

## QUESTIONS AND ANSWERS

PLEASE REFER TO THE GENERAL FAQs SECTION OF ARPA-E'S WEBSITE (<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:

#### Q1.1 Can you advise me on the inclusion of a Canadian industry who would like to offer a cost share for our GAMOW proposal?

**ANSWER:** Cost share partners are not required to be based in the United States; however, the prime recipient and its project team members remain bound by U.S. Manufacturing requirements as described at FOA Section VI.B.8. Keep in mind that if a foreign entity is providing in-kind cost share (as opposed to a cash contribution), ARPA-E requires that all work under ARPA-E funding agreements be performed in the United States; Applicants may seek a waiver to this requirement as described in FOA Section IV.G

#### Q1.2 Also, is there any difficulty in including a national lab?

**ANSWER:** Eligibility of national laboratories to participate in the GAMOW FOA are discussed at FOA Section III.A.2.

#### Q2. We have a team comprised of a university, private industry, and a national lab. The university lab likely will be the lead. Does the national lab still have to submit through PAMS and SC FES in parallel; or can the team just submit through ARPA-e? Or, will a determination be made after review of the concept paper?

**ANSWER:** Initially, all applications to the GAMOW FOA must be made through ARPA-E eXCHANGE. Only after a Full Application has been subjected to merit review and recommended for award negotiations by ARPA-E and SC-FES, but found to be better aligned with the SC-FES mission and budget priorities, will the Applicant will be invited to resubmit its application to SC's continually available FOA (currently DE-FOA-0002181 in <https://www.Grants.gov>).

#### Q3. We have some questions about scope of work expected in the GAMOW FOA, thank you for helping us understand this better.

##### Q3.1 Are design studies something that would be considered, mostly or all simulation?

**ANSWER:** Design studies that support the program objectives in Sections I.C and I.E and the technical categories of interest described in Section I.D may be considered to be responsive. Design studies that are purely simulation may be considered.

##### Q3.2 Is developing impactful simulation capability an acceptable proposal?

**ANSWER:** Proposals specifically focused on basic research aimed solely at discovery and/or fundamental knowledge generation may be deemed nonresponsive. See Section III.C.2 and also the answer to Q3.1 above.

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### Q3.3 Does accelerating R&D to happen earlier and have an impact sooner constitute a viable proposal?

**ANSWER:** Proposals that enable accelerated R&D that support the program objectives in Sections I.C and I.E and the technical categories of interest described in Section I.D be considered to be responsive.

### Q3.4 Is diagnostic technology development an area of interest for this call?

**ANSWER:** Diagnostic technology development that is required to advance the program objectives (see Sections I.C and I.E), and falling within the technical categories of interest (see Section I.D), may be deemed responsive.

### Q4. Part III.A.3, Foreign Entities, states that only foreign entities with U.S. subsidiaries or affiliates (already incorporated or to be formed) may be paid under Funding Opportunity No. DE-FOA-0002288.

#### Q4.1 Is a foreign national considered a foreign entity?

**ANSWER:** Yes.

#### Q4.2 Could a foreign individual, acting as a consultant, receive funding under this opportunity directly from the prime?

**ANSWER:** Refer to General FAQ 3.1.

### Q5. The Funding Opportunity No. DE-FOA-0002288 mentioned 10% cost share for FFRDCs. Historically DOE national labs have difficulties on providing non-federal dollars as cost share. ... I'd appreciate it if you could clarify the cost share requirement.

**ANSWER:** The base cost share requirement is 20% of the Total Project Cost (refer to FOA Section III.B.1), and is subject to reduction in the circumstances set forth at FOA Section III.B.3. These include:

- *Project Teams composed exclusively of domestic educational institutions, domestic nonprofits, and/or FFRDCs/DOE Labs/Federal agencies and instrumentalities (other than DOE) are not required to provide cost share.*
- *Project Teams where domestic educational institutions, domestic nonprofits, small businesses, and/or FFRDCs perform greater than or equal to 80% of the total work under the funding agreement (as measured by the Total Project Cost) are required to provide at least 10% of the Total Project Cost as cost share. However, any entity (such as a large business) receiving patent rights under a class waiver, or other patent waiver, that is part of a Project Team receiving this reduction must continue to meet the statutory minimum cost share requirement (20%) for its portion of the Total Project Cost.*

Although the cost share requirement applies to the Project Team as a whole, the funding agreement makes the Prime Recipient legally responsible for paying, or ensuring payment of the entire cost share (refer to FOA Section III.B.4). Each Project Team is free to determine how much each Project Team member will contribute towards the cost share requirement. The amount contributed by individual

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Project Team members may vary, as long as the cost share requirement for the project as a whole is met (refer to FOA Section III.B.5).

