Date of Contract Award**
A project schedule and proposed resources	Microsoft Project	Within two weeks
Letter Report	Microsoft Word	Within three months
Draft Sustainability Evaluation Report	Microsoft Word	Nine months
Final briefing within the Continental US, to be set up by Government	Meeting attendance, presentation in Microsoft PowerPoint	12 months
Final Report	Microsoft Word	12 months

D. Hydroprocessed Renewable Jet Aviation Fuel Performance and Durability Research and Development (R&D) Statement of Objectives

A rigorous evaluation of Hydroprocessed Renewable Jet (HRJ) fuel conducted under an ASTM International Task Force has produced a significant amount of data describing the properties and performance of these fuels[3]. These data are adequate to support initial approval and market entry of HRJ fuels, but proposals for performance and durability R&D are requested to supplement the scientific knowledge base of these fuels and contribute to their wide-spread acceptance.

This technical research area will fund the R&D necessary to generate the additional data needed to further characterize the performance and the long-term effects of using HRJ fuel. This R&D is divided into two parts; Part 1 for laboratory, rig, engine and flight testing to investigate HRJ fuel performance, and Part 2 for engine or Auxiliary Power Unit (APU) durability testing of HRJ fuel. Offerors may submit a proposal for only Part 1 or only Part 2 or both Parts 1 and 2. The Government may award only Part 1 or award only Part 2, or award Parts 1 and 2, or none.

The results of this testing in Part 1 and/or Part 2 will be incorporated into a Final Report. In addition to the Volpe Center and FAA, the Final Report may be made available to the Aviation Fuels Subcommittee of ASTM International and the United States Air Force and other federal government agencies to support oversight of ASTM International standard specification D7566.

Part 1:

Part 1 may include, but is not limited to, laboratory, rig, engine and flight testing to investigate the fuel performance of the experimental HRJ jet fuel under rigorous R&D standards. The R&D standards to be followed in this investigation must be discussed in the proposal on Part 1. Pre- and Post-test inspection of engine hardware and recording of engine performance data over the entire test must also be discussed in the proposal. *The two objectives of Part 1 research are: Actual data from an investigation of HRJ experimental fuel performance using rigorous R&D standards and an improved HRJ performance and durability testing method.* The data and proposed improved method shall be addressed in a Part 1 Final Report.

Proposals should address at a minimum the following:

- Schedule and laboratory resources for project completion
- Ability to maintain high R&D standards during testing
- Obtaining a sufficient quantity of neat and blended HRJ fuel for all required tests, including pre- and post-test inspection of engine hardware and recording of engine performance data over the entire test
- Developing comprehensive and integrated test plans
- Conducting Laboratory Testing of the HRJ fuel for compliance with ASTM D7566

[3] http://www.caafi.org/resources/astm.html

- Conducting other testing such as Combustor Rig Testing: Ignition Control and Characteristics, Inclement Weather Stability, Operability and Starting, Hot Section Durability, Altitude Relight

Schedule and Deliverables:

Deliverable	**Format**	**Due Date After Date of Contract Award**
A project schedule and proposed laboratory resources	Microsoft Project	Within two weeks
Kick-off meeting at the Contractor's location, to be set up by Contractor	Meeting attendance	Within two months
Comprehensive R&D Plan	Microsoft Word	Six months
Comprehensive Lab Report	Microsoft Word	Nine months
Final oral briefing within the Continental US, to be set up by Government	Meeting attendance, presentation in Microsoft PowerPoint	12 months
Part 1 Final Report	Microsoft Word	12 months

Part 2:

Part 2 addresses engine or Auxiliary Power Unit (APU) durability testing of HRJ fuel. Durability testing should be performed on a large turbofan engine that is used in both commercial and military aircraft. Durability testing on an APU, also used in both commercial and military aircraft, may also be proposed. The test vehicles should be subjected to duty cycles specifically designed to evaluate the long-term effects of operation with experimental HRJ aviation fuel. All testing must be performed under rigorous R&D standards. The R&D standards to be followed in this investigation must be discussed in the offeror's proposal for Part 2. Pre- and Post-test inspection of engine hardware and recording of engine performance data over the entire test must be included. *Again, the two objectives of Part 2 research are: Actual performance data from an investigation of an engine or APU subjected to experimental HRJ fuel using rigorous R&D standards and an improved HRJ durability testing and data processing method.* The data and proposed improved method shall be addressed in a Part 2 Final Report. Proposal submission by teams of researchers from turbine engine manufacturers is encouraged to ensure the broadest application of test results across the population of transport turbine engine platforms.

