



Federal Aviation
Administration

*Center of Excellence for
Alternative Jet Fuels and Environment*

Final Solicitation

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1. OVERVIEW

The Federal Aviation Administration (FAA) intends to establish an Air Transportation Center of Excellence (COE) for Alternative Jet Fuels and Environment (AJF&E) in fiscal year 2013. The goal of this endeavor is to create a cost sharing partnership between academia, industry, and government that will focus on aviation environmental and topics related to alternative jet fuels.

The FAA is soliciting proposals from accredited institutions of higher education with university partners and other affiliates positioned to join the FAA in supporting a new COE for AJF&E. This relationship will be solidified by contributions from non-federal sources.

Upon completion of the competitive process, the FAA will enter into cooperative agreements with core university members and award matching grants to establish, operate and conduct research on alternative jet fuels and environmental matters. The cooperative agreement will be awarded in two phases up to a maximum of 10 years. The FAA Administrator has concurred with the intention to support this COE at a minimum 4 million dollars base level annual funding, pending congressional appropriations. The FAA also intends to award to the selected team an indefinite-delivery-indefinite-quantity contract to support tasks for the benefit of the agency. Other U.S. federal government organizations may also co-sponsor research and other activities thereby augmenting the FAA's investment in the COE for AJF&E.

The FAA has identified a need for this Center of Excellence to explore ways to meet the environmental and energy goals for NextGen which will provide environmental protection that allows sustained aviation growth. The FAA COE Program Office and the Office of Environment and Energy conducted a Public Meeting on November 15 and 16, 2012 to discuss the technical requirements, the COE legislative mandates and the competitive selection process. This Final Solicitation follows the Public Meeting and incorporates the public comments that were received.

2. DESCRIPTION OF THE FAA CENTERS OF EXCELLENCE PROGRAM

The FAA has long had a successful partnership with the nation's academic research community, working with more than 75 U.S. colleges and universities to foster important aviation research conducted by faculty and students. For almost two decades, these efforts have contributed significantly to the advancement of aviation science and technology while providing the agency and the industry a high return on investments.

The FAA establishes Air Transportation Centers of Excellence and awards grants under the authority of Public Law 101-508 (49 USC 44513). The agency has established COEs to focus on mission-critical topics that include: Computational Modeling of Aircraft Structures, Airport Pavement and Airport Technology Research, Operations Research, Airworthiness Assurance, General Aviation, Aircraft Noise and Aviation Emissions Mitigation, Advanced Materials, Airliner Cabin and Intermodal Research, and Commercial Space Transportation.

2.1. Background

Through the COE business strategy and structure, the FAA enhances internal research efforts by partnering with the aviation industry, nationally recognized academic institutions, and other public and private entities.

The FAA COE universities are required by Congress to match federal grant funds to *establish, operate and conduct related research* from non-federal sources. Through FAA COEs, the government, academic institutions, and industry leverage the combined resources available for aviation research and maximize technological competence for public purpose.

Researchers may be drawn from faculty and students at academic institutions, industry, the FAA, and other public and private organizations. They may conduct work at an academic institution, an FAA location, an industry location, or other facility as agreed upon by all parties.

The FAA enters into a cooperative agreement with each selected educational institution to enable scientists to perform long-term research, education, training, technology transfer and related activities in specific areas of interest to the aviation community. To foster the terms of the agreement, researchers provide technical expertise to relevant FAA projects and may participate on major planning and investigative committees. Members are required to conduct annual research reviews, actively participate in joint COE conferences or meetings as scheduled, and host seminars and outreach activities to satisfy the legislative requirements and to disseminate research results.

The FAA also may award contracts to successful applicants following a COE competition. This authority gives the COE the latitude to develop multiple forms of analyses, applications, and prototyping activities, thus providing products for the benefit of the agency as needed. The FAA negotiates cost sharing individually for task orders placed under the contract.

In response to this Final Solicitation, qualified institutions of higher education must submit proposals for consideration. Applicants are required to show: 1) the facilities, equipment, and matching commitments from affiliates, state and local governments, and other non-federal entities; 2) all financial and other resources that are available to meet FAA and statutory requirements; and 3) a plan to manage the COE over the course of the cooperative agreement.

A panel of subject matter experts and management officials will review and evaluate proposals on a competitive basis. Each proposal is evaluated to determine the extent to which institutions, team members and affiliates are able to provide a quality environment for research, education and training, and to determine the extent to which the team members meet the selection criteria established by Congress.

