

QUESTIONS AND ANSWERS

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Based on this, would ARPA-E contemplate specifying the height limit of the micro-CPV module to be less than 2 inches in order to allow a greater number of micro-CPV panel designs that may offer a greater efficiency, more stable working system, and more productive use of sunlight?6

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These embedded actuation mechanisms within the panel to track the sun at the very least will have to be customized, or be developed completely, since they are not yet commercially available as ready systems to fit to panel dimensions, power requirements, and overall system operational compatibility. Can we get a clarification between the contradictory written statements of Sections I.E and I.D?6

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I. FREQUENTLY ASKED QUESTIONS:

A. If I have questions about this funding announcement, who do I contact?

ANSWER: Please see the FOA guidance on submitting FOA content questions and response publication. Applicants may submit questions regarding this ARPA-E's Funding Opportunity Announcement (FOA) to ARPA-E-CO@hq.doe.gov. All emails must include the FOA name and number in the subject line. The cover page and Executive Summary of the Funding Opportunity Announcement state the deadlines for submitting questions to ARPA-E-CO@hq.doe.gov.

B. How will I receive a response to questions submitted to arpa-e-co@hq.doe.gov about this FOA?

ANSWER: Responses are posted in the "Current Funding Opportunities FAQs" section of ARPA-E's website available at <http://arpa-e.energy.gov/?q=faq/current-funding-opportunities>. In addition, general questions about ARPA-E can be found at <http://arpa-e.energy.gov/?q=faq/general-questions>.

ARPA-E will post responses on a weekly basis to questions that are received. ARPA-E will cease to accept questions approximately 5 business days in advance of each submission deadline. Responses to questions received before the cutoff will be posted approximately one business day in advance of the submission deadline. ARPA-E may re-phrase questions or consolidate similar questions for administrative purposes.

C. Will ARPA-E post a response to every question submitted to arpa-e-co@hq.doe.gov?

ANSWER: No. ARPA-E will only post responses to questions that have not already been addressed by a published FAQ. Also, ARPA-E may consolidate similar questions for administrative purposes.

D. If I have questions about ARPA-E exchange, who do I contact?

ANSWER: Applicants may submit questions regarding ARPA-E's online application portal, ARPA-E eXCHANGE, to ExchangeHelp@hq.doe.gov. All emails must include the name and number of the Funding Opportunity Announcement in the subject line.

E. Can I speak or meet with the ARPA-E program director or other ARPA-E personnel about this funding opportunity announcement?

ANSWER: No. Upon the issuance of this Funding Opportunity Announcement (FOA), ARPA-E Program Directors and other ARPA-E personnel are prohibited from communicating (in writing or otherwise) with Applicants, or potential Applicants, regarding the FOA. This "quiet period" remains in effect until ARPA-E's public announcement of its project selections. During the "quiet period," Applicants may submit questions regarding the FOA to ARPA-E-CO@hq.doe.gov with the FOA name and number in the subject line. Applicants may also submit questions regarding ARPA-E's online application portal, ARPA-E eXCHANGE, to ExchangeHelp@hq.doe.gov with the FOA name and number in the subject line. ARPA-E will not accept or respond to communications received by other means (e.g., fax, telephone, mail, hand delivery). Emails sent to other email addresses will be disregarded.

F. Can a person be PI on one proposal and a Co-PI on a second separate proposal?

ANSWER: Yes, an individual may be on more than one submission – either as a lead or member of a Project Team.

G. May applicants submit more than one concept paper to this funding opportunity?

ANSWER: Yes, but each Concept Paper must be “scientifically distinct”. This term is used in Section III.F.3 (Limitation on Number of Applications) of the FOA. In this context, the term “scientifically distinct” is used to emphasize that, in the event an Applicant intends to submit multiple concept papers/application, the applicant should propose distinct technical approaches in each application. This prohibition on duplicative applications involves a fact-based determination by ARPA-E to ensure a focused review of each technical concept, and appropriate use of ARPA-E's limited time/resources.

