

## QUESTIONS AND ANSWERS

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The online ARPA-E eXCHANGE “Funds and Costs” tab asks for Federal and Non-Federal Share of Cost, but does not specify if this would be for the System Capital Costs or the R&D project scope of work associated project costs.....9

Please clarify if R&D project scope-of-work cost estimates are also required to submit in the Concept Paper stage, and if these costs are to be submitted in the ARPA-E eXCHANGE “Funds and Costs” tab. ....9

Q24. We are just verifying: The first step is a concept paper, with Instructions found on pages 31-34. There is a requirement for a cost table specific to the operating cost of the proposed system. HOWEVER, we do not find a requirement to provide a ROM, estimate, or any financial representation of the proposal cost. We believe that this is intentional so that assessment of the concept is not influenced by the project costs.....9

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2) I have interpreted the Concept Paper instructions to allow for figures, tables, charts, etc. to appear in the technology description section I, but that the addendum section III can include any additional figures, tables, charts, etc. deemed necessary. ....10

Is that correct, or are you actually requesting that all such matter appear in the addendum ? .....10

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I. FREQUENTLY ASKED QUESTIONS:

**Q1. 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](mailto: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](mailto:ARPA-E-CO@hq.doe.gov).

**Q2. HOW WILL I RECEIVE A RESPONSE TO QUESTIONS SUBMITTED TO [ARPA-E-CO@HQ.DOE.GOV](mailto:ARPA-E-CO@HQ.DOE.GOV) ABOUT THIS FOA?**

**ANSWER:** Responses are posted in the "Frequently Asked Questions" section of ARPA-E's website. There are general FAQs and a FAQ page for each FOA.

ARPA-E will post responses on a weekly basis to any 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.

**Q3. WILL ARPA-E POST A RESPONSE TO EVERY QUESTION SUBMITTED TO [ARPA-E-CO@HQ.DOE.GOV](mailto: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.

**Q4. 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](mailto:ExchangeHelp@hq.doe.gov). All emails must include the name and number of the Funding Opportunity Announcement in the subject line.

**Q5. 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 Programs 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](mailto: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](mailto: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.

**Q6. CAN A PERSON BE PI ON ONE PROPOSAL AND A CO-PI ON A SECOND SEPARATE PROPOSAL?**

**ANSWER:** Yes, but the applications must be scientifically distinct from one another.

**Q7. MAY APPLICANTS SUBMIT MORE THAN ONE CONCEPT PAPER TO THIS FUNDING OPPORTUNITY?**

**ANSWER:** Yes, but each Concept Paper submission must be scientifically distinct.

**Q8. I HAVE DEVELOPED A TECHNOLOGY THAT MAY BE A GOOD FIT FOR THIS FUNDING OPPORTUNITY. WILL ARPA-E PLEASE REVIEW THE ATTACHED PROJECT INFORMATION AND LET ME KNOW IF I SHOULD MAKE A SUBMISSION TO THIS FUNDING OPPORTUNITY.**

**ANSWER:** No. Applicants must review the Technical Requirements of this funding opportunity announcement to determine if their technology warrants a submission to ARPA-E. See e.g. Section I.D (“Technical Categories of Interest”) and Section I.F (Applications Specifically Not of Interest) of the FOA.

**II. Questions for week ending: MAY 9, 2014**

**Q9. WITH REGARD TO PROPOSED SENSING SYSTEMS, THE MONITOR FOA SAYS ON PAGE 7: “EACH OF THESE WOULD REQUIRE NOT ONLY THE PHYSICAL SENSING COMPONENT (LASER SPECTROMETER, CATALYTIC SENSOR, IMAGING SENSOR, BIOLOGICAL SENSOR), BUT ALSO WIND DATA (SPEED, DIRECTION) AND POTENTIALLY OTHER WEATHER DATA (TEMPERATURE, PRECIPITATION).”**

**IS WIND DATA ACTUALLY REQUIRED, OR ARE OTHER MEANS OF ESTIMATING THE LOCATION AND MAGNITUDE OF THE LEAK RESPONSIVE?**

**ANSWER:** ARPA-E has revised Section I.B.4 of the FOA to read as follows:

“Each of these would require not only the physical sensing component (laser spectrometer, catalytic sensor, imaging sensor, biological sensor), but also environmental data (e.g., wind speed and direction) and potentially other weather data (e.g., temperature, precipitation). The concentration and environmental/weather data would be used with an inverse dispersion model to estimate the location and magnitude of a leak. Please note that use of specific environmental and weather data is not required; all data-based methods of estimating the location and magnitude of a leak are acceptable.”

