

QUESTIONS AND ANSWERS

TABLE OF QUESTIONS

| | |
|---|----------|
| I. Frequently Asked Questions: | 1 |
| Q1. If I have questions about this funding announcement, who do I contact? | 1 |
| Q2. How will I receive a response to questions submitted to arpa-e-co@hq.doe.gov about this FOA? | 1 |
| Q3. Will ARPA-E post a response to every question submitted to arpa-e-co@hq.doe.gov? | 1 |
| Q4. If I have questions about ARPA-E exchange, who do I contact? | 1 |
| Q5. Can I speak or meet with the ARPA-E program director or other ARPA-E personnel about this funding opportunity announcement? | 1 |
| Q6. Can a person be PI on one proposal and a CO-PI on a second separate proposal? | 1 |
| Q7. May applicants submit more than one concept paper to this funding opportunity? | 2 |
| Q8. I have developed a technology that may be a good fit for this funding opportunity. Will ARPA-E please review the attached project information and let me know if I should make a submission to this funding opportunity? | 2 |
| II. Questions for week ending: July 19, 2013 | 2 |
| Q9. The solar energy collector portion of the FOCUS teaming announcement is aimed at collecting waste heat in concentrated PV systems. | 2 |
| After the discussion on concentrated PV, there are a number of topics listed. | 2 |
| Are these all within the context of concentrated PV? | 2 |
| Inexpensive photonics and plasmonics. Are you looking for broader plasmonic applications? | 2 |
| Solar energy absorption materials and architectures. Are you looking for improved “black” surfaces for solar water heating or for enhancing light absorption in PV cells? | 2 |
| Electrolysis. You are looking for electrolysis, but say you are not interested in fuel application. Are you specifically looking for hydrogen production in conjunction with storage directly behind the array, or can this be a more general hydrolysis application? | 2 |
| Q10. Would an application comprising a solar thermal system linked to a [] engine for electricity production be allowable, provided it meets category 1A metrics? | 2 |
| Q11. I wanted to get some clarification on what types of storage units this FOA is suitable for / seeking? | 3 |
| Also wanted to get more information on an electric input into a storage system? Would a thermal energy storage technology using sensible heat storage be applicable? | 3 |
| Q12. Is it possible to apply to more than one project? In particular our project is well suited for both RFI-0000005 and DE-FOA-0000949: Full-spectrum Optimized Conversion and Utilization of Sunlight (FOCUS). | 3 |
| III. Questions for week ending: July 26, 2013 | 3 |
| Q13. Is a given professor/investigator allowed to be on multiple Concept Paper submissions? If so, is there a restriction (e.g. you may lead one team proposal and be a team member on multiple other team proposals, but you cannot lead two team proposals)? | 3 |
| Q14. Section G of the FOA calls out specific technical areas not of interest. Bullet 5 and others limit the technology of interest to certain operating conditions. Should these limits be assumed to apply to seedling projects as well or will there be more flexibility for high-impact ideas that are in line with the overall full | |

QUESTIONS AND ANSWERS

TABLE OF QUESTIONS

| | |
|---|----------|
| spectrum and dispatchability approach of the FOA but do not meet all the specific limits in Section G due to their unique nature. | 3 |
| Q15. I work for a U.S. subsidiary of a Chinese company. We have significant experience in systems combining broadband electrical and thermal generation and we'd like to submit a proposal for the FOCUS program. Are there limitations to the types of organizations that can propose for ARPA-E funding? Would we be better off teaming with a U.S. company? Or is it sufficient that we are a U.S. subsidiary? | 4 |
| IV. Questions for week ending: August 2, 2013 | 4 |
| Q16. Is there any chance that ARPA-E would accept a concept paper less than 4 total pages but with a technology description section longer than 2 pages? | 4 |
| Q17. I do not have the 20% cost sharing capability. Is there a service that ARPA-E offers that can connect me to an organization willing to supply the required 20% cost sharing? | 4 |
| Q18. A company based in Germany appears on the FOCUS Teaming List. Does this mean that they are eligible to participate in this program? If not, what procedure (foreign entity waiver?) must be followed to determine if they are eligible to participate? | 5 |
| Q19. For Categories of Interest 1 and 2, is there any limit to the fraction of energy input into the system that is provided by non-solar sources, such as fossil fuel or biomass? | 5 |

I. FREQUENTLY ASKED QUESTIONS:

Q1. 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.