Proposals should address at a minimum the following:

- Schedule and laboratory resources for project completion
- Ability to maintain high R&D standards during testing

- Obtaining a sufficient quantity of neat and blended HRJ fuel for all required tests, including pre- and post-test inspection of engine hardware and recording of engine performance data over the entire test
- Identifying a turbofan engine or APU representative of commercial and military aircraft
- Developing comprehensive and integrated R&D plans that may include specific duty cycles designed to simulate long-term usage of HRJ fuel
- Conducting turbine engine or APU durability testing
- Conducting other laboratory, rig, engine and flight testing

Schedule and Deliverables:

Deliverable	**Format**	**Due Date After Date of Contract Award**
A project schedule and proposed resources	Microsoft Project	Within two weeks
Kick-off meeting at the Contractor's location, to be set up by Contractor (not necessary if a single Contractor awarded Parts 1 and 2)	Meeting attendance	Within two months
Comprehensive R&D Plan	Microsoft Word	Six months
Comprehensive Lab Report	Microsoft Word	Nine months
Final oral briefing within the Continental US, to be set up by Government	Meeting attendance, presentation in Microsoft PowerPoint	12 months
Part 2 Final Report	Microsoft Word	12 months

AWARD INFORMATION

The Government reserves the right to select for award any, all, part, or none of the proposals received in response to this announcement. Attachment 3 is only a contract sample for offeror's to view to obtain a general understanding of the type of clauses that may be seen in any resultant contract. Attachment 3 is only a sample and does not represent an actual contract award document.

Anticipated Number of Awards: The Volpe Center anticipates making contract awards as shown below:

Technical Research Area	Award(s)	Anticipated Funding Available per Technical Research Area
A. Future Alternative Aviation Fuels	Multiple	$6,000,000
B. Advanced Jet Fuel Quality and Performance Control R&D Study	Single	$ 250,000
C. Alternative Jet Fuel Sustainability Evaluation Report	Multiple	$ 50,000
D. HRJ Aviation Fuel Performance and Durability R&D	Single or Multiple	$1,000,000

Contract Award Types: The Government anticipates that the type of contract awards to be made under each Technical Research Area will be as follows:

Technical Research Area	Contract Type
A. Future Alternative Aviation Fuels	Cost-Plus-Fixed-Fee
B. Advanced Jet Fuel Quality and Performance Control R&D Study	Firm-Fixed-Price
C. Alternative Jet Fuel Sustainability Evaluation Report	Firm-Fixed-Price
D. HRJ Aviation Fuel Performance and Durability R&D	Cost-Plus-Fixed-Fee

The Government will not award grants or cooperative agreements under this BAA.

Anticipated Funding: The anticipated funding for all technical research areas is $7,300,000 (not per contract). This funding is an estimate only and will not be a contractual obligation for funding since all funding is subject to change due to Government discretion and availability.

Offerors are advised that awards greater than $650,000 will generally require awardees (except a small business concern) to have in place a subcontracting plan in accordance with FAR Subpart 19.7.

Federally Funded Research and Development Centers (FFRDC): FAR Subpart 35.017-1(c)(4) prohibits a 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.

Intellectual Property Rights: Awards will generally contain detailed provisions concerning patent rights, rights in technical data and computer software, data reporting requirements, and other terms and conditions.

PROPOSAL SUBMISSION INFORMATION

General Information

Proposals shall be prepared in accordance with this BAA. Technical proposal submissions that are incomplete, materially lacking, or not responsive to the technical requirements of this BAA, will be evaluated as is, without further opportunity for revision. Offerors may respond to one or more technical research areas. However a separate proposal shall be submitted for each technical research area. Each proposal will be evaluated independently.

An incomplete or deficient cost and price proposal will impede the Contracting Officer from performing an analysis to determine probable cost to the Government and reasonableness of proposed costs. If an offeror's cost proposal is deficient or ambiguous that a meaningful cost analysis cannot be performed, or proposed costs are not supported or do not track to the supporting data, that offeror's cost proposal may be excluded from evaluation. Cost reasonableness and realism will also be considered in the overall selection process. In addition, offerors are notified that in order to receive a contract that is a cost-plus-fixed-fee (CPFF) type, it must have an accounting system that has been reviewed and approved by the Defense Contract Audit Agency (DCAA) or other cognizant Government audit agency. Failure to have an approved accounting system may result in the Government being unable to award a contract. This BAA is an expression of interest only and does not commit the Government to pay any offeror proposal preparation costs.

