

## QUESTIONS AND ANSWERS

PLEASE REFER TO THE GENERAL FAQs SECTION OF ARPA-E'S WEBSITE ([HTTP://ARPA-E.ENERGY.GOV/?Q=FAQ/GENERAL-QUESTIONS](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. Full Application Phase Questions:

**Q1. TOPIC G REQUESTS THAT WE: INCREASE REACTION RATE BY  $>10^5\times$  OVER THE RATE FOUND IN THE NATIVE ORE BEING EVALUATED AT AN EQUIVALENT STARTING T AND P (GENERIC RATE REPORTED AS  $5\times 10^4$  KGS-1FOR 1 KM3)**

**CAN ARPA-E CLARIFY THE DESIRED INCREASE IN REACTION RATE? IS THE INTENT ONE ORDER OF MAGNITUDE INCREASE OR 5? (I.E.,  $10^5$  OR  $10^9$ )?**

**ANSWER:** The FOA has been modified to clarify.

**Q2. WE ARE EXCITED TO SEE THE RELEASE OF THE DE-FOA-0002784!  
REGARDING THE EXPLORATORY TOPICS**

**G: PRODUCTION OF GEOLOGIC HYDROGEN THROUGH STIMULATED MINERALOGICAL PROCESSES, AND**

**H: SUBSURFACE ENGINEERING FOR HYDROGEN RESERVOIR MANAGEMENT**

**WE HAVE SEVERAL QUESTIONS ON DATA SHARING AND ITS IMPACT HOW THE PROJECT EXECUTION, AND HOPE WE CAN GET SOME CLARIFICATION FOR PROPOSAL PREPARATION:**

**1: WHAT WOULD BE FREQUENCY FOR DATA SHARING? FOR EXAMPLE, ARE WE EXPECTED TO SHARE DATA SUCH AS FROM SIMULATION OR POSSIBLE FIELD WORK ONCE HALF A YEAR OR ONCE A YEAR?**

**SIMILARLY, WHAT MIGHT WE EXPECT FROM OTHER AWARDEES WHO MIGHT BE COLLABORATING WITH US?**

**2: WHAT IS THE EXPECTATION AFTER DATA SHARING? FOR EXAMPLE IN H: SUPPOSE TEAM 1 HAS THE EXTRACTION (T1.E1) AND MONITORING (T1.M1), AND TEAM 2 HAS THE EXTRACTION (T2.E2) AND MONITORING (T2.M2). AFTER DATA SHARING, DO THE T1.E1 AND T2.E2 NEED TO VALIDATE EACH OTHER'S DATA SINCE THEY MAY WORK ON THE SIMILAR COMPONENTS OF STIMULATIONS? DO THE T1.E1 AND T2.M2 NEED TO INTEGRATE TO A NEW WORKFLOW E1.M2 SINCE EXTRACTION RESULT 1 AND MONITORING 2 ARE CONNECTED TO EACH OTHER?**

**3: DO PROJECTS IN G AND H NEED TO SHARE DATA OR ARE THEY ANTICIPATED TO BE SEPARATE?**

**ANSWER:** 1. The frequency of data sharing will be negotiated between the project teams and subject to review and approval by ARPA-E.

2. Expectations will be based on developments and performance of the project teams participating in the data sharing. These will be negotiated by the project teams and subject to review and approval by ARPA-E.

3. Yes, awardees will be strongly encouraged to share data with other awardees under Topics G and H.

**Q3. ARE THERE ANY ISSUES WITH THE SAME PROJECT TEAM APPLYING WITH ONE PROPOSAL FOR TOPIC G AND ONE PROPOSAL FOR TOPIC H, AS LONG AS THEY INCLUDE NO OVERLAPPING SCOPE?**