### **Q6. Is it your hope to announce BETHE funding before GAMOW whitepapers are due?**

**ANSWER:** A table of key deadlines for both the BETHE and GAMOW funding opportunity announcements can be found on the first page of the funding opportunity announcement documents.

### **Q7. Following the requirements outlined in the GAMOW FOA, we understand the GAMOW project is open to submission from a small business as the lead organization and a DOE national lab as part of the project team. However, it is not entirely clear to us who counts as an FFRDC/DOE lab.**

**ANSWER:** The Master List of Federally Funded Research and Development Centers can be found at <https://www.nsf.gov/statistics/ffrdclist/>. This list includes FFRDC sponsored by both the Department of Energy and other Federal agencies.

### **Q7.1 Under GAMOW, would we be allowed to submit a proposal including an FFRDC/DOE lab as a team member ...?**

**ANSWER:** Yes, refer to FOA Section III.A.2.

### **Q7.2 We have received cost-share from FFRDCs on previous ARPA-E projects, however, [FOA Section III.B.7], would a teaming FFRDC be allowed to help the lead organization meet its cost-share obligation?**

**ANSWER:** As set forth at FOA Section III.B.7:

*Because FFRDCs are funded by the Federal Government, costs incurred by FFRDCs generally may not be used to meet the cost share requirement. FFRDCs may contribute cost share only if the contributions are paid directly from the contractor's Management Fee or a non-Federal source. (emphasis added)*

### **Q8. One of our faculty members has been approached about being a co-pi on this call for a couple different proposals. Is there a limit to the number of proposals that a professor may be included on to this FOA?**

**ANSWER:** No.

### **Q9. I was wondering if [two] colleges were collaborating and included a national laboratory on a proposal, ([one] as lead the other as a sub + lab) would the proposal be subject to the 10% cost share requirement?**

**ANSWER:** Refer to General FAQ 4.21.

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**Q10. I am part of a team at ... who is planning to respond to the ... FOA. As part of this call, I think it would be essential for us to make connections with some small fusion companies that perhaps have designs for ... . I have heard that ... might be such company. Can you help make the introduction to their chief technology officer and perhaps recommend other small companies that might be relevant to chat with ... .**

**ANSWER:** No. Refer to the GAMOW Teaming Partner List (RFI-0000046) at <https://arpa-e-foa.energy.gov/> for other parties interested in participating.

**Q11. There are some questions for the incoming GAMOW opportunity DE-FOA-0002288**

**Q11.1 We have a team comprised of a university, private industry (small business), and a national lab. The national lab likely will be the lead. What is cost-share % for this case?**

**Q11.2 We have a team comprised of two universities, and private industry (small business). The small business likely will be the lead. What is cost-share % for this case?**

**ANSWER** (both Q11.1 and Q11.2): Refer to General FAQs 4.9 and 4.21.

**Q11.3 If the potential principal investigator is employed [by a] small business and [a] university and his/her primary employment is at the university[, can] a small business be the lead, and the [aforementioned] person [serve] as the principal investigator?**

**ANSWER:** Yes.

**Q11.4 If the project team involves several parties, who will be responsible for submitting the concept paper?**

**ANSWER:** Prospective project team members must decide which team member will be responsible for submitting the Concept Paper.

**Q11.5 Does only the lead need to provide the concept paper or all team members need to submit their portion in ARPA-exchange system?**

**ANSWER:** One Concept Paper, addressing a single concept or technology as set forth at FOA Section IV.C, must be submitted via ARPA-E eXCHANGE.

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**Q12. Our group is asking what, if any, are the technical specifications for the turn-on (rise time) and turn-off (fall times) durations for the devices outlined in the D. Technical Categories of Interest's section V. High-efficiency electrical-drive systems capable of high-duty-cycle operations described on page 10 addressing "repetitive pulse-power technology and components with peak power much greater than average power, with representative targets of 30kV, 1 MA, up to 100us flat top and 1-10Hz rep rate."**

**ANSWER:** The answer varies depending on the fusion approach, so there is no universal metric. For example, order-of-magnitude values are 100 ns for dense Z pinches to microseconds or greater for some liner-driven compression approaches (magneto-inertial fusion). This is not an exhaustive list.

