FIRST DEADLINE FOR QUESTIONS: 5 PM ET, August 2, 2024
SECOND DEADLINE FOR QUESTIONS: 5 PM ET October 21, 2024

QUESTIONS AND ANSWERS

DE-FOA-0003405 TEOSYNTE FOA FAQ

Please refer to the General FAQs section of ARPA-E's website for answers to many general questions about ARPA-E and ARPA-E's Notices of Funding Opportunities (NOFO). Additional questions specific to this NOFO are included below. Please review all existing General FAQs and NOFO-specific questions before submitting new questions to ARPA-E.

I. Concept Paper Phase Questions:

Q1. ***Redacted*** I would like to inquire whether you would also consider, biological approaches aside, novel nitrogen fertilizer materials that rely on crystal design or cocrystalization such as in my recent work. ***Redacted***I was wondering if our methods would fit under Category D of the program or if it is strictly reserved for biological approaches.

ANSWER: Alternative strategies for fertilizer delivery that have elements of microbial and/or plant biodesign will be considered as part of proposed projects, as described in Category D in Section I.D of the FOA.

Q2. I have a conflict of interest with the program director of TEOSYNTE ***Redacted***, as he was my postdoc supervisor. However, I would like to apply for this funding opportunity. Am I allowed to apply? If not, is there any workaround, such as letting another person be the main PI on the project?

ANSWER: There are no restrictions on submitting proposals for a FOA based on the conflicts with a particular program director at ARPA-E. Conflicts are managed by ARPA-E during the proposal evaluation process.

Q3. When we put together what our groups would require for a really well integrated lab and field project to address the priority area we realized that budget would be between $9-10 million. Would it be more coherent and competitive to submit a single merged proposal or two separate (and independent) proposals?

ANSWER: The cover page of the FOA states that awards may vary from $1-10 million. Section II.A of the FOA states that "ARPA-E expects to make approximately $36 million available for new awards, subject to the availability of appropriated funds. ARPA-E anticipates making approximately 7-9 awards under FOAs DE-FOA-0003405 and DE-FOA-0003408." All proposals that are compliant and responsive according to the parameters set out in the FOA will be considered.

Q4. Are other bio energy crops that have pathways to ethanol of interest for this FOA, and could be considered in scope beyond corn or sorghum?

ANSWER: Corn and sorghum are the two crops considered in this FOA. Section I.C of the FOA states that "ARPA-E seeks proposals that address and develop technologies that can lead to a 50% reduction in N_2O emissions by 2030 compared to the 2005 emissions baseline as targeted by the Biden

Administration in 2021. These technologies will require a minimum reduction of N fertilizer inputs by more than 48% in corn and sorghum cultivation without compromising yield." The FOA is seeking technologies to reach these quantitative metrics. Any proposals that are compliant and responsive to the criteria described in Section III.C of the FOA will be considered.

Q5. We are preparing a concept paper for the TEOSYNTE funding call and wanted to ask whether our project falls within the intended scope of the program.
A major barrier to practical nitrous oxide emission mitigation is a lack of knowledge about the conditions that cause rhizosphere microbes to produce or degrade nitrous oxide. These conditions are difficult to study due to the current inability to continuously and nondestructively measure the expression dynamics of key genes involved in microbial nitrogen metabolism over the large spatiotemporal scales relevant to agriculture.
To address this need, we propose to ***Redacted***.

Do you feel that this project, which would create a platform that enables the collection of information that can inform strategies for reducing nitrous oxide emission, fits within the scope of the TEOSYNTE program?

Is the development of sentinel plants in model research plant species responsive to this call, or is it required to work in corn or sorghum?

ANSWER: Please see the response to Q4 above.