**ANSWER:** See Section III.C.3 (Limitation on Number of Submissions) of the FOA.

**Q4. ARPA-E JUST PUBLISHED TWO OPEN CALLS FOR EXPLORATORY TOPICS ON GEOLOGIC H2 (DE-FOA-0002784 )**

**I SEE, AS A FOREIGN ENTITY, A FRENCH PUBLIC RESEARCH INSTITUTE, SEEMS ELIGIBLE TO ANSWER THE CALL IF WE ARE IN A CONSORTIUM LED BY A US-BASED PI (P.18).**

**COULD YOU CONFIRM THAT ? AND THE PI COULD BE A PRIVATE OPERATOR OR A US BASED UNIVERSITY ?**

**FURTHERMORE :**

**PROVIDED THE PI IS US-BASED, WOULD THE PROJECT BE CONSIDERED IF THE PROJECT WAS LOCATED OUTSIDE OF THE US ?**

**OR WOULD IT HAVE TO BE LOCATED IN US TERRITORY ?**

**ANSWER:** See Section III.A (Eligible Applicants) of the FOA.

**Q5. HAVE TWO QUESTIONS ON EXPLORATORY TOPICS (DE-FOA-0002784) PRODUCTION OF GEOLOGIC HYDROGEN THROUGH STIMULATED MINERALOGICAL PROCESSES**

**QUESTION 1: ON PAGE 123 OF FOA, IT IS STATED THAT "APPLICATIONS MUST ADDRESS CATEGORY 1 AND ARE ALSO ENCOURAGED TO ADDRESS CATEGORY 2 AS A COMPLEMENTARY CATEGORY TO CATEGORY 1."**

**I AM WONDERING IF A PROPOSAL MUST PRIMARILY FOCUS ON CATEGORY 1 OF STIMULATION? OR WE CAN HAVE TWO PROPOSALS, OF WHICH ONE PROPOSAL FOCUSES ON CATEGORY 1 (H2 GENERATION STIMULATION) AND THE COMPLEMENTARY PROPOSAL FOCUSES ON CATEGORY 2 (H2 GENERATION MONITORING)?**

**FOR EXAMPLE: THE MAIN PROPOSAL FOCUSES ON CATEGORY 1 (STIMULATION), AND 15% (\$0.35M) ON THE WORK OF CATEGORY 2 (MONITORING). BECAUSE OF THE FUNDING SIZE LIMIT, THIS PERCENTAGE CANNOT AFFORD THE FIELD WORK PART FOR CATEGORY 2 (MONITORING). DOES IT COMPLY WITH FOA IF WE SUBMIT A COMPLEMENTARY PROPOSAL (\$1.5M) FOCUSING ON CATEGORY 2 (H2 GENERATION MONITORING) BUT WITH COMPONENT OF CATEGORY 1 (STIMULATION)?**

**QUESTION 2: DOES THE FUNDING UNDER THE FOA ALLOW TRAVEL TO FOREIGN LOCATIONS (E.G., OMAN OR FRANCE) FOR THE PURPOSE OF COLLECTING SMALL-SCALE GEOPHYSICAL DATA OR WELL LOG DATA? IF SUCH FIELD WORK IS ALLOWED, WHAT WOULD BE THE LIMIT IN TERMS OF PERCENTAGE OF FUNDING?**

**ANSWER:** 1. The applicant may choose how to structure their proposed project.

2. Recipients are required to obtain written authorization from the ARPA-E Program Director before incurring any foreign travel costs and provide trip reports with their reimbursement requests.

ARPA-E requires all work under ARPA-E funding agreements to be performed in the United States. However, Applicants may request a waiver of this requirement where their project would materially benefit from, or otherwise requires, certain work to be performed overseas. Applicants seeking a waiver of this requirement are required to include an explicit request in the Business Assurances & Disclosures Form, which is part of the Full Application submitted to ARPA-E. See Section IV.F.6 of the FOA.