**Q13.1 Is the FOA GAMOW focused on the innovative technologies to be applied to the current program of Tokamak and Stellarator, bringing them to market in the future (which could be many years from now)? Does GAMOW review committee accept a simpler set of technologies on a new disruptive aneutronic fusion concept that lowers the Coulomb Barrier and can reach the market NOW?**

**ANSWER:** GAMOW prioritizes the technical categories of the FOA for any fusion concept that has a theoretical basis for potentially achieving net energy gain within approximately ten years and a grid-ready demonstration within approximately twenty years. Applicants may wish to carefully review Secs. III.C.2 and III.C.3 of the FOA.

**Q13.2 Regarding the eligibility of applicants in GAMOW, "foreign entities can apply as Standalone Applicants, the lead organization or as a member of a project team. The foreign entity must designate in the Full Application a subsidiary or affiliate incorporated to receive the funding." If we have a US entity that has a contractual relationship to provide R&D service for our foreign entity, but is neither a subsidiary nor affiliate, can the foreign entity still be eligible as the applicant and designate the US entity to receive its funds?**

**ANSWER:** No.

**Q13.3 Regarding the Responsiveness Criteria in [S]ection III.C.2, "Submissions that have been submitted in response to currently issued ARPA-E FOAs." or "Submissions that are not scientifically distinct from applications submitted in response to currently issued ARPA-E FOAs." Does this mean that the FOA was issued to the entity applying or that it is still an active FOA? That is, if we submitted to the SCALEUP FOA, but our proposal was not accepted, do we have to wait until that FOA is no longer active to submit a similar project?**

**ANSWER:** ARPA-E FOAs are not directed to a particular entity or entities. ARPA-E will not subject to merit review applications addressing the same or similar subject matter presently before the agency under another ARPA-E FOA. Once a pending application has been: (i) definitively not selected for award negotiations, or (ii) withdrawn by the applicant; the applicant may revise/improve its application and resubmit under any germane ARPA-E FOA.

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**Q13.4 In the statement: “Identify techno-economic challenges to be overcome for the proposed technology to be commercially relevant”,**

**Q13.4a What are the definition and an example of "techno-economic" challenges?**

**ANSWER:** A commercial system must achieve certain levels of both technical and economic performance. Thus, TEA analyses typically seek to identify market, cost (capital and operational/maintenance), and siting/regulatory requirements, which all influence technical requirements. An example is the first wall of a fusion system: what neutron fluence must it survive while fulfilling capital- and operational-cost and waste-disposition constraints of the overall fusion system?

**Q13.4b Could the techno-economic challenges describe a process, such as methods to achieve clean fusion?**

**ANSWER:** In the context of GAMOW, the requested identification of techno-economic challenges is intended to help ARPA-E identify applications that seek to enable commercially viable fusion energy systems as opposed to scientific experiments. See also the answer to Q13.1.

**Q13.5 What does “overabundance of watts” mean in the acronym GAMOW? Does this imply a lower limit to the scale of the project, i.e. does it have to be city-grid scale?**

**ANSWER:** The name does not imply a lower limit on unit size, but technologies of interest should enable fusion energy systems that have the potential, with more or larger units, to scale to energy and emissions-reduction impacts at the quad and gigaton levels, respectively.

**Q14. Our project is a consortium made of the following contributors to the overall Total Project Costs: a FFRDC as lead (55%), 2 Universities (5%) and 2 Small Businesses (40%). Although the base cost share requirement is 20% of the Total Project Cost, FOA Section III.B.3. indicates that a reduction to 10% is possible, if the following conditions apply:**

***Project Teams where domestic educational institutions, domestic nonprofits, small businesses, and/or FFRDCs perform greater than or equal to 80% of the total work under the funding agreement (as measured by the Total Project Cost) are required to provide at least 10% of the Total Project Cost as cost share. However, any entity (such as a large business) receiving patent rights under a class waiver, or other patent waiver, that is part of a Project Team receiving this reduction must continue to meet the statutory minimum cost share requirement (20%) for its portion of the Total Project Cost.***

