

QUESTIONS AND ANSWERS

PLEASE REFER TO THE GENERAL FAQs SECTION OF ARPA-E'S WEBSITE ([HTTP://ARPA-E.ENERGY.GOV/?Q=FAQ/GENERAL-QUESTIONS](http://arpa-e.energy.gov/?Q=FAQ/GENERAL-QUESTIONS)) FOR ANSWERS TO MANY GENERAL QUESTIONS ABOUT ARPA-E AND ARPA-E'S FUNDING OPPORTUNITY ANNOUNCEMENTS. ADDITIONAL QUESTIONS SPECIFIC TO THIS FOA ONLY ARE INCLUDED BELOW. PLEASE REVIEW ALL EXISTING GENERAL FAQs AND FOA-SPECIFIC QUESTIONS BEFORE SUBMITTING NEW QUESTIONS TO ARPA-E.

I. Full Application Questions:

Q1. COULD YOU PLEASE PROVIDE CLARIFICATION IF PRE-TRAILS AWARDS WILL ONLY BE GRANTS, OR WHETHER SUCH AWARDS MAY ALSO TAKE THE FORM OF ARPA-E FUNDING AGREEMENTS REFERENCED AT PAGES 12-13 OF THE SOLICITATION, INCLUDING COOPERATIVE AGREEMENTS AND TECHNOLOGY INVESTMENT AGREEMENTS UNDER ARPA-E'S "OTHER TRANSACTIONS" AUTHORITY.

ANSWER: The intention at this point is for ARPA-E to issue one, multiple, or no reimbursable grants under this FOA. ARPA-E does however reserve the right to award grants, cooperative agreements, and/or OTA's.

Q2. A FEW QUESTIONS CONCERNING THE PRE-TRAILS EXPLORATORY TOPIC FOA:

1. **ARE PREDICTIVE ALGORITHMS THAT DO NOT RELY ON THE NEED OF NEWLY DEVELOPED SENSORS (I.E., WATER VAPOR SENSOR) PREFERRED?**
2. **TECHNICAL PERFORMANCE TARGETS B. STATES:
- "FINAL DEMONSTRATION OF THE AIC PREDICTIVE MODEL TO ACHIEVE A MINIMUM OF FIVE (5) TRUE POSITIVE PREDICTIONS..."
WHAT ARE CONSIDERED 5 DISTINCT PREDICTION EVENTS? WHO/HOW WILL THESE PREDICTION EVENTS BE IDENTIFIED PRE-DEMONSTRATION?**
3. **WITHOUT AIRCRAFT OR ENGINE OEM PARTNERSHIP, IT MAY BE DIFFICULT TO ACQUIRE POTENTIALLY VALUABLE PROPRIETARY AIRCRAFT/ENGINE OPERATION AND PERFORMANCE DATA TO HELP BUILD THE PREDICTIVE MODEL. WILL ARPA-E ASSIST IN ACQUIRING SOME OF THESE DATA?**

ANSWER:

1. The program has a single target related to model performance as described in the FOA, there is no bias to whether existing or new sensors are used to achieve this target.
2. A flight can be considered either a validation or a prediction opportunity. It will be up to teams to identify the necessary resources and capabilities to provide reasonable validation of their predictions. No guidance will be given by ARPA-E on flight sources, whether from commercially available data or piloted specifically for the project.

3. ARPA-E provides a teaming list to assist in formation of relevant teams. It is the responsibility of the proposing team to address any deficiencies in their resource plan prior to award of funds under this FOA.

Q3. I AM WRITING TO SEE THIS TOPIC IS INTERESTED IN FUNDING MODELING & SIMULATION APPROACHES TO REDUCING EMISSIONS CONTRIBUTING TO CONTRAILS BY MITIGATION/CAPTURE/SEQUESTRATION OF CARBON DIOXIDE AND WATER VAPOR.

