

QUESTIONS AND ANSWERS

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Pages [___] of this document may contain confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance or loan agreement between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.....	10
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DE-FOA-0001289 – NODES

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

FIRST DEADLINE FOR QUESTIONS: 5 PM ET, March 13, 2015

SECOND DEADLINE FOR QUESTIONS: 5 PM ET, JULY 20, 2015

QUESTIONS AND ANSWERS

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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.C.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.

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 consider concepts that propose to meet or exceed the technical performance targets set forth in Section I.E (Technical Performance Targets) of the FOA and do not fall under Section I.F (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 foreign entities eligible to apply to this FOA?

ANSWER: Foreign entities are eligible to apply for funding. See Section III.A.3 (Eligibility Information- Foreign Entities) of the FOA. However, if the project is selected for award negotiations and an award is made, all work must be performed in the United States by subsidiaries or affiliates incorporated in the United States or U.S. territories, unless ARPA-E grants a foreign work waiver to allow performance of part of the work outside of the United States. ARPA-E's grant of a foreign work waiver is a fact dependent, case-by-case determination that is made only in exceptional circumstances and only for discrete parts of an award that necessitate foreign work. Applicants that anticipate the need for a foreign work waiver to perform some work outside of the U.S. should review Section 5 of the Business Assurances & Disclosures Form.

J. Are individuals eligible to apply to this FOA?

ANSWER: Yes. Individuals are eligible to apply for funding. See Section III.A (Eligibility Information) of the FOA. However, any ARPA-E award funding would need to be made to a business entity formed by the Applicant, if selected for award negotiations.

K. 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.

L. 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.

M. 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.B.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.

N. Can you tell me whether my project team qualifies for reduced cost share?

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

O. 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).

P. We have a question concerning the impact of a large business seeking patent rights under a class waiver if our team qualifies for reduced cost share of 10%. Does this mean the entire team project is subject to 20% cost share or only the large business' portion of the project will be subject to 20% cost share?

ANSWER: Per Section II.B.3 (Reduced Cost Share Requirement) of the FOA, under this scenario, only the large business' portion of the work under this scenario is subject to the 20% minimum cost share requirement. Please see Section III.B.3 (Reduced Cost Share Requirement), Section III.B.4 (Legal Responsibility), and Section III.B.5 (Cost Share Allocation) of the FOA for more details on the cost sharing requirements. **NOTE: If the large business' portion of Total Project Costs is greater than 20%, then the project team's total cost share minimum is 20% since the team as a whole would no longer qualify for the 80/20 labor distribution for reduced cost share, per Section III.B.3 of the FOA.**

Q. Can you tell us whether our 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.

R. 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.

S. 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.

T. Can I include new Co-PIs and/or sub recipients in my Full Application?

ANSWER: Yes. Applicants may expand or otherwise modify the Project Team for their Full Applications.

U. My Concept Paper was 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.

V. Do sub-recipients 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 Sub recipients, 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 Sub recipients to complete and sign individual Business Assurances & Disclosures Forms that the Prime Recipient will append to its form.

II. QUESTIONS FOR WEEK ENDING: FEBRUARY 13, 2015

Q1. May I submit my idea to both the OPEN 2015 FOA and the future NODES FOA, or should I submit my idea to only one FOA?

ANSWER: An identical concept should not be submitted to both FOAs. Applicants should review the technical requirements of the NODES FOA and independently determine whether their proposed concept warrants a submission. Potential applicants with interest in developing the technologies described in the NODES FOA are very strongly encouraged to submit their concept to NODES.

Per Section I.E (Applications Specifically Not of Interest) of the OPEN 2015 FOA and Section I.F of the NODES FOA, identical applications submitted in response to currently issued ARPA-E FOAs will only be reviewed and considered for funding once under the first FOA to which the applicant applied.

Q2. Is the NODES FOA Category 1 topic open to new technologies that have been developed at a proof-of-concept level and patented (device and control algorithm), but have not been implemented, tested and validated in operation in real systems?

ANSWER: Per Section II.A (Award Overview) of the FOA, ARPA-E encourages applications stemming from ideas that still require proof-of-concept R&D efforts as well as those for which some proof-of-concept demonstration already exists. Please see Section II.A of the FOA for more information.