Institutions being considered for selection as a COE must demonstrate their ability to meet the following criteria stated in P.L 101-508:

- *The extent to which the needs of the State in which the applicant is located are representative of the needs of the region for improved air transportation services and facilities.*
- *The demonstrated research and extension resources available to the applicant to carry out this section.*
- *The ability of the applicant to provide leadership in making national and regional contributions to the solution of both long-range and immediate air transportation problems.*
- *The extent to which the applicant has an established air transportation program.*
- *The demonstrated ability of the applicant to disseminate results of air transportation research and educational programs through a statewide or region wide continuing education program.*
- *The projects the applicant proposes to carry out under the grant.*

2.2. Comments and Questions

Comments and questions that were addressed at the public meeting have been collected in writing. A document containing all comments submitted and questions answered is available to those who attended the public meeting and to those who have requested to be on the COE mailing list. The COE Program Office has also posted this information on the COE website (www.faa.gov/go/coe). Additional written questions submitted to Patricia.Watts@faa.gov will be answered and posted through March 8, 2013.

Each university team preparing to submit a proposal in response to this Final Solicitation must submit a Letter of Intent to Patricia.Watts@faa.gov. This letter must list members and affiliates joining the team and be submitted by the university proposing to serve as the COE lead by noon on Wednesday, February 20, 2013.

The FAA Administrator has concurred with the request to establish this new COE at the annual base funding level, pending Congressional appropriations, and expects to select a COE team within fiscal year 2013. The technical focus of this COE will include, but not be limited to: alternative jet fuels, noise, emissions, their environmental and welfare impacts, and efficiency.

3. STATEMENT OF WORK

The FAA has identified a need for a Center of Excellence in Alternative Jet Fuel and Environment in order to explore ways to meet the environmental and energy goals for NextGen which will provide environmental protection that allows sustained aviation growth. These efforts include goals for noise, air quality, climate change, and energy. In the area of noise, the goal of the COE for AJF&E is to reduce the number of people exposed to significant noise around U.S. airports in absolute terms, notwithstanding aviation growth, and provide additional measures to protect public health and welfare. For surface air quality, the goal is to achieve an absolute reduction of significant air quality health and welfare impacts attributable to aviation, notwithstanding aviation growth. For climate change, the goal is to limit the impact of aircraft CO₂ emissions on the global climate by achieving carbon neutral growth by 2020 compared to 2005, and net reductions of the climate impact from all aviation emissions over the longer term (by 2050). In regards to energy, the goal is to improve National Airspace System (NAS) energy efficiency by at least two percent per year, and develop and deploy alternative jet fuels for commercial aviation with a near-term aspirational target of having 1 billion gallons of alternative jet fuel in use by aviation by 2018.

To enable the aspirational alternative jet fuels 2018 target and help to ensure the wide spread use of sustainable alternative jet fuels in the longer term, the Center of Excellence for Alternative Jet Fuel and Environment will assist the FAA in the development and qualification of jet fuel from alternative sources and other renewable sources, consistent with the FAA Modernization and Reform Act of 2012. This extends across the alternative jet fuel supply chain, including assistance with research, feedstock development and production, small-scale development, testing, and technology evaluation related to the creation, processing, production, and transportation of alternative jet fuels.

3.1. Scope of Work

The environmental and energy challenges confronting aviation are not amenable to a single solution; rather, they will require multiple solutions involving innovations in technology, operations, planning, and sustainability. A five-pillar comprehensive and integrated approach to achieving aviation environmental and energy goals, based on aviation's traditional strengths of technological and operational innovation, is being pursued with the following components:

- Better Scientific Understanding and Improved Tools for Integrated Environmental Analysis
- Mature New Aircraft Technologies
- Advance development of Alternative Aviation Fuels
- Explore and Demonstrate Clean, Quiet and Energy Efficient Operational Procedures
- Policies, Environmental Standards, Market Based Measures and Environmental Management System

The Center's activities will address these five components. The purpose is to forge a union of public sector (FAA, government agencies, airport authorities, state/local governments, etc.), private sector (airlines, manufacturers, etc.), and academic institutions to create a world-class consortium to identify solutions for existing and anticipated problems facing aviation in terms of environment and energy.

The Center's broad range of study includes, but is not limited to, the following technical areas:

3.1.1. Alternative Jet Fuels - Feedstock Development, Processing and Conversion Research

- Conduct small-scale development, testing, and technology evaluation related to the creation, processing, production, and transportation of alternative jet fuel.
- Develop a means for using techno-economic and environmental sustainability analyses to identify areas of research that could improve economic and environmental performance (see paragraphs 3.1.2 and 3.1.3) of alternative jet fuels and identify promising fuels for approval process.

3.1.2. Alternative Jet Fuels – Regional Supply and Refining Infrastructure

- Conduct analyses to support state and regional feedstock-to-finished alternative jet fuel supply chain development and production efforts.
- Conduct techno-economic analyses of candidate alternative jet fuel pathways to evaluate their economic cost of fuel production.