ANSWER: As previously mentioned, the program has a single target related to model performance as described in the FOA, there is no preference with respect to the approach proposed as long as it meets the FOA targets and has potential for adoption once the technology achieves sufficient maturity.

Q4. THE “PREDICTIVE REAL-TIME EMISSIONS TECHNOLOGIES REDUCING AIRCRAFT INDUCED LINES IN THE SKY (PRE-TRAILS)” TOPIC IN THE EXPLORATORY TOPICS (DE-FOA-0002785) ADDRESSES A REAL WORLD PROBLEM FOR THE AVIATION COMMUNITY. THE DESCRIPTION OF THE TECHNICAL AREAS OF INTEREST AND CRITERIA AND METRICS CLEARLY PRESUPPOSES THAT A PURE “BIG DATA” MACHINE LEARNING APPROACH AS THE ONLY VIABLE PATH TO PREDICTIVE MODELLING. WILL APPROACHES THAT USE PHYSICS-BASED MODELING, POSSIBLY AUGMENTED WITH MACHINE LEARNING BE CONSIDERED RESPONSIVE?

ANSWER: See answer to Q3.

Q5. I AM WRITING WITH A QUERY REGARDING THE ARPA-E FOA FOR PREDICTIVE REAL-TIME EMISSIONS TECHNOLOGIES REDUCING AIRCRAFT INDUCED LINES IN THE SKY (PRE-TRAILS). I REPRESENT A UK-BASED COMPANY PLANNING TO SUBMIT AN APPLICATION FOR THIS FOA IN COLLABORATION WITH A US-BASED COMPANY, WHICH WILL OPERATE AS PRIME. WE ARE PLANNING TO ESTABLISH A US FOOTPRINT BY INCORPORATING AS SOON AS POSSIBLE IN 2023. CAN I PLEASE CHECK THE ELIGIBILITY SPECIFICATIONS IN THIS SCENARIO, IN ADDITION TO ANY RELEVANT RESTRICTIONS, REGULATIONS, AND TIMELINES?

ANSWER: See Section III.A.3 of the FOA. Foreign entities must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed or to be formed) under the laws of a State or territory of the United States to receive funding. All work under the ARPA-E award must be performed in the United States or a waiver of this requirement must be requested in the Business Assurances and Disclosures Form.

ARPA-E generally does not fund projects that involve foreign travel. All new equipment purchased under ARPA-E funding agreements must be made or manufactured in the United States to the maximum extent practicable.

Subrecipients are required to obtain a Unique Entity Identifier (UEI) from the System for Award Management (SAM) by visiting www.sam.gov/SAM. Obtaining a UEI could take several weeks, so this process should begin as soon as possible. See Section VI.B.1 of the FOA for more information.

Q6. PLEASE CLARIFY IF THE USE OF THE TERM "PROJECT TEAMS" IN THE ITALICIZED STATEMENT BELOW MEANS THE TEAM MAKEUP AS A WHOLE AS DEFINED HERE NEEDS TO PERFORM GREATER THAN OR EQUAL TO 80% OF THE TOTAL WORK, OR IF AN INDIVIDUAL TEAM MEMBER NEEDS TO PERFORM GREATER THAN OR EQUAL TO 80% OF THE TOTAL WORK, TO BE ELIGIBLE FOR THE 10% COST SHARE (INSTEAD OF 20% STATED ELSEWHERE) ON THE OVERALL SUBMISSION?

"PROJECT TEAMS WHERE DOMESTIC EDUCATIONAL INSTITUTIONS, DOMESTIC NONPROFITS, SMALL BUSINESSES, AND/OR FFRDCS PERFORM GREATER THAN OR EQUAL TO 80%, OF THE TOTAL WORK UNDER THE FUNDING AGREEMENT (AS MEASURED BY THE TOTAL PROJECT COST) ARE REQUIRED TO PROVIDE AT LEAST 10% OF THE TOTAL PROJECT COST AS COST SHARE."