Note: As specified in the SBIR/STTR MOSAIC FOA, small businesses that qualify as a “Small Business Concern” may apply to only one of the two ARPA-E MOSAIC FOAs: ARPA-E FOA No. DE-FOA-0001256 (SBIR/STTR), Micro-Scale Optimized Solar-Cell Arrays With Integrated Concentration (MOSAIC), or ARPA-E FOA No. DE-FOA-0001255, Micro-Scale Optimized Solar-Cell Arrays With Integrated Concentration (MOSAIC). Small businesses that qualify as “Small Business Concerns” are strongly encouraged to apply under the former (SBIR/STTR FOA). To determine eligibility as a “Small Business Concern” under DE-FOA-0001256, please review the eligibility requirements in Sections III.A-III.D of the FOA.

H. I have developed a technology that may be a good fit for this funding opportunity. Will ARPA-E please review my idea and let me know if it is responsive to this FOA?

ANSWER: ARPA-E will review compliant and responsive concept paper submissions and provide feedback either encouraging or discouraging submission of a Full Application. See Section IV.A (Application Process Overview) of the FOA for Concept Paper review process. Concept Paper submissions are compliant if they meet the requirements of Section III.F.1 (Compliant Criteria) of the FOA, and are responsive if they meet the Program Objectives and other requirements set forth in Section I.D (Program Objectives) of the FOA and do not fall under Section I.G (Applications Specifically Not of Interest) of the FOA. Applicants must review the technical requirements of the FOA and independently determine whether their proposed concept warrants a submission.

I. Are we required to register for the Teaming List for this FOA?

ANSWER: No. ARPA-E set up the Teaming Partner List for this FOA to facilitate formation of new project teams. There is no requirement for applicants or any team member to sign up/register for the Teaming Partner List. In addition, ARPA-E does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the Teaming Partner List.

J. I missed the Concept Paper deadline. Can I still submit a Full Application?

ANSWER: No. Only applicants who have successfully submitted a Concept Paper in eXCHANGE by the published deadline are eligible to submit a Full Application to the FOA.

K. Our project team includes several team members. Does each team member need to contribute cost share equally?

ANSWER: Although the cost share requirement applies to the Project Team as a whole, the funding agreement makes the Prime Recipient legally responsible for paying the entire cost share. See Section III.E.4 for more information on cost sharing. Each Project Team is free to determine how much each team member will contribute towards the cost share requirement. The amount contributed by individual Project Team members may vary, so long as the cost share requirement for the project as a whole is met.

L. Can you tell me whether my project team qualifies for reduced cost share based on the following scenario: []?

ANSWER: ARPA-E may not provide pre-submission assessments on a project team's specific cost sharing requirement.

M. Will in-kind contributions count towards meeting our cost share requirements?

ANSWER: Yes, if the in-kind contribution is determined to be allowable, allocable and reasonable by the ARPA-E Contracting Officer. Since this is necessarily fact determinative inquiry, these types of questions are answered based on a review of all relevant information by the Contracting Officer during award negotiations. For general guidance on acceptable cost share contributions and corresponding cost principles used by the ARPA-E Contracting Officer to make these determinations, see 10 C.F.R § 600.313 and § 600.317 (Cost Matching/Sharing and Cost Principles for For-Profit Organizations), 2 C.F.R. § 200.306 and 2 C.F.R. Part 200, Subpart E (Cost Matching/Sharing and Cost Principles for Institutes of Higher Education, Hospitals, Other Nonprofit Organizations, State and Local Governments).

N. How should we include references in our Full Application? Do they count towards the overall page limitation for the Technical Volume?

ANSWER: Applicants may provide a list of references in a separate bibliography. Only bibliographic information may be contained in the references, and no additional text or commentary should be included. There is no page limit for the bibliographic references section of the Full Application.

O. Our team originally submitted a Concept Paper that listed [organization name 1] as the Prime Recipient. For our Full Application, can we change the lead organization to ** [organization name 2] instead?**

ANSWER: Yes, the ARPA-E eXCHANGE system will allow applicants to expand or otherwise modify the Project Team for their Full Applications. Note: Before making changes to the Project Team in the Full Application, applicants should ensure that the Project Team still meets the eligibility criteria specified in the MOSAIC FOA to receive an SBIR or STTR award. Please see Section III.A – III.D (Eligibility Information) of the FOA for the eligibility information.

P. Can I include new Co-PIs and/or subrecipients in my Full Application?

ANSWER: Yes. Applicants may expand or otherwise modify the Project Team for their Full Applications. Also, please see the response to FAQ O above.

Q. If my Concept Paper is encouraged, what are my chances of being selected for award negotiations by ARPA-E?

ANSWER: ARPA-E does not provide pre-submission assessments of Applicants' likelihood to receive funding.