- Examine the impact of economic competition for feedstocks on the availability of alternative jet fuels.
- Develop efficient mechanisms for tracking and reporting nationwide commercial aviation alternative jet fuel production and usage.
- Evaluate policy & incentive options that could facilitate alternative jet fuel deployment.

3.1.3. Alternative Jet Fuels – Environmental Benefits Analysis

- Develop effective measurement systems and conduct gaseous and particulate matter emissions measurements from alternative jet fuel use (see paragraph 3.1.7).
- Conduct analyses to quantify the environmental sustainability, including life cycle GHG emissions and land, air and water impacts, of candidate alternative jet fuel pathways.
- Develop a framework to evaluate the impacts of large scale alternative fuel production on both the environment and the economy (see paragraph 3.1.2) and use it to create alternative jet fuel deployment scenarios.

3.1.4. Alternative Jet Fuels – Aircraft Component Deterioration and Wear Assessment

- Examine the durability of aircraft engine components with the use of new candidate fuel formulations relative to wear, deterioration and deposit build-up.
- Develop new, or refine existing, laboratory and materials compatibility test methods and use them to evaluate the composition and impact of new candidate fuel formulations on both metallic and non-metallic materials.

3.1.5. Alternative Jet Fuels – Fuel Performance Testing

- Develop new (or refine existing) laboratory, turbine engine rig, full-scale engine test, and aircraft flight test methods and use these to evaluate the performance properties of new candidate fuel formulations.
- Explore, develop and demonstrate analytical methods that use the composition of new fuel formulations to assess the combustion, handling, storage, and compatibility performance of these new fuels.

3.1.6. Environment - Aircraft Noise and Impacts

- Characterize the noise from a variety of subsonic aircraft, including but not limited to helicopters, tilt-rotor aircraft, unmanned aerial systems, and advanced vehicle concepts, as well as supersonic aircraft such that the impact of aviation noise on the community, including the impact of en-route noise and low noise sonic boom, can be better understood and measured.
- Explore sound propagation from surface to cruise altitudes including weather effects, turbulence, and impacts due to varying operational procedures and vehicle types.

- Explore metrics, approaches to their computation and define threshold levels that can characterize the impact of aviation noise, including en-route noise and low noise sonic boom, on the community.
- Examine the relationship between community annoyance and aviation noise.
- Examine the relationship between human health and noise, including impacts of aviation noise on sleep, differing impacts of noise in different communities and settings (e.g., urban/rural), and other human impacts.
- Investigate the effects of aircraft noise on children's ability to learn.
- Conduct studies of low frequency noise impacts and potential mitigation approaches.
- Quantify the explicit and implicit economic costs of aviation noise on the social welfare and human health to aid cost-benefit analysis.
- Perform research to aid the development of policies on the impact of aviation noise.
- Investigate the interdependency between actions to reduce aircraft noise and the implication for fuel burn as well as emissions that affect surface air quality and climate change.
- Explore and recommend approaches for community noise outreach.
- Examine noise stringency options and their potential implications.
- Conduct studies of the effectiveness of sound insulation in residences and schools. Explore innovative passive and active noise attenuation approaches for dwellings (homes, schools, offices, etc.)
- Examine correlation in spatial trends in sounds insulation investment, its impact on noise reduction and spread of threshold contour levels
- Explore techniques, tools and instruments that measure the difference in aviation noise levels outside and inside residences or schools.
- Examine the occurrence and prevention of population encroachment into compatible land use areas.
- Perform research to aid improvements in the guidelines on compatible land use and noise sensitive area identification.
- Conduct studies to identify practices, tools and techniques for long-term compatible land use protection around airports.

3.1.7. Environment - Aviation Emissions and Impacts

- Conduct aircraft engine emissions measurements under varied flight conditions for subsequent analysis (see third and fourth bullets below). Conduct testing at the exit plane, within the engine plume and in the near field. Develop sampling and measurement methodologies to support certification and standard setting.
- Characterize the formation of aviation emissions and their chemical speciation during all phases of flight, including the influence of ambient conditions.
- Develop analytical methods and emissions indices from measurement data to model aviation emissions for use in environmental modeling for all phases of flight.