Q3. I understand that a person can be part of multiple submissions. Is it my responsibility to let PI of each project know that I am Co-PI in several other projects? Or in other words, at what stage of the proposal process should a PI of one project know that I am also part of another project. I am aware that the projects need to be scientifically distinct (per Section III.C.3 (Limitation on Number of Applications) of the FOA).

ANSWER: ARPA-E will not provide legal or business advice to applicants.

Q4. Projects in some cases may look scientifically similar even though every member of the two teams are different. If the project happens to be scientifically similar (based on ARPA-E's criteria) and there is a common co-PI (not PI), does this lead to dismissal of both projects?

ANSWER: The limitation contained in Section II.C.3 (Limitation on Number of Applications) of the FOA on the number of applications that may be submitted only applies to the proposed Prime

Recipient. ARPA-E will consider compliant and responsive concepts that propose to meet or exceed the technical performance targets set forth in Section I.E (Technical Performance Targets) of the FOA and do not fall under Section I.F (Applications Specifically Not of Interest) of the FOA. Please also review the response provided for FAQ G above.

Q5. We were planning to ** [description of project]. We were curious as to what would satisfy the "100 actual hardware devices" for Hardware-in-The-Loop Testing as provided in the Additional Technical Objectives listed in Section I.E.2.a of the FOA, or is this mainly intended to represent consumer loads? For example, would 100 "smart appliances" satisfy this requirement or does it also include PV system components, inverters, energy storage elements, and other distributed energy sources?**

ANSWER: ARPA-E may not provide pre-submission assessments of project team's concepts. The objective of the "Hardware-In-The-Loop" technical objective is to validate developed control algorithms' ability to provide coordinated control in a medium-scale realistic environment after the algorithms have been tested in the lab environment with possibly one or two devices. The "100 actual hardware devices" can include a variety of smart appliances, electric vehicles, or DERs (including PVs) that are directly or indirectly controlled or managed by the proposed technology. In addition, the "Additional Technical Objectives" may not be applicable to all possible technical approaches that could be proposed by potential applicants, but should be addressed by applicants to the maximum extent possible. See Section I.E.2 (Additional Technical Objectives) and Section IV.C (Content and Form of Concept Papers) of the FOA for more information on Hardware-In-The-Loop Testing and how applicants should address this in Concept Papers.

III. Questions for week ending: MARCH 6, 2015

Q6. If 3 different concepts were submitted under OPEN 2015, can the concepts be combined (representing a new concept) and be submitted towards NODES? How would it affect the submissions in either programs?

ANSWER: Please review the response provided for Q1 above. An identical concept should not be submitted to both FOAs. The determination on whether two submissions (or, in this case, a combination of three submissions to OPEN 2015 FOA as compared with one submission to NODES FOA) are identical involves a fact-based assessment by ARPA-E to ensure a focused review of each technical concept, and appropriate use of ARPA-E's limited time/resources.

Per Section I.E (Applications Specifically Not of Interest) of the OPEN 2015 FOA and Section I.F of the NODES FOA, identical applications submitted in response to currently issued ARPA-E FOAs

will only be reviewed and considered for funding once under the first FOA to which the applicant applied.

Q7. We are developing a proposal for NODES Category 1. Under the testing plan, it mentions Hardware-in-the-Loop validation is required. We plan to build a 100 nodes lab-scale reconfigurable physical system instead of a hardware-in-the-loop system for validation. Is this OK or do we have to build up a hardware-in-the-loop system?

ANSWER: ARPA-E may not provide pre-submission assessments of project team's concepts. Therefore, we cannot provide assessment of whether this test platform satisfies the requirements for the "Hardware-In-The-Loop" technical objective, especially without having sufficient information about the structure and capabilities of this planned test system.

The objective of the "Hardware-In-The-Loop" technical objective is to validate developed control algorithms' ability to satisfy the project category technical performance metrics in a medium-scale realistic environment. For load/DERs control or aggregation algorithm development projects, the "Hardware-In-The-Loop" testing platform should be used to demonstrate the algorithms' ability to control actual devices. Therefore, for such projects, the "Hardware" term refers to controlled devices. For other types of projects, the "Hardware" term could mean a different thing depending on the technology being proposed. However, it should satisfy the objectives described in Section I.E.2 (Additional Technical Objectives) of the FOA.

