

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. Concept Paper Phase Questions:

Q1. I am inquiring if a proposal to this opportunity focused on algorithm development targeting Technical Category B: "People counting sensors for commercial use" would be of interest. Our approach is largely technology agnostic regarding the type of sensor(s) used, and at least for Phase I will be exclusively focused on algorithm development.

Would such a hardware-agnostic algorithmic Phase I effort be of interest, or does it need to be paired with a specific hardware system as part of a more complete solution?

- A) **ANSWER:** ARPA-E does not prescreen concepts prior to submission. ARPA-E will review compliant and responsive concept paper submissions and provide feedback either encouraging or discouraging submission of a Full Application.
- B) As stipulated in Section II.A. of the SENSOR SBIR FOA, "Applicants must apply for a Combined Phase I/II/IIS Award. Combined Phase I/II/IIS Awards are intended to develop transformational technologies with disruptive commercial potential. Such commercial potential may be evidenced by (1) the likelihood of follow-on funding by private or non-SBIR/STTR sources if the project is successful, or (2) the Small Business Concern's record of successfully commercializing technologies developed under prior SBIR/STTR awards."
- C) Please be aware that a public teaming list is running for the SENSOR FOA to aid in team formation.

Q2. I have some questions about this FOA and I greatly appreciate it if you can provide your input.

- Do you prefer a particular sensing system solution for this FOA?

- We do have *** sensing solutions that respond well to the requirements mentioned in the solicitation. The only requirement that we might not be able to address is the "*****" metric mentioned in the FOA. If we submit our concept papers in response to this FOA, is there any chance that you would consider our concept papers for review/funding?**

ANSWER: ARPA-E does not prescreen concepts prior to submission. ARPA-E will review compliant and responsive concept paper submissions and provide feedback either encouraging or discouraging submission of a Full Application.

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Q3. Where can I find “Technical Category” of FOA listed below? This is required in the “Concept Paper Template” but cannot find it. Also “Concept Paper Template” asks for Funding info (Fed, Cost share ---)? Is this for the Phase I or the Total? It needs to be ROM at this point. Is it OK?

ANSWER: Technical Categories are described in Section I. E. Technical Categories of Interest in the DE-FOA-0001738 Funding Opportunity Announcement.

Q4. : For the contact paper, it was stating about Category A, B, C, or D. What if the project falls under both the low-cost and real world testing; would we be able to use both in the contact paper?

ANSWER: Applicants may submit Concept Papers addressing Category A, B, C or any combination thereof. Applicants may also submit Concept Papers solely to Category D. Concept Papers submitted to Category D must be devoted solely for Category D. ARPA-E is not limiting the number of Applications that may be submitted by Applicants, provided that each Application is scientifically distinct. Thus, Applicants may submit a Concept Paper for Category A and/or B and/or C, plus a separate Concept Paper for Category D. However, a Concept Paper submitted to Category D may not identify any other technical Category, or else it will be found to be noncompliant.

Q5. When will the organizations know as to when the deadlines are due in the future after the papers is submitted?

ANSWER: Information will be provided by modification to the Funding Opportunity Announcement subsequent to disposition of concept papers.

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II. Full Application Phase Questions:

Q6. Can you please explain the cost share requirement for SBIR/STTR project teams with academics institutions? The FOA refers to a cost share reduction for small businesses and consortia of small businesses performing greater than 80% of the work. However, if we form a STTR team in which the small business performs 60% of the work and the academic institution performs 40% of the work, are we entitled to that same cost-share reduction?

ANSWER: The cost share requirements set forth at FOA Section III.E.3 are correct as written.

Q7. We submitted a concept paper under DE-FOA-0001737, but upon further review would be interested in submitting a full proposal under DE-FOA-0001738 as an SBIR. Would the concept paper submission under DE-FOA-0001737 satisfy the requirement for submitting a concept paper for DE-FOA-0001738 given that the only differences are that DE-FOA-0001738 is specifically for SBIR/STTR applicants?

ANSWER: Only applicants who completed a Concept Paper submission in the ARPA-E Funding Opportunity Exchange website to the DE-FOA-0001738 SENSOR SBIR/STTR Funding Opportunity are eligible to submit a Full Application to that funding opportunity.

Q8. If the technical approach taken broadly applies technology in the form of firmware/software on top of existing commercially available products which may or may not be manufactured in the United States, would we be limited to applying the technology to devices which are manufactured in the United States or not?

ANSWER: FOA Section VI.B.8 (*U.S. Manufacturing Requirement*) describes the U.S. Competitiveness clause that attaches to subject inventions made by any participant under the prospective cooperative agreement. The text of ARPA-E cooperative agreement Attachment 2, in its various forms, can be found at [https://arpa-e.energy.gov/?q=arpa-e-site-page/award-guidance#Cooperative Agreements](https://arpa-e.energy.gov/?q=arpa-e-site-page/award-guidance#Cooperative%20Agreements). Additionally, as described in Section IV.D.9 (*Ninth Component: U.S. Manufacturing Plan*), each application must include a U.S. Manufacturing Plan. The content of the Plan “represents the Applicant’s measurable commitment to support U.S. manufacturing as a result of its award. U.S. Manufacturing Plans are a Program Policy Factor during the review and selection process.”