R. Do subrecipients also need to fill out the Business Assurances & Disclosures Form or is this filled out only by the Prime Recipient?

ANSWER: The Business Assurances & Disclosures Form requests information regarding the legal entity submitting the application as the Prime Recipient, the legal entities and/or individuals that are proposed to be Subrecipients, and the PI/Co-PIs in their individual capacity. The Prime Recipient

may submit one Business Assurances & Disclosures Form covering all of the Project Team members if it has authorization and information to answer on their behalf. Alternatively, the Prime Recipient may request Subrecipients to complete and sign individual Business Assurances & Disclosures Forms that the Prime Recipient will append to its form.

S. Are small business concerns that are majority-owned by multiple venture capital operating companies, hedge funds, and/or private equity firms eligible to apply to this FOA?

ANSWER: According to SBA's Guide to SBIR/STTR Eligibility available at :

http://sbir.gov/sites/default/files/elig_size_compliance_guide.pdf:

"A majority (more than 50%) of your firms' equity (e.g., stock) must be directly owned and controlled by one of the following:

- 1) One or more individuals who are citizens or permanent resident aliens of the US,
- 2) Other for-profit small business concerns (each of which is directly owned and controlled by individuals who are citizens or permanent resident aliens of the US).
- 3) A combination of (1) and (2) above.
- 4) Multiple venture capital operating companies, hedge funds, private equity firms, or any combination of these, so long as no one such firm owns or controls more than 50% of the equity. Note: This option is allowed only for SBIR awards from agencies that are using the authority provided in § 5107 of the SBIR/STTR Reauthorization Act (majority-VC-owned authority), 15 U.S.C. § 638(dd)(1).

*The venture capital operating company, hedge fund or private equity firm must have a place of business located in the United States and be created or organized in the United States, or under the law of the United States or of any State."

ARPA-E intends to make some SBIR awards using the authority set forth in item 4) above. Thus, small business concerns that meet the ownership and control requirements identified in item 4) are eligible to apply to this FOA.

T. For the SBIR Phase I/II/III program, is the duration for each phase pre-defined, or can other durations be proposed?

ANSWER: The maximum period of performance for each phase is: 1 year for Phase I, 2 years for Phase II, and 1 year for Phase III. Applicants may propose periods of performance for each phase up to the maximum time allotted for each phase.

U. If Phase I is completed early, can Phase II start early?

ANSWER: Yes. If Phase I is completed early the project team may begin Phase II, subject to approval of the Contracting Officer to proceed to Phase II.

II. Questions for week ending: DECEMBER 12, 2014

Q1. Section I.E (Technical Performance Targets), page 16 second sentence reads: "it is expected that existing commercial tracking methods will be used (ARPA-E will not fund the development of new tracking concepts under this FOA)." Yet in Section I.D (Technical Categories of Interest), Subcategory 1B: the second sentence reads: "Subcategory 1B approaches must therefore include embedded actuation mechanisms within the panel to track the sun as it moves during the day."

Please clarify whether ARPA-E seeks research concepts to develop new tracking mechanisms under the MOSAIC FOA, and if so, what types (e.g., external tracking in which the entire panel is tilted or embedded tracking which tracks the sun at a fixed tilt)?

ANSWER: Per Section I.E (Technical Performance Targets) of the FOA, "ARPA-E will not fund the development of new tracking concepts under this FOA." ARPA-E will not consider funding work to develop new methods that involve tilting the entire panel, also referred to as "external tracking" or "conventional tracking" in the FOA. Applications seeking funding for new external tracking methods would fall outside the technical parameters of Section I.E of the FOA.

However, Section I.E of the FOA provides that Subcategory 1B concepts: "...within a flat panel that may be mounted in fixed-tilt applications, such as residential rooftops. Subcategory 1B approaches must therefore include embedded actuation mechanisms within the panel to track the sun as it moves during the day." ARPA-E will review compliant and responsive Subcategory 1B concept paper submissions and provide feedback either encouraging or discouraging submission of a Full Application for concepts that include tracking concepts that operate under the constraints set out in Section I.E of the FOA. All approaches that propose such tracking concepts should be identified as being under either Subcategory 1B, 2B or Category 3. Proposed solutions that utilize conventional tracking mechanisms and these should be identified as 1A, 2A or within Category 3.

