U.S. Department of Energy
Categorical Exclusion Determination Form

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Proposed Action Title: Antora Energy, Inc. -- Deep Decarbonization Enabled by Scale-Up of Solid-State Heat Engines for Ultra-Low-Cost Thermal Batteries

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Sunnyvale, California

Proposed Action Description:

Funding will support the project's research, development, and scaling the pilot production of a combined heat and power (CHP) thermal battery which turns excess renewable energy generation into reliable, on-demand heat and power for industrial facilities. Specifically, the project team will (1) vertically integrate manufacturing processes and tools; (2) produce thermophotovoltaic (TPV) material into an integrated solid-state heat engine (SSHE); (3) verify SSHE and TPV cost and performance metrics; and (4) develop a techno-economic model and market analysis. If successful, this project will enable rapid decarbonization in the industrial sector, including providing >225 GW of zero-emissions industrial power in the U.S. and eliminating over a gigaton/year of CO2 emissions at full commercial scale.

Project activities will be conducted at an existing facility at Antora Energy, Inc. (Sunnyvale, CA). Project tasks fit within the class of actions identified under the DOE Categorical Exclusions identified below. This assessment was based on a review of the proposed scope of work and the potential environmental impact of the project. The project team has certified that project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements. Antora Energy, Inc. has not identified all necessary permits and approvals applicable to its proposed actions and is prohibited from commencing related project work until all required permits are obtained at Milestones 2.4 and 3.6. Per the terms of the award, a permits certification and, if necessary, an amended NEPA Determination, are required prior to the conduct of applicable project work.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

B5.1 - Actions to conserve energy or water

B3.11 - Outdoor tests and experiments on materials and equipment components

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of 10 CFR Part 1021.

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

☑ The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

☑ There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

☑ The proposal has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: GEOFFREY GOODE Digitally signed by GEOFFREY GOODE Date: 2024.08.28 17:09:25 -04'00' Date Determined:

(This form will be locked for editing upon signature)