**Q10. SECTION 2 "TARGET FACILITY" STATES 10X10M WELL PAD AS MODEL TEST FACILITY.**

**I'M PART OF A CONCEPT INVOLVING VARIOUS MOBILE PLATFORMS WITH SENSORS. THERE IS WORRY WE'RE NOT RESPONSIVE - FOR EXAMPLE, WHY NOT JUST INUNDATE THE WELL PAD WITH INEXPENSIVE STATIONARY SENSORS?**

**CAN I ASSUAGE WORRIES BY RECOGNIZING THAT SOME MODELS NEED TO BE CHOSEN, AS THE TEXT SAYS, TO BOUND AN EXTREMELY DIVERSE PROBLEM AND THAT PROPOSALS THAT USE HIGHLY-ACCURATE MOBILE SENSORS ARE RESPONSIVE TO THE CALL?**

**ANSWER:** There are many possible approaches towards meeting the objectives of the FOA. ARPA-E encourages a diversity of approaches.

**Q11. SEVERAL FOLKS HAVE ASKED FOR THE NAME(S) AND CONTACT INFORMATION OF THE PROGRAM DIRECTOR(S) FOR THE NEW FOAS. WILL YOU PLEASE PROVIDE THIS INFORMATION OR DIRECT ME TO THE LOCATION ON YOUR WEBSITE THAT PROVIDES THIS INFORMATION.**

**ANSWER:** Please see question 5 above.

### **III. Questions for week ending: JUNE 6, 2014**

**Q12. CAN NETL PARTICIPATE IN THE MONITOR FUNDING OPPORTUNITY**

**ANSWER:** No. Per Section III.A.2 of the FOA, DOE/NNSA Government-Owned, Government Operated laboratories (GOGOs) are not eligible to apply for funding.

**Q13. CAN FEDERAL EMPLOYEES BE LISTED ON THE TEAMING PARTNER LIST AS POTENTIAL COLLABORATORS?**

**ANSWER:** Per section III.A.2 of the FOA, federal agencies and instrumentalities (other than DOE) and Non-DOE/NNSA GOGOs are eligible to apply to the MONITOR FOA as a member of a Project Team, but not as a Standalone Applicant or as the lead organization for a Project Team. Federal employees representing eligible federal entities may thus be listed on the teaming partner list as potential collaborators.

**Q14. DO THE ANNUAL COMPLIANCE AUDIT REQUIREMENTS OF 10 C.F.R. 600.316 APPLY TO FOR-PROFIT SUBRECIPIENTS UNDER ARPA-E AWARDS?**

**ANSWER:** No. The annual compliance audit requirement in 10 C.F.R. 600.316 applies only to Prime Recipients under ARPA-E awards and does not flow down to Subrecipients.

**Q15. CAN YOU PLEASE COMMENT AS TO WHETHER THE COST OF EXPLOSION PROOF HOUSING NEEDS TO BE TAKEN INTO ACCOUNT RELATIVE TO THE USE OF SENSORS IN OR ON THE TEST PLATFORM?**

**ANSWER:** All components that are required for the operation and implementation of the sensor in the field need to be factored into the sensor system cost.

**Q16. I AM HAVING A HARD TIME FINDING THE BUSINESS ASSURANCE FORM REFERENCED IN THE MONITOR FOA. COULD YOU PLEASE HELP DIRECT ME TO THAT DOCUMENT?**

**ANSWER:** ARPA-E's Business Assurances Form is not available in ARPA-E eXCHANGE for the Concept Paper stage of the MONITOR FOA. Once the Full Application stage updates to the FOA are posted in eXCHANGE, ARPA-E will post the Business Assurances Form in eXCHANGE along with other Full Application forms and materials.

**Q17. WE ARE SUBMITTING THE FOLLOWING QUESTIONS:**

**1. WILL THERE BE ANY DEFINED VERTICAL STRUCTURE THAT SHOULD BE CONSIDERED IN ASSESSING POTENTIAL LEAK LOCATIONS? THIS COULD MATTER FOR THE SENSING STRATEGIES.**

**ANSWER:** No vertical structures are predefined.

**2. IS IT ALLOWABLE TO AMORTIZE A SENSOR SYSTEM OVER A NUMBER OF SITES (PADS) THAT IT MEASURES OVER THE COURSE OF THE YEAR?**

**ANSWER:** As stated in Section I.C, Page 9 of the FOA: “[S]ensors for use in mobile sensing (from ground vehicles, airplanes, UAVs, etc.) may require high sensitivity **but may be able to tolerate higher sensor costs since the system allows measurement of multiple sites.**”

**3. IS THERE ANY LIMITATION ON USING INTERNATIONAL SUPPLIERS FOR SENSORS AND OTHER EQUIPMENT?**

**ANSWER:** Under Clause 9 of Attachment 1 to ARPA-E's Model Cooperative Agreement (available at <http://arpa-e.energy.gov/arpa-e-site-page/award-guidance>), new equipment acquired under an ARPA-E award must be made or manufactured in the United States, to the maximum extent practicable. This requirement does not apply to used or leased equipment. Acquisition of new equipment made or manufactured outside of the United States will be considered on a case-by-case basis.