**Is our consortium eligible for this reduced cost share?**

**ANSWER:** As set forth in the quoted provision, this cost share reduction is available to: [p]roject Teams where domestic educational institutions, domestic nonprofits, small businesses, and/or FFRDCs

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*perform greater than or equal to 80% of the total work under the funding agreement (as measured by the Total Project Cost ...*

**Q15.1 Costshare - there is a requirement for 20% cost share and this is also stated in the items that are part of the Concept paper submission. However, the FOA also mentions that there is a reduced cost share requirement for:**

- **A domestic educational institution or domestic nonprofit applying as a Standalone Applicant is not required to provide cost share.**
- **Project Teams composed exclusively of domestic educational institutions, domestic nonprofits, and/or FFRDCs/DOE Labs/Federal agencies and instrumentalities (other than DOE) are not required to provide cost share.**

**Our team is led by a University and is composed of co-PIs from three Universities, one DOE national lab and a potential industry partner. Is the 20% cost share still required?**

**ANSWER:** Cost share reductions are available as described in FOA Section III.B.3. Projects not meeting any of the criteria set forth therein are subject to the base cost share requirements described in FOA Sections III.B.1 and III.B.2.

**Q15.2 If not, will the online system allow submission of the Concept Paper with \$0 cost share?**

**ANSWER:** Per FOA Section IV.C.1, Concept Papers must include an estimate of federal funds requested, and total project cost including cost sharing.

**Q15.3 Can an industry partner be on the team in an advisory capacity, without allocation of any funds in the budget.**

**ANSWER:** Entities receiving funds from ARPA-E may seek advice from industry as they deem necessary; however, as set forth in FOA Section IX: [a] *Project Team consists of the Prime Recipient, Subrecipients, and others performing any of the research and development work under an ARPA-E funding agreement ...* Prospective applicants are also reminded that awardees are required to comply with U.S. export control laws and regulations.

**Q15.4 Is it acceptable to include a support letter from the industry partner with the Concept Paper?**

**ANSWER:** Refer to General FAQ 6.5.

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**Q16. We ... [are] planning to submit a proposal under DE-FOA-0002288 (GAMOW) and request clarification for the following:**

- **Can a DOE lab submit a proposal with “no cost share” with a small business as a consultant or no-cost partner with their estimated cost listed in the proposal. For example, is this case acceptable: Total project cost: \$450,000, Funds requested: \$450,000, estimated in-kind support from small business: \$50,000?**
- **Can a DOE lab submit a proposal with “no cost share” with a small business as a partner with the DOE Lab performing ~90% of the work and small business ~10% of the work as in-kind support. For example, is this case acceptable: Total project cost \$500,000, Funds requested: \$450,000, in-kind support from small business: \$50,000?**
- **Can a DOE lab submit a proposal with “limited cost share” with a small business as a partner with the DOE Lab performing ~90% of the work and small business ~10% of the work with limited in-kind support. For example, is this case acceptable: total project cost \$500,000, Funds requested: \$490,000 (\$450,000 for DOE lab, \$40,000 for small business, in-kind support from small business \$10,000)?**
- **Can a DOE lab submit a proposal with “limited cost share” with a small business as a partner with the DOE Lab performing ~90% of the work and small business ~10% of the work with limited in-kind support. For example, is this case acceptable: total project cost \$500,000, Funds requested: \$490,000 (\$450,000 for DOE lab, \$40,000 for small business, cash funding from small business for material and labor towards its own work \$10,000)?**

**ANSWER:** As set forth at FOA Section III.B.3, Project Teams where domestic educational institutions, domestic nonprofits, small businesses, and/or FFRDCs perform greater than or equal to 80% of the total work under the funding agreement (as measured by the Total Project Cost) are required to provide at least 10% of the Total Project Cost as cost share. Acceptable forms of cost share are described at 2 C.F.R. § 200.306.

**Q17. Given the short remaining timeline, would there be any chance to participate in the program with a shorter version of scientific material provided? Or would we in any case be judged under the assumption of full and best scientific material provided?**

**ANSWER:** Concept Papers are limited to four pages of technical content. All compliant and responsive Concept Papers will be merit reviewed against the published Concept Paper criteria in the FOA.