ANSWER: Please review Section III.B.3, in its entirety, for an answer to this question.

Q7. I REPRESENT A UK-BASED COMPANY PLANNING TO SUBMIT AN APPLICATION FOR THIS FOA IN COLLABORATION WITH A US-BASED COMPANY, WHICH WILL OPERATE AS PRIME. WE ARE PLANNING TO ESTABLISH A US FOOTPRINT BY INCORPORATING AS SOON AS POSSIBLE IN 2023. CAN I PLEASE CHECK THE ELIGIBILITY SPECIFICATIONS IN THIS SCENARIO, IN ADDITION TO ANY RELEVANT RESTRICTIONS, REGULATIONS, AND TIMELINES?

ANSWER: See section III.A.3 of the FOA.

Q8. GIVEN THE RATHER SHORT MAXIMUM PERIOD OF PERFORMANCE (18 MONTHS), WE WOULD LIKE TO KNOW IF ARPA-E WOULD ACCEPT ANY PARTIAL PROPOSALS, I.E., ONES THAT WOULD ADDRESS THE TOPICS OF AIRCRAFT AND ENVIRONMENTAL DATA AND SENSOR DEVELOPMENT, AND DEVELOP A PREDICTIVE MODELLING APPROACH THAT YIELDS HIGH ACCURACY, BUT DOES NOT INCORPORATE FLIGHT TESTS? OUR TEAM BELIEVES THAT TIME MIGHT BE A LIMITING FACTOR IN ACQUIRING FLIGHT TESTING OR OTHER DEMONSTRATIONS GIVEN THE CURRENT DIFFICULTY IN ACQUIRING AN AIRCRAFT OR ENGINE OEM PARTNERSHIP.

ANSWER: See answer to question Q2.3, above. Additionally, as reported in FOA, Section IV.4 : *"The performance of the developed AIC predictive models must be demonstrated before the end of project via a minimum of five (5) true positive predictions of persistent aircraft induced cirrus (AIC) cloud while satisfying the F1-score criterion. For this target, persistence is defined as greater than five (5) hours and a cirrus cloud as a cloud system which spans ≥ 1 km in width at relevant cruise altitude. This will require observer validation, whether using onboard test flights, ground- or satellite-based."*



Q9. I AM PREPARING A PROPOSAL FOR THE ARPA-E PRE-TRAILS SOLICITATION AND FOR MY INSTITUTION'S INTERNAL PROCESSING, I NEED A POC. MAY I PLEASE HAVE THE POC INFO FOR PRE-TRAILS?

NAME:

TITLE:

E-MAIL:

PHONE:

ANSWER: NAME: KEVIN THUNELL

TITLE: CONTRACTING OFFICER

E-MAIL: ARPA-E-CO@HQ.DOE.GOV

PHONE:

Q10. OUR COMPANY IS PLANNING TO SUBMIT AN APPLICATION AGAINST THIS SOLICITATION. WE WILL BE CITING SOME RESULTS FROM RELATED WORK FOR THE US AIR FORCE. HOWEVER, SOME OF THE SPECIFIC RESULTS REQUIRE DISTRIBUTION TO US CITIZENS ONLY.

WE WANTED TO CHECK AND CONFIRM IF OUR APPLICATION WOULD BE ACCESSIBLE TO NON-US CITIZENS FOR PROPOSAL REVIEW? BASED ON YOUR RESPONSE, WE WILL PROVIDE THE INFORMATION FROM THE US AIR FORCE PROJECT THAT WOULD BE APPROPRIATE TO SUBMIT.

ANSWER: Section VIII.I of the FOA contains instructions on marking confidential information that is included in any submission. If those markings are insufficient or inapplicable to the type of information you would like to include, then please do not include that information with your submission.

