

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 THINK MY TECHNICAL RESEARCH AND DEVELOPMENT CONCEPT CAN BE APPLIED TO MORE THAN ONE SUBTOPIC. CAN I SUBMIT THE SAME CONCEPT PAPER TO BOTH?

ANSWER: No. All submissions to the Vision OPEN FOA must be scientifically distinct. If the same applicant wants to submit the same or a similar R&D concept to multiple subtopics, the individual Concept Papers must be scientifically distinct and tailored to those unique subtopics. Duplicate Concept Papers will be declared Non-Responsive and not merit reviewed.

Q2. WHAT IS THE DIFFERENT BETWEEN A SUBTOPIC AND A TECHNICAL CATEGORY?

ANSWER: Subtopics map to the Topics and Goals of the overall Vision OPEN FOA. Each submission must select one Subtopic as described in Section I.C. Additionally, each submission must select one or more Technical Category (or subcategory) as described in Section I.D. These Technical Categories and Subcategories are used for internal reviewer matching purposes, may be changed by ARPA-E, and have no bearing on the merit review the submission receives. In eXCHANGE, Technical Categories will show as Technical Areas; the two are interchangeable.

Q3. I HAVE A CONCEPT RELATED SOLELY TO CARBON CAPTURE, WHICH IS LISTED AS A SUBMISSION SPECIFICALLY NOT OF INTEREST IN SECTION III.C.3. HOWEVER, I SEE A SUBCATEGORY FOR CARBON CAPTURE, 4.F, UNDER SECTION I.D. SHOULD I SUBMIT MY CONCEPT?

ANSWER: A technology's presence as a Technical Subcategory in Section I.D. does not mean that that technology is responsive to the Vision OPEN 2024 FOA. Technical Categories in Section I.D. are used across multiple ARPA-E FOAs and to register reviewers; many Subcategories may be considered non-responsive to the specific Goals, Topics, and Subtopics for Vision OPEN 2024.

Q4. IS PRODUCTION OF VALUABLE PROTEINS (E.G. FUNCTIONAL PROTEINS, ANIMAL FEED ENZYMES, OR THERAPEUTICS) IN PHOTOSYNTHETIC ORGANISMS THAT WOULD DISPLACE CURRENT PRODUCTION IN SUGAR BASED FERMENTATION IN SCOPE FOR SUBTOPIC 3.A.1: SYNTHETIC PRODUCTS?

ANSWER: ARPA-E will not pre-assess an applicant's proposal. Prospective applicants must review the technical requirements of the FOA, including the "Submissions Specifically Not of Interest" in Section III.C and independently determine whether their proposed concept warrants a submission.

Q5. I HAVE 2 QUESTIONS REGARDING THE ELIGIBLE SCOPE OF TECHNOLOGIES THAT IS ALLOWED FOR DE-FOA-0003387 TOPIC 3.A. LIVING REFINERIES:

- 1. ARE BACTERIA-BASED PROCESSES ALLOWED UNDER THIS TOPIC? ALTHOUGH THE FOA ONLY MENTIONS “PLANTS & ALGAE” IN THIS SECTION, THERE IS NO EXPLICIT MENTION OF BACTERIA BEING DISALLOWED IN THE SECTION DETAILING “SUBMISSIONS SPECIFICALLY NOT OF INTEREST.” IT DOES SAY THAT “MICROBIAL CONVERSION OF SUGARS” IS DISALLOWED, BUT WHAT IF THE MICROBES ARE USING CO₂ AS THE FEEDSTOCK FOR POLYMER PRODUCTION? FOR EXAMPLE, IF PHOTOSYNTHETIC CYANOBACTERIA OR NON-PHOTOSYNTHETIC KNALLGAS BACTERIA ARE ABLE TO FIX CO₂ INTO POLYMERS, WOULD THOSE FIT WITHIN THE ALLOWABLE PARAMETERS OF THIS TOPIC?**
- 2. CAN CO₂-DERIVED C₁ COMPOUNDS BE INCORPORATED AS INTERMEDIATES FOR POLYMER PRODUCTION? THE “SUBMISSIONS SPECIFICALLY NOT OF INTEREST” SECTION SPECIFIES THAT “REDUCTION OF CAPTURED CO₂ TO C₁ CHEMICALS” IS NOT ALLOWED FOR THIS TOPIC. HOWEVER, THE WORDING IS UNCLEAR AS TO WHETHER THIS MEANS THAT C₁ COMPOUNDS CANNOT BE THE FINAL PRODUCT OF THE PROPOSED PROCESS, OR WHETHER IT MEANS THAT NO CO₂ CONVERSION TO C₁ CAN BE INVOLVED AT ANY STEP OF THE PROCESS. FOR EXAMPLE, IF CO₂ IS FIRST CONVERTED TO A C₁ COMPOUND, BUT THE C₁ COMPOUND IS SUBSEQUENTLY CONVERTED INTO A POLYMER VIA A DOWNSTREAM BIOLOGICAL PROCESS, WOULD THAT BE ALLOWED? OR WOULD THE INVOLVEMENT OF A CO₂ TO C₁ CONVERSION STEP AT ANY POINT AUTOMATICALLY DISQUALIFY THE PROCESS?**

ANSWER: See Vision OPEN FAQ 4

Q6. FOR SUBTOPIC 2.A.4, WE WOULD LIKE TO KNOW IF AMMONIA SYNTHESIS AND AMMONIA DECOMPOSITION FIT INTO THE BIDIRECTIONAL PROCESSES. SPECIFICALLY, OUR TECHNOLOGY IS RELEVANT TO ELECTROMAGNETIC REACTOR FOR AMMONIA SYNTHESIS USING RENEWABLE POWER, THEN THE SAME REACTOR SYSTEM CAN BE USED TO DECOMPOSE AMMONIA.

ANSWER: See Vision OPEN FAQ 4

Q7. I AM HOPING TO GAIN SOME CLARITY ON A PIECE OF THE GUIDELINES FOR THE VISION OPEN 2024 (DE-FOA-0003387) OPPORTUNITY. MY QUESTION HAS TO DO WITH THE DEFINITION OF "GHG-FREE". THE FOA DEFINES "GHG-FREE" ON PAGE 8 FOOTNOTE 6 AS "PRIMARY ENERGY SOURCES WITH EXTREMELY LIMITED, DIRECT SCOPE 1 GHG EMISSIONS." CAN YOU PROVIDE ANY MORE DETAILED GUIDANCE ON WHAT THE UPPER ACCEPTABLE BOUND COULD BE FOR SCOPE 1 EMISSIONS, IN ORDER TO ASSESS WHICH PROJECT(S) ARE PERMITTED TO ADVANCE PAST THE CONCEPT PAPER STAGE?

ANSWER: ARPA-E has not set an upper bound for direct scope 1 GHG emissions; however, higher emissions negatively affect the impact of a proposed technology.

Q8. I WOULD LIKE TO ASK QUESTIONS REGARDING THE VISION OPEN 2024 FOA (DE-FOA-0003387). HERE ARE THE QUESTIONS FOR THE CONCEPT PAPER PHASE:

- 1. TO CLARIFY, ARE FUEL CELLS – TRANSPORTATION AND BATTERIES – TRANSPORTATION (SUBCATEGORY D AND SUBCATEGORY J IN CATEGORY 2) UNDER TOPIC 2.A., SUBTOPIC 2.A.2 CHEMICAL AVAILABILITY AND SUBTOPIC 2.A.4 ENERGY CONVERSION?**
- 2. ARE THERE ANY STIPULATIONS REGARDING THE BASELINE PERFORMANCES OF THE PROPOSED FUEL CELLS, AND BATTERIES (LIQUID-ELECTROLYTE-BASED OR SOLID-ELECTROLYTE-BASED) IN PACK, AND CELL FORMS?**
- 3. DO WE NEED TO SPECIFY THE TRANSPORTATION APPLICATIONS (FOR EXAMPLE, PLUG-IN ELECTRIC VEHICLES (PEVS), HYBRID ELECTRIC VEHICLES (HEVS), HEAVY-DUTY VEHICLES, AND COMMON MOBILE VEHICLES) THAT WE WILL BE FOCUSING ON IN THE CONCEPT PAPERS?**

ANSWER: 1. See Vision OPEN FAQ 3

2. See Vision OPEN FAQ 4
3. See Vision OPEN FAQ 4

Q9. WE APPRECIATE THE ARTICULATION OF THE 3 GOALS AND CRITICAL AREAS OUTLINED IN THE VISION OPEN 2024 ANNOUNCEMENT.

WE WOULD LIKE TO ASK IF PROJECTS FOR ENERGY EFFICIENCY, SUCH AS HIGH-EFFICIENCY GHG-FREE HEAT PUMPS, OR REFRIGERANT-FREE COOLING ARE ELIGIBLE FOR CONSIDERATION?

IF OUR PROJECT, WHICH FOCUSES ON NEW PHYSICS AROUND THERMOELECTRIC COOLING PERFORMANCE, IS OUTSIDE OF THESE THREE TOPIC AREAS EXPLICITLY, SHOULD WE SUBMIT A CONCEPT PAPER?

