

## 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. Concept Paper Phase Questions:

**Q1. I AM IN BRAZIL BUT I WANT TO INCORPORATE MY STARTUP IN THE USA. I HAVE CO-FOUNDERS IN CANADA AND USA AND WE ARE CONFIDENT THAT WE CAN FIND A DRI R&D CENTER OR UNIVERSITY TO PARTNER WITH US.**

**I JUST WANT TO KNOW IF WE CAN APPLY AND THEN INCORPORATE?**

**ANSWER:** Please refer to Section III.A.3 (Eligible Applicants – Foreign Entities) of the FOA, and General FAQ 3.1.

**Q2. I BELIEVE THERE IS AN ERROR IN THE ROSIE LCA WORKBOOK PROVIDED AS A TEMPLATE ALONG WITH THE CONCEPT PAPER ON EXCHANGE. CELL C8 ON THE "YOUR TECH" TAB IS THE CALCULATION OF CAPEX IN \$/T-HRC. THE CALCULATION DIVIDES THE TOTAL PLANT CAPEX BY THE ANNUAL OUTPUT AND THEN DIVIDES THAT BY THE PLANT LIFETIME. CELL C9 THEN MULTIPLIES THIS VALUE BY THE CAPITAL RECOVERY FACTOR TO YIELD THE ANNUALIZED CAPEX. IS THE PLANT LIFETIME BEING DOUBLE COUNTED? IT SEEMS THAT CELL C8 SHOULD NOT DIVIDE BY THE PLANT LIFETIME, AND THEN THAT VALUE SHOULD BE MULTIPLIED BY THE CRF IN CELL C9 TO ARRIVE AT THE CORRECT ANNUALIZED CAPEX VALUE.**

**ANSWER:** The spreadsheet tool has been updated with a minor change to the capital cost calculation. Please use the updated version. However, if applicants use a prior version, they will not be penalized.

**Q3. MY TEAM AND I ARE CONSIDERING APPLYING FOR THE ROSIE FOA. IN JUNE, WE APPLIED TO THE RECENT CALL FROM IEDO (DE-FOA-0002997). I THINK THE CONTENT OF OUR PROPOSAL WOULD ALSO BE A GREAT FIT FOR ROSIE, BUT I SEE THAT THERE IS A DISQUALIFYING CONDITION FOR PROPOSALS OF A SIMILAR APPROACH/SCIENTIFIC NATURE UNDER ACTIVE CONSIDERATION BY OTHER DOE DEPARTMENTS. AS WE FIT BOTH CALLS WELL, I WAS WONDERING IF THERE'S A WAY THAT WE COULD BE CONSIDERED FOR THE ROSIE FUNDING, IF WE AREN'T SELECTED FOR IEDO FUNDING? ANY INSIGHT INTO THIS PROCESS AND OUR ELIGIBILITY WOULD BE APPRECIATED.**

**ANSWER:** One of the policy factors that ARPA-E considers when determining which Concept Papers to encourage to submit a Full Application and which Full Applications to select for award negotiations is whether a proposed project avoids duplication and overlap with other publicly or privately funded projects. During the Full Application stage, applicants are required to disclose pending and current sources of funding in the Business Assurances & Disclosures Form as part of a complete Full Application submission.

**Q4. CAN I SUBMIT A PROPOSAL TO COVER BOTH CATEGORY A AND B INSTEAD OF JUST ONE ?**

**ANSWER:** Each Concept Paper should be limited to a single concept or technology. Applicants may submit more than one Concept Paper to a single FOA, but each Concept Paper must be scientifically distinct.