**4. IS THERE A PREFERENCE FOR COMMERCIALIZATION PLANS FOCUSED ON SENSORS AND EQUIPMENT AS OPPOSED TO SYSTEM INTEGRATION OR EVEN SERVICES? ALSO IS THERE A PREFERENCE FOR SMALL BUSINESSES?**

**ANSWER:** No. There is no preference for either.

**5. TO WHAT DEGREE CAN WE ALLOW FOR WIND DIRECTION FLUCTUATIONS, AS NEEDED TO SAMPLE WELL THE FULLWELL PAD AREA FROM A SMALL NUMBER OF FIXED SENSORS?**

**ANSWER:** As stated in Section I.C, Page 8 of the FOA: "A square production well pad has been chosen as the 'model site,' with dimensions of 10 meters by 10 meters; leakage is possible from anywhere on the site, and **time varying winds of 2.75 m/s (average wind speed) are typical. For systems that depend on or are affected by wind, the reference wind profile chosen for this analysis is a 2 meter data set (taken 2 meters above ground) from the National Wind Technology Center.**" For additional information, see the reference if footnote 14, which contains the wind profile assumed.

**6. WILL HUMAN OPERATORS BE ALLOWED ELEMENTS OF THE SENSING SYSTEM?**

**ANSWER:** A human operator can be used for installation and calibration, but ultimately, the system must be capable of operating unattended.

**Q18. WE HAVE THE FOLLOWING QUESTIONS:**

**1. WOULD TESTS OF THE PROPOSED MONITOR SYSTEM AT ADDITIONAL SITES, BEYOND THE MODEL WELL-HEAD SITE DESCRIBED IN THE FOA, BE PERMITTED OR VALUED AS A PART OF THE FUNDED EFFORT? IS THE MODEL WELL-HEAD AN EXISTING FACILITY OR JUST A PAPER EXAMPLE SITE?**

**ANSWER:** Please see Question 17.2 above.

**2. ARE THE MODEL LEAKS USED IN ESTIMATING THE REQUIRED REDUCTIONS ASSUMED TO BE RANDOMLY DISTRIBUTED IN TIME, BUT NOT INTERMITTENT? THAT IS, ONCE A LEAK DEVELOPS, IT REMAINS A LEAK UNTIL IT IS ACTIVELY REPAIRED?**

**ANSWER:** Yes, the model will assume that once a leak develops it remains leaking until repaired.

**3. IF MODEL LEAKS ARE INTERMITTENT, SUCH AS DUE TO CERTAIN OPERATIONS, IS THERE GUIDANCE ABOUT LEAK RATE AND DURATION OF INTEREST?**

**ANSWER:** For simplicity, intermittent leaks will not be included in the model or in ARPA-E's evaluation of concepts.

**4. SECTION I.B.4 “PROGRAM APPROACH” DESCRIBES SEVEN POTENTIAL MEASUREMENT SOLUTIONS AND THEN STATES “EACH OF THESE WOULD REQUIRE .... ALSO WIND ... AND WEATHER DATA. THE CONCENTRATION AND WIND/WEATHER DATA WOULD BE USED WITH AN INVERSE DISPERSION MODEL TO ESTIMATE THE LOCATION AND MAGNITUDE OF A LEAK”. IN CONTRAST, THE OPENING PARAGRAPH OF SECTION I.C “PROGRAM OBJECTIVES” STATES: “THE SPECIFIC OBJECTIVE IS TO DETECT AND MEASURE METHANE LEAKS AS SMALL AS 1 TON PER YEAR ....”. QUESTIONS: IS THE OBJECTIVE TO DETECT LEAKS AND QUANTIFY THE LEAK RATE (I.E. MASS FLUX) OR IS IT TO MEASURE A CONCENTRATION (WHICH DOES NOT YIELD A LEAK RATE?). IF THE FORMER CAN BE ACCOMPLISHED WITHOUT WIND, WEATHER, AND CONCENTRATION (E.G. PPM) DATA, WOULD IT BE AN ACCEPTABLE SOLUTION?**