WHAT AREAS OF EFFICIENCY CAN BE SEEN AS INCLUDED IN "PRIMARY ENERGY" IF ANY? OR IS "PRIMARY ENERGY" ONLY MEANT TO MEAN POWER GENERATION?

ANSWER: See Vision OPEN FAQ 4

Q10. *REDACTED***. I SAW THE RECENTLY POSTED GRANT OPPORTUNITY FROM YOUR AGENCY (DE-FOA-0003387), AND I THINK ONE AREA OF MY GROUP'S RESEARCH IS PERFECTLY POISED TO ADDRESS SUBTOPIC 3.D.2: DECONSTRUCTION OF POST-CONSUMER PLASTIC WASTE. FOR THE PAST COUPLE OF YEARS, MY GROUP HAS BEEN WORKING ON A PROJECT FUNDED BY THE DOE (CATALYSIS PROGRAM) THROUGH THE EARLY CAREER AWARD TO DEVELOP WAYS TO TRANSFORM RUBBER WASTE INTO VALUE-ADDED PRODUCTS. WE DID DEVELOP A PROOF OF CONCEPT AND NOW HAVE A MANUSCRIPT IN REVISION AT NATURE ON IT.**

I WOULD BE INTERESTED IN ADVANCING THIS PROCESS TO MAKE IT MORE SCALABLE AND ECONOMICAL. AS PART OF THIS EFFORT, I WOULD LIKELY TEAM UP WITH A COLLABORATOR WITH EXPERTISE IN LCA AND TEA ANALYSES THAT WOULD HELP TO GUIDE THIS OPTIMIZATION PROCESS, AND I WOULD ALSO CONSIDER BRINGING ON BOARD A COLLABORATOR WHO DOES DIRECTED EVOLUTION OF ENZYMES AS AN ALTERNATIVE APPROACH.

I WANTED TO GET YOUR TAKE ON WHETHER SUCH BUILDING ON THE WORK FUNDED BY THE DOE WOULD BE CONSIDERED TOO MUCH OVERLAP. IF POSSIBLE, I WOULD LOVE TO CONNECT WITH YOU OVER ZOOM TO PROVIDE MORE DETAIL AND GET YOUR FEEDBACK.

ANSWER: See Vision OPEN FAQ 4

Q11. I AM WRITING FROM THE RESEARCH OFFICE OF *REDACTED*** (NON FOR-PROFIT SCHOOL / RESEARCH INSTITUTION IN SWITZERLAND, ***REDACTED***) TO GET SOME INFORMATION ABOUT THE ELIGIBILITY CRITERIA AND IP CONDITIONS FOR THE DE-FOA-0003387: VISION OPEN 2024.**

MY UNDERSTANDING IS THAT FOREIGN RESEARCHERS ARE ELIGIBLE TO PARTICIPATE TO THIS CALL AS SUBAWARDEE. COULD YOU PLEASE CONFIRM THIS? AND TELL ME IF THERE ARE SPECIFIC CONDITIONS.

MY SECOND QUESTION IS REGARDING THE IP CONDITIONS.

IF *REDACTED*** RESEARCHERS PARTICIPATE TO A PROJECT FUNDED BY ARPA-E, WHAT WOULD BE THE IP CONDITIONS?**

I SAW SEVERAL "ATTACHMENT 2" TYPES ON YOUR WEBSITE. WOULD THE ATTACHMENT 2 "UNIVERSITY" APPLY TO US, OR WOULD IT BE THE ONE LABELED "LARGE BUSINESS"?

IF THIS IS THE "LARGE BUSINESS" ONE, AND IF WE PROVIDE A COST SHARE OF 20%, THE WAIVER PATENT RIGHT WOULD APPLY? IS THAT CORRECT? AND IN THIS CASE, *REDACTED*** WOULD RETAIN ITS IP RIGHTS (IF ANY DURING THE PROJECT) WITH A NONEXCLUSIVE, NONTRANSFERABLE, IRREVOCABLE, PAID UP LICENSE TO THE GOVERNMENT. IS THAT CORRECT?**

ANSWER: See answers 3.1 and 2.20 of the General Questions FAQ on the ARPA-E website.

[General Questions | arpa-e.energy.gov](https://arpa-e.energy.gov)

Q12. ARE MULTIPLE CONCEPT PAPER PROPOSALS ALLOWED FOR VISION OPEN 2024?

ANSWER: See Vision OPEN FAQ 1

Q13. I HAVE A QUESTION REGARDING THE TECHNOLOGIES OF INTEREST UNDER TOPIC 2 OF VISION OPEN (INTERMODAL ENERGY SUPERHIGHWAY). WOULD NEW TECHNOLOGIES FOR ELECTRIFIED RAIL, PARTICULARLY FOR NEW FUEL TRANSPORT AND RELATED APPLICATIONS, BE OF INTEREST?

ANSWER: See Vision OPEN FAQ 4



Q14. IN THE FOA, THERE IS THIS STATEMENT “SUBMISSIONS THAT HAVE BEEN SUBMITTED IN RESPONSE TO CURRENTLY ISSUED ARPA-E FOAS.” FOR CLARITY, IS A “SUBMISSION” CONSIDERED JUST FULL APPLICATION SUBMISSIONS THAT BETTER DEFINED THE IDEA? OR ARE NON-ENCOURAGED CONCEPT PAPERS ALSO CONSIDERED SUBMISSIONS? WHO, BASED ON PREVIOUS ACTIVITY WITH ARPA-E IS BARRED FROM SUBMITTING TO OPEN?

ANSWER: A “SUBMISSION” IN THIS CONTEXT COULD BE A CONCEPT PAPER OR FULL APPLICATION THAT IS STILL BEING CONSIDERED UNDER ANOTHER FOA.Q15. I HAVE TWO QUESTIONS FOR VISION OPEN FOA (DE-FOA-0003387).

- 1. SUBTOPIC AREA 3.D.1. DEALS WITH RECYCLABLE POLYMERS. OUR PROPOSAL FOCUS AREA IS THE SAME. HOWEVER, IF WE INCLUDE CELLULOSE- WASTE PLASTIC COMPOSITES AS PART OF RECYCLING, WOULD THAT BE OUT OF TOPIC AREA 3.D.1?**
- 2. DOES THE COMPUTATIONAL TOOL MEAN TECHNOECONOMIC ANALYSIS/LCA, OR CAN MODELING/SIMULATION BE PART OF IT?**

ANSWER: See Vision OPEN FAQ 4

Q16. I AM REACHING OUT FOR CLARIFICATION ON DE-FOA-0003387 REGARDING THE ALLOWED FOREIGN WORK. PLEASE SEE THE QUESTION BELOW:

THE FOA MENTIONS THAT ALL WORK UNDER THE ARPA-E AWARD MUST BE PERFORMED IN THE UNITED STATES UNLESS A FOREIGN WORK WAIVER IS APPROVED. OUR PROJECT ENTAILS A PORTION OF WORK TO BE PERFORMED OUTSIDE THE US. THE SCOPE OF WORK OUTSIDE THE US IS ESSENTIAL TO THE PROJECT OUTCOMES AND HAS ANTICIPATED BENEFITS TO THE UNITED STATES ECONOMY. IS THERE A PERCENTAGE OF FOREIGN WORK THAT IS CONSIDERED MAXIMUM ALLOWED FOR THIS FOA?

ANSWER: See answer 3.1 of the General Questions FAQ on the ARPA-E website.

Q17. *REDACTED*** IS INTERESTED IN APPLYING FOR THE VISION OPEN FOA UNDER CATEGORY 2: SUBCATEGORY J - BATTERIES AND TRANSPORTATION: "TECHNOLOGIES FOR IMPROVED BATTERIES FOR A WIDE RANGE OF VEHICLE APPLICATIONS, INCLUDING HYBRID ELECTRIC VEHICLES (HEVS), PLUG-IN HYBRID ELECTRIC VEHICLES (PHEVS), AND BATTERY ELECTRIC VEHICLES (EVS).**

WE IDENTIFIED THAT OUR TECHNOLOGY CAN SOLVE EITHER GOAL 1: GHG-FREE, ABUNDANT PRIMARY ENERGY—SUBTOPIC 1.B.2 NEW SOURCES OR GOAL 2: INTERMODEL ENERGY SUPERHIGHWAY—SUBTOPIC 2.A.4 ENERGY CONVERSION.

COULD YOU PLEASE ADVISE ON WHICH GOAL/SUBTOPIC TO PURSUE IN THIS CATEGORY? OR IS THERE A MORE APPROPRIATE GOAL/SUBTOPIC THAT OUR CATEGORY/SUBCATEGORY SHOULD PURSUE?