Proprietary Data Restrictions: Proposals that contain data an offeror does not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall restrict such data, the cover page of any and all submittal documents must be marked with the following legend, and relevant sheets marked as instructed:

> *This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. However, if a contract is awarded to this Offeror as a result of – or in connection with – the submission of these data, the Government shall have the right to duplicate, use , or disclose the data to the extend provided in the resulting contract. This restriction does not limit the Government's right to use information contained in these data if they are obtained from another source without restriction. The data subject to this restriction are contained in Sheets (insert numbers or other identification of sheets).*

Each restricted data sheet shall be marked as follows:

> *Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this document.*

To the extent that such restrictions on proprietary data or information would not interfere with the intent of the Government to make the results of the work awarded under the BAA available

to all interested parties, and if in conformance with the Freedom of Information Act (5 U.S.C. 552, as amended), the Government will honor those desires.

Solicitation Mailing Instructions: All proposals and amendments shall be mailed to the below point of contact and address:

U.S. DOT/RITA/Volpe National Transportation Systems Center
Attn: Donna Brickley, RVP-32
Reference: Solicitation No. DTRT57-11-R-20001
55 Broadway
Cambridge, MA 02142-1001

To facilitate proper handling of the offer/amendments, it is imperative that the outermost envelope/packaging that contains the offer/amendment be addressed as shown above. Packages must be clearly labeled with the solicitation number and with a statement that the contents are "Proposal Data – To Be Opened by Addressee Only."

Content and Form of Proposal Submission: The technical and cost/business volumes shall be complete so that evaluation of each part may be accomplished concurrently and the evaluation of the non-cost factors may be made strictly on the basis of technical merit. Offerors are required to submit their technical and cost/business proposals in two separate volumes as described below:

Volume I, Part I – Technical Proposal
Part I contains the written responses to the technical evaluation criteria. The Offeror's technical proposal should be comprehensive and explicit. Legibility, conciseness, and clarity of content are important since it will facilitate the Government's evaluation process and assure maximum credit being properly assigned to the various aspects of the proposal.

Volume I, Part II – Statement of Work
Part II contains the Statement of Work (SOW). The offeror shall prepare the SOW which incorporates its technical proposal. The SOW will be incorporated into any resultant contract. The SOW should be formatted as described in Attachment 1. NOTE: DO NOT INCLUDE THE OFFEROR'S NAME, OR ANY PROPRIETARY INFORMATION IN THE SOW.

Volume II – Cost/Business Proposal
This volume must consist of the offeror's cost schedules to support its pricing or cost, information other than cost and pricing data, contract cost control plan, information on professional employees' compensation, and, if applicable, the Small Business Subcontracting Plan, cost sharing information, intellectual property information, and identify on the basis of Attachment 3 Contract Sample any contract exceptions. In addition, proposals valued over $700,000 will also require the submission of Certified Cost or Pricing data.

The cover page of the technical and cost volumes shall identify the following:
a. BAA number and title;
b. Technical Research Area Letter and Title, offeror's proposal title, and date of submittal
c. Offeror's name and address; DUNS number, technical & contracting point of contacts, phone number, fax, and email

d. Type of Business
e. Subcontractor(s) name and address, if applicable
f. Confirm CCR and ORCA completion
g. Proprietary data restriction, if applicable

Copies
Offerors shall submit one original and ten (10) copies of the Technical Proposal (Volume I) and one original and two (2) copies of the Cost/Business Proposal (Volume II). Each copy shall be numbered. The Technical and Cost/Business proposals must also be submitted on a virus-free CD-ROM in MS Word and PDF format compatible with Microsoft Office 2003/2007 and Adobe Acrobat 9. Mark the CD-ROM with the Offeror's name and BAA number, and volume number.

Text
The text of the proposal shall be formatted on 8 ½ by 11-inch paper with printing on one side only with at least one-inch margins on both-sides, top and bottom. Lines between text lines must also be 10-point. All text must adhere to all font size and line spacing requirements listed herein. Pages shall also be consecutively numbered. Technical proposal submissions shall not include promotional brochures, advertisements, taped recordings, or any other extraneous material.