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Q9. Should we be selected for contract award, we would also have an independent team working on different aspects of the technology proposed as a solution for this FOA. From an IP standpoint, what steps would our teams need to take to prove the separation of work should the independent team create new IP related to the technology during the time the project team was performing work under the FOA?

ANSWER: FOA Sections VIII.F through .H describe the intellectual property requirements that all prime recipients and their sub-recipients are subject to as set forth in ARPA-E cooperative agreement Attachment 2. Each participant is responsible for compliance with the form of Attachment 2 included in their prime or subagreement. The text of ARPA-E cooperative agreement Attachment 2, in its various forms, can be found at [https://arpa-e.energy.gov/?q=arpa-e-site-page/award-guidance#Cooperative Agreements](https://arpa-e.energy.gov/?q=arpa-e-site-page/award-guidance#Cooperative%20Agreements). Additionally, each prime recipient is required to develop an Intellectual Property and Data Management Plan which addresses the relationship between team members with respect to Intellectual Property as described at FOA Section VI.B.7 (*Intellectual Property and Data Management Plans*).

Q10. I note that for DE-FOA-0001738 the budget section in FOA and the technical volume template do not match. The FOA requires budget tables for all 3 phases of the project, however the template only has one table. Can you provide a correct Technical Volume template?

ANSWER: This is an error in the Tech Volume Template. A corrected version of the Technical volume has been uploaded to the Documents section of the funding opportunity announcement on the ARPA-E Funding Opportunity Exchange website. The Budget Justification Form is correct.

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Q11. I have two questions that are not covered under the current FAQ. My questions relates very specifically to “Category C: CO₂ Sensors”:

- 1. The FOA states in Section I.F (Technical Performance Targets) that a CO₂ sensor system cost of \$0.08/sq ft will provide a 1 year payback based on a 30% reduction in HVAC energy costs, and are to be “used in conjunction with commercial sensor systems as needed in order to achieve end user adoption.” Is the \$0.08/sq ft target for Category C inclusive of the Category B occupancy sensor system it is to supplement?**

ANSWER: Note that the 1 year payback criteria cited in the cost metrics is calculated based on the adoption of occupancy sensing technology that meet our technical criteria for commercial buildings. While this strategy may be achieved using CO₂ sensing technology, to do so would put the technical response to this FOA as a “Category B” application. For “Category C”, the intent is to develop supplemental CO₂ sensors that could complement a “Category B” sensor to allow for deep energy savings while maintaining commercially acceptable air quality levels. The \$0.08 cents/sf metric was adopted in the case of “Category C” as it would keep the CO₂ sensing requirement in alignment with overall market needs (adoption of both a CO₂ and Occupancy sensing package in this case would result in a 2 year payback, which is still within commercial market tolerance, especially if the sensor suite resulted in improved performance/lowered risk due to the presence of highly effective CO₂ sensing capability in the process.) We note that CO₂ sensors in “Category C”, as an enabling technology to “Category B”, are intended to enable end-user acceptance of ventilation control. To that end they may have a deployment profile that is significantly less comprehensive in terms of square feet than what is required by a “Category B” technology.

- 2. If we meet all the FOA technical requirements for a CO₂ sensors system, what is the Total Available Market for these systems? I am looking for a ballpark estimate either in # of units or total revenue. Again, assume that we have achieved the \$0.08/sq ft target.**

ANSWER: The commercial impact metrics are based off of data provided by the Energy Information Administration (EIA). It is the applicant’s responsibility to estimate the Total Available Market for their proposed technology. Start from the assumption that the CO₂ sensing technology would be viable for most areas of commercial space, and work backwards to narrow the impact to the areas that seem most likely to adopt the technology. If your specific sensor approach would be invalid in any sub-markets of the commercial space, omit the square footage associated with the non-viable sectors from your impact estimates. EIA’s total commercial square footage estimate (see <https://www.eia.gov/consumption/commercial/reports/2012/buildstock/>) is summarized in the table below:

Total number of commercial Buildings in US	5,600,000
Total Comm Square footage	87,093,000,000
Avg SF/Building	15,552.32



CHANGING WHAT'S POSSIBLE

DE-FOA-0001738 – SENSOR SBIR/STTR

Questions can be sent to ARPA-E-CO@hq.doe.gov

DEADLINE FOR QUESTIONS TO ARPA-E-CO@HQ.DOE.GOV: 5 PM ET, TUESDAY, MARCH 7, 2017

SECOND DEADLINE FOR QUESTIONS TO ARPA-E-CO@HQ.DOE.GOV: 5 PM ET, FRI, AUGUST 11, 2017

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