ANSWER: See Vision OPEN FAQ 4

Q18. SUBTOPIC 1.B.1 LISTS THE FOLLOWING AS A TOPIC THAT POTENTIALLY WOULD BE IN SCOPE FOR THE VISION OPEN SOLICITATION: "TECHNOLOGIES TO INCREASE PRODUCTION, FUNCTIONALITY, OR RESOURCE CHARACTERIZATION FOR ENHANCED GEOTHERMAL SYSTEMS." WOULD SIMILAR TECHNOLOGIES AS APPLIED TO OTHER GHG-FREE PRIMARY ENERGY SOURCES BE IN SCOPE AS WELL, SUCH AS HYDROELECTRIC OR NUCLEAR? IN OTHER WORDS, WOULD ANOTHER BULLET LIKE THE FOLLOWING REPRESENT A PLAUSIBLE EXAMPLE UNDER THIS SUBTOPIC: "TECHNOLOGIES TO INCREASE PRODUCTION AND FUNCTIONALITY FOR ADVANCED HYDROELECTRIC AND/OR NUCLEAR POWER SYSTEMS"?

TOPIC 1.B STATES THAT THIS TOPIC SEEKS INNOVATIONS IN "NASCENT" GHG-FREE FORMS OF PRIMARY ENERGY, WHICH IMPLIES ENERGY SOURCES THAT ARE STILL COMING INTO EXISTENCE. ONE OF THE EXAMPLES PROVIDED UNDER SUBTOPIC 1.B.1 REFERS TO "TRANSFORMATIONAL CONTROL SYSTEMS FOR ADVANCED POWER PLANTS." THE TERM "ADVANCED POWER PLANTS" IS NOT DEFINED. IN THAT CONTEXT, WOULD IT BE CORRECT TO STATE THAT THE POWER PLANTS MAY NOT NECESSARILY BE NASCENT, BUT THE PROPOSED CONTROL SYSTEM TECHNOLOGY WOULD NEED TO BE NASCENT/TRANSFORMATIONAL? FOR EXAMPLE, FISSION-BASED NUCLEAR PLANTS (EXISTING AND FUTURE) COULD BENEFIT FROM AUTOMATED OPERATION/CONTROL/MAINTENANCE CAPABILITIES, POTENTIALLY PROVIDING TRANSFORMATIONAL BENEFITS, BUT AS APPLIED TO AN EXISTING PRIMARY ENERGY SOURCE. WOULD THAT TYPE OF TECHNOLOGY CONCEPT FALL UNDER SUBTOPIC 1.B.1?

ANSWER: See Vision OPEN FAQ 4



Q19. I AM INTERESTED IN SUBMITTING A CONCEPT PAPER TO VISION OPEN 2024. I AM A FOREIGN NATIONAL (SOUTH KOREA) AND DO NOT HAVE CITIZENSHIP/RESIDENCY IN THE U.S. IN THIS CASE, IF I SUBMIT THE CP AS PART OF A DOMESTIC ENTITY WITH MY AFFILIATION (MIT, IN PARTICULAR), WOULD I BE ELIGIBLE FOR SUBMISSION?

ANSWER: See answer 3.1 of the General Questions FAQ on the ARPA-E website.

Q20. WE HAVE A QUESTION FOR SUBTOPIC 3.A.1: ARE YOU EXPECTING SOME STUDIES TO BE CONDUCTED ON A LARGE SCALE FOR THE MODIFIED PLANTS OR ALGAE (E.G. FIELD TRIALS, PONDS)?

ANSWER: ARPA-E is not defining the scope of work for a given project. Refer to the Vision OPEN FOA for details on submission guidelines.

Q21. TO THE CONTRACT SPECIALIST,

REDACTED HAS BEEN REVIEWING THE REQUIREMENTS FOR THE VISION OPEN TO DETERMINE ELIGIBILITY FOR SUBMITTING A CONCEPT PAPER FOR THIS OPPORTUNITY. HOWEVER, THERE ARE A FEW QUESTIONS THAT AROSE FROM OUR REVIEW. SO I'M SEEKING SOME CLARIFICATIONS ON SOME OF THE CRITERION. MY QUESTIONS CENTER AROUND COST SHARE FOR IR&D FUNDING.

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"IN ADDITION, PROJECT TEAMS MAY NOT USE INDEPENDENT RESEARCH AND DEVELOPMENT (IR&D) FUNDS TO MEET THEIR COST SHARE OBLIGATIONS UNDER COOPERATIVE AGREEMENTS. HOWEVER, PROJECT TEAMS MAY USE IR&D FUNDS TO MEET THEIR COST SHARE OBLIGATIONS UNDER "OTHER TRANSACTION" AGREEMENTS.

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"ARPE-E DOES NOT FUND INDEPENDENT RESEARCH AND DEVELOPMENT (IR&D) AS PART OF AN INDIRECT COST RATE UNDER ITS GRANTS AND COOPERATIVE AGREEMENTS. IR&D, AS DEFINED AT FAR 31.205-18(A), INCLUDES COST OF EFFORT THAT IS NOT SPONSORED BY AN ASSISTANCE AGREEMENT OR REQUIRED IN PERFORMANCE OF A CONTRACT, AND THAT CONSISTS OF PROJECTS FALLING WITHIN THE FOUR FOLLOWING AREAS: (I) BASIC RESEARCH, (II) APPLIED RESEARCH, (III) DEVELOPMENT, AND (IV) SYSTEMS AND OTHER CONCEPT FORMULATION STUDIES.

I'M TRYING TO UNDERSTAND THE IMPACT OF THESE STIPULATIONS IN REGARD TO THE ***REDACTED*** PROGRAM. IN READING FAR 31.205-18, ***REDACTED*** SEEMS TO FALL UNDER DEVELOPMENT AND THUS WILL HAVE TO ADJUST HOW WE CALCULATE AND ACCOUNT FOR COST SHARE PER THIS CRITERION OF THIS AWARD.

1. DO YOU KNOW WHAT "OTHER TRANSACTION AGREEMENTS" ARE ELIGIBLE? OR DO YOU KNOW WHERE I CAN FIND THE DEFINITION OF OTHER TRANSACTION AGREEMENTS?
2. WHAT FUNDS ARE ACCEPTABLE TO MEET COST SHARE IF WE ARE NOT ABLE TO UTILIZE OUR INTERNAL R&D FUNDS?
3. AS FOR PAGE 42, DOES THIS MEAN THAT WE CAN ONLY ACCOUNT FOR DIRECT COSTS (I.E. LABOR COST) BUT NOT OVERHEAD AND G&A FOR INDIRECT COSTS?

I'D APPRECIATE ANY GUIDANCE OR DIRECTION YOU CAN PROVIDE. THANKS IN ADVANCE FOR ANY ASSISTANCE YOU CAN PROVIDE.

ANSWER:

1. DOE's other transactions authority are codified at 42 USC §7256(a) and (g). OTA's are a legal agreement between DOE and a non-federal entity that is generally defined by what it is not – it is not a procurement contract or financial assistance agreement used by the federal government to obtain supplies and services or support a public purpose. An OT Agreement provides the flexibility to adopt and incorporate business practices that reflect commercial industry standards and best practices into its award instruments.
2. See 2 CFR § 200.306 Cost sharing or matching.
3. Page 42 refers specifically to IR&D as it relates to indirect costs.

Q22. THE FOA STATES "REDUCTION OF CAPTURED CO2 TO C1 CHEMICALS" IS SPECIFICALLY NOT OF INTEREST. CAN DOE CLARIFY IF A TWO-STEP PROCESS WHERE A C1 PRODUCT IS PRODUCED AS AN INTERMEDIATE, BUT CONVERTED TO A C2+ PRODUCT IN A SUBSEQUENT STEP WOULD BE ELIGIBLE? OR IS THIS FOA ONLY INTERESTED IN ONE-STEP PROCESSES THAT REDUCE CO2 DIRECTLY TO C2+ PRODUCTS?

ANY CLARITY YOU CAN PROVIDE IS GREATLY APPRECIATED.

ANSWER: See Vision OPEN FAQ 4

Q23. I HAVE A QUICK QUESTION REGARDING THE PRODUCTION OF ELECTROBIOFUELS. WE WANT TO PROPOSE SCALING ELECTROCATALYSIS TO UPGRADE PYROLYSIS BIO-OIL FROM LIGNOCELLULOSIC BIOMASS TO SERVE AS FUELS AND FUEL INTERMEDIATES. IF THE ELECTRICITY THAT POWERS ELECTROCATALYSIS IS FROM NON-FOSSIL CARBON EMITTING SOURCES (WIND, SOLAR, NUCLEAR), WILL THIS PROPOSAL BE ACCEPTABLE UNDER GOAL 2: INTERMODAL ENERGY SUPERHIGHWAY? I ASK FOR CLARIFICATION BECAUSE UNDER SECTION III(C)3, SUBMISSIONS SPECIFICALLY NOT OF INTEREST, IT LISTS "BIOFUELS (ALONE)". AS WE ARE MAKING AN ELECTROBIOFUEL, BIOMASS IS NOT THE ONLY INPUT SOURCE OF ENERGY, THEREFORE DOES IT QUALIFY FOR CONCEPT PAPER REVIEW?