**ANSWER:** The objective is to detect a leak and quantify the mass flow rate of the leak.

**5. ARE THERE ASPECTS TO THE MEANING OF “DATA QUALITY CONTROL” OTHER THAN MAXIMIZING DETECTION WHILE MINIMIZING FALSE ALARMS?**

**ANSWER:** No, there are no other aspects to “data quality control.”

**6. SECTION V.A.1 “CRITERIA FOR CONCEPT PAPERS” INCLUDES AS PART OF THE EVALUATION “THE EXTENT TO WHICH PROJECT OUTCOMES AND DELIVERABLES ARE CLEARLY DEFINED; AND A STRONG AND CONVINCING TECHNOLOGY DEVELOPMENT STRATEGY INCLUDING A FEASIBLE PATHWAY TO TRANSITION PROGRAM RESULTS”. HOWEVER, THE DESCRIPTION OF THE CONCEPT PAPER CONTENTS (SECTION 7.C) DOES NOT INCLUDE ANY DISCUSSION OF THESE CRITERIA NOR SPACE WITHIN THE TWO PAGE LIMIT FOR SIGNIFICANT DISCUSSION. IS THE INTENT TO INCLUDE THIS INFORMATION IN THE APPENDIX?**

**ANSWER:** The Applicant can incorporate that information wherever most appropriate in the Concept Paper. While important in the Concept Paper, the project outcomes and deliverables and technology development strategy can be more thoroughly detailed (and evaluated) in the Full Application stage.

**Q19. SECTION VIII.E OF THE FOA STATES THAT THE COVER SHEET OF THE CONCEPT PAPER MUST BE MARKED WITH A SPECIFIC NOTICE CONCERNING CONFIDENTIALITY, PROPRIETARY, AND PRIVILEGED INFORMATION. DOES INCLUSION OF THIS COVER SHEET COUNT TOWARDS THE PAGE LIMIT FOR CONCEPT PAPERS?**

**ANSWER:** Applicants may include a separate cover sheet. The cover sheet will not count against the page limit.

**Q20. I AM A FOREIGN NATIONAL WORKING FOR A U.S. UNIVERSITY IN A NONIMMIGRANT VISA STATUS. AM I ELIGIBLE TO APPLY TO THIS FOA?**

**ANSWER:** Per Section III.A.1 of the FOA, only U.S. citizens or permanent residents may apply to the FOA in their individual capacities. However, domestic educational institutions are eligible to apply for funding as a Standalone Applicant, as the lead organization for a Project Team, or as a member of a Project Team. Principal Investigators representing such institutions need not be U.S. citizens or permanent residents.

**Q21. WE ARE TRYING TO ESTIMATE HOW THE PRICING OF THE SYSTEM IS CALCULATED IN THE SOLICITATION SUCH AS TDLAS AND CRDS ON PAGE 7.**

**THE SOLICITATION MENTIONS: "CURRENT HIGH-RESOLUTION METHANE MEASUREMENT APPROACHES (E.G.; CAVITY RING-DOWN, TLDAS) HAVE INITIAL CAPITAL COSTS OF \$75,000-\$100,000".**

**---OUR QUESTION IS, WHEN YOU MENTION COST OF \$75K-\$100K, IS IT THE COST OF MONITORING JUST ONE WELL-HEAD OR FOR MULTIPLE WELL-HEADS IN A CERTAIN GEOGRAPHICAL AREA AND IF MULTIPLE, HOW MANY SUCH WELL-HEADS?**

**--THE MAIN COMPONENT COST OF THE SYSTEM WE ENVISION IS THE OPTICAL SOURCE. OTHER COMPONENTS ARE VERY CHEAP. ASSUMING THAT THE OPTICAL SOURCE COSTS \$40K, IF THE SAME SOURCE CAN BE USED TO MONITOR 20 WELL-HEADS, WOULD WE MEET THE PRICING REQUIREMENTS BY SAYING THAT THE CONTRIBUTION TO EACH WELL-HEAD IS ONLY \$2000, (ASSUMING THAT OTHER COSTS ARE LOWER)?**

**ANSWER:** Please see Question 17.2 above.

**Q22. MY COMPANY WOULD LIKE TO LEARN MORE ABOUT THE FUNDING OPPORTUNITY AND DISCUSS WHETHER ITS RESEARCH TOPIC IS IN LINE WITH ARPA-E'S PROGRAM FOCUS. WHAT IS THE PROCESS FOR CONNECTING WITH THE PROGRAM MANAGER TO FURTHER DISCUSS OUR PROPOSAL?**