**Q5. I WOULD LIKE TO BRING TO YOUR ATTENTION A PROBLEM WITH THE LCA-TEA CALCULATOR SPREADSHEET THAT IS REQUIRED FOR THE CONCEPT PAPERS FOR DE-FOA-0003117. THE SPREADSHEET DOES NOT CALCULATE THE COST OF ELECTROLYSIS HYDROGEN CORRECTLY. SPECIFICALLY, IN CELLS B44 AND B46, THERE IS A FACTOR OF 1000 MISSING, MAKING THE COST OF HYDROGEN NEGLIGIBLE IN THE CALCULATION.**

**ANSWER:** The spreadsheet tool has been updated with a minor change to the hydrogen cost calculation. Please use the updated version. However, if applicants use a prior version, they will not be penalized.

**Q6. I AM A MAJORITY OWNER OF A STARTUP LOCATED IN THE US. I AM NOT EITHER A US CITIZEN OR A PERMANENT RESIDENT.**

**IF I UNDERSTAND CORRECTLY, MY STARTUP IS NOT ELIGIBLE FOR THE SBIR/STTR. IS THAT CORRECT?**

**IF THIS IS THE CASE, DO YOU ENCOURAGE US, A SMALL BUSINESS, TO APPLY FOR DE-FOA-0003117?**

**ANSWER:** A Small Business Concern applying under ROSIE SBIR/STTR FOA DE-FOA-0003118 must be more than 50% owned and controlled by one or more individuals who are citizens or permanent resident aliens of the United States, or by other small business concerns that are each more than 50% owned and controlled by one or more individuals who are citizens or permanent resident aliens of the

United States. Please see Section III of the SBIR/STTR FOA and <https://www.sbir.gov/about> for full details on eligibility for SBIR/STTR projects.

Regarding eligibility under ROSIE FOA DE-FOA-0003117, please refer to FOA Section III.A.3 and General FAQ 3.1.

**Q7. WE ARE PLANNING TO SUBMIT A PROPOSAL FOR ROSIE-FOA IN COLLABORATION WITH DOE LABS AND UNIVERSITIES.**

**WE WANT TO PROTECT THE IP, WHICH REQUIRES AT LEAST 20 % COST SHARE OF THE BUDGET. I HAVE FOLLOWING QUESTIONS ON THE COST-SHARE.**

- 1. IS COST SHARE THE PERCENTAGE OF ENTIRE PROJECT BUDGET? FOR EXAMPLE, IF THE ENTIRE PROJECT COST IS 1 MILLION \$, DOES COST SHARE MEAN 0.2 MILLION \$ ? OR IS IT 20 % OF THE BUDGET ALLOCATED FOR THE TEAM (SUB-AWARDEE) THAT IS CONTRIBUTING FOR THE COST SHARE? FOR EXAMPLE, OUT OF 1 MILLION \$, IF THE SUB-AWARDEE'S BUDGET IS 0.5 MILLION \$ WILL COST SHARE BE 20 % OF 0.5 MILLION \$ I.E., 0.1 MILLION \$?**

- 2. ARE UNIVERSITIES ELIGIBLE FOR COST-SHARE ?**

**ANSWER:** 1. Please see General FAQ 4.4

2. Please see Section III.B.5 of the FOA.

**Q8. WHEN USING THE SPREADSHEET OF IRONMAKING\_COST\_AND\_LCA\_ESTIMATOR\_TOOL TO ESTIMATE THE COST AND GHG EMISSION, IF MY INPUT VALUE IS DIFFERENT FROM THE DEFAULT VALUE IN "YOUR TECH-EDIT THIS SHEET", DO I NEED TO PUT THE JUSTIFICATION INTO THE JUSTIFICATION COLUMN? IT SEEMS LIKE THE SPREADSHEET DOESN'T ALLOW ME TO PUT THE JUSTIFICATION INTO THE JUSTIFICATION COLUMN, UNLESS I KNOW THE PASSWORD.**

**THANK YOU VERY MUCH FOR YOUR HELP.**

**ANSWER:** Yes, place the justification into the justification column whenever you input a value into a green box. The spreadsheet tool has been updated with these columns unlocked. Please use the updated version. However, if applicants use a prior version, they will not be penalized.