Q6. I am an assistant professor at ***Redacted*** University; we have a team ***Redacted*** with a focus on N2O emissions in the US Cron Belt zone.
We would like to check if this call considers a proposal related to optimizing nitrogen use efficiency and reducing N2O emission: integrating management practices, soil microbiome analysis, and modeling approaches in the US corn belt zone.
It seems to fit Category D, but we do not have genomic modification of plants and microbes but have the component of interactions between crop and microbe in the soil.
Below are the objectives:
quantify crop nitrogen use efficiency (NUE), crop yield and monitor field N2O emission;
characterize the dominant microbial processes influencing crop NUE and N2O emissions and
identify the best practices for optimizing NUE with the over 50% reduction in N2O emissions through Machine Learning-based modeling in the Corn Belt region.

ANSWER: As stated in Section I.D of the FOA, all projects, including those in Category D, must have an element of microbial and/or plant biodesign. Plant biodesign can include selection of cultivars by breeding.

Q7. On behalf of our team, I have several questions that should help us in preparing our concept paper. Answers can be written or if you prefer we can arrange a Zoom chat.
We have question concerning the technologies to market queries. How central is the packaged technology for product deployment component for a proof-of-concept R&D proposal?
In terms of deliverables, how far do we need to go beyond field-level proof-of-concept of a technology? For example, would establishing an industrial partnership be sufficient or does it require involvement of an industry partner in deploying a product in broader field-base efficacy assessments during the funding period?
How do the expectations of deliverables differ between a proof-of-concept R&D project and one where the technology is already poised for execution of a commercialization plan?

ANSWER:
This question relates to possible paths to market for the technology developed in this FOA. The technology does not have to be market-ready at the end of the period of performance, but a path to market should be defined by the end of the project.
A field proof-of-concept is sufficient to satisfy the requirements of the FOA.

The deliverables of each individual project will depend on the technology readiness level at the beginning of the period of performance.

Q8. I have a few questions.
For approaches ARPA-E categorizes as bio-design, what are examples of activities considered in scope versus out of scope? (The FOA states bio-design may include genetic modification of plants and microbes but does not specifically define bio-design)
Is the engineering of nitrogen-fixing microbes to efficiently utilize low-cost feedstocks to reduce production costs within scope of the program?

ANSWER:1. Biodesign for this FOA is broadly defined as altering the genome of a plant or microbe. The methods to achieve this alteration can be targeted or random. As noted in Section I.D of the FOA, for Category D, microbial or plant biodesign can be combined with other technologies to achieve the reduction in N fertilizer and N_2O emissions.
2. Yes, this approach is within the scope of the requirement for microbial biodesign.

Q9. I have a number of questions regarding program administration and requirements
Do the two years of field trials have to be on the exact same product/strain/approach? Or could you structure the proposed work to have one year of development, one year of field testing, and then a subsequent year of improvement and field testing? Even if we need to have two years of field testing on the same product could we include additional improvements or other alternatives in the second year (e.g. test the initial prototype along with other improved versions).
For the SBIR FOA, if a team is proposing a full Phase I/II/IIS scope of work are there limit on the program budget per the traditional Phase I/II SBIR guidelines? For example, would we be limited to only $306,872 in the first 6 months (the shortest Phase I duration in standard SBIRs).
Can a project address N2O emissions from both the perspective of fertilizer displacement and denitrification inhibition in a combined approach, or would those be considered "unrelated concepts and technologies"?

ANSWER: 1. The two years of field testing do not need to be identical. They may include different panels in the two years depending on initial lab and field results and the second year may be at a different scale than the first.
2. The SBIR funding limits are as follows: Phase I award (including modifications) up to $306,872 and Phase II award (including modifications) up to $2,045,816.
3. Addressing N_2O emissions through fertilizer displacement and dentrification inhibition may be combined in a single approach.

Q10. We are currently working on our concept paper and have a question regarding the page limitation. Specifically, we need clarification on whether the references cited will be counted towards the five-page limitation.

ANSWER: Yes. Please refer to ARPA-E website FAQ page General Questions 6.21.