ANSWER: See Vision OPEN FAQ 4

Q24. WHEN SUBMITTING A CONCEPT PAPER, THE "GENERAL" TAB HAS A SPACE FOR A REQUIRED MAXIMUM 6000-CHARACTER ABSTRACT. THE CONCEPT PAPER FOA HAS NO MENTION OF AN ABSTRACT OTHER THAN THE SUMMARY TO BE INCLUDED IN THE FOUR-PAGE CONCEPT PAPER. COULD YOU GIVE SOME GUIDANCE AS TO WHAT IS REQUIRED FOR THE ABSTRACT? 6000-CHARACTERS SEEMS LARGE FOR A CONCEPT PAPER THAT IS ONLY ABOUT TWICE THAT SIZE. ALSO, SHOULD THE ABSTRACT BE LIMITED TO NON-PROPRIETARY INFORMATION?

ANSWER: The Abstract field in the ARPA-E Funding Opportunity Exchange website submission form is provided for applicants to provide a brief (Not to exceed 6,000 characters including spaces) description of the proposed project.

Q25. WE ARE A START-UP COMPANY WITH A GOAL OF VALORIZING COMPOUNDS AND CREATING VALUE-CHAINS FROM CULTIVATED MACROALGAE - MARINE BIOMOLECULES. WE ARE INTERESTED IN FUNDING OPPORTUNITY NO. DE-FOA-0003387, SPECIFICALLY DEVELOPING BIOREFINERIES AND PRODUCTS, SUCH AS FOR GOAL 3, SUBTOPIC 3.B.2 "NOVEL FEEDSTOCKS, PROCESSES AND PRODUCT." SPECIFICALLY WE ARE EXTRACTING HIGH-VALUE COMPOUNDS FROM MACROALGAE FOR NUTRACEUTICALS AND PHARMACEUTICAL APPLICATIONS.

COULD YOU PROVIDE MORE CLARITY IF WE WOULD QUALIFY FOR THIS RFP? WILL THERE BE A WEBINAR ON THIS TOPIC?

ANSWER: See Vision OPEN FAQ 4

Q26. HOPE YOU'VE HAD A GREAT START TO THE WEEK! *REDACT***. WE ARE INTERESTED IN SUBMITTING IDEAS TO THE RECENT FOA (DE-FOA-0003387), AND WANTED TO REACH OUT TO ASK IF THE CONCEPT WE HAVE FALLS WITHIN SCOPE. WE ARE INTERESTED IN SUBTOPIC 3.B.2, AND THE IDEA IS TO DO ELECTROCHEMICAL CATALYSIS TO UPGRADE CO₂/CO INTO SHORT-CHAIN PRODUCTS AND THEN USE BIOLOGICAL CONVERSION FOR FURTHER UPGRADING INTO BIOFUELS AND BIOPRODUCTS. THIS TECHNOLOGY USES CO₂ AS THE FEEDSTOCK, BUT WE ARE NOT SURE IF IT'S CONSIDERED AS REFINERY-BASED METHODS OR IF WE CAN ADJUST THE SCOPE TO BETTER ALIGN TO THE CALL. ANY INSIGHTS ARE HIGHLY APPRECIATED!**

ANSWER: See Vision OPEN FAQ 4

Q27. I'M PREPARING A CONCEPT PAPER FOR THE ARPA-E VISION OPEN 2024 (FUNDING OPPORTUNITY NO. DE-FOA-0003387) OPPORTUNITY.

I BELIEVE MY COMPANY NEEDS TO COMPLETE THE FOLLOWING REGISTRATIONS FOR THE CONCEPT PAPER ONLY:

- LOGIN.GOV
- ARPA-E EXCHANGE PORTAL

CAN YOU CONFIRM THIS IS CORRECT AND/OR WHETHER THERE ARE OTHERS WE WILL NEED TO COMPLETE (E.G. SAM.GOV), ETC.?

ANSWER: Applicants must meet the requirements in Section IV. APPLICATION AND SUBMISSION INFORMATION of the FOA.

Q28. CAN YOU KINDLY ADVISE HOW MANY YEARS WE CAN PROPOSE FOR A PROJECT PERIOD? I DON'T THINK THIS WAS MENTIONED IN THE SOLICITATION.

ANSWER: Per Section II.A. of the FOA, The period of performance for funding agreements may not exceed 36 months.

Q29. THE FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) SPECIFIES "CONVERSION OF FOSSIL FEEDSTOCKS DIRECTLY INTO SOLID CARBON PRODUCTS RATHER THAN FUELS." DOES THIS DEFINITION OF FOSSIL FEEDSTOCKS INCLUDE FOSSIL METHANE?

ANSWER: See Vision OPEN FAQ 4

Q30. FOR

SUBTOPIC 3.C.2: NOVEL APPLICATIONS.

USE OF CARBON ALLOTROPES TO REDUCE GHG EMISSIONS.

EXAMPLE TECHNOLOGIES FOR SUBTOPIC 3.C.2 INCLUDE BUT ARE NOT LIMITED TO:

- APPLICATIONS OF CARBON ALLOTROPES, WHICH REDUCE GHG EMISSIONS BY ENABLING NEW ENERGY TECHNOLOGIES, REDUCE EMISSIONS BY INCREASING ENERGY EFFICIENCY, EXPLOIT THE SUPERIOR STRENGTH-TO-WEIGHT RATIO OF CARBON MATERIALS, AND/OR STABLY SEQUESTER CARBON AND HAVE THE POTENTIAL TO SCALE TO MORE THAN 100 MMT.

WE WOULD LIKE TO KNOW IF 100MMT IS APPLIED ONLY TO SEQUESTERED CARBON OR TO ALL LISTED APPLICATIONS.

ANSWER: The application of the carbon allotrope must scale to more than 100 MMT.

Q31. I AM *REDACTED***. I AM VERY INTERESTED IN GOAL 3, SUBTOPIC 3.B.1. HOWEVER, I SEE THAT THE REDUCTION OF CAPTURED CO2 TO C1 CHEMICALS IS NOT OF INTEREST. I WANT TO ASK IF THE C1 CHEMICALS INCLUDE METHANOL OR NOT.**

ANSWER: See Vision OPEN FAQ 4

Q32. DOES THE 36-MONTH MAXIMUM PERFORMANCE PERIOD INCLUDE THE TIME REQUIRED TO OBTAIN PERMITS, OR CAN WE PROPOSE 36 MONTHS OF WORK THAT BEGINS ONCE THE PERMITS HAVE BEEN APPROVED?

ANSWER: The 36 month maximum period refers to the period of performance for work performed from award date to end.

Q33. I HAVE A QUESTION ABOUT FOA FOR THE VISION OPEN 2024 LINK. SUBTOPIC 3.C.2. NOVEL APPLICATION AND SUBTOPIC 2.A.4. ENERGY CONVERSION. IT SEEMS THAT APPLICATION OF CARBON MATERIALS FOR NEW BATTERY TECHNOLOGIES CAN BE INTERPRETED TO ALIGN WELL WITH THESE SUBTOPICS. I WAS WONDERING IF YOU CAN CONFIRM WHETHER THIS IS CORRECT.

ANSWER: See Vision OPEN FAQ 4

Q34. COULD YOU HELP TO PROVIDE FEEDBACK ON THE FOLLOWING TWO QUESTIONS?

- 1. WE'D LIKE TO PROPOSE TO STUDY HYDROGEN GENERATION FROM SUBSURFACE GEOCHEMICAL REACTIONS. IS THIS RELEVANT TO THE SUBTOPIC 1.B.2?**
 - 2. ARE YOU INTERESTED IN CO-PRODUCTION OF HYDROGEN AND GEOTHERMAL ENERGY FROM DEEP SUBSURFACE RESERVOIRS? IS THIS RELEVANT TO THE SUBTOPIC 1.B.2?**
- TO BE CLEAR, THERE IS CLEAR SCIENTIFIC DISTINCTION BETWEEN THE TWO IDEAS. AND, WE'LL PROVIDE JUSTIFICATIONS AND DEFINE SUCCESS CRITERIA FOR BOTH IDEAS IN THE CONCEPT PAPERS, IF THEY ARE BOTH WITHIN ARPA-E'S INTEREST.**

ANSWER: See Vision OPEN FAQ 4

Q35. FOR VISION OPEN 2024 DE-FOA-0003387, UNDER TOPIC 3.A LIVING REFINERIES, ARE CYANOBACTERIA OR MACROALGAE INCLUDED UNDER "PLANTS AND ALGAE"?

ANSWER: See Vision OPEN FAQ 4

Q36. SUBTOPIC 2.A.4: ENERGY CONVERSION (PAGE 10)

IT IS STATED, "ELECTRICAL, CHEMICAL, OR THERMAL BIDIRECTIONAL PROCESSES TO CONVERT MATERIALS INTO DISPATCHABLE ENERGY AT THE POINT OF GENERATION AND POINT OF USE." PLEASE CLARIFY BY WHAT IS MEANT BY THE TERM BIDIRECTIONAL PROCESSES.

