U.S. Department of Energy
Categorical Exclusion Determination Form

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Proposed Action Title: Nexceris, LLC -- Advanced Solid Oxide Fuel Cell Stack for Hybrid Power Systems

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Fort Collins, CO; Lewis Center, OH; Hampton, NH

Proposed Action Description:

Funding will support the project team's small-scale research and development activities to design, develop and demonstrate a 100+ kW ultra-high efficiency (at least 70% on an LHV basis) hybrid power system using natural gas fuel. Specifically, the project team will (1) develop, build, and test compact, high efficiency 10-kW scale SOFC stacks; (2) develop, build and test turbomachinery and related components; and (3) develop, build, and test the 100+kW hybrid SOFC/turbine system. The team will validate the performance of the full hybrid system, including SOFC stacks, turbomachinery, and required balance of plant components. If successful, this project will demonstrate ultra-high efficiency (at least 70% on an LHV basis) at a commercially viable price point, removing a major