Page Limitations:
Technical Proposal
All technical proposals including the offeror's Statement of Work (SOW) shall comply with the formatting requirements of this BAA and Attachment 1 and shall be limited to:

a. Table of contents, 2 page maximum
b. Cover page, 1 page maximum
c. Technical Evaluation Criteria 1 titled Technical Approach, 10 page maximum; pages shall be numbered starting with page 1, and the last page being page 10.
d. Technical Evaluation Criteria 2 titled Practical Commentary on the Likelihood of Success of the Long-Term Research Outcomes, 5 page maximum; pages shall be numbered starting with page 1, and the last page being page 5.
e. Technical Evaluation Criteria 3 titled Technical Team Qualification, resumes shall be limited to five (5) pages per resume.
f. Technical Evaluation Criteria 4 titled Record of Relevant Past Performance, identify past performance within the past five (5) years and limited to ten (10) pages.
g. The offeror's SOW shall be limited to five (5) pages

Cost/Business Proposal
The Cost/Business proposal has no page limitations.

Intellectual Property: Offeror's shall address in both the technical proposal and cost/business proposal information describing the intellectual property that will be used in the performance of the contract, and any proposed restrictions on the Government's use of intellectual property.

Offeror's must provide a good faith representation, in writing, that it either owns or possesses appropriate licensing rights to the intellectual property that will be utilized under the proposals for this program. If offerors are unable to make such a representation concerning the intellectual

property, provide a listing of the intellectual property needed, and explain how and when the offeror plans to obtain these rights.

For issued patents or published patent applications, provide the patent number or patent application publication number, a summary of the patent or invention title, and indicate whether the offeror is the patent or invention owner. If a patent or invention is in-licensed by the offeror, identify the licensor. If a patent application has been filed for an invention that has not been made publicly available and contains proprietary information, provide the patent application serial number, patent application filing date, a summary of the invention title, and indicate whether the participant is the invention owner. If the invention is in-licensed by the offeror, identify the licensor.

Cost/Business Proposal
Separate the proposal into a cost section and business section. For pricing purposes, offerors should assume a contract start date within ninety (90) days after submission of the proposal. Offerors are requested to use Attachment 2 to price the entire cost of the offeror's selected technical research area A through D. In addition, the offeror is requested to price out individually each deliverable that is required in the offeror's selected technical research area. The cost/price for all deliverables should equal the summation of the entire cost associated with the offeror's selected technical research area. Complying with this cost proposal instruction will enable the Government to expedite the evaluation of each offeror's cost/price proposal.

Offerors shall identify indirect rates which a Government audit agency has approved Forward Pricing Rate Agreements (FPRA) in effect at the time of proposal submission. If not approved, the offeror shall state the basis of the proposed rate (for example, previous year's actual, current fiscal year-to-date, business plan, etc.). The offeror shall provide historical rate information, rationale, and other factors used to develop the proposed indirect rates used to cost the proposal. Also, the offeror shall provide actual expense pool amounts, allocation bases, and rates which have been submitted to the Defense Contract Audit Agency (DCAA) (or other cognizant Government audit agency) in its overhead rate proposal for establishing final indirect rates. For G&A rates proposed, the offeror shall provide actual rates for the past three (3) years and shall indicate whether or not the rates were audited and accepted by DCAA. The cost estimate shall account for the entire cost of the technical research area.

The business section should address all business aspects to the proposed contract, any exceptions to terms and conditions of the announcement model contract, any information not technically related e.g. intellectual property information, subcontracting plan or cost sharing explanation. Subcontracting plans, for efforts anticipated to exceed $650,000, shall be submitted along with the technical and cost proposals in accordance with FAR Subpart 19.7 for subcontracting plan requirements. Small business concerns are exempt from this requirement.

The cost proposal shall include the following information:
(a) **Labor** – A breakdown of direct labor identifying the labor categories or individuals and projected hours, and their associated subtotals by contractor fiscal year.

(b) **Overhead and/or Fringe** – Direct labor hours, with their applicable rates, must be broken out by contract fiscal year and the bases used clearly identified.

(c) **Subcontracts and/or consultants** – The offeror shall submit all subcontractor/consultant proposals and analyses with your cost proposal in accordance with FAR Subpart 15.404-3(b). If the subcontractor/consultant will not submit cost and pricing information to the offeror, this information must be submitted directly to the Government for analysis. Such packages shall be addressed as described in the Solicitation Mailing Instructions paragraph. Offerors shall identify each subcontractor and/or consultant and the items/services to be subcontracted, identify the basis for the subcontract costs, identify the type of contractual business arrangement contemplated for the subcontract and provide a rationale for same. The offerors shall also provide their analysis concerning the reasonableness, realism and completeness of each subcontractor and/or consultant proposal.