Q9. I AM SUPPORTING AN --- REDACTED----LED CONCEPT PAPER AND POTENTIAL FULL PROPOSAL TO DE-FOA-0003117 ROSIE AND HAVE A QUESTION REGARDING COST SHARE. UNDER THE REDUCED COST SHARE REQUIREMENTS, THERE ARE 5 BULLETS. DOE LABS ARE NOTED IN THE SECOND BULLET BUT NOT IN THE OTHERS. CAN YOU LET ME KNOW IF --- REDACTED---/DOE LABS QUALIFY UNDER THE 4TH BULLET – IN RED FONT BELOW?

**REDUCED COST SHARE REQUIREMENT**

ARPA-E HAS REDUCED THE BASE COST SHARE REQUIREMENT FOR THE FOLLOWING TYPES OF PROJECTS:

1. A DOMESTIC EDUCATIONAL INSTITUTION OR DOMESTIC NONPROFIT APPLYING AS A STANDALONE APPLICANT IS REQUIRED TO PROVIDE AT LEAST 5% OF THE TOTAL PROJECT COST AS COST SHARE.
2. PROJECT TEAMS COMPOSED EXCLUSIVELY OF DOMESTIC EDUCATIONAL INSTITUTIONS, DOMESTIC NONPROFITS, AND/OR FFRDCS/DOE LABS/FEDERAL AGENCIES AND INSTRUMENTALITIES (OTHER THAN DOE) ARE REQUIRED TO PROVIDE AT LEAST 5% OF THE TOTAL PROJECT COST AS COST SHARE. SMALL BUSINESSES – OR CONSORTIA OF SMALL BUSINESSES – MAY PROVIDE 0% COST SHARE FROM THE OUTSET OF THE PROJECT THROUGH THE FIRST 12 MONTHS OF THE PROJECT (HEREINAFTER THE “COST SHARE GRACE PERIOD”).<sup>25</sup> IF THE PROJECT IS CONTINUED BEYOND THE COST SHARE GRACE PERIOD, THEN AT LEAST 10% OF THE TOTAL PROJECT COST (INCLUDING THE COSTS INCURRED DURING THE COST SHARE GRACE PERIOD) WILL BE REQUIRED AS COST SHARE OVER THE REMAINING PERIOD OF PERFORMANCE.
3. PROJECT TEAMS WHERE A SMALL BUSINESS IS THE LEAD ORGANIZATION AND SMALL BUSINESSES PERFORM GREATER THAN OR EQUAL TO 80% OF THE TOTAL WORK UNDER THE FUNDING AGREEMENT (AS MEASURED BY THE TOTAL PROJECT COST) ARE ENTITLED TO THE SAME COST SHARE REDUCTION AND COST SHARE GRACE PERIOD AS PROVIDED ABOVE TO STANDALONE SMALL BUSINESSES OR CONSORTIA OF SMALL BUSINESSES.

4. 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.
5. PROJECTS THAT DO NOT MEET ANY OF THE ABOVE CRITERIA ARE SUBJECT TO THE BASE COST SHARE REQUIREMENTS DESCRIBED IN SECTIONS III.B.1 AND III.B.2 OF THE FOA.

**ANSWER:** ARPA-E may not provide pre-submission assessments on a project team's specific cost sharing requirement. Applicants should carefully review the cost sharing requirements for the specific FOA to which they intend to submit a Concept Paper or Full Application.