**Q6. WE ARE PLANNING AS A SMALL STARTUP TO APPLY FOR THE FOA ON GEOLOGIC HYDROGEN AND WOULD LIKE TO GET SOME PRECISIONS:**

- **IF THE TOTAL PROJECT COST IS BEYOND THE NORMAL SIZE OF A GRANT, CAN IT BE POSSIBLE TO COMPLETE THROUGH OTHER MEANS (E.G. STARTUP FUNDS) ?**
  
- **I READ THAT THE GRANTEES SHOULD PROVIDE 10% OF THE GRANT AMOUNT, BUT THERE IS A POTENTIAL GRACE PERIOD FOR SMALL BUSINESSES. // WHAT IS THE DEFINITION OF A SMALL VS LARGE BUSINESS? SEE SECTION IX OF THE FOA.**
  
- **IS IT CORRECT TO ASSUME THAT A NEWLY CREATED STARTUP COULD APPLY FOR THE GRACE PERIOD ? IF THE CONSORTIUM IS COMPOSED OF SEVERAL ENTITIES (STARTUP, UNIVERSITY, BIG COMPANY), ARE THE PERCENTAGE APPLIED INDIVIDUALLY AND CALCULATED FOR EACH INDIVIDUAL BUDGET? SEE SECTION III B.3 OF THE FOA. IF THE PROJECT IS COMPOSED OF TWO PHASES, AND THE FIRST COMPRISES ONLY THE SMALL BUSINESS, WHILE THE SECOND PHASES INCLUDES UNIVERSITIES FOR EXAMPLE, HOW DOES THE GRACE PERIOD WORK. IS IT AGAIN CALCULATED INDIVIDUALLY?**

**ANSWER:** See General Questions Section 4.

**Q7. IN THE ARPA-E FAQs IT STATES THAT "LETTERS OF SUPPORT MAY BE INCLUDED IN THE TECHNICAL VOLUME OR CITED IN THE TECHNICAL VOLUME, BUT IN BOTH CASES WILL COUNT TOWARDS THE MAXIMUM PAGE LIMITATION FOR THE TECHNICAL VOLUME." HOWEVER, THE FOA DOESN'T MENTION ANYTHING ABOUT BEING ABLE TO INCLUDE LETTERS OF SUPPORT. CAN YOU PLEASE CONFIRM WHETHER OR NOT LETTERS OF SUPPORT ARE ALLOWED TO BE INCLUDED WITH THE FULL PROPOSAL IN RESPONSE TO DE-FOA-0002784**

**ANSWER:** Yes

**Q8. WE ARE INTERESTED IN APPLYING TO THE NEWLY RELEASED GEOLOGIC H2 TOPICS IN THE FOA REFERENCED IN THE TITLE. THE DESCRIPTIONS OF TOPIC G AND H SEEM TO BE MUTUALLY EXCLUSIVE, MEANING ONE TOPIC SUGGESTS THAT IDEAS THAT FALL IN THE OTHER TOPIC ARE NOT OF INTEREST TO THE CURRENT TOPIC.**

**THE IDEA WE ARE WORKING ON IS VERY NOVEL AND SIMULTANEOUSLY ACHIEVES MULTIPLE KEY BENEFITS THAT SPREAD ACROSS BOTH TOPICS, E.G., STIMULATION, CHARACTERIZATION AND RISK MANAGEMENT. THEREFORE, MY QUESTION IS HOW WE SHOULD DECIDE ON THE TOPIC SELECTION GIVEN THAT OUR IDEA ADDRESSES GOALS IN BOTH TOPICS.**

**ANSWER:** We recognize that there is significant cross over between topics. Base your decision on which topic is appropriate for your proposal on the description of Cat. 1. For example, if the Cat. 1 focus of your proposal is primarily stimulation, apply to Topic G. If the focus of your proposal is supporting H2 production, apply to Topic H.