III. Questions for week ending: DECEMBER 19, 2014

Q2. Will ARPA-E extend the Concept Paper submission deadline for the MOSAIC FOA since the holiday season falls within this time frame?

ANSWER: ARPA-E does not anticipate extending the Concept Paper submission deadline for the MOSAIC FOA at this time.

Q3. On page 17, the MOSAIC FOA provides: "ARPA-E is seeking solutions where the total module thickness is consistent with current flat panel PV profiles - hence the total height of the MOSAIC modules is limited to < 2.5 cm." The reality is that PV panel with around 10w - 50W rating have a height of 2.5 cm while 300W rooftop panels (the largest category of installed PV panels) have a height under 2 inches.

Based on this, would ARPA-E contemplate specifying the height limit of the micro-CPV module to be less than 2 inches in order to allow a greater number of micro-CPV panel designs that may offer a greater efficiency, more stable working system, and more productive use of sunlight?

ANSWER: Per Section I.F (Technical Performance Targets) of the FOA, proposals should articulate a path to a module thickness of 2.5 cm or less. To further clarify, module thickness refers to a flat panel that does not include the frame, as the frame is not technically part of the module. It is possible that intermediate milestones that fall short of the metrics in Section I.E may still be valuable; however, as provided in Section IV.C (Content and Form of Concept Papers) of the FOA, applicants must "to the extent possible, provide quantitative metrics that compares the proposed technology concept to current and emerging technologies and to the technical performance targets in Section I.F of the FOA for the appropriate Technology Category in Section I.E of the FOA."

Q4. In Section I.E (Technical Performance Targets), page 16 second sentence reads: "it is expected that existing commercial tracking methods will be used (ARPA-E will not fund the development of new tracking concepts under this FOA)." Yet in Section I.D (Technical Categories of Interest), Subcategory 1B: the second sentence reads: "Subcategory 1B approaches must therefore include embedded actuation mechanisms within the panel to track the sun as it moves during the day."

These embedded actuation mechanisms within the panel to track the sun at the very least will have to be customized, or be developed completely, since they are not yet commercially available as ready systems to fit to panel dimensions, power requirements, and overall system operational compatibility. Can we get a clarification between the contradictory written statements of Sections I.E and I.D?

ANSWER: On December 31, 2014, ARPA-E issued a modification to the FOA to clarify this question. Per Section I.F (Technical Performance Targets) of the FOA, "It is expected that existing commercial tracking methods will be used for Subcategories 1A and 2A described below (ARPA-E will not fund the development of new tracker concepts in these Subcategories in this FOA)." ARPA-E will not consider funding work to develop new methods that involve tilting the entire panel, also referred to as "external tracking" or "conventional tracking" in the FOA. Applications seeking funding for new external tracking methods would fall outside the technical parameters of Section I.F of the FOA.

However, Section I.F of the FOA also provides that “Subcategory 1B concepts: “...within a flat panel that may be mounted in fixed-tilt applications, such as residential rooftops. Subcategory 1B approaches must therefore include embedded actuation mechanisms within the panel to track the sun as it moves during the day.” ARPA-E will review compliant and responsive Subcategory 1B concept paper submissions and provide feedback either encouraging or discouraging submission of a Full Application for concepts that include tracking concepts that operate under the constraints set out in Section I.F of the FOA. All approaches that propose such tracking concepts should be identified as being under either Subcategory 1B, 2B or Category 3. Proposed solutions may utilize conventional tracking mechanisms and these should be identified as 1A, 2A or within Category 3.

Q5. The FOAs specify an energy harvesting efficiency target of $\geq 30\%$. Does this target refer to the total light striking the module area, or only that falling within the optics aperture? (i.e., does it take into account the fill factor of the micro-optics?)

ANSWER: The Solar Energy Harvesting Target defined in Section I.F (Technical Performance Targets) of the FOA, refers to the total light striking the module area, there is no consideration of fill factor in this definition.

IV. Questions for week ending: APRIL 24, 2015

Q6. I would like to know if the payments will be made to the main recipient from ARPA-E and then the main recipient will disburse the payment to subrecipients or if ARPA-E will disburse the respective amounts to each of team member separately.

ANSWER: ARPA-E executes a single Cooperative Agreement with the Prime Recipient. The Prime Recipient will be reimbursed directly by ARPA-E, and any subrecipients on the project team would be reimbursed through the Prime Recipient.