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**Q18. I am planning to submit a concept paper to the GAMOW program. The project team that I am currently leading consists of three full professors from other institutions bringing in their expertise. I have been contemplating if my academic rank and work experience will be considered in the review process. Do you encourage senior professors leading these programs, especially if their contribution to the project is comparable to mine?**

**ANSWER:** ARPA-E will not provide pre-submission assessments or feedback regarding an Applicant's proposed staffing plans or teaming structures. Applicants must determine individually how to structure their project team. Applicants are encouraged to review the funding opportunity technical requirements to assess their staffing needs.

### II. Full Application Phase Questions:

**Q19. [T]here should be a 'View' button in the 'My Submissions' screen, but neither I nor my coauthor ... could find the 'View' button. Can you have someone fix this, please, so that we can read the detailed reviews? ...**

**ANSWER:** The View button is no longer available on the ARPA-E Funding Opportunity Exchange website "My Submissions" page. Applicants can click on the Control Number to open the Concept Paper Details page and review the Concept Paper Response section.

**Q20. Are the Business Assurances & Disclosure Forms required by all parties (lead and subordinate partners) for the proposals or just the lead?**

**ANSWER:** Refer to General FAQ 13.3.

**Q21. Thank you for permission to submit a full application to FOA-002288. I see that the full submission deadline is June 19, 2020. Could you please also let me know the anticipated start date of funding (if awarded)?**

**ANSWER:** Refer to FOA Section V.C.

**Q22. May I confirm with you my interpretation of the "Reduced Cost Share Requirement", "A domestic education institution or domestic nonprofit applying as a Standalone Applicant is not required to provide cost share"? In our case we will be a subcontract to a lead institution both are domestic Research Universities. Are we both excluded from the 20% Cost Share requirement?**

**ANSWER:** Refer FOA Section III.B.3, second bulleted item.

**Q23. Is there a minimum or maximum funding level for the lead applicant? In this case, an FFRDC is leading.**

**ANSWER:** There is no minimum or maximum amount of work that must be accomplished by any member of a Project Team as that term is defined in FOA Section IX. As set forth on the FOA Cover Page and FOA Section II.A, the Federal share of awards under the GAMOW FOA may vary between \$250,000 and \$7,500,000, inclusive of any monies separately awarded to an FFRDC. The soundness

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of an Applicant's management plan, including reasonableness of the proposed budget, is subject to Merit Review.

**Q24. Are we allowed to include conference travel as an expense (for conferences sponsored by a technical society, such as ANS or ASME)? Page 40 of the FOA addresses Conference Spending, but I cannot understand whether it restricts such conference travel or not.**

**ANSWER:** FOA Section IV.G.10 addresses conferences otherwise sponsored by the U.S. Government. Travel and related expenses to conferences sponsored by a technical society are allowable provided there is a project need for such travel.

**Q25. As an FFRDC, we must identify a DOE HQ Contact for the [Field Work Plan] FWP. Can you please provide their name & phone number so that I can complete the FWPs for the GAMOW call?**

**ANSWER:** Refer to General FAQ 13.2.

**Q26. Do you know an approximate anticipated start date of funding for proposals selected for funding under FOA-0002288 (GAMOW)?**

**ANSWER:** Refer to FOA Section V.C.

**Q27. The requirement to have a USMP plan for the DE-FOA-2288 GAMOW proposals is somewhat interesting to adhere to from a lab standpoint as we are not a commercial entity that makes products. How does the USMP requirement apply to not-for-profit M&O contractors?**

**ANSWER:** Refer to FOA Section VI.B.8.d.

**Q28. We are planning to support a university on a GAMOW proposal. We understand from the FOA that the national lab portion of an award, if made, would be direct-funded through Work Authorizations. Is there an expectation for the type of agreement (e.g., SPP, CRADA) to be made between the university (prime recipient) and the supporting national lab? Our partner would like to review our agreement template in advance.**

**ANSWER:** Refer to General FAQ 7.10. Matters concerning agreements between Project Team members are best addressed by the team members.

**Q29. We are in the process of preparing our full application for the subject FOA following approval of our concept paper. Our applications involves three universities, one national lab and an industry advisor. The total 3 year budget for the project was estimated to be ... in the concept paper. However, following the preparation of our individual budgets to accommodate the scope of the work, the total comes to a little more than ... . Is that acceptable or must the total budget in the full application strictly conform to the amount stated in the concept paper?**

**ANSWER:** Refer to General FAQ 7.13.