Q11. I noticed that you have suggested a couple of tables of questions in the concept paper template . I am wondering whether these tables of questions (including our answers) would count towards the five-page limitation as well.
Thanks for clarifying.

ANSWER: Yes, the tables will count toward the 5 page limit.

I. Full Application Phase Questions:

Q12. Regarding the 1st modification to the 2024 TEOSYNTE FOA which updated the maximum period of performance for funding agreements from 36 months to 48 months, we are requesting a revised Budget

Justification Workbook/SF-424A Excel spreadsheet. The budget workbooks provided online are limited to three years.

ANSWER: Please see the updated Budget Justification workbook template in the "Application Forms and Templates" section of the DE-FOA-0003405 funding opportunity announcement.

Q13. Regarding the new FOA for this ARPA-E program (Modification 02 - September 23, 2024): the budget justification workbook template only allows for 36 months, while the FOA allows for 48 months. The budget justification workbook template is not easily editable to expand to 48 months. Can you please advise?

ANSWER: See the response to Q12.

Q14. For the personal qualifications summary, there is an option to use the biographical sketch format approved by the National Science Foundation, available at NSF BGS 23-1. The link is no longer active. Is a biographical sketch created in SciENcv for NSF acceptable? SciENcv: Science Experts Network Curriculum Vitae (nih.gov)

ANSWER: As an alternative to a PQS, it is acceptable to use the biographical sketch format available at "SciENcv: Science Experts Network Curriculum Vitae https://www.ncbi.nlm.nih.gov/sciencv/".

Q15. We are preparing a proposal for No. DE-FOA-0003405, 81.135 with a commercial subaward.
"TECHNOLOGIES TO EMEND AND OBVIATE SYNTHETIC
NITROGEN'S TOLL ON EMISSIONS (TEOSYNTE)"
If a commercial partner does not have a negotiated indirect, then should we use 10%?
What does the process look like for establishing a different rate for them?

ANSWER: Companies that have never received a negotiated indirect rate may opt to use the 15% de minimis rate.

Q16. I am a research administrator, working with a PI that has 28 Tasks for her upcoming ARPA E submission. She is wondering if there is a version the budget justification spreadsheet that can expand to include 20 more tasks?

ANSWER: Please use any free space available in the spreadsheet under other tasks, or consider consolidating into tasks and subtasks. Ensure all tasks and subtasks are numbered appropriately.

Q17. I am working on a full submission to the TEOSYNTE program and did not see the answer to my question in the FAQ.
How flexible is the grant duration and project costs that were listed on the concept paper that I submitted?
After careful consideration, I would like to extend the duration from 36 to 48 months which will increase the budget cost as well. The time extension is to provide 2 consecutive field trials at the same trial site during the last 2 years of the grant. This will allow for more informative nitrogen and Nitrous Oxide measurements and subsequently stronger conclusions can be made.

ANSWER: Please see Section II.A of the FOA. Applicants may propose a period of performance up to 48 months. Project duration and costs are not limited by the duration and budget proposed in the Concept Paper.

Q18. Apologies for the long email and thank you for the opportunity to submit a full proposal to the TEOSYNTE program. As we review the comments from our pre-proposal, we are gaining a clearer understanding of the FOA and its objectives, particularly regarding the necessity for nitrous oxide (N2O) measurements.
Our initial plan outlined a three-year timeline to develop ***REDACTED***. However, in light of the feedback

received and to better align with the FOA, we are considering extending this timeline to four years. This extension will allow us to effectively address the required N2O measurements and related work.
To provide more detail, we plan to ***REDACTED***
Given this significant expansion, we would like to inquire about any constraints on the budget initially drafted in our pre-proposal, ***REDACTED*** as our costs will need to increase to accommodate the additional efforts and measurements ***REDACTED***.
Additionally, we seek clarification on whether field testing is an absolute requirement. If it is, we will need to engage our collaborator as a subcontractor, which would further increase the overall project costs.