Q2. 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 "Frequently Asked Questions" section of ARPA-E's website. There are general FAQs and a FAQ page for each FOA.

ARPA-E will post responses on a weekly basis to any 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.

Q3. 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.

Q4. 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.

Q5. 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 Programs 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.

Q6. Can a person be PI on one proposal and a CO-PI on a second separate proposal?

ANSWER: Yes, but the applications must be scientifically distinct from one another.

Q7. May applicants submit more than one concept paper to this funding opportunity?
ANSWER: Yes, but each Concept Paper submission must be scientifically distinct.

Q8. I have developed a technology that may be a good fit for this funding opportunity. Will ARPA-E please review the attached project information and let me know if I should make a submission to this funding opportunity.

ANSWER: No. Applicants must review the Technical Requirements of this funding opportunity to determine if their technology warrants a submission to ARPA-E.

II. Questions for week ending: JULY 19, 2013

Q9. The solar energy collector portion of the FOCUS teaming announcement is aimed at collecting waste heat in concentrated PV systems.

After the discussion on concentrated PV, there are a number of topics listed.

Are these all within the context of concentrated PV?

Inexpensive photonics and plasmonics. Are you looking for broader plasmonic applications?

Solar energy absorption materials and architectures. Are you looking for improved “black” surfaces for solar water heating or for enhancing light absorption in PV cells?

Electrolysis. You are looking for electrolysis, but say you are not interested in fuel application. Are you specifically looking for hydrogen production in conjunction with storage directly behind the array, or can this be a more general hydrolysis application?

ANSWER: Concepts for solar energy collectors that will be considered under Category 1a of the FOCUS FOA are **not** limited to systems in which waste heat is collected from concentrated photovoltaic systems. In Category 1, ARPA-E will consider all concepts that will enable development of advanced solar topping devices/cycles that go well beyond the current state-of-the-art to meet the technical targets established in Section I.F of the FOA, and do not fall under the “Categories specifically not of interest” in Section I.G.

Q10. Would an application comprising a solar thermal system linked to a [] engine for electricity production be allowable, provided it meets category 1A metrics?

ANSWER: ARPA-E will consider all concepts that propose to meet or exceed the technical targets set forth in Section I.F of the FOCUS FOA and do not fall under the “Categories specifically not of interest” in Section I.G. As described in Section I.A, ARPA-E seeks to fund transformational research and does not fund incremental improvements to the state-of-the-art.

Q11. I wanted to get some clarification on what types of storage units this FOA is suitable for / seeking?

Also wanted to get more information on an electric input into a storage system? Would a thermal energy storage technology using sensible heat storage be applicable?

ANSWER: ARPA-E will consider all storage concepts that propose to meet or exceed the technical targets for Category 2 awards set forth in Section I.F of the FOA and do not fall under the “Categories specifically not of interest” in Section I.G. Electricity input into the storage system is required by the Category 2 technical target 2.2.

Q12. Is it possible to apply to more than one project? In particular our project is well suited for both RFI-0000005 and DE-FOA-0000949: Full-spectrum Optimized Conversion and Utilization of Sunlight (FOCUS).

ANSWER: RFI-0000005 is not a FOA that solicits proposals. RFI-0000005 is a voluntary teaming list announcement aimed at facilitating formation of teams that can propose to the FOCUS FOA (DE-FOA-0000949). ARPA-E will accept proposals to more than one Funding Opportunity Announcement (FOA) so long as each project is scientifically distinct.

III. Questions for week ending: JULY 26, 2013

Q13. Is a given professor/investigator allowed to be on multiple Concept Paper submissions? If so, is there a restriction (e.g. you may lead one team proposal and be a team member on multiple other team proposals, but you cannot lead two team proposals)?