**Q9. IN THE BUSINESS ASSURANCES AND DISCLOSURES FORM, CAN YOU PLEASE PROVIDE FURTHER CLARIFICATION ON NUMBER 3.**

**IT STATES: "THE APPLICANT AND EVERY OTHER MEMBER OF THE PROJECT TEAM (INCLUDING, WITHOUT LIMITATION, THE PI, CO-PI, KEY PERSONNEL AND EVERY OTHER "COVERED INDIVIDUAL" AT THE APPLICANT AND ANY OTHER MEMBER OF THE PROJECT TEAM) MUST PROVIDE A LIST OF ALL SPONSORED ACTIVITIES, AWARDS, AND APPOINTMENTS (INCLUDING FACULTY, VISITING, ADJUNCT, OR HONORARY), WHETHER PAID OR UNPAID; PROVIDED AS A GIFT WITH TERMS OR CONDITIONS OR PROVIDED AS A GIFT WITHOUT TERMS OR CONDITIONS; FULL-TIME OR PART-TIME; CASH OR IN-KIND; FOREIGN OR DOMESTIC; GOVERNMENTAL OR PRIVATE SECTOR; DIRECTLY SUPPORTING THE INDIVIDUAL'S RESEARCH OR INDIRECTLY SUPPORTING THE INDIVIDUAL BY SUPPORTING STUDENTS, RESEARCH STAFF, SPACE, EQUIPMENT, OR OTHER RESEARCH EXPENSES."**

**FOR EACH INDIVIDUAL, DOES THIS SOLELY INCLUDE PROJECT HISTORY WHILE AT THEIR CURRENT ENTITY OR SHOULD THEY BE INCLUDING INFORMATION FOR PAST EMPLOYMENT WITHIN THE 5-YEAR WINDOW AS WELL, IF WORK IS RELATED TO THE PROPOSED CONCEPT? IT SEEMS THE ANSWER IS ONLY AT THEIR CURRENT ENTITY SINCE THE TABLE INCLUDED THE ENTITY NAME AND IS EXPECTING INPUTS OF APPLICANT OR PROJECT TEAM MEMBER. CAN YOU PLEASE CONFIRM THAT.**

**ANSWER:** Current Entity.

**Q10. WE UNDERSTAND THAT ARPA-E HAS TWO GRANT PROGRAMS OF \$10M EACH FOR NATURAL H2 WITH DEADLINES TODAY TO SUBMIT QUESTIONS. THE FIRST IS ABOUT ROCK STIMULATION TO PRODUCE H2 + MODELING AND CHARACTERIZATION OF THE PRODUCED H2. THE SECOND IS FOCUSED ON DEVELOPING SOLUTIONS FOR SUBSURFACE ENGINEERING FOR HYDROGEN RESERVOIR MANAGEMENT**

**HERE ARE THE QUESTIONS WE'D LIKE TO ASK.**

- 1- CAN ---REDACTED--- US (AS US CORPORATION) APPLY FOR THE GRANTS WITH ITS STATUS ?**
- 2- INSTEAD OF PARTNERING WITH AN OPERATOR (E.G. A MINING COMPANY ALREADY LOCATED IN AREAS FAVORABLE TO HYDROGEN STIMULATION), CAN ---REDACTED--- AND ITS LAB PARTNERS APPLY FOR THE GRANTS WITHOUT A LOCAL LICENSE (LICENSES IN THE PROCESS OF BEING ACQUIRED).**
- 3- CAN HYDROGEN STIMULATION AND SUBSURFACE ENGINEERING FOR HYDROGEN RESERVOIR MANAGEMENT BE APPLIED ON A FIELD OUTSIDE US ? FOR EXAMPLE, ON THE ---REDACTED--- BELONGING TO ALSO ---REDACTED--- US. THE PLACE BEING ADEQUATE FOR DEVELOPING ACCURATE STIMULATION METHODS AND MODELING.**

**ANSWER:**

1. Please review Section III.A of the FOA for information about eligibility.
2. ARPA-E will not comment on the proposed makeup of your project team. The Exploratory Topics are focused on technological development, not resource development.
3. Field sites are not required for the program, but encouraged. See Section IV.F.6 of the FOA and the response to Q5 above.