ANSWER: Please use your best judgment when interpreting the technical language of the Vision OPEN FOA.



Q37. DOES A FACULTY MEMBER AS THE PRINCIPAL INVESTIGATOR OR AS A MEMBER OF A PROJECT TEAM FROM A UNIVERSITY NEED TO BE A U.S. CITIZENS OR PERMANENT RESIDENT?

ANSWER: See Section III. Eligibility Information of the FOA.

Q38. IF THE FACULTY MEMBER HAS APPLIED FOR A U.S GREEN CARD DOE THAT MEET ELIGIBILITY? IF YES, DOES APPLIED FOR A GREEN CARD MEAN AT THE TIME OF THE CONCEPT PAPER OR FULL PROPOSAL? (THE GREEN CARD APPLICATION INVOLVES TWO STEPS (I-140 FORM AND I-485 FORM))

ANSWER: No.

Q39. FOR THE CONCEPT PAPER SUBMITTAL, DO PROJECT PARTNERS NEED TO PROVIDE OFFICIAL LETTER OF INTENTS?

ANSWER: It is not required.

Q40. CAN NASA BE A SUBCONTRACTOR TO A LARGE BUSINESS AND WOULD THEY BE PAID DIRECTLY VERSUS FUNDING GOING THROUGH RTRC AND THEN SENDING FUNDING TO NASA?

ANSWER: See Section C.2 FUNDING AGREEMENTS WITH FFRDCS/DOE LABS, GOGOS, AND FEDERAL INSTRUMENTALITIES of the FOA.

Q41. WE ARE LOOKING TO CONFIRM HOW OR WHERE DOE PLACES THE GOAL OF THE VISION OPEN 2024 PROGRAM, TO [TRANSLATE] “SCIENTIFIC DISCOVERY TO EARLY-STAGE TECHNOLOGY, WITH DISRUPTIVE MARKET POTENTIAL”, ON A SCALE SIMILAR TO THE TECHNOLOGY READINESS ASSESSMENT GUIDE, FROM THE US GAO’S WEBSITE? WE ARE EXPLORING AN OPPORTUNITY THAT WE FEEL IS A FIT FOR THE PROGRAM, BUT WE WOULD LIKE TO UNDERSTAND FURTHER TO WHAT EXTENT THE CURRENT PROJECT DEVELOPMENT PHASE, ON A TRA-MEASURED BASIS, MEANS FOR ITS SUITABILITY FOR THIS PROGRAM.

ANSWER: ARPA-E does not use GAO's scale or other similar scales.

Q42. IN THE OPEN CONCEPT PAPER TEMPLATE, WHERE THE PROMPT SAYS "DESCRIBE THE PROPOSED CONCEPT WITH MINIMAL JARGON AND EXPLAIN HOW IT ADDRESSES THE PROGRAM OBJECTIVES OF THE FOA", BY "PROGRAM OBJECTIVES" DOES IT MEAN "GOALS"? I DON'T FIND ANY "PROGRAM OBJECTIVES" IN THE OPEN FOA, BUT I DO FIND THREE GOALS, THESE BEING:

- 1. GHG-FREE ABUNDANT PRIMARY ENERGY;**
- 2. AN INTERMODAL ENERGY SUPERHIGHWAY THAT TRANSPORTS DIVERSIFIED FORMS OF PRIMARY ENERGY;**
AND
- 3. A CARBON TRANSITION THAT SUSTAINABLY MEETS DEMAND FOR POLYMERS AND OTHER MATERIALS.**

ANSWER: Yes, the program objectives and goals are synonymous in the Vision OPEN FOA.

Q43. COULD YOU PLEASE CLARIFY HOW CITATIONS/REFERENCES SHOULD BE FORMATTED IN THE CONCEPT PAPER? THE CONCEPT PAPER TEMPLATE SAYS THAT "EXAMPLES OF SUPPORTING DATA AND/OR APPROPRIATE CITATIONS" SHOULD BE PROVIDED (P. 1), BUT DO THOSE COUNT TOWARD THE TOTAL PAGE LIMIT (4 PAGES) OR CAN THEY BE LISTED IN A SEPARATE DOCUMENT THAT DOES NOT CONTRIBUTE TO THE CONCEPT PAPER PAGE LIMIT? THE FOA MENTIONS THAT THE PAGE LIMIT INCLUDES "GRAPHICS, FIGURES, AND/OR TABLES" (P. 37), BUT DOES NOT MENTION WHETHER THE FULL BIBLIOGRAPHIC INFORMATION FOR CITATIONS OR REFERENCES COUNTS TOWARD THE 4-PAGE MAXIMUM. ANY GUIDANCE IS APPRECIATED

ANSWER: Please refer to the ARPA-E website FAQ page General Question 6.21.

Q44. I SEE THIS SECTION IN THE FOA:

ARPA-E IS NOT LIMITING THE NUMBER OF SUBMISSIONS FROM APPLICANTS.

APPLICANTS MAY SUBMIT MORE THAN ONE APPLICATION TO THIS FOA, PROVIDED THAT EACH APPLICATION IS SCIENTIFICALLY DISTINCT.

IF ONE APPLICANT SUBMITS MORE THAN ONE APPLICATION, IS THIS INFORMATION USED DURING SELECTION? CAN THE SELECTION OF ONE APPLICATION FOR NEGOTIATION BE USED IN DETERMINING WHETHER ANOTHER APPLICATION IS SELECTED?

ANSWER: No.

Q45. WE ARE INTERESTED IN PUTTING TOGETHER THE PROPOSAL BASED ON SUBTOPIC 3.A.1: SYNTHETIC PRODUCTS. PLANTS AND ALGAE MODIFIED TO PRODUCE POLYMER AND MATERIAL INTERMEDIATES. EXAMPLE TECHNOLOGIES FOR SUBTOPIC 3.A.1 INCLUDE BUT ARE NOT LIMITED TO:

- **BREEDING OR GENETIC ENGINEERING TO ACCUMULATE POLYMER AND MATERIAL INTERMEDIATES *IN PLANTA*;**
- **BALANCING TRADE-OFFS BETWEEN PRODUCT ACCUMULATION, BIOMASS GROWTH, AND NUTRIENT DEMAND; AND**
- **ENGINEERING TRAITS THAT FACILITATE INTERMEDIATE EXTRACTION.**

WE WOULD LIKE TO PROPOSE TO DEVELOP OUR TECHNOLOGY BASED ON CAMELINA AS IT IS EASY TO TRANSFORM. HOWEVER, WE WOULD LIKE TO TRANSFER THE KNOWLEDGE OBTAINED THROUGH THIS STUDY TO CANOLA FOR FUTURE COMMERCIAL APPLICATIONS. I AM WONDERING IF THE DOE CAN FUND PROJECTS INCLUDING CANOLA. I'D APPRECIATE IT IF YOU COULD LET ME KNOW.

ANSWER: See Vision OPEN FAQ 4

Q46. THIS SOLICITATION STATES THAT EACH SUBMISSION MUST ADDRESS ONLY ONE SUBTOPIC AND A SINGLE PRIMARY TECHNICAL CATEGORY AND ONE OR MULTIPLE SECONDARY TECHNICAL CATEGORIES. THIS LIST OF GOALS/TOPICS/SUBTOPICS INCLUDES THE FOLLOWING (FROM PAGE 15 OF THE FOA):

Table 1: Program Goals, Topics, and Subtopics for Vision OPEN.

GOAL 1: GHG-FREE ABUNDANT PRIMARY ENERGY
Topic 1.A: Rapid Deployment
Subtopic 1.A.1: Design and Manufacturing
Subtopic 1.A.2: Installation
Topic 1.B: Transformative Advances
Subtopic 1.B.1: Breakthrough Progression
Subtopic 1.B.2: New Sources
GOAL 2: INTERMODAL ENERGY SUPERHIGHWAY
Topic 2.A: Novel and Efficient Energy Transport Systems
Subtopic 2.A.1: Electrical Power Movement
Subtopic 2.A.2: Chemical Availability
Subtopic 2.A.3: Novel Use of Existing Infrastructure for Energy Transfer
Subtopic 2.A.4: Energy Conversion
Topic 2.B: Electrical Delivery Optimization Through Intelligent Systems
Subtopic 2.B.1: Intelligent Distribution
Subtopic 2.B.2: Intelligent Utilization
GOAL 3: CARBON AS A SUSTAINABLE BUILDING BLOCK OF THE FUTURE
Topic 3.A: Living Refineries
Subtopic 3.A.1: Synthetic Products
Subtopic 3.A.2: Native Polymers
Topic 3.B: Refinery Transformation
Subtopic 3.B.1: Electrochemical Process Integration
Subtopic 3.B.2: Novel Feedstocks, Processes, and Products
Topic 3.C: Carbon Allotrope Manufacture and Utilization
Subtopic 3.C.1: Novel Processes
Subtopic 3.C.2: Novel Applications
Topic 3.D: Scalable Polymer Design and Deconstruction
Subtopic 3.D.1: Synthesis, Characterization, and Prediction
Subtopic 3.D.2: Deconstruction of Post-Consumer Plastic Waste

REVIEW OF THE GOALS/TOPICS/SUBTOPICS NOTES THAT THEY FOCUS ON PRIMARY ENERGY DEVELOPMENT, THE ENERGY GRID/INFRASTRUCTURE, AND NEW CARBON PROCESSES FOR REFINERIES. HOWEVER, IF ONE LOOKS AT THE LONG LIST OF SUBCATEGORIES PROVIDED IN THE FOA, MANY, PERHAPS MOST OF THE TECHNICAL SUBCATEGORIES DO NOT SEEM TO “FIT” WITHIN THE FRAMEWORK OF THE LISTED SUBTOPICS. FOR EXAMPLE, THE ENTIRE TRANSPORTATION AND BUILDING EFFICIENCY CATEGORIES DON’T SEEM TO FIT UNDER A SUBTOPIC, AS WELL AS SOME OF THE OTHER CATEGORIES AND SUBCATEGORIES.