ANSWER: Yes, a professor/investigator may be on more than one Concept Paper submission – either as a lead or member of a Project Team – so long as each Concept Paper submission is scientifically distinct.

Q14. Section G of the FOA calls out specific technical areas not of interest. Bullet 5 and others limit the technology of interest to certain operating conditions. Should these limits be assumed to apply to seedling projects as well or will there be more flexibility for high-impact ideas that are in line with the overall full spectrum and dispatchability approach of the FOA but do not meet all the specific limits in Section G due to their unique nature.

ANSWER: Seedling proposals are subject to all the technology limits listed in Section G of the FOA, including Bullet 5 (temperature limits). As long as the proposal clearly describes how the thermal fluid temperature of a full-scale hybrid collector system would fall within the specified

technology limits, an early-stage proof-of-concept may involve demonstrations at conditions outside these limits.

Q15. I work for a U.S. subsidiary of a Chinese company. We have significant experience in systems combining broadband electrical and thermal generation and we'd like to submit a proposal for the FOCUS program. Are there limitations to the types of organizations that can propose for ARPA-E funding? Would we be better off teaming with a U.S. company? Or is it sufficient that we are a U.S. subsidiary?

ANSWER: For eligibility criteria, please see Section III.A (“Eligible Applicants”) of the FOA, including Section III.A.3 (“Foreign Entities”).

IV. Questions for week ending: AUGUST 2, 2013

Q16. Is there any chance that ARPA-E would accept a concept paper less than 4 total pages but with a technology description section longer than 2 pages?

ANSWER: No. Per Section IV.C of the FOA, the Technology Description section can be no longer than 2 pages.

Q17. I do not have the 20% cost sharing capability. Is there a service that ARPA-E offers that can connect me to an organization willing to supply the required 20% cost sharing?

ANSWER: ARPA-E has set up a Teaming Partner List for the FOCUS FOA to help facilitate the formation of new project teams. The Teaming Partner List is available on ARPA-E eXCHANGE (<http://arpa-e-foa.energy.gov>), ARPA-E’s online application portal, and will be updated periodically, until the close of the Full Application period, to reflect new Teaming Partners who have provided their information. Any organization that would like to be included on the list should read the full details of the FOCUS Teaming List Announcement (RFI-0000005) and submit their information using the link provided in the Announcement.

Q18. A non-U.S.-based company appears on the FOCUS Teaming List. Does this mean that this company is eligible to participate in this program? If not, what procedure (foreign entity waiver?) must be followed to determine if this company is eligible to participate?

ANSWER: For the eligibility criteria for Foreign Entities, please see Section III.A.3 of the FOA.

Q19. For Categories of Interest 1 and 2, is there any limit to the fraction of energy input into the system that is provided by non-solar sources, such as fossil fuel or biomass?

ANSWER: Category of Interest 1 requires systems with all inputs from solar energy, and the Targets in Table 1 and 2 of the FOA must be met assuming only solar inputs to the hybrid converter unit. Non-solar energy inputs, including fossil fuels or biomass derived sources of energy, cannot be used as energy inputs to the converter unit. Although, non-solar sources of energy are not the primary target of Category 1A or 1B, if such additional sources will further improve system performance or economics beyond the technical performance targets, this may be described in the proposal. This description should include an estimate of carbon emissions reductions compared to using the fossil fuels in state-of-the art electricity production, in parallel with the solar system. See Section I.F.1 and I.F.2 (Category of Interest 1A and Category of Interest 1B).

Category of Interest 2 requires hybrid storage system concepts that accept both heat and electricity as inputs and output electricity, to meet the technical targets set forth in Table 3. The source of that heat and electricity is not relevant to the performance of the storage device. If the hybrid storage device utilizes additional fossil fuel or biofuels inputs in a form other than heat or electricity, the Applicant must include the exergy of this fuel as input when calculating Performance Targets 2.2 and 2.3. See Section I.F.3 (Category of Interest 2).