

QUESTIONS AND ANSWERS

PLEASE REFER TO THE GENERAL FAQS SECTION OF ARPA-E'S WEBSITE (<http://arpa-e.energy.gov/?q=fag/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 Phase Questions:

Q1. Will there be a webinar for DE-FOA-0001952 “Support Grants for Participation in ARPA-E GRID Optimization (GO) Competition Challenge 1”? If so, what are the details to attend?

ANSWER: While no webinar is currently planned, if a webinar is scheduled in the future, we will send out a notification and update the FAQs.

Q2. I have a question about the initial announcement of this competition challenge 1. In Section I (subsection C), regarding the technical requirement about the quantitative comparison of methods,

Shall we solve the problem formulation in the initial announcement document or the preventative SCOPF problem and data sets provided in the Beta phase for the proposal?

ANSWER: DE-FOA-0001952 has a simplified mathematical formulation in comparison to the official formulation. Submissions should address the challenges posed within the simplified formulations. Submissions should also address the characteristics of SCOPF that are also described in the FOA, which goes beyond the simplified formulation presented in Appendix A2 and Section I.C of the FOA. Applicants should describe their approach for both the mathematical problem presented in Appendix A2 and the complete formulation presented on the GO Competition Challenge 1 website (<https://gocompetition.energy.gov/challenges/challenge-1/formulation>). Applicants should also consult (<https://gocompetition.energy.gov/challenges/challenge-1/scoring>), which describes the scoring mechanisms that will be used to choose the GO Competition Challenge 1 winners.

Q3: I read TECHNICAL AREAS OF FOCUS FOR APPLICANTS TO THIS FOA, scoring link and also looked at application template and problem definition in Appendix A2. Since I am not familiar with these kind of announcement, I was wondering if you could help me find the answer for a couple of questions:

Q3.1 Is this award open to the proposal which focuses on redefining the problem in Appendix A.2?

ANSWER: No. Submissions to the FOA must address the security-constrained optimal power flow problem as described in Sections I.B. and I.C of the FOA. In addition, Section III.C.3 of the FOA

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(Submissions Specifically not of Interest) states, “Submissions that propose the following will be deemed nonresponsive and will not be merit reviewed or considered:

- Approaches that do not address the structure of the two-stage scenario-based mathematical program are not of interest (i.e., there is a first-stage, a pre-contingency base-case state, and there is a second-stage, a post-contingency state; these second-stage constraints are referred to as security constraints or the security criteria).
- Approaches that completely ignore the non-convexities in this network flow problem (i.e., approaches that ignore voltage, reactive power, and other aspects within ACOPF problems that cause non-convexities).”

Q3.2 We are confused a little bit about the award. Based on chart in page 1 of the announcement and figure 3, award can be up to \$250k but on page 13 in figure 4 Prizes are 100k. Is a detail budget expected or award will be fixed?

ANSWER: Refer to FOA Section IV.C.3 for instructions on preparing and submitting budget information for this Announcement. As set forth on the cover page and at FOA Section II.A, grant awards under this Announcement will not exceed \$250,000. Per FOA Section I.D, Challenge 1 prize winners will receive at least \$100,000 and may receive up to \$400,000. Refer to Q3.3 below for further clarification.

Q3.3 Is the maximum prize money amount for Challenge 1 \$100,000 or \$400,000?

ANSWER: There are four scoring divisions, as shown in Figure 4 in Appendix A1 of DE-FOA-0001952. Eligible Entrants can receive up to \$400,000 in Challenge 1. Proposal Entrants (the awardees of DE-FOA-0001952) will receive \$100,000 for each scoring division in which they place within the top ten, which will be given as follow-on grant funding as defined by the rules within DE-FOA-0001952. Refer to Figure 3, Figure 4, and Appendix A1 in DE-FOA-0001952 for more information.

Q4. I ... have a few questions regarding this FOA:

Q4.1 Are Letters of Support or Commitment allowed to be included in the proposal?