CAN YOU PLEASE EXPLAIN/CLARIFY THE APPARENT LACK OF FIT BETWEEN THE SUBTOPICS AND TECHNICAL SUBCATEGORIES, AND HOW PROPOSALS WHICH ADDRESS THE SUBCATEGORIES, BUT DON’T FIT NEATLY WITH A SUBTOPIC WILL BE EVALUATED?

ANSWER: See Vision OPEN FAQ 2

Q47. PATENT VERSUS OPEN SCIENCE PUBLISHING?

WOULD ARPA PREFER A DELIVERABLE OF “3 PATENTS” OR A GOAL OF “3 ARTICLES PUBLISHED”? I HAVE READ YOUR Q&A ON PATENTS, AND I HAVE ALSO SEEN THE \$30K PATENT SUPPORT ELEMENT. AT THE SAME TIME, PROMOTING KNOWLEDGE IS PART OF YOUR MISSION AND OPEN SCIENCE PUBLISHING SUPPORTS THAT.

ANSWER: ARPA-E supports teams delivering whatever is appropriate for the advancement of their development, as long as it is consistent with the award terms and requirements. It is for teams to decide the most appropriate route.

Q48. WE ARE CONSIDERING APPLYING TO THE VISION OPEN FOA WITH A TEAM COMPOSED EXCLUSIVELY OF DOMESTIC NONPROFITS, DOMESTIC EDUCATIONAL INSTITUTIONS, AND SMALL BUSINESSES. WE WANTED TO CONFIRM WITH YOU THAT OUR UNDERSTANDING OF FOA SECTION III.B.3 IS CORRECT AND IN THAT CASE, THE TEAM WOULD QUALIFY FOR THE REDUCED COST SHARE REQUIREMENT OF 10% SINCE THOSE ENTITIES (DOMESTIC NONPROFITS, DOMESTIC EDUCATIONAL INSTITUTIONS, AND SMALL BUSINESSES) WOULD BE PERFORMING MORE THAN 80% OF THE WORK.

WHILE WE REVIEWED THE FAQs AND QUESTIONS ANSWERED TO DATE, WE DIDN’T SEE AN ANSWER THAT SPECIFICALLY RELATED TO THIS SCENARIO.

ANSWER: Please refer to the ARPA-E Website FAQ page General question 4.9 for an ARPA-E response to a similar question similar.



**Q49. THE FOLLOWING QUESTION IS FOR CONCEPT PAPER SUBMISSION FOR VISION OPEN 2024
- FUNDING OPPORTUNITY NO. DE-FOA-0003387**

CFDA NUMBER 81.135:

**WHAT CONSTITUTES "MAJOR CONSTRUCTION" AS DISCUSSED ON PAGE 44 OF 73 OF VISION
OPEN FOA PDF ATTACHED HEREIN:**

"4. CONSTRUCTION

**ARPA-E GENERALLY DOES NOT FUND PROJECTS THAT INVOLVE MAJOR CONSTRUCTION.
RECIPIENTS ARE REQUIRED TO OBTAIN WRITTEN AUTHORIZATION FROM THE
CONTRACTING OFFICER BEFORE INCURRING ANY MAJOR CONSTRUCTION COSTS."**

SPECIFICALLY, WOULD A DEMONSTRATION BE CONSIDERED MAJOR CONSTRUCTION?

ANSWER: Yes, a demonstration would likely be considered major construction. ARPA-E does not typically fund demonstration projects, and they also require a 50% cost share contribution.

Q50. DEAR ARPA-E VISION OPEN 2024

- DO HEAVY DUTY FUEL CELLS FOR TRANSPORTATION QUALIFY FOR THE SOLICITATION?**
- WOULD A STATIONARY FUEL CELL COMBINED WITH A WASTE HEAT SOURCE FROM AN OIL AND GAS COMPANY QUALIFY? THE WASTE HEAT WOULD BE USED TO PRODUCE A HIGH ENERGY DENSITY HYDROGEN STORAGE SOLUTION, THAT IS STORED IN THE FORM OF A SAFE PASTE AND DOESN'T REQUIRE ANY PRESSURIZED TANKS. THE STATIONARY FUEL CELL WOULD SERVE AS A BACKUP GENERATOR AND USE THE PASTE AS FUEL WHEN NEEDED.**

ANSWER: 1. See Vision OPEN FAQ 4

2. See Vision OPEN FAQ 4

Q51. MY COMPANY SEEKS TO APPLY TO SUBTOPIC 1.A.1 FOR DESIGN AND MANUFACTURING. WE ARE CURRENTLY FINALIZING THE DEVELOPMENT OF AN INNOVATION THAT WILL IMPROVE THE MODULAR PREFABRICATION AND CONSTRUCTION OF A VITAL COMPONENT IN OUR SMALL MODULAR REACTOR DESIGN. THE DEVELOPMENT AND BENCH-SCALE TESTING WILL BE COMPLETED BY THE TIME AWARD DECISIONS ARE MADE. HOWEVER, WE WILL REQUIRE NEW MANUFACTURING EQUIPMENT IN ORDER TO PRODUCE THE COMPONENT IN A NOVEL WAY AT COMMERCIAL SCALE, AND THIS COINCIDES WITH THE FOA TIMELINE. THE SUB-BULLET UNDER 1.A.1 SAYS THAT NOVEL MANUFACTURING METHODS ARE COVERED BY THE FOA, BUT IT IS UNCLEAR IF THAT EXTENDS TO THE PURCHASE OF THE EQUIPMENT USED WITHIN THE METHOD ITSELF OR IF IT APPLIES ONLY TO THE DEVELOPMENT OF THE METHOD OR THE FINAL PRODUCT/DEMONSTRATION PRODUCED BY SUCH METHOD. PLEASE LET US KNOW IF THE MANUFACTURING EQUIPMENT IS ELIGIBLE FOR FUNDING.

ANSWER: Equipment is allowed to be proposed in an applicant's budget.

Q52. WE ARE INTERESTED IN SUBMITTING TO ARPA-E VISION OPEN 2024 (DE-FOA-0003387). WOULD THE UPCYCLING OF WASTE FOOD THROUGH EMPLOYMENT OF MICROBES BE IN SCOPE WITH THIS SOLICITATION'S GOAL #3?

ANSWER: See Vision OPEN FAQ 4

Q53. I HAVE TWO QUESTIONS REGARDING FOA DE-FOA-0003387. THE QUESTIONS ARE ABOUT GOAL 3: CARBON AS A SUSTAINABLE BUILDING BLOCK OF THE FUTURE, SUBTOPIC 3.A.2: NATIVE POLYMERS.

THE FOA STATES: SUBTOPIC 3.A.2: NATIVE POLYMERS: MODIFICATION OF POLYMERS ALREADY PRODUCED BY PLANTS AND ALGAE INTO FUNCTIONAL POLYMERS. EXAMPLE TECHNOLOGIES FOR SUBTOPIC 3.A.2 INCLUDE BUT ARE NOT LIMITED TO: STRATEGIES TO UPGRADE NATURAL POLYSACCHARIDES AND/OR LIGNIN TO FUNCTIONAL POLYMERS USING CHEMICAL AND/OR MICROBIAL POLISHING.

QUESTION 1: THE DEFINITION OF "CHEMICAL/MICROBIAL POLISHING" IS AMBIGUOUS. WOULD THIS INCLUDE USE OF A CHEMICAL CATALYST TO MAKE FUNCTIONAL POLYMERS FROM LIGNIN?

QUESTION 2: THE DEFINITION OF "UPGRADE LIGNIN TO FUNCTIONAL POLYMERS" IS ALSO AMBIGUOUS. WOULD "CONVERSION OF KRAFT LIGNIN INTO A FUNCTIONAL LOW-MOLECULAR-WEIGHT LIGNIN WITH SUBSEQUENT UPGRADING TO HIGH BIO-CONTENT EPOXY RESIN" BE OF INTEREST FOR THIS SUBTOPIC?