- Conduct air quality monitoring and atmospheric measurement campaigns and source apportionment studies to develop improved methods to assess relative and absolute impact of aviation emissions on surface air quality.
- Model the full life cycle of aircraft emissions development including dispersion, transport, photochemical and microphysical effects, from plume to global scales and at all relevant timescales and for all phases of flight.
- Evaluate the environmental impacts of aviation combustion emissions from all phases of flight on surface air quality and public health as well as regional and global climate change. Note that life cycle Greenhouse Gas (GHG) emissions are covered in paragraph 3.1.3.
- Assess the uncertainties in our understanding of aviation's influence on local, regional, and global air quality and climate change and develop means to reduce these uncertainties.
- Explore metrics, approaches to their computation and define threshold levels that can characterize the impact of aviation emissions on the community.
- Quantify the explicit and implicit economic costs of aviation emissions on social welfare, surface air quality, human health, and global climate to aid cost-benefit analysis.
- Perform research to aid the development of domestic and international policies, measures and standards for aviation emissions and their potential economic and environmental implications on noise, fuel burn, and other emissions species and their impacts.
- Investigate the interdependency between actions to reduce aircraft emission species and the implication for fuel burn, other emissions species, noise, and their impact on the environment.
- Evaluate the context of aviation emissions relative to all other emissions sources, taking into account regulatory constraints domestically and globally.

3.1.8. Environment - Aircraft Technology Assessment

- Provide support to the FAA through assessment and model validation and verification of environmental benefits of aircraft (airframe and engine) technologies and operational concepts that are currently being pursued under the Continuous Lower Energy, Emissions, and Noise (CLEEN) program or could be included in subsequent technology development efforts such as the CLEEN program.
- Explore, develop and demonstrate, via simulation, flight control algorithms and models that have the potential to improve aircraft and fleet environmental performance.
- Explore advanced technology options that can be used to leverage the more precise or enhanced performance properties of alternative jet fuels.
- Explore advanced technology options and integration of new/existing technologies to maximize environmental and energy performance.
- Enhance aircraft (airframe and engine) component and system level design modeling capabilities within the aviation environmental tool suite (see paragraph

3.1.10) to examine aircraft and fleet level environmental performance for emissions, noise and fuel burn and related tradeoffs and interdependencies.

- Transition results from aircraft technology assessment to enhancement in the aircraft design tools that are a part of the aviation environmental tools suite (see paragraph 3.1.10).
- Evaluate production costs and timeframes for new aircraft (airframe and engine) designs.
- Conduct fleet and aircraft level analyses of combination of new and existing airframe and engine technologies and how they will affect system-wide environmental performance.

3.1.9. Environmentally and Energy Efficient Gate-to-Gate Aircraft Operations

- Investigate operational procedures that provide environmental and energy performance benefits during any phase of flight from surface to en-route while evaluating non-environmental system impacts (e.g., capacity, workload, etc.).
- Develop a menu of and accelerate implementation of operational procedures and strategies to reduce aircraft noise and emissions impacts, while minimizing the effects on capacity and workload.
- Conduct demonstrations and evaluations of operational procedures that could mitigate noise, emissions and/or fuel burn.
- Through analysis and demonstration, develop estimates of expected environmental and fuel savings benefits as well as the interdependencies amongst noise, emissions, fuel burn, and system performance.
- For demonstrations and evaluations of operational procedures, identify risks and limitations associated with all stages of project execution and develop a plan to transition matured outcomes to the NAS for implementation.
- Perform environmental regulatory and compliance analyses associated with existing and new operational procedures.
- Evaluate the fuel burn, noise and emissions impacts of advances in airborne and ground technologies for communication, navigation and surveillance.
- Evaluate the effectiveness, including capacity considerations, of procedures that are used to improve environmental performance.

3.1.10. Environment - Aviation Modeling and Analysis

- Use technological and scientific advancements to support improvements to the aviation environmental tool suite being developed by the FAA to be able to model the consequences and impacts of aircraft noise and emissions (from current aircraft and potential future aircraft concepts) at the airport, regional and global levels.
- Develop models that can evaluate the fuel burn, emissions, and noise from existing and novel aircraft designs. Seamlessly integrate environmental analyses of existing and novel aircraft designs into the aviation environmental tool suite.

- Develop models that can be used to model the techno-economic and environmental performance of alternative jet fuels (see paragraphs 3.1.2 and 3.1.3). Seamlessly integrate environmental analyses of alternative jet fuels into the aviation environmental tool suite.
- Implement methodologies into the environmental tool suite that quantify the environmental and energy benefits of operational procedures.
- Develop models that use the performance, fuel burn, noise and emissions characteristics of aircraft to estimate fuel burn, noise and emissions at the local airport, regional, and global levels.
- Develop models that can calculate the physical and monetary impact of aviation noise and aviation emissions on surface air quality at the local airport, regional, and global levels.
- Develop models that can calculate the physical and monetary impact of aviation emissions on global climate change on both a global mean basis and on a regional basis.
- Develop models that can forecast the change in aviation demand and the evolution of the aircraft fleet under varied economic conditions and policy scenarios.
- Analyze the impact on fuel burn, noise, emissions, as well as the interdependencies amongst these, of scenarios that utilize varied operational procedures, aircraft technology, alternative jet fuels, and policy measures. Analyze environmental impacts and economic trade-offs and cost-benefit assessments of policy options and mitigation strategies.
- Support environmental management system development and use, policy and economic analysis of environmental and energy related matters, facility energy management policies, National Environmental Policy Act and FAA facility environmental compliance, and other initiatives to improve the environmental performance of the national aviation system.