IV. Questions for week ending: MARCH 13, 2015

Q8. We at [Company] are interested in applying to two imminent FOAs - NODES with ARPA-e and the TI-External FOA with BPA. Is there any potential conflict with us applying to both? We are going to be proposing a similar flexibility platform but for different use cases. Please let us know if there are any restrictions. We have already asked the contact at BPA and he had asked us to contact ARPA E directly.

ANSWER: ARPA-E will review compliant and responsive concept paper submissions. However, during the Full Application stage applicants will be required to fill out the Business Assurances & Disclosure Form. That form requires disclosure of any applications for the proposed project or related work pending with any Federal or non-Federal entity, and disclosure of any funding received for the proposed project or work in the same technology area as the proposed project. Please see Section 3 (Pending Sources of Funding) in the Business Assurances & Disclosure Form, which can be found here: <https://arpa-e-foa.energy.gov/FileContent.aspx?FileID=f5159903-9a7a-4f4b-87f7-3591d8cfcaee>. In the event a project is selected by more than one organization, you will only be eligible to receive funding from one source.

Q9. We have a question with regards to the ‘Hardware-In The Loop’ testing requirement in the FOA. Would building and deploying models representing actual loads on 100 physical devices with network communication capability satisfy the 100 actual device requirement?

ANSWER: ARPA-E may not provide pre-submission assessments of project team’s concepts or technology validation approach. Section I.E.2 (Additional Technical Objectives) of the FOA states that it is “critical to test new control and aggregation schemes with a minimum of 100 actual hardware devices.” Section IV.C.1.c (Proposed Work) of the FOA provides the specific requirements for “Hardware-In-The-Loop” (HiL) validation for all 3 Technical Categories of Interest 1, 2, and 3. For Technical Categories 1 and 2, HiL validation must include a “[t]esting setup description for real-time testing with a minimum of 100 actual hardware devices (representing 10s of customers/prosumers).” For Technical Category 3, HiL validation must take the same form as the HiL validation for Technical Categories 1 and 2 unless the project team can show that this HiL platform is not available, in which case, it “could be replaced by a small to medium scale simulation testing involving similar numbers of devices and/or customers.”

Q10. How should I obtain the control number for the following application? There was no notice of intent requirement.

ANSWER: The ARPA-E Funding Opportunity Exchange system (<http://ARPA-E-FOA.Energy.GOV>) assigns the Control Number when applicants click the DE-FOA-0001289 Apply button, complete the Concept Paper Details form, and click the “Create Concept Paper” button that is located at the bottom of the form.

Q11. We have a small startup based in ___ making ___ systems. For the NODES grant proposal, we are partnering with a small ___ manufacturer ___, We’re planning to submit a concept paper next week, but we have a couple questions.

How specific should our proposal be? We have 3 possible pilot projects in mind for this - _____. All of these have similar characteristics for _____.

The nature of our proposal is to have

Could you possibly tell us which of these pilot project would fit this grant best? And should we indeed send specifications for the pilot projects in this concept paper, or would the specific application be unnecessary at this stage? i.e. are you more interested in the technology at this stage or both the technology and the specific application?

ANSWER: Please review the response provided for FAQ H above. ARPA-E may not provide pre-submission assessments of project team’s concepts or technology validation approach. Additionally, please refer to the “NODES - Concept Paper Template” document published with this

FOA (available at <https://arpa-e-foa.energy.gov/FileContent.aspx?FileID=9e2f5cc0-c7ff-4ea2-b8f5-595c6ff31691>) for more information on what should be included in concept paper submissions.

Q12. Hardware in the Loop Validation:

- What constitutes sufficiency for the 100 hardware devices? (individual controllable items, like Direct Digital Controllers within a Building Automation System or full on actual pieces of rampable gear – Battery, Generation Device, etc. For that matter, does it have to be a load generating or consuming device or can a hardware device also mean a load measuring or switching device?)
- Category 3 responses later state that if a HiL testing platform of the type listed for Categories 1 and 2 is not available, it could be replaced by a small to medium scale simulation testing involving similar numbers of devices and/or customers: how, if at all, does this category exception change the answers to the above question?
- Regarding “datasets and models used for simulations should be provided by grid operators or utilities whenever possible,” does that mean direct partnership with those entities or can a submission use models or representative samples of utility market and grid data?