ANSWER: Refer to General FAQ 8.3.

Q4.2 Who are the contracting officers for both DE-FOA-0001952 and GO Challenge 1?

ANSWER: Refer to FOA Section VII.A for information on communicating with ARPA-E for the subject FOA. Contact information for the GO Competition can be found at <https://gocompetition.energy.gov/faq-page>.

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Q4.3 Can you provide clarification as to what "Lowest Cost" (Division 1 and 2) is evaluated on? I.e., is this affordability of the model/solution itself, or the cost related to grid operation?

ANSWER: In Appendix A2 and Section I.C of the FOA, the SCOPF problem is described as having an objective function. The objective is to minimize the total cost of operations. Therefore, Lowest Cost is referring to the value of your objective function resulting from your solution to the SCOPF problem.

Q4.4 The GO Challenge schedule link is currently broken on the competition website. Can you please clarify how the FOA's period of performance relates to the timeline of GO Challenge 1?

ANSWER: The GO Competition Challenge 1 is expected to begin in the middle of Fall 2018, sometime after selection notifications are made for DE-FOA-0001952. The first Trial Event will occur in the Spring of 2019 (6 months after the start of the GO Competition), the second Trial Event will occur in the Summer of 2019 (3 months after the first Trial Event), and the Final Event is expected to occur in middle of Fall 2019 (3 months after the second Trial Event). The period of performance for DE-FOA-0001952 awardees will start after contract negotiations are finalized (expected to be close to the start of Challenge 1 start date) and will extend until shortly after the conclusion of the Final Event.

Q5. We intend to submit a collaborative proposal by two universities. Could it be a multi-institution submission? In other words, can the sub-recipient institution receive its portion of the award from ARPA-E directly? or it should receive it from the prime-recipient institution as a subcontractor?

ANSWER: ARPA-E does not accept collaborative proposals as described in the question above. Except as set forth at FOA Section II.B.2, ARPA-E will award a fixed-amount grant to the entity named in the Full Application.

Q6. Quick question ... – Can corporations compete?

ANSWER: Refer to FOA Section III.A of the funding opportunity announcement.

Q7. Where can I find more information regarding the rules, the scoring procedures, and the mathematical program used for the GO Competition Challenge 1?

ANSWER:

The official scoring document can be found:

https://gocompetition.energy.gov/sites/default/files/Scoring_GO_Comp_20180726.pdf

The official rules document can be found: <https://gocompetition.energy.gov/competition-rules>

The official formulation for the mathematical program representing the security-constrained optimal power flow problem will be posted at the following website. The full formulation is posted:

<https://gocompetition.energy.gov/challenges/challenge-1/formulation>

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Q8. Should I restrict my proposed approach in my submission to this FOA to the capabilities of the PNNL platform for running the GO Competition Challenge 1?

ANSWER: No. You should propose whatever you think is the best technique to solve the proposed mathematical program; refer to Sections I.B and I.C of the FOA and the Appendices for information on the proposed problem.

Q9. My approach relies on machine learning or a technique that must first run on training data. Will the competition provide such data? How should this affect my application to the FOA?

ANSWER: Refer to Q8 above for further clarification. Your submission to the FOA should describe how your approach will address the security-constrained optimal power flow problem as described in Sections I.B. and I.C of the FOA and Appendix A2 of the FOA. For the competition, ARPA-E will design it to accommodate a diversity of approaches. See Q7 for more information on the competition.

Q10. How large are the datasets going to be for the competition? How many contingencies will be included in the contingency set? Should I consider the size of the system and its influence with my approach within my FOA application?

ANSWER: The FOA discusses the challenge for approaches to scale up to real, large-scale systems (Section I.B, Section I.C, Appendix A1). In general, approaches that cannot scale up to the size of existing regional transmission organizations are not of interest and the datasets used in Challenge 1 will reflect this level of difficulty, in regards to the network size, model difficulty, and the number of contingencies.