**Q10. I HAVE A FEW QUESTIONS REGARDING THE ROSIE FOA.**

1. -CAN THERE BE TWO OR MORE LEAD PIS ON A SINGLE PROPOSAL?
2. -THE LCA WORKSHEET LISTS GJ/T HRC STEEL AS A UNIT FOR ALTERNATIVE FEEDSTOCK INPUTS. IT SEEMS LIKE THIS SHOULD IT BE T (ALTERNATIVE INPUT)/T HRC STEEL. IS THIS A TYPO?
3. -IF PROCESS WATER WILL BE USED, SHOULD THIS BE CONSIDERED AS AN ALTERNATIVE FEEDSTOCK IN THE LCA WORKSHEET ALONG WITH ASSUMPTIONS ABOUT ASSOCIATED EMISSIONS AND ENERGY REQUIREMENTS?
4. -IS A TECHNOLOGY RELYING ON 100% GRID ELECTRICITY FOR ENERGY INPUT AND ZERO PROCESS EMISSIONS CONSIDERED RESPONSIVE TO THE FOA? ACCORDING TO THE LCA WORKSHEET, EMBEDDED EMISSIONS ARE INCLUDED IN ANY ELECTRICITY INPUTS (TODAY'S GRID). DO THESE EMBEDDED EMISSIONS NEED TO BE OFFSET BY SOME OTHER MEANS OR IS ACCEPTABLE AS LONG AS IT IS LOWER THAN THE 1.4-3 T CO<sub>2</sub> / T HRC STEEL MENTIONED?
5. -ARE THERE ANY SPECIFIC LIMITATIONS ON SIZE/FOOTPRINT/LAND USE?

**ANSWER:** 1. Applicants must designate one Lead Principal Investigator (PI). Additional key personnel may be identified as Co-PIs, as applicable.

2. The spreadsheet tool has been updated with a minor change to these units. Please use the updated version. However, if applicants use a prior version, they will not be penalized.



3. Yes.

4. A technology relying on 100% grid electricity for energy input and zero process emissions is considered responsive to the FOA. The long-term program target is that the sum of all cradle-to-gate emissions, including embedded emissions of all energy and material inputs to the proposed iron/steelmaking technology, should be less than 0.7 tonnes CO<sub>2</sub>-eq/tonne HRC steel. Applicants may view long-term GHG estimates for consumed electricity and electrolysis hydrogen in rows 29, 30, 45, 60, 61, and 77 on the “Your Tech – Edit This Sheet” worksheet if the proposed technology uses electricity or electrolysis hydrogen. Regarding offsets, purchased third-party offsets or processes that absorb and permanently sequester greenhouse gases from the atmosphere but do not contribute materially to the proposed ironmaking/steelmaking technology may not be counted towards either the zero process emissions requirement or the 0.7 tonne CO<sub>2</sub>-eq/tonne HRC steel long-term cradle-to-gate program target. See the provided tool instructions for how to treat biogenic C that is absorbed permanently into the final iron/steel product.

5. No.

**Q11. SORRY FOR THE LATE REQUEST. WE ARE WORKING ON A SOLID CATALYST TO CONVERT CH<sub>4</sub> GAS INTO H<sub>2</sub> AND SOLID CARBON. WE FOUND OUT THAT “TRANSITIONING FROM DRI USING NATURAL GAS TO DRI USING HYDROGEN (H<sub>2</sub>)” IS NOT RESPONSIVE TO THE CALL. HOWEVER, OUR FOCUS IS TO DEVELOP A UNIT OPERATION TO MAKE USE OF THIS CATALYST TO MAKE H<sub>2</sub>. OF COURSE, THE DEVELOPED H<sub>2</sub> CAN THEN BE USED FOR EITHER HEATING OR DRI, BUT WE DO NOT PROPOSE TO INVESTIGATE HOW TO USE H<sub>2</sub> FOR THE DRI PROCESS. WE WOULD LIKE TO KNOW IF OUR IDEA IS RESPONSIVE TO THE CALL.**

**ANSWER:**

The cradle-to-gate ironmaking process is complex and it’s possible that your process may be responsive. Simply proposing a new way to produce hydrogen would not be responsive. Please submit a concept paper and we will evaluate it with more information.