**ANSWER:** Please see question 5 above.

**Q23. REGARDING DE-FOA-0001128 CONCEPT PAPER COST TABLE REQUIRED INFORMATION:**

**IN THE SOLICITATION, COST TABLE INSTRUCTIONS SPECIFY THAT COST BREAKDOWN SHOULD INCLUDE THE SYSTEMS CAPITAL COST, ANNUAL OPERATING COST, AND SYSTEM LIFE THAT WOULD BE COMBINED TO ESTIMATE THE ANNUAL COST OF MEASUREMENT. THE COST TABLE INSTRUCTIONS DO NOT STATE THAT THE SUBMITTER NEEDS TO DEFINE THE COSTS TO COMPLETE THE PROPOSED R&D PROJECT SCOPE OF WORK AND TASKS.**

**THE ONLINE ARPA-E EXCHANGE "FUNDS AND COSTS" TAB ASKS FOR FEDERAL AND NON-FEDERAL SHARE OF COST, BUT DOES NOT SPECIFY IF THIS WOULD BE FOR THE SYSTEM CAPITAL COSTS OR THE R&D PROJECT SCOPE OF WORK ASSOCIATED PROJECT COSTS.**

**PLEASE CLARIFY IF R&D PROJECT SCOPE-OF-WORK COST ESTIMATES ARE ALSO REQUIRED TO SUBMIT IN THE CONCEPT PAPER STAGE, AND IF THESE COSTS ARE TO BE SUBMITTED IN THE ARPA-E EXCHANGE "FUNDS AND COSTS" TAB.**

**ANSWER:** The "Funds and Costs" tab in ARPA-E eXCHANGE requests proposed federal funding and cost share for completion of the proposed research and development project. Per IV.C of the FOA, please include information concerning system costs in a cost table in the Concept Paper.

**Q24. WE ARE JUST VERIFYING: THE FIRST STEP IS A CONCEPT PAPER, WITH INSTRUCTIONS FOUND ON PAGES 31-34. THERE IS A REQUIREMENT FOR A COST TABLE SPECIFIC TO THE OPERATING COST OF THE PROPOSED SYSTEM. HOWEVER, WE DO NOT FIND A REQUIREMENT TO PROVIDE A ROM, ESTIMATE, OR ANY FINANCIAL REPRESENTATION OF THE PROPOSAL COST. WE BELIEVE THAT THIS IS INTENTIONAL SO THAT ASSESSMENT OF THE CONCEPT IS NOT INFLUENCED BY THE PROJECT COSTS.**

**THERE IS NO REQUIREMENT TO PROVIDE AN ESTIMATE OF THE PROJECT COST AS PART OF THE CONCEPT PAPER?**

**ANSWER:** See question 23 above.

**Q25. I HAVE TWO QUESTIONS:**

**1) ARE WE ALLOWED TO ASSUME THAT THERE IS ACCESS TO ELECTRICAL POWER ON AN OIL WELL PAD, OR MUST ALL TOTAL SOLUTIONS BE SELF-POWERED?**

**ANSWER:** For purposes of the Concept Paper, it is reasonable to assume access to electrical power, but this will require further consideration for a Full Application. Some well pads have access to AC power from the grid, but this is not universal. For locations where AC power is not available, well pad operation is typically supported by solar photovoltaics with battery backup; this could be an issue if a proposed solution has a high power requirement. Additional guidance on power availability will be provided in instructions for the Full Application.

**2) I HAVE INTERPRETED THE CONCEPT PAPER INSTRUCTIONS TO ALLOW FOR FIGURES, TABLES, CHARTS, ETC. TO APPEAR IN THE TECHNOLOGY DESCRIPTION SECTION I, BUT THAT THE ADDENDUM SECTION III CAN INCLUDE ANY ADDITIONAL FIGURES, TABLES, CHARTS, ETC. DEEMED NECESSARY.**

**IS THAT CORRECT, OR ARE YOU ACTUALLY REQUESTING THAT ALL SUCH MATTER APPEAR IN THE ADDENDUM ?**

**ANSWER:** The Applicant can include figures, tables, and charts wherever they deem most appropriate in the Concept Paper submission, subject to the content and form requirements and page limitations stated in Section IV.C of the FOA.

**Q26. DOES THE CONCEPT PAPER NEED TO PROVIDE THE PROPOSED EFFORT'S TOTAL COST ... ROM BUDGET INFO, ETC.?**

**(I CANNOT FIND THAT REQUIREMENT IN THE INSTRUCTIONS...BUT WANT TO MAKE CERTAIN THAT LEAVING IT OUT IS OK)**

**ANSWER:** See question 23 above.