**Q11. WE HAVE THE FOLLOWING QUESTIONS REGARDING PROPOSAL PREPARATION FOR TOPIC G OF DE-FOA-0002784:**

- 1. WHEN ENTERING THE FIRST SUBRECIPIENT INTO THE JUSTIFICATION WORKBOOK, IT TRIGGERS A NOTICE THAT AN ADDITIONAL BUDGET WILL BE REQUIRED FOR THAT SUBRECIPIENT. HOWEVER, THE SUBRECIPIENT IS RECEIVING LESS THAN 10% OF THE TOTAL PROJECT COST AND THEREFORE SHOULD NOT NEED AN ADDITIONAL WORKBOOK. CAN YOU PLEASE ADVISE HOW TO PROCEED?**
- 2. WHEN PARTNERING WITH A GOGO LAB THAT IS NOT AN FFRDC, SHOULD A FIELD WORK PROPOSAL AND WORK AUTHORIZATION STILL BE INCLUDED IN THE PROPOSAL, OR ARE THESE DOCUMENTS EXCLUSIVE TO FFRDCS?**

**ANSWER:** 1. If the sub-recipient is receiving less than 10% of the total project costs, an additional budget justification workbook is not required, however a budget summary should be provided breaking out the proposed costs by cost category.

2. Please see Section II C. 3. of the FOA.

**Q12. IN THE ATTACHED CALL, THE FOLLOWING LANGUAGE IS USED FOR AWARD SIZE (TOPIC G, PAGE 119):**

*ARPA-E MAY ISSUE ONE, MULTIPLE, OR NO AWARDS UNDER THIS FOA. AWARDS MAY VARY BETWEEN APPROXIMATELY \$1,000,000– \$2,500,000.*

*HERE, DO WE INTERPRET \$2.5M AS THE MAXIMUM FEDERAL AWARD, OR THE MAXIMUM TOTAL PROJECT COST, WHEN DOING COST-SHARE CALCULATIONS?*

**ASSUME OUR TEAM COMPOSITION LEADS TO A COST SHARE REQUIREMENT OF 10%. CAN THE TOTAL BUDGET BE \$2.5M FEDERAL PLUS \$277K COST-SHARE, FOR A TOTAL OF \$2.77M? OR INSTEAD, SHOULD WE ASSUME A FEDERAL MAX OF \$2.25M WITH \$250K COST SHARE, FOR A TOTAL PROJECT SIZE OF \$2.5M?**

**ANSWER:** The award size is in reference to the federal share of the award.

**Q13. EXPLORATORY TOPIC G AND H.**

**IS THERE A SPECIFIC RANGE FOR THE GRADUATE STUDENT WAGE THAT ARPA-E REQUIRES THE APPLICANT TO SET THE BUDGET FOR?**

**ANSWER:** No.

**Q14. I HAVE A FEW QUICK QUESTIONS REGARDING THE FOA 0002784 TOPIC G &H.**

- 1. IN THE DESCRIPTION TOPIC H, CATEGORY I, IT SAYS IT IS INTERESTED IN TECHNOLOGIES RELEVANT TO THE EXTRACTION OF GEOLOGIC HYDROGEN. DOES IT STILL REQUIRE A METHOD TO STIMULATE TO EXTRACT THE GAS OUT OF THE FORMATION? IT SOUNDS THE STIMULATION IS EXCLUSIVELY COVERED BY TOPIC G. DOES THE EXTRACTION MEAN SOME SORT OF ENGINEERING METHOD TO RETRIEVE THE HYDROGEN GAS THAT WOULD BE ALREADY GENERATED AND STIMULATED BY A METHOD COVERED IN TOPIC G.**
- 2. SHOULD THE APPLICANTS APPLY FOR BOTH TOPIC G AND H, OR CAN THEY APPLY FOR ONE TOPIC SEPARATELY?**
- 3. IS PRELIMINARY LCA REQUIRED? THEN HOW IS IMPLEMENTED INTO THE PROPOSAL? ANY SPECIFIC SECTION DESIGNATED FOR THE STUDY?**

**ANSWER:**

1. Proposals to Topic H do not require a stimulation method. Stimulation methods should be proposed in Topic G, not Topic H.
2. Applicants do not have to apply for both topics.
3. LCA is not required.