4. EVALUATION CRITERIA

Members of this Center of Excellence will be selected based on the evaluation criteria set forth in Public Law 101-508. Applicants should equally address each selection criterion mandated by Congress and the individual evaluation factors provided below:

4.1. Criterion 1: *The extent to which the needs of the state in which the applicant is located are representative of the needs of the region for improved air transportation services and facilities.*

The applicant should demonstrate the following:

- The state and regional capabilities, resources, and the commitment to aviation development, Next Generation transportation planning, alternative fuels development, and environmental concerns.
- Relevant partnerships and the significance of relationships with members of the aviation and alternative fuels industries within the region of each team member.

4.2. Criterion 2: *The demonstrated research and extension resources available to the applicant to carry out this section. [Relating to Public Law 101-508]*

The applicant should demonstrate the following:

- Recent grants and contracts awarded to the applicant focusing on topics of research relating to alternative jet fuels and environment.
- The availability of scientific resources, laboratory, test and evaluation facilities, located on-campus and off-campus.
- The availability and use of facilities and resources to drive innovation, technology commercialization and entrepreneurship to reduce aviation's impact on the environment.

4.3. Criterion 3: *The ability of the applicant to provide leadership in making national and regional contributions to the solution of long-range and immediate air transportation problems.*

The applicant should demonstrate the following:

- Significant experience with industry and government agencies related to alternative jet fuels and aviation environmental matters. A proposed plan might include the establishment of an advisory board, to be actively engaged in the COE, comprised of leaders in the field and written commitments from their organizations to be actively engaged in the COE.

- The extent to which the members have achieved high standing within the national and international arena of aviation environmental and alternative jet fuels research as evidenced by presentations at national and international conferences, publications in popular and peer-reviewed journals, etc.
- Evidence of ability to obtain matching funds and potential sources, such as letters of commitment.

If the applicant proposes as a lead member of a team of universities, it must provide a comprehensive strategic management plan. The FAA is interested in how the applicant will organize and manage the entire COE team. This plan should also articulate: proposed management and oversight of fiscal and technical activities; how the universities will track and coordinate research efforts, funds; how research teams will be selected and evaluated, how the costs of administering the Center will be documented, apportioned; and how and from which organizations the COE expects to generate matching contributions.

4.4. Criterion 4: *The extent to which the applicant has an established air transportation program.*

The applicant should demonstrate the following:

- A history of training personnel in aviation environmental issues and alternative jet fuels research and related academic fields, e.g., scientists, engineers, planners, economists, etc.
- Research experience related to alternative jet fuels and aviation environmental issues.
- Curricula in academic fields relevant and related to the technology areas listed in Section 2. Statement of Work, above.
- Significant placement of students in industry, academia, and government in jobs related to aviation environmental matters and alternative jet fuels, and methods used to collect data on placement of graduates.
- Credible academic standards.

4.5. Criterion 5: *The demonstrated ability of the applicant to disseminate results of the air transportation research and educational programs through statewide or region-wide continuing education programs.*

The applicant should demonstrate:

- Academic programs, such as continuing education, distance learning, etc., that address aviation fuels, environmental and energy needs.

- Experience conducting seminars, symposia, and workshops related to aviation environmental topics and alternative jet fuels.
- Experience using the Internet and other media to disseminate results of research and enhance educational programs.
- Facilities, and resources available and plans to provide various COE related information dissemination activities.

4.6. Criterion 6: *The projects the applicant proposes to carry out under the grant.*

The FAA is interested in how the applicant will approach, conduct, evaluate and manage the research and related initiatives within the COE in the short- and long-term. The applicant shall submit a concise program plan that reflects the needs for research in the areas of alternative jet fuels and aviation environmental research as defined in the scope of work and a plan to generate matching contributions from non-federal sources. The plan shall not exceed 10 pages of the 50-page limit (See Page 16-18, Solicitation Sec. 7.3. What to Submit, C. Volume I).

It is expected that the plan will contain between 10-20 projects that are distributed across the entire spectrum of technology areas listed in Section 3, Statement of Work. Descriptions of each project should be no more than typical abstracts of 300-400 words each. The final number of project descriptions may be determined by the proposal page limit. If the applicant places more emphasis on one or more of the focus technology or research areas than the others, provide a rationale for the prioritization.

