

## QUESTIONS AND ANSWERS

PLEASE REFER TO THE GENERAL FAQS SECTION OF ARPA-E'S WEBSITE (<https://arpa-e.energy.gov/faqs/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. Is there a distinction assumed between shape optimization vs topology optimization, or are the terms considered to be interchangeable?

**ANSWER:** Shape Optimization is often concerned with changes and modifies of the position of the boundary. Topology Optimization often allows one to modify the design domain, including material distribution for a given object.

#### Q2.1 We are hitting a roadblock when it comes to the cost of testing facilities that offer sCO<sub>2</sub> capabilities. We have contacted several facilities, ... but the rates they have quoted to perform 50-kWth scale testing do not permit the execution of the topology optimization effort we are proposing. Will ARPA-E consider providing funding directly to a user facility ... to support the full-scale sCO<sub>2</sub> testing, similar to how ARPA-E provided that for the HITEMMP program?

**ANSWER:** ARPA-E will consider providing funding directly to a user facility for 50 kW unit testing should an application otherwise be selected for award negotiations under this Targeted Topic (i.e., DE-FOA-0001953, Topic S). **Accordingly, ARPA-E is also revising the date for receipt of applications from November 23, 2020 to December 1, 2020. The time for receipt of applications remains unchanged at 9:30 am Eastern Time.** At the applicant's discretion, previously submitted applications may be withdrawn, amended, and resubmitted to account for this revision, using ARPA-E eXCHANGE, at anytime prior to the revised date and time for submission of applications.

#### Q2.2 Additionally, we intend to perform sub-scale testing to de-risk the full-scale design and build process. We identified a company that designed a sub-scale sCO<sub>2</sub> loop for a HITEMMP performer that allows for sub-scale testing with sCO<sub>2</sub>, but the cost for even a small-scale sCO<sub>2</sub> loop is cost-prohibitive. Will ARPA-E consider making a sub-scale test loop available to all performers of Topic S?

**ANSWER:** Refer to DE-FOA-0001953, Topic S, FAQ 2.1.

#### Q2.3 If ARPA-E is not able to provide support for full- and/or sub-scale testing using sCO<sub>2</sub>, we do have facilities for superheated steam generation ... . We understand the application goal of the program is sCO<sub>2</sub>. Would ARPA-E consider a proposal that ... .

**ANSWER:** ARPA-E will not pre-assess a prospective applicant's proposal. Applicants must review the FOA and independently assess whether their concept warrants a submission to ARPA-E.