(c) Materials, supplies, and equipment – Description and cost of materials, supplies, and equipment, to include the basis of the cost estimate (e.g., historical data, competitive market quotes, etc.). Specific mention should be made of any highly specialized or costly test equipment or supplies necessary to accomplish the project. Offeror should include copies of vendor quotes and /or catalog pricing data.

(d) **Government Stipulated Other Direct Cost for Travel and Transportation** – For travel and transportation, the Government is requesting that each offeror, depending upon the research area it is proposing on, to include the following travel and transportation amount into its cost proposal as follows:

Technical Research Area	Travel and Transportation amount
A	$10,000 per year
B	$ 5,000 total
C	$ 5,000 total
D	$10,000 per year

(f) **Other Direct Costs** – Breakdown of other direct costs (reproduction, computer time, etc.).

(g) **Miscellaneous** – Identification of any other direct or indirect cost elements not identified elsewhere. For each indirect rate indicate if the proposed indirect rate and allocation base have been approved by a Government audit or cognizant agency for use in proposals and when the rate(s) was approved and the name of and telephone number of the cognizant auditor or approving official.

(h) **General and Administrative (G&A)** – Identify the G&A rate and allocation base, if applicable.

(i) **Profit/Fixed Fee** – The Government may utilize the weighted guidelines approach in the Transportation Acquisition Regulations 1215 to evaluate Profit/Fixed Fee. The offeror's cost proposal should contain adequate data and rationale for any consideration it wants included in the Government's evaluation of contract risk and special factors.

EVALUATION FACTORS FOR AWARD

Basis for Award
It is the Government's intent to make multiple awards based upon initial offers without entering into discussions or negotiations. Award will be made to the responsive and responsible offerors whose proposal will provide the greatest overall value to the Government based on the technical proposal, cost/business proposal, and other factors including the availability of funding. While it is the Government's intent to make awards based upon initial offers, the Government may determine during the evaluation period that it is necessary to conduct discussions.

Order of Importance
The selection of one or more sources for award will be based on an evaluation of each offeror's proposal (both technical and cost/business) to determine the overall merit of the proposal in response to the announcement, as well as on the Government's need and funding availability. The technical proposal is ranked as the first order of priority. The cost/business proposal is ranked as the second order of priority.

Risk Assessment
The offeror's proposal will be assessed as to the level of risk it represents in terms of its probable successful accomplishment of its schedule, cost, and performance objectives. Tradeoffs of the assessed risk will be weighed against the potential payoff.

A. TECHNICAL EVALUATION CRITERIA

The offeror's technical proposal will be evaluated in accordance with the criteria described below. The four (4) factors, Technical Approach, Practical Commentary on the Likelihood of Success of the Long-Term Research Outcomes, Technical Team Qualifications, and Record of Relevant Past Performance, are equal in weight. The sub-criteria under Technical Approach, Technical Team Qualifications, and Record of Relevant Past Performance, are also weighted equally.

1. Technical Approach

- (Research Area A only) By what fixed date and in what quantity does the offeror propose to deliver a quantity of alternative aviation fuel, or fuel blending component, for all required specification and fit for purpose testing?

- Does the proposal offer an innovative approach to accomplish the technical objectives?

- Does the proposal offer new and creative solutions and/or advances in knowledge, understanding, technology, and the state of art?

- Does the proposal offer domestic and/or international teams in order to bring the best research and development capabilities to the project?

2. Practical Commentary on the Likelihood of Success of the Long-Term Research Outcomes

3. Technical Team Qualifications

- Resumes
- Publication record of each member in the proposed research area. The team Principle Investigator must be active and have a publication record in the proposed technical research area.

4. Record of Relevant Past Performance

- Date of prior experience (should be within the past five years)
- Sponsor or funding source
- Description of the relevant prior experience and its relationship to the specific research area proposed.

B. COST/BUSINESS EVALUATION CRITERIA`

The offeror's cost/business proposal will be evaluated for reasonableness and realism. Cost realism, as defined and addressed in FAR Subpart 15.401 and 15.404-1(d).

The following, not necessarily in order of importance, shall also be evaluated but will not be numerically scored.

- Consistency between cost and technical proposals;

- Proposed profit may be evaluated using weighted guidelines techniques as described in the Transportation Acquisition Manual. A proposal that includes a profit that is in excess of the statutory limits will be eliminated from consideration, if applicable; and

- Acceptability of the Small Business Subcontracting Plan, if applicable.

- Representations and Certifications Application Hardcopy in accordance with FAR Provision 52.204-8