ANSWER: Please review the responses provided for Q7 and Q9 above.

The “datasets and models” to be used for large-scale simulations “should be provided by grid operators or utilities whenever possible” as stated in Section I.E.2.a (Validation) of the FOA. In cases when test datasets provided by “grid operators or utilities” are missing some specific pieces of information or details necessary to test the proposed technologies, such details could be synthesized using scientifically accurate representation of the actual system as much as possible. Testing using only synthesized grid datasets would not be sufficient to satisfy the requirements for this technical objective.

Q13. The NODES Concept Paper Template document states, “The cover sheet of the Concept Paper must also include the disclaimer [below] provided in Section VIII.E of the FOA.”

Is a separate cover sheet acceptable, in addition to the 4 pages of content? (making the Concept Paper a total of 5 pages)

Notice of Restriction on Disclosure and Use of Data:

Pages [___] of this document may contain confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance or loan agreement between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

ANSWER: Yes. The cover sheet will not count against the page limit for Concept Papers unless it includes more information than what is specified in Section VIII.E (Marking of Confidential Information). Only the first four pages of your Concept Paper submission will be reviewed.

Q14. I’m hoping you might be able to assist with our question regarding ISO’s. Could you kindly clarify if an ISO must be finalized prior to the submission of the concept paper or can this be finalized at the time of full proposal submission?

ANSWER: We interpret this question as asking whether a teaming or data sharing agreement with and Independent System Operator (ISO) should be finalized prior to the submission of a concept paper for this FOA.

The NODES FOA does not require having a teaming agreement with any type of entity including ISO or Regional Transmission Organization (RTO). However, for validation tests involving “Large-Scale Simulations”, Section I.E.2.a (Validation) of the FOA states that “datasets and models used for simulations should be provided by grid operators or utilities whenever possible”. Additionally, applicants are only required to provide a “high level overview of their testing plan” in the concept paper submissions. See Section I.E.2.a (Validation) of the FOA.

Please also review the response provided for FAQ T above regarding changes to the Project Team during the application process.

V. Questions for week ending: JUNE 19, 2015

Q15. It would be very helpful if you could share with us the details of reviewers' comments,...

ANSWER: Please see Section VII.B Debriefings of the DE-FOA-0001289 NODES Funding Opportunity Announcement. ARPA-E provides Applicants with feedback on Concept Papers in order to guide the further development of the proposed technology.

Q16. I am working with one of our faculty members to prepare and submit a proposal in response to DE-FOA-0001289. The SF424A form asks for personnel to be broken down by hours and pay rate per hour. We do not report effort by hours but rather by effort percent per month. I am not able to change the headings on the columns on the personnel sheet to accurately indicate that the effort will be listed in Months and not hours. Is there a way to change the headings without having to recreate the entire form?

ANSWER: No, the SF424A Budget Justification Workbook is a password protected form.

VI. Questions for week ending: JUNE 26, 2015

Q17. We have been discouraged from pursuing the concept we submitted to the NODES program. We have since developed a better concept and expanded our team. How far can we deviate from the concept paper in our full proposal?

ANSWER: Applicants have some discretion concerning the content of their application. For example, relative to the concept paper, participating team members, personnel, and their roles may change, or the amount of money sought from ARPA-E may be increased or decreased. DE-FOA-0001289 sets forth specific research areas of interest, performance targets, and topical areas not of interest to ARPA-E in its Section I. Furthermore, Section III.C.1 of the FOA provides that in order to submit a compliant Full Application, an Applicant must first have submitted a compliant and responsive Concept Paper. These impact the discretion available to applicants concerning the technical content of any Full Application. Applicants should also note that the Concept Paper phase is intended to provide an indication whether they should dedicate resources to preparing a Full Application. Insights gained by Applicants as a result of the Concept Paper review may be lost if the scope of the proposed project changes significantly from the Concept Paper to Full Application.