Please note: *these projects will not necessarily be funded if the applicant is selected but are indicative of the applicants understanding of the relevant issues and approach.*

Once a university team has been selected to serve as an Air Transportation Center of Excellence, the FAA sponsor develops a research agenda based on the specific resources and skills provided by the team. Thereafter, university members submit research proposals in their area(s) of expertise. Projects will be defined, evaluated, and supported in accordance with FAA needs on an ongoing basis throughout the life of the COE.

5. CENTER OPERATIONS

The COE members must maintain close working relationships with the FAA COE Program Office, the Office of Primary Interest (OPI), and other sponsoring research program office(s). This active relationship extends to participation in conferences, meetings, joint research efforts, presentations, and the submission of routine and standardized activity reports to the FAA sponsor and the COE Program Office.

The COE is required to track various activities and submit quarterly, semiannual and a fully inclusive annual report. These reports will include, but not be limited to, research accomplishments, sources of all funds including matching contributions, fiscal expenditures, placement of graduates, and other information as required by the COE Program Office.

During the first year, the COE is required to submit required reports and conduct on-site meetings on a quarterly basis. Thereafter, members are required to submit reports as specified in the cooperative agreement, and conduct meetings on a semiannual basis.

In keeping with the Congressional requirement to disseminate information and the interest expressed by the agency to disseminate and utilize new knowledge, the COE will report on, and participate in, numerous informational activities. The FAA will require the COE to hold a semiannual meeting with agency representatives on topics relating to the status and results of the designated research. The COE members will host a major symposium prior to the end of the initial five-year phase and thereafter as agreed upon. The Center is also required to actively participate in FAA joint COE meetings as scheduled.

Additional information dissemination activities may be accomplished in a variety of ways, such as through continuing education programs focused on the environment and alternative jet fuels community, university technology transfer organizations, etc. These activities may include, but are not limited to:

- Site visits for representatives of key professional, industrial, academic, state or local associations or organizations, members of the media, etc.
- Preparation of COE related publications, various articles, pamphlets, manuals, books prepared or published, and papers delivered at conferences.
- Local, state, or regional meetings.
- Demonstrations of new or proposed technology.
- Development and presentation of courses, seminars, etc.

The Grantee will not make any presentations, issue news releases, conduct interviews, or engage in any other public interface or written publication that implies FAA involvement or support or attribute conclusions to the FAA without prior written permission of the FAA COE-AJF&E Technical Program Manager and the FAA COE Program Director.

6. ANNUAL RESEARCH REVIEW

The COE shall host a semiannual review of the research completed and in progress. The semiannual review includes on-site meetings and briefings conducted by appropriate technical and administrative support personnel. The meeting must focus on the relevance, merit, direction, results, costs, and benefits of research and education efforts in the designated technology area(s), and include a discussion of potential future projects and plans.

6.1. Annual Report

The COE shall prepare and deliver to the FAA Centers of Excellence Program Director and to the COE –AJF&E Program Manager an annual report by project area. The report shall include: research results, benefits, and information dissemination efforts; the sources and value of matching contributions; the name and national origin of all research personnel and intended graduation dates of students; significant events that were sponsored or attended by faculty and students; journal articles and conference proceedings published throughout the past year; and a brief description of the research intended to be conducted during the following year. The use of graphics and photographs, in addition to the narrative descriptions, are highly encouraged. COE universities also report the placement of students upon completion of their studies.

6.2. Duration and Reassessment

The needs of the agency are reviewed annually and the Center is reassessed within the first five years. As a result of changing needs, the agency reserves the right to expand scope, change direction, or terminate COE support for just cause.

Each cooperative agreement is closed out at the end of the initial five-year period. When all members have satisfied matching requirements, and other changes as suggested by the reassessment team are made, a Phase II cooperative agreement will be negotiated with each core university member.

To satisfy information dissemination requirements, the COE will provide for a major symposium prior to the end of each Phase. During the final transition to independence, the FAA takes all measures possible to provide for project completion and orderly close out of all tasks.

7. PROPOSAL PREPARATION AND SUBMISSION

To avoid processing delays, the proposal should be reviewed carefully to include all essential data and required forms.

7.1. Who Is Eligible To Submit

- Accredited institutions of higher education are eligible to submit proposals to become a core member of the proposed Center of Excellence. When a team is proposing to serve as a COE, one member must serve as the administrative lead. A technical lead may also be designated. The COE members may rotate roles, and change or redefine member responsibilities during the life of the Center.
- Individuals are not eligible for a COE designation and do not qualify for any awards under this program. Graduate students cannot submit proposals, but they are encouraged to serve as research assistants to faculty members.

Prior to March 8, written questions may be submitted to the Centers of Excellence Program Director, Patricia Watts, email: patricia.watts@faa.gov.