Q11. Can an individual submit multiple applications to DE-FOA-0001952?

ANSWER: Refer to Section III.C.4 of DE-FOA-0001952.

Q12. Regarding the GO Competition data and formulation, are transformers and shunt capacitors control variables?

ANSWER: For applying to DE-FOA-0001952, you should consult the description of the SCOPF problem in the FOA itself (e.g., Section I.B and Section I.C) and the simplified formulation in Appendix A2 of the FOA. You may also wish to refer to Q2, Q3.1, Q7, and Q8 in this FAQ.

In regards to the GO Competition itself, you should refer to the GO Competition website and its information, which also has an FAQ page. If you have a question on the GO Competition itself, you can direct your questions to the GO Competition Administrator (contact information is available on the website).

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Q13. We would appreciate if ARPA-E could provide response to the following questions prior to the submission deadline:

Q13.1. Will ARPA-E provide support for AIMMS?

ANSWER: See Q7, Q8, and Q9 of the FAQ.

Q13.2. Will ARPA-E provide support for PowerWorld Simulator or any other commercial power flow solver (PSS/E, PSLF, or PSAT)?

ANSWER: See Q7, Q8, and Q9 of the FAQ.

Q13.3 Is ARPA-E planning to provide the full problem formulation prior to the proposal submission deadline on the competition website?

ANSWER: The formulation is posted. See Q7 of this FAQ.

Q14. I am assisting an applicant for the Grid Optimization Competition Challenge 1 (DE-FOA-0001952). I've reviewed the FOA and the available FAQ but it's not clear to me whether the subrecipients are required to submit an application as well.

Q14.1 On page 15 of the FOA, it says educational institutions may apply as a member of an Applicant Team. Could you please clarify if only the lead organization ... should be submitting the application or if the subrecipients should apply as members of the applicant team?

ANSWER: The Applicant team must submit a single application. As noted in FOA Section IV.C: *Each Applicant Team should submit only one SF-424 (i.e., a Subrecipient should not submit a separate SF-424).*

Q14.2 In addition, if only the lead organization is submitting the application, should multiple Business Assurances & Disclosures Forms be submitted (i.e. one for each organization) or just one?

ANSWER: Refer to General FAQs 13.3 and 13.4.

Q14.3 Lastly, is one combined SF-424A required or should an SF-424A generated for each institution?

ANSWER: A single SF-424A is required. As noted at FOA Section IV.C.3: *Applicants (i.e., The entity that submits the application to ARPA-E. In the case of a Applicant Team, the Applicant is the lead organization listed on the application.) are required to complete the SF-424A Excel spreadsheet.*

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Q15. For most ARPA-E FOA's, there are clear instructions about the requirements necessitating partner organizations to complete the SF-424a spread sheet and for said spread sheet to be included with the Lead organizations SF-424a. I cannot find any instructions on this issue for the GO FOA. Can you provide clarification on whether SF-424a forms are required for partners and if yes, what are the % effort thresholds for this to apply?

ANSWER: Refer to GRID Optimization FAQ 14.3.

Q16. I intend to present an application for the “Support Grants for Participation in ARPA-E Grid Optimization (GO) Competition Challenge 1”. I’m writing for clarification on the “Performance of Work in the United States” requirement. We are incorporated in the United States but the work we plan to carry out will be assisted by researchers located outside of the country. These researchers are crucial to our project and we would not be able to complete the work without their expertise. I understand that we must fill out the ‘Waiver Request- Foreign Work’ section of the “Business Assurances & Disclosures Form” at the time of application submittal for this requirement to be waived at the discretion of ARPA-E.

My question is whether having work partially carried out by team members in another country would be grounds to have the “Performance of Work in the United States” requirement waived.

ANSWER: No. Refer to General FAQ 3.1 for additional information about Foreign Work Waivers.