ANSWER: 1. See Vision OPEN FAQ 4

2. See Vision OPEN FAQ 4

Q54. WHAT IS THE EXPECTED LENGTH OF A CONCEPT PAPER? IS A CONCEPT BUDGET AND TIMELINE EXPECTED?

ANSWER: Please reference the Funding Opportunity Announcement document section IV.C. CONTENT AND FORM OF CONCEPT PAPERS and the Concept Paper Template provided in the “Application Forms and Templates section of the funding opportunity announcement”.

Q55. I HAVE TWO QUICK QUESTIONS ON THE FOA ABOVE, AND I'D LIKE TO KNOW IF YOU CAN HELP:

- 1. IF A PROPOSAL ONLY INCLUDES UNIVERSITIES AND NATIONAL LABS THE REQUIRED COST SHARE IS 5%, AS I UNDERSTAND IT. IS THIS THE OVERALL COST SHARE ONLY, OR DOES EACH PARTNER NEED TO PROVIDE 5% OF ITS PARTICULAR FEDERAL FUNDING.**
- 2. ARE THE CONSORTIA ENCOURAGED TO INCLUDE COMPANIES, OR WILL UNIVERSITIES AND NATIONAL LABS BE SUFFICIENT?**

ANSWER: Please refer to the ARPA-E Website FAQ page General Question 4.9 for an ARPA-E response to a similar question.

Q56. I AM PREPARING A CONCEPT PAPER FOR ARPA-E (FOA-0003387) WITH A FOCUS ON SUBTOPIC 3.A.2: NATIVE POLYMERS. HOWEVER, IDENTIFYING A SUITABLE TECHNICAL SUBCATEGORY HAS BEEN CHALLENGING, AND THIS IS CRUCIAL FOR THE REVIEW PURPOSE. OUR PROPOSAL AIMS TO DEVELOP FUNCTIONAL POLYMERS FROM PLANT BIOMASS LIGNIN. WHILE THE PROPOSAL INCLUDES INITIAL TARGET APPLICATIONS, ITS PRIMARY FOCUS IS ON THE DEVELOPMENT OF LIGNIN-BASED FUNCTIONAL POLYMERS. COULD YOU PLEASE ADVISE ME ON THE MOST APPROPRIATE TECHNICAL SUBCATEGORY FOR MY PROPOSAL? I HAVE ATTACHED THE DRAFT OF MY CONCEPT PAPER TO THIS EMAIL AND INCLUDED A CONCEPT SUMMARY BELOW. ANY ADDITIONAL COMMENTS ON THE CONCEPT PAPER WOULD BE GREATLY APPRECIATED.

ANSWER: See Vision OPEN FAQ 4

Q57. PER III. A, ELIGIBLE APPLICANTS, U.S. UNIVERSITIES, NATIONAL LABORATORIES, INDUSTRY AND INDIVIDUALS ARE ALL ELIGIBLE TO PROPOSE. THIS SECTION DOES NOT PROVIDE GUIDANCE ON PARTICIPATION BY INDEPENDENT AGENCIES OF THE U.S. GOVERNMENT. ARE AGENCIES SUCH AS NASA ELIGIBLE TO PARTICIPATE AS A SUBCONTRACTOR TO AN INDUSTRY PRIME, AND IF SO, HOW WOULD THEY BE FUNDED (E.G. SIMILAR TO NATIONAL LABORATORY)?

ANSWER: See Section III.A.2 (Domestic Entities) of the FOA.

Q58. HELLO, AS WE PREPARE FOR SOME CONCEPT PAPERS, WE FOUND THE FOLLOWING IN THE OPEN FOA:

- 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.

DOES THIS MEAN THAT IF WE PARTNER WITH A LARGE BUSINESS BUT HAVE A NL AND A UNIVERSITY INVOLVED, WOULD THE LARGE BUSINESS PAY 10% OR 20% IF THE NL AND UNIVERSITY DO 80% OF THE WORK?

ANSWER: Please refer to the ARPA-E Website FAQ page General Question 4.9 for an ARPA-E response to a similar question.

Q59. I HAVE A FEW QUESTIONS ABOUT THIS FOA:

1. **IS ARPA-E LOOKING FOR FUNDING PURE R&D PROJECT? WOULD PROPOSING A PILOT STAGE PROJECT, OR A MULTI-STAGE PROJECT REQUIRING A PHASE OF R&D BEFORE + PILOTING BE WITHIN SCOPE?**
2. **WHAT'S THE DIFFERENCE BETWEEN THE ARPA-E SCALEUP VS. THIS VISION PROGRAM? CAN THE ARPA-E VISION FUND SCALE-UP?**
3. **DOES ARPA-E HAVE A PREFERENCE FOR SOLO RECIPIENT OR AS A CONSORTIUM?**
4. **CAN INDUSTRIAL PARTNERS BE SUB RECIPIENTS FOR THIS FOA?**

ANSWER: 1. ARPA-E is looking for applications that meet the Program Goals, Topics, and Subtopics stated in Section I.C. of the FOA.

2. Only organizations seeking to scale subject inventions created during an earlier ARPA-E award and reported in the iEdison system are eligible for funding under SCALEUP.
3. No
4. Yes

Q60. THE CONCEPT PAPER FOR THE VISION OPEN 2024 FOA IS REQUIRED TO INCLUDE THE FOLLOWING: CONCEPT SUMMARY, INNOVATION AND IMPACT, PROPOSED WORK, AND TEAM ORGANIZATION AND CAPABILITIES.

I WAS WONDERING IF THERE WAS A SUGGESTED SPLIT BETWEEN THE AMOUNT OF SPACE DEDICATED TO EACH OF THESE SECTIONS?

ANSWER: No

Q61. WE ARE IN THE PROCESS OF SUBMITTING A CONCEPT PAPER FOR FUNDING OPPORTUNITY NO. DE-FOA-0003387.

IN THE FOA IT IS STATED THAT IN THE CONCEPT PAPER SHOULD INCLUDE A TOPIC # AND SUBTOPIC #WHICH IN OUR CASE IS TOPIC 1.B AND SUBTOPIC1.B.1.

OUR QUESTION IS IT ALSO REQUIRED STATE A CATEGORY AND SUBCATEGORY IN THE TITLE OF THE CONCEPT PAPER IN ADDITION TO THE TOPIC AND SUBTOPIC? IN OUR CASE IT WOULD BE CATEGORY 5 ADDRESS CATEGORY: POWER GENERATION RENEWABLE AND SUBCATEGORY D: HYDRO ENERGY/OCEAN/TIDAL.

ANSWER: Please refer to the Vision OPEN CP template for further details on titles.

Q62. I HAD A FEW QUESTIONS REGARDING THE CONCEPT PAPER SUBMISSION FOR VISION OPEN.

- 1. WHO QUALIFIES TO BE A PRINCIPAL INVESTIGATOR? ARE THEY MEANT TO BE THE PROJECT LEAD FROM THE PRIME RECIPIENT? CAN THIS INDIVIDUAL BE CANADIAN, OR IS IT A REQUIREMENT FOR THEM TO BE A U.S. CITIZEN AND/OR RESIDE AND WORK IN THE U.S?**
- 2. WHERE CAN WE FIND THE ASSIGNED CONTROL NUMBER THAT GOES IN THE HEADER OF THE CONCEPT PAPER?**

ANSWER: 1. See section III.A. Eligible Applicants of the FOA. See section IV.G.6 of the FOA regarding performance of work in the United States.

- 2. The ARPA-E Funding Opportunity Exchange website assigns a Control Number to your Concept Paper Submission when you "Apply" to the Funding Opportunity.**

Q63. I HAVE A QUESTION REGARDING THE ELIGIBILITY REQUIREMENT FOR VISION OPEN. WE ARE A US-BASED SMALL BUSINESS COMPANY (INCORPORATED IN THE US), BUT IS NOW MAJORITY-OWNED BY FOREIGN ENTITIES. WOULD WE STILL BE ELIGIBLE FOR THIS OPPORTUNITY? THE FAQ SECTION 3 DOES NOT SEEM TO ADDRESS THIS DIRECTLY.

MY UNDERSTANDING IS THAT AS LONG AS ALL THE WORK IS DONE IN THE US, WE WOULD BE ELIGIBLE, WOULD THAT BE CORRECT?

ANSWER: Yes.

Q64. PLEASE SEE BELOW FOR OUR QUESTIONS.

- 1. WILL THE SUBMITTED PROPOSAL BE EVALUATED FOR DIFFERENT SCALE OF OPERATIONS. FOR EXAMPLE, IF THE PROPOSED TECHNOLOGY IS BEING TESTED AT PILOT SCALE, WILL THAT BE CONSIDERED ACCEPTABLE TOWARDS THE BUDGET ALLOCATION?**
- 2. IS THERE TRL REQUIREMENTS FOR DIFFERENT TOPIC/AREAS OF INTEREST?**
- 3. TOPIC 3 (SPECIFICALLY SUBTOPIC 3B) TALKS ABOUT "REFINERY TRANSFORMATION" AND MENTIONED (A) USE OF "NOVEL FEEDSTOCK" AND (B) CONVERSION OF FOSSIL FEEDSTOCKS DIRECTLY INTO SOLID CARBON PRODUCTS OTHER THAN FUEL. DOES THAT MEAN PROPOSAL USING "TRADITIONAL" FOSSIL FEEDSTOCK AND IMPLEMENTING NOVEL STRATEGY TO CONVERT INTO NON-FUEL SOLID CARBON PRODUCTS, WILL BE CONSIDERED?**

ANSWER: 1. Applications will be reviewed based on the criteria in Section V.A. Criteria and V.B.1. Program Policy Factors.