Potential applicants and others may communicate in writing directly with the COE Program Director during the application and selection process.

Please Note: Other than the COE Program Director, FAA employees may not discuss or take questions regarding technical issues, the competitive process, or related COE AJF&E matters.

7.2. When to Submit

Proposals must be submitted for receipt by 3:00 pm on Wednesday, March 20, 2013. Universities submitting a proposal in advance of the submission deadline will have an opportunity to provide further clarifications if needed prior to the submission deadline. The COE Program Director may request additional information at any time during the evaluation period and thereafter.

7.3. What to Submit

The applicant must submit two volumes: Volume I is the Technical Proposal and management plan, and Volume II contains the formal Certifications and Declarations.

Margins should be 1 inch at the top, bottom, and on each side, and text should be in type no smaller than 12 point Times New Roman. Pages must be numbered. Print the original signed copy single sided. Additional copies of the proposal may be printed on both sides.

Six copies of each proposal must be submitted in addition to the original. Applicants must also include an electronic copy of all submitted materials on an appropriately titled compact disc or flash drive. Attach reprints, appendices or other materials to be considered with the proposal to each individual copy of the proposal.

The FAA is not responsible for proposal preparation expenditures incurred by the proposing organization.

Assemble proposals with tabs as outlined below in the following sequence:

A. Cover Letter. Affix a standard cover letter to the front of the proposal. The cover letter must be signed by a financial officer and the principal investigator/main technical contact or a senior level officer at the lead institution.

B. Table of Contents

C. Volume I, Proposal.- tabulated as follows:

(1) Section 1 (Limited to 50 pages) - The proposal must consist of a narrative statement that addresses the evaluation factors and the six selection criteria established by Congress.

(2) Section 2 (Limited to 25 pages), Long-Term Management Plan – The strategic business and financial plan must detail how the institution proposes to direct and manage the Center of Excellence team and generate matching contributions, and income from outside sources in order to achieve self-sufficiency within a 10-year period.

The plan should include, in this order: 1) an organization chart; 2) a narrative describing the roles and responsibilities of key personnel including industry affiliates; 3) projected activities to be undertaken during the life of the COE to satisfy Congressional mandates, achieve goals of the COE Program and provide oversight for overall technical requirements of public and private sponsors, 4) other items as appropriate.

If the proposal being submitted includes related work that has been funded previously, or is currently being funded by FAA or a source other than the FAA, the information must be declared. If the proposal is being submitted to other possible sponsors, include a listing of the sponsors. Concurrent submission of a proposal to other organizations for a similar purpose will not impact review by the FAA or other government entities.

(3) Section 3, Letters of Commitment. In addition to letters of commitment and support from various sources, each proposing core university member must submit a letter signed by a fiscal officer and a senior university official. Letters should be included at the end of this volume and do not count against page limits.

D. **Volume II, Certifications and Declarations.** This volume consists of the following items tabulated in this order:

(1) Standard Form 424, Application for Federal Assistance. The original must be signed by the authorized Organizational Representative.

(2) Research and Related Senior/Key Person Profile (Expanded). *Curriculum vitae* for Center Lead and key staff at member universities, limited to two pages per individual.

(3) Research and Related Personnel Data

(4) Research and Related Budget

(5) Research and Related Federal and Non Federal Budget form - include both FAA award and matching contributions anticipated and potential sources.

(6) Project/Performance Site Locations of each member

(7) Indirect Cost Agreement. Provide a copy of the latest institutional indirect cost agreement negotiated with the lead institution's cognizant federal audit agency (Department of Health and Human Services, Department of Defense, or other) in force. Selected universities serving on the team, will be required be required to provide indirect cost agreements upon notification.

(8) A copy of the lead university team member's latest institutional audit report or letter. Include the name and telephone number of the cognizant federal audit agency representative. Members of the selected COE team(s) will be asked to provide all required forms, audit reports and, where necessary, documentation of actions taken to address audit findings.

Applicants must ensure that the costs the FAA is being asked to support are allowable, necessary, and reasonable and that the treatment of direct or indirect costs in the budget is consistent with applicable federal cost principles and with the policies of the submitting organization.

7.4. Where to Submit

Send original proposal plus six copies to:

Patricia Watts, Ph.D.
Centers of Excellence Program Office, 4th floor
Federal Aviation Administration
William J. Hughes Technical Center, L-28
Atlantic City International Airport, NJ 08405

The outside of each mailed package should be clearly marked *COE SUBMISSION*. Proposals must also be submitted through Grants.gov.

8. PROPOSAL PROCESSING AND EVALUATION

8.1. Acknowledgment/Review

Proposals to establish a COE are assigned a proposal number and the COE Program Office will acknowledge receipt.