**Q12. MY FIRST QUESTION IS: WHEN USING THE SPREADSHEET OF**

- 1. IRONMAKING\_COST\_AND\_LCA\_ESTIMATOR\_TOOL TO ESTIMATE THE COST AND GHG EMISSION, IF MY INPUT VALUE IS DIFFERENT FROM THE DEFAULT VALUE IN "YOUR TECH-EDIT THIS SHEET", DO I NEED TO PUT THE JUSTIFICATION INTO THE JUSTIFICATION COLUMN? IT SEEMS LIKE THE SPREADSHEET DOESN'T ALLOW ME TO PUT THE JUSTIFICATION INTO THE JUSTIFICATION COLUMN, UNLESS I KNOW THE PASSWORD.**
- 2. MY SECOND QUESTION IS: THE OBJECTIVE OF THE FOA IS NO GREENHOUSE GAS EMISSION, AND MY PROPOSED TECHNOLOGY IS ELECTROLYSIS BY USING CLEAN ENERGY GENERATED ELECTRICITY, SUCH AS ELECTRICITY FROM HYDROPOWER. IT IS BELIEVED THAT THE METHODOLOGY HAS NO GREENHOUSE GAS EMISSION. HOWEVER, IN THE ESTIMATOR TOOL, IN "YOUR TECH-EDIT THIS SHEET" AND THE "ENERGY INPUTS TO IRONMAKING STEP ONLY (NEW TECH)" SECTION, WHEN I PUT VALUE FOR THE ELECTRICITY, IT AUTOMATICALLY GENERATES THE VALUE OF GREENHOUSE GAS EMISSION. THIS DISOBEYS THE TECHNOLOGY I PROPOSED IN THE CONCEPT. DOES THIS DISCREPANCY AFFECT THE SELECTION OF THE CONCEPT?**

**ANSWER:**

1. The spreadsheet tool has been updated with these columns unlocked. Please use the updated version. However, if applicants use a prior version, they will not be penalized.
2. There is no discrepancy as the use of electricity does not in and of itself produce process emissions. Applicants may view both process emissions and embedded emissions estimates of all consumed energy and material inputs in columns G through K on the "Your Tech – Edit This Sheet" worksheet. Applicants may then compare these results to the specific technical targets outlined in the FOA.

**Q13. ---REDACTED---RESPECTFULLY SUBMITS THE BELOW CLARIFYING QUESTIONS FOR THE ADVANCED RESEARCH PROJECTS AGENCY – ENERGY (ARPA-E) REVOLUTIONIZING ORE TO STEEL TO IMPACT EMISSIONS (ROSIE) FUNDING OPPORTUNITY ANNOUNCEMENT (FOA).**

- 1. WOULD THE GOVERNMENT CONFIRM THAT APPLICABLE COST-SHARE INCLUDES ONLY INDUSTRY COST ACCRUED DURING THE TIME OF THE AGREEMENT PERIOD OF PERFORMANCE (POP) AND DOES NOT INCLUDE INVESTMENTS MADE PRIOR TO THE AGREEMENT POP START?**
- 2. DOES THE GOVERNMENT HAVE AN INTENDED NUMBER OF INDUSTRY PARTNERS FOR PHASE II FOLLOWING DOWN-SELECTS FROM PHASE I?**

**ANSWER:**

1. Please refer to Section III.B.6 of the FOA and General FAQ 4.5 and 4.6.

2. ARPA-E anticipates making approximately 10-15 awards under this FOA. ARPA-E may, at its discretion, issue one, multiple, or no awards (see Section II.A. of the FOA). Teams approved to continue to Phase II will be awarded an additional budget to achieve the final program metrics. Advancement to Phase II represents a portfolio-wide down select, so advancement is not guaranteed, even if all the milestones from Phase I are met (see Section I.B.1 of the FOA).

## II. Full Application Phase Questions:

**Q14. I AM EMAILING IN TO CONFIRM THE COST SHARE PERCENT THAT WE NEED FOR THIS PROPOSAL. THE UNIVERSITY OF ---REDACTED--- WILL BE THE LEAD. THE UNIVERSITY OF ---REDACTED--- WILL BE INVOLVED AND WE WILL HAVE A SUBCONTRACT FROM ---REDACTED--- NATIONAL LABORATORY ( ---REDACTED---).**

**THERE WILL ALSO BE A COMPANY PROVIDING IN KIND FUNDS.**

**CAN I HAVE SOMEONE CONFIRM WHAT PERCENTAGE WE NEED FOR THIS PROPOSAL?**

**ANSWER:** Per the ARPA-E website FAQ page General Question 4.21: ARPA-E may not provide pre-submission assessments on a project team's specific cost sharing requirement. Applicants should carefully review the cost sharing requirements for the specific FOA to which they intend to submit a Concept Paper or Full Application.