**Q15. SHOULD A WIFE AND HUSBAND WHO ARE BOTH FACULTY MEMBERS AT A UNIVERSITY AND APPLYING TO ARPA-E FOA 2784 AS PI AND CO-PI, RESPECTIVELY, REPORT A CONFLICT OF INTEREST?**

**ANSWER:** It is up to the applicant to determine if a potential conflict of interest exists, and if so, to report it accordingly. ARPA-E reserves the right to seek additional information from an applicant if the Agency believes there is an undisclosed conflict.

**Q16. THIS IS ---REDACTED--- FROM ---REDACTED--- UNIVERSITY. I AM WRITING WITH REGARDS THE FOREIGN ENTITIES FOR CATEGORY G (PAGE 119) IN THE ATTACHED FOA. WE ARE PARTNERING WITH ---REDACTED--- WHICH IS AN INTERNATIONAL COMPANY WITH OFFICES IN USA, CANADA AND OTHER COUNTRIES. HOWEVER, THE PARTICIPANTS FROM ---REDACTED--- ARE COMPLETELY FROM THEIR CANADA OFFICE. FOR THIS CASE, I WONDER WHETHER ---REDACTED--- CAN BE TREATED AS USA ENTITY AS ---REDACTED--- IS AN INTERNATIONAL COMPANY. THIS WILL AFFECT THE MAX. BUDGET FOR FOREIGN PARTNERS IN THIS PROPOSAL. IF CANADA ---REDACTED--- IS TREATED AS NON-USA ENTITY, WHAT ABOUT WE BRING A PERSON FROM USA ---REDACTED--- OFFICE?**

**ANSWER:** See section III. A. 3 (Foreign Entities) and Section IV.F.6 (Performance of Work in the United States) of the FOA.



**Q17. I AM HELPING PREPARE MATERIALS FOR THIS FOA AND WAS WONDERING IF THERE WAS AN EXPECTED FORMAT FOR THE PERSONAL QUALIFICATION SUMMARIES. WOULD NSF BIOSKETCH PDFS BE ACCEPTABLE?**

**[HTTPS://WWW.NSF.GOV/BFA/DIAS/POLICY/NSFAPPROVEDFORMATS/BIOSKETCH.PDF](https://www.nsf.gov/bfa/dias/policy/nsfapprovedformats/biosketch.pdf)**

**ANSWER:** There is no expected format for the personal qualification summaries. They must be limited to 3 pages in length.

**Q18. THE PI DOES NOT HAVE TO BE A US CITIZEN/PERMANENT RESIDENT IF THE ENTITY IS INCORPORATED IN THE USA, CORRECT**

**ANSWER:** ARPA-E will not pre-assess an applicants proposed project team. Please see section IIIA of the FOA for information on eligible applicants.

**Q19. WE ARE TRYING TO DECIPHER WHAT ALLOWS TO INCLUDE IN OUR ARPA-3 BUDGET. AS PER THE LANGUAGE ON PDF VER OF SOLICITATION (PAGE 122, UNDER SECTION 2.A "CHARACTERIZATION: METHODS "AND TOOLS TO MAP SUBSURFACE AND OCEAN FLOOR RESOURCES").**

**ARE WE ALLOWED TO INCLUDE THE FOLLOWING IN OUR BUDGET, WHICH IS VERY IMPORTANT TO CONDUCT OUR CHARACTERIZATION OF THE HYDROGEN RESOURCE (AND ESTIMATE) WITHIN US EEZ AS WELL AS WOULD BE IMPORTANT TO DISCUSS T2M IN OUR PROPOSAL.**

**\*\*COST TO EMPLOY REMOTELY OPERATED VEHICLE (ROV)**

**\*\*A RESEARCH VESSEL THAT COULD FACILITATE ROV OPERATIONS**

**ANSWER:** Such costs can be proposed and if the project is selected such costs will be negotiated.