ANSWER: Please refer to FAQ17. Project duration and costs are not limited by the duration and budget proposed in the Concept Paper.
Please see Section I.E of the FOA. Field trials are required to meet the metrics of the program.

Q19. Within the SF-424A and Budget Justification Spreadsheet, a. Personnel tab, there is a request for resumes.
Will you accept sciENcv: Science Experts Network Curriculum Vitae as a resume?
If no, will you accept the duplications of the Personal Qualification Summaries provided as part of the Technical Volume?

ANSWER: Yes.

Q20. I'm the CEO of ***REDACTED***, which has been invited to submit a full proposal to the TEOSYNTE FOA.
This is the first time I've filled out a budget justification document. I'm a bit confused with the indirect and fringe tabs.
Both refer to a template at http://arpa-e.energy.gov/FundingAgreements/Overview.aspx . That link does not work for me.
The instructions say we need to email you within 2 days of receiving the award notification. Since we have not even submitted the full proposal yet, does that mean we don't need to do this worksheet?

ANSWER: Please refer to the template here: Required Forms and Templates

Q21. I have a question about the reviewer's comments for DE-FOA-0003405. I have received a decision letter for my concept paper encouraging the full application. The decision letter for the concept paper had some bullet point comments from the reviewers, and I am instructed to address these comments in the full application. The information page includes "Reply to Reviewer Comments Template (Last Updated: 9/23/2024 12:26 PM ET)"
Reading the Section IV.E of the FOA, my understanding is that this template will be used to address the comments made for the full application. Is that right? If so, how should I address the comments made for the concept paper? I will address the points within the full application plan, but would it be helpful to include a section specifying how the points have been addressed, within the technical volume?

ANSWER: The bullet points are provided by ARPA-E to guide the writing of the Full Application and do not require a direct response. Reviewer comments will be provided in response to the Full Application and applicants will have the opportunity to respond to these comments directly.

Q22. We were invited to submit a proposal for FOA No. DE-FOA-0003405. We have a question regarding the eligibility of our planned activities: specifically, would field trials (including land use and agricultural management) aimed at demonstrating the effectiveness of the agricultural technology for a bioenergy crop we are aim at developing be considered as a Technology Transfer and Outreach (TT&O) activity?

ANSWER: Examples of TT&O activities that are allowable under Federal costs principles are provided in Section IV.G.8 of the FOA.

Q23. For the personal qualification summaries, do we need to complete a personal qualification summary on all covered individuals that will be working on the grant? or do we need to just to complete the Personal qualification summaries on key contributors, such as PI and higher level staff?
Is there a PQS template? or do we have to use the Biosketch template?

ANSWER: Per the Technical Volume Template, a Personal Qualification Summary is required for all Covered Individuals. A Covered Individual is defined as someone who contributes in a substantive, meaningful way to the scientific development or execution of an R&D project proposed to be carried out with an award from ARPA-E.
The PQS should be formatted as shown in the Technical Volume Template. Alternatively, the biosketch template may be used.

Q24. Please confirm how to calculate the cost share in the example below:

Three organizations are involved in the project: the applicant is University 1, subaward 1 is University 2, and "subaward" 2 is USDA-ARS.

Assume each org's budget is 1 million so a 3 million total requested from DoE.

Is the required cost share 5% of 3,000,000 = $150,000, or is it (3,000,000 / 0.95) - 3,000,000 = $157,895 ?
Also,
Only the two universities can contribute to the cost share, not the USDA-ARS correct?

Even though USDA-ARS's budget would be included in the proposal, if funded they would receive funds directly from DOE and not be University 1's subaward correct?

Sorry another question:
Would university 1 be allowed to take OH on the first 25k of the USDA-ARS budget?

ANSWER: Please see ARPA-E General FAQ 4.4. Based on your example it would be 5% of $3M. Also see ARPA-E General FAQ 4.16.