**Q15. IF INDUSTRY IS REQUIRED TO PROVIDE 20% COST SHARE, WHY DON'T THEY HAVE TO PROVIDE A LETTER OF COMMITMENT OR A SUBAWARD BUDGET JUSTIFICATION WORKBOOK?**

**ANSWER:** Please review Section III.B. of the FOA for the cost sharing requirements. Please review Section VI.B.3 of the FOA for guidance on proof of cost share commitment and allowability. Please review Section IV.D.4 of the FOA for guidance on the Budget Justification Workbook/SF424A.



**Q16. WE HAVE A QUESTION REGARDING HOW FUNDING IS MADE AND WHERE SUB-AWARDS ACTUALLY SHOULD BE PLACED FOR AN APPLICATION TO THE ARPA-E ROSIE FOA. WE ARE SUBMITTING A PROPOSAL WITH A NATIONAL LAB ( ---REDACTED---) AS THE LEAD. WE HAVE PARTNERS AT UNIVERSITY OF -REDACTED---, ---REDACTED--- UNIVERSITY, AND TWO INDUSTRIAL PARTNERS, ---REDACTED--- AND---REDACTED---. FROM THE FOA, IT IS STATED THAT “WHEN A FFRDC/DOE LAB (INCLUDING THE NATIONAL ENERGY TECHNOLOGY LABORATORY OR NETL) IS THE LEAD ORGANIZATION FOR A PROJECT TEAM, ARPA-E EXECUTES A FUNDING AGREEMENT DIRECTLY WITH THE FFRDC/DOE LAB AND A SINGLE, SEPARATE COOPERATIVE AGREEMENT WITH ANOTHER ENTITY ON THE PROJECT TEAM. NOTWITHSTANDING THE USE OF MULTIPLE AGREEMENTS, THE FFRDC/DOE LAB IS THE LEAD ORGANIZATION FOR THE ENTIRE PROJECT, INCLUDING ALL WORK PERFORMED BY THE FFRDC/DOE LAB AND THE REST OF THE PROJECT TEAM.”**

**IT ISN'T CLEAR TO US WHETHER THIS MEANS THAT ARPA-E WILL FUND ---REDACTED---, AND ONE OF THE OTHER PARTNERS (FOR EXAMPLE UNIVERSITY OF---REDACTED---); AND ALL THE OTHER PARTNERS WILL BE FUNDED AND CONSIDERED SUBS THROUGH---REDACTED---, - OR IF THIS MEANS ARPA-E WILL DIRECTLY FUND ---REDACTED--- ITS PORTION AND THEN CHOOSE ONE OF THE NON-NATIONAL LAB PARTNERS ( EX. UNIVERSITY OF ---REDACTED---) TO FUND, AND ALL THE OTHER NON-NATIONAL LAB PARTNERS WILL BE CONSIDERED SUBS TO THAT ENTITY (UNIVERSITY OF---REDACTED---) – OR IF WE CAN CHOOSE TO HAVE ENTITIES BE SUBS TO EITHER OF THE NATIONAL LAB (---REDACTED---) OR OTHER ENTITY DIRECTLY FUNDED BY ARPA-E (UNIVERSITY OFREDACTED---). DUE TO THE DIFFERENCES IN OVERHEAD CHARGES, THIS COULD HAVE AN IMPACT ON THE BUDGET. THANK YOU FOR HELPING CLARIFY THIS FOR US.**

**ANSWER:** Please see General FAQ 2.21.