2. No
3. See Vision OPEN FAQ 4



Q65. *REDACTED*** WILL BE SUBMITTING CONCEPT PAPERS TOWARD DE-FOA-0003387 FOR THE TWO SUBTOPICS UNDER *TOPIC 3.C: CARBON ALLOTROPE MANUFACTURE AND UTILIZATION*.**

SUBTOPIC 3.C.1: NOVEL PROCESSES.

*****REDACTED*****

QUESTION 1: IS THERE A PRICE TARGET THAT THE DOE HAS IN MIND FOR SUCCESS FOR THIS PROJECT? *REDACTED*****

SUBTOPIC 3.C.2 NOVEL APPLICATIONS

*****REDACTED***QUESTION 2: WOULD THIS ENERGY MATERIALS RELATED CONCEPT BE RESPONSIVE TO THIS FUNDING OPPORTUNITY?**

QUESTION 3: IS THE PHRASING "STABLY SEQUESTER CARBON AND HAVE THE POTENTIAL TO SCALE TO MORE THAN 100 MMT." WITH RESPECT TO THE AMOUNT OF CARBON THAT SHOULD BE SEQUESTERED OR THE AMOUNT OF MATERIAL PRODUCT THAT NEEDS TO BE PRODUCED? FOR BUILDING MATERIALS I FEEL IT COULD BE EITHER.

ANSWER: 1. No

2. See Vision OPEN FAQ 4
3. See Vision OPEN FAQ 30

Q66. *REDACTED*****

WE HAVE READ GRANT PREPARATION MATERIALS AND HAVE THE FOLLOWING QUESTIONS (BELOW):

1. WHICH GRANT PROPOSAL IS MORE BENEFICIAL?

OPTION 1: DEVELOP A NEURAL NETWORK-ENHANCED MODEL FOR A WIDE RANGE OF CHEMICAL GROUPS AND POLYMERS WITH EXCEPTIONAL PRECISION. THIS MODEL WOULD BE ACCESSIBLE TO ALL INTERESTED PARTIES, INCLUDING PROFIT AND NON-PROFIT ORGANIZATIONS, ENABLING THEM TO SIMULATE POLYMER PROPERTIES AT SCALE. THE MODEL COULD BE OFFERED AS A FREE RESOURCE ON A CLOUD PLATFORM OR WEBSITE.

OPTION 2: CALCULATE A SPECIFIC SET OF PROPERTIES FOR A LARGE BUT LIMITED SELECTION OF POLYMERS.

THE FIRST OPTION PROVIDES A BROADER AND MORE SCALABLE SOLUTION, OFFERING EXTENSIVE BENEFITS TO A WIDE AUDIENCE BY LEVERAGING ADVANCED PHYSICS-NN TECHNOLOGY. THE SECOND OPTION, WHILE FOCUSED, HAS A MORE LIMITED SCOPE AND IMPACT.

2. WHAT SPECIFIC PROPERTIES AND CHARACTERIZATIONS OF POLYMERS ARE OF INTEREST?

- WHICH TYPES OF POLYMERS ARE THE FOCUS FOR SUBTOPIC 3.D.1?

- ARE RECYCLABLE POLYMERS SPECIFICALLY OF INTEREST? SHOULD WE FOCUS ON THE DEVELOPMENT AND APPLICATION OF NEURAL NETWORK FORCE FIELDS THAT ALLOW FOR THE DESCRIPTION OF POLYMER RECYCLIZATION CHEMISTRY AND DERIVE OPTIMIZED POLYMERS FOR THIS PROPERTY?

- SHOULD WE AIM TO PROPOSE NEW POLYMERS WITH SIMILAR PROPERTIES TO EXISTING ONES LIKE POLYETHYLENE, OR SHOULD WE FOCUS ON DEVELOPING ENVIRONMENTALLY FRIENDLY ALTERNATIVES WITH DIFFERENT PROPERTIES (E.G., DIFFERENT MELTING POINTS, GLASS TRANSITION TEMPERATURES, VISCOSITIES, DENSITIES, ETC.)?

3. CONSIDERING THESE GRANT SOLICITATIONS, HOW LIKELY IS IT THAT FUNDAMENTAL SCIENCE WILL BE FUNDED VERSUS PROCESS AND TECHNOLOGY OPTIMIZATION?



4. IS IT BETTER TO PARTNER WITH AN INDUSTRY ALREADY ENGAGED IN CO2 CAPTURE AND COMPLEMENT THEIR TECHNOLOGY TO IMPROVE IT?

ANSWER: 1. See Vision OPEN FAQ 4

2. See Vision OPEN FAQ 4
3. For detailed guidance on compliance and responsiveness criteria, see Sections III.C.1
4. See Vision OPEN FAQ 4

Q67. WOULD QUANTUM COMPUTING MODELING AND SIMULATION THAT RESEARCHES THE POSSIBLE EFFECT OF ENERGY/POWER GRID PHYSICS DATA AND ALGORITHMS ON THE CYBERSECURITY OF AN INDUSTRIAL COMPUTER, AKA INDUSTRIAL CONTROL SYSTEM OR RELAY, BE COMPATIBLE WITH TOPIC 2.B: ENERGY DELIVERY OPTIMIZATION THROUGH INTELLIGENT SYSTEMS? IN OTHER WORDS, WOULD RESEARCH THAT DISCOVERS WHETHER THE POWER GRID AS A LARGE PHYSICAL SYSTEM WITH ITS OWN QUANTITIES AND LAWS OF PHYSICS AFFECTS COMPUTATIONS ON AN INDUSTRIAL COMPUTER IN WAYS THAT CREATE UNKNOWN VULNERABILITIES THAT MAY BE EXPLOITABLE BY ADVERSARIES, BE IN SCOPE FOR THIS FOA?

ANSWER: See Vision OPEN FAQ 4

Q68. QUESTIONS FOLLOW.

- 1. DO GRADUATE STUDENTS NEED TO BE LISTED AS “OTHER PERSONNEL”, ASSOCIATED WITH THE LEAD ORGANIZATION?**
- 2. SHOULD THE 1ST PAGE, BOXED CONFIDENTIAL STATEMENT REMAIN IN PLACE EVEN IF WE ARE NOT MARKING ANY SPECIFIC LINES/INFORMATION AS CONFIDENTIAL?**
- 3. SAME QUESTION REGARDING CONFIDENTIAL FOOTERS.**
- 4. THE FOA MAKES REFERENCE TO A “COVER PAGE”, BUT THERE DOES NOT APPEAR TO BE ANY FURTHER INSTRUCTION OR GUIDANCE FOR IT.**
- 5. ARE REFERENCES INCLUDED WITHIN THE 4-PAGE LIMIT?**

ANSWER: 1. They should be listed under the “personnel” tab.

2. See Section VIII.I (Marking of Confidential Information) of the FOA.
3. See Section VIII.I (Marking of Confidential Information) of the FOA.
4. The only reference to a cover is in Section VIII.I (Marking of Confidential Information) of the FOA. Follow the instructions in that section if it applies to your submission.
5. Yes

Q69. JUST SOME CLARIFICATION QUESTIONS ON THE OPPORTUNITY UNDER THE TOPIC 2A3 NOVEL USE OF EXISTING AND NEW INFRASTRUCTURE FOR ENERGY TRANSFER.

UNDER THIS TOPIC FOR REPURPOSING PIPELINES, ARE YOU CONSIDERING TOOLS AND TECHNOLOGIES THAT CAN HELP LOOK AT RISKS OF EXISTING INFRASTRUCTURE AND HELP CHARACTERIZE RISKS THAT CAN THEN BE INFORMATIVE TO A DISCUSSION TO RECAPITALIZE THE ASSETS FOR NEW USE? (EX. IF YOU PUMP NEW HYDROGEN BLENDS IN THE PIPELINE, WOULD YOUR TEAM BE INTERESTED IN LOOKING AT MITIGATING OTHER NATURAL THREATS SO THAT IT IS A FEASIBLE AND LOW RISK INVESTMENT?)

WE PROVIDE RISK INSIGHTS AND DATA FOR CRITICAL INFRASTRUCTURE AND CAN HELP WITH THE TECHNICAL APPROACH TO THIS TOPIC. HOWEVER, WE WANTED TO DOUBLE CHECK IF OUR USE CASE IS RELEVANT TO THE REQUIREMENTS.

ANSWER: See Vision OPEN FAQ 4