Q11. WE ONLY VERY RECENTLY BECAME AWARE OF THE SOLICITATION DE-FOA-0002784. OUR TEAM IS WELL-QUALIFIED TO PROVIDE ORIGINAL TECHNICAL WORK RELATED TO DE-FOA-0002784 TOPIC D, "PREDICTIVE REAL-TIME EMISSIONS TECHNOLOGIES REDUCING AIRCRAFT INDUCED LINES IN THE SKY (PRE-TRAILS)" BOTH IN TERMS OF EXPERTISE AND ESTABLISHED CAPABILITIES DIRECTLY RELATED TO THE TOPIC. HOWEVER, DUE TO LEARNING ABOUT THE SOLICITATION ONLY RECENTLY, WE FEAR THAT WE WILL NOT BE ABLE TO COMPLETE THE REQUIRED PROPOSAL SUBMISSION BY THE 4/25/2023 SUBMISSION DEADLINE.

CONSIDERING THIS, WOULD IT BE POSSIBLE TO EXTEND THE DEADLINE FOR THE RFP RESPONSE? ANY ADDITIONAL TIME WOULD BE A SIGNIFICANT HELP FOR PREPARING A COMPLIANT PROPOSAL.

ANSWER: There will be no extension to the submission deadline.

Q12. WE HAVE A FEW QUESTIONS THAT ARE NOT ANSWERED IN THE FAQ.

- 1. SECTION II.C.3. STATES “NON-DOE GOGOS AND FEDERAL AGENCIES MAY BE PROPOSED TO PROVIDE SUPPORT TO THE PROJECT TEAM MEMBERS ON AN APPLICANT’S PROJECT, THROUGH A COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA) OR SIMILAR AGREEMENT”. WOULD ARPA-E BE WILLING PROVIDE FUNDING TO ANOTHER FEDERAL AGENCY AS PART OF SUCH AN AGREEMENT (E.G., WITH A USG ORDER FORM 7600B) OR IAA?**
- 2. FOR A PROJECT TEAM PROPOSAL LED BY A NON-PROFIT THAT OTHERWISE MEETS THE CRITERIA FOR A 5% COST-SHARE UNDER SECTION III.B.3, WOULD THE COST-SHARE REQUIREMENT STILL BE 5% IF A CONSULTANT IS INCLUDED IN THE NON-PROFIT'S BUDGET?**

ANSWER: ARPA-E has the authority to enter into IAA’s if necessary.

Assuming that all applicable criteria are met, yes.

Q13. PER THE FOA, I HAVE A QUESTION BEFORE THE DEADLINE FOR QUESTIONS AT 5 PM 4/14. THIS IS REGARDING: SPECIAL PROGRAM ANNOUNCEMENT FOR EXPLORATORY TOPICS (DE-FOA-0002784) “PREDICTIVE REAL-TIME EMISSIONS TECHNOLOGIES REDUCING.

MY PI’S PROJECT TEAM CONSISTS OF 3 ENTITIES:

- A) PUBLIC UNIVERSITY (WE ARE THE PRIME RECIPIENT AND A DOMESTIC EDUCATIONAL INSTITUTION)**
- B) A DOE LAB**
- C) A BUSINESS. LOOKING AT PAGE 17 OF THE FOA, I AM READING THE COST SHARE REQUIREMENTS:**

CAN YOU CLARIFY THIS PLEASE? MY UNDERSTANDING IS THAT MY UNIVERSITY AND THE DOE LAB ARE RESPONSIBLE FOR 10% COST SHARE OF THE TOTAL PROJECT COST. PLEASE NOTE THAT THE BUSINESS WILL HAVE NO PATENT RIGHTS SO COULD YOU PLEASE CONFIRM THAT THE BUSINESS WILL NOT HAVE TO PROVIDE 20% OF THE COST SHARE, BUT 10% COST SHARE OF THE TOTAL PROJECT COST?

CAN YOU CONFIRM IF MY UNDERSTANDING IS CORRECT?

ANSWER: ARPA-E will not pre-assess applications. See section III.B. Cost Sharing of the FOA.