8.2. Evaluation/Selection

A team of subject matter experts will evaluate each proposal to assure that the FAA Technical Evaluation Factors are fully addressed and to determine the extent to which the selection criteria have been satisfied. The evaluation team will consist of at least three individuals with expertise in aviation environment and alternative jet fuels subject matters. The team leader will be responsible for developing an executive summary of the overall rating based on evaluations of the team members.

During the evaluation process, the FAA COE Program Office will also establish a team to conduct a Management and Fiscal review of each proposal. The review team will consist of members with expertise in management and fiscal matters. The team leader will be responsible for developing an overall summary based on the input of the team members.

The FAA sponsoring organization and COE Program Office may conduct site visits to inspect available resources prior to finalizing the evaluation process. The FAA COE Program Director may contact the proposing organizations to discuss the submission, or to request further information to assist in assessing a proposal.

Otherwise, during the selection process, discussions regarding program requirements or the competitive process are not permitted between the proposing organizations, the sponsoring organization or others within the FAA or other government organizations who may be involved in or have knowledge of the application or evaluation process.

8.3. Ineligible Proposals

Proposals determined to be ineligible for consideration under this solicitation will be returned to the applicant with a written explanation as to the reasons the proposal was determined to be ineligible.

8.4. Withdrawal

A proposing institution may withdraw a proposal at any time prior to award.

9. GRANT AWARD AND ADMINISTRATION

9.1. Types of Awards

Cooperative Agreement:

This agreement specifies terms and conditions of the initial five-year period of award and allows award of COE grants at a specified level. In keeping with Congressional requirements, the COE must match 100% of the FAA-provided funds awarded to *establish, operate and conduct related research* within each cooperative agreement period. Once the FAA Administrator announces the selection of the COE team, the COE Program Officer will enter into a cooperative agreement with each university member. Funds will be granted as amendments to this agreement over the life of the COE.

Grant:

A grant is the basic award instrument which the FAA may use to support COE activities at a specific level of effort and period of time with no statement of FAA intent to provide additional future support without submission of another proposal. Standard aviation research grants may be awarded to a COE following notification of intent to cease funding to the long-term partnership. Grant awards are made for public purpose and under the COE statute, must be matched.

The OPI will establish the level of effort for this COE and establish long-term fiscal plans to support the COE research, education, training and related activities.

9.2. Grant Award

The award instruments will contain all documentation applicable to the award and administration of the COE grant(s).

9.3. Grant Administration

Program guidance is provided in the COE cooperative agreement. The conditions and provisions of the initial COE cooperative agreement and the subsequent award instrument(s) govern the administration of grant funds awarded through the COE Program Office.

The FAA COE Grants Officer may make direct awards at any time to universities, partners, and affiliates for the convenience of the government.

Note: Only the officially designated fiscal officer(s) within the FAA are authorized to commit FAA funds and to permit FAA supported projects to be initiated with COE members.

9.4. Direct Awards

In the event that a team submits a proposal to establish a COE and is selected, grants and contracts to university partners and affiliates may be awarded directly to each member. Awards will be made to members without further competition.

10. REQUIRED FORMS

The attached forms are required when submitting grant proposals.

- Standard Form 424, Application for Federal Assistance
- Research and Related Budget
- Research and Related Personnel Data
- Research and Related Senior/Key Person Profile (Expanded)
- Research and Related Fed/NonFed Budget
- Project/Performance Site Locations
- Other Attachments

11. E-GRANTS AND ADDITIONAL INFORMATION

For additional information regarding the FAA Air Transportation Centers of Excellence Program, the electronic grants application system and process, and the COE reporting requirements, see the COE website at www.faa.gov/go/coe

APPENDIX

CHECKLIST FOR CENTER OF EXCELLENCE PROPOSAL SUBMISSION

Use this checklist to ensure that a complete proposal is submitted. Please note that properly sequenced, tabulated, and completed proposals expedite processing and facilitate the review process.

Details of the following required elements are found within this solicitation.

- _____ Cover Letter

- Volume I, Proposal**
- _____ Statement in response to the Evaluation Factors - Narrative limited to 50 pages
- _____ Management Plan - Narrative limited to 25 pages
- _____ Letters of Commitment - A letter from each university team member and non-federal affiliates expected to support and work with the COE

- Volume II, Certifications and Declarations**
- _____ Cover Sheet for Proposals to the FAA - Application for Federal Assistance SF-424
- _____ Research and Related Budget
- _____ Research and Related Personnel Data
- _____ Research and Related Senior/Key Person Profile (Expanded)
- _____ RR Fed/NonFed Budget
- _____ Project/Performance Site Locations
- _____ Other Attachments to support Proposal Narrative, Indirect Cost Agreement, etc.

See Grants.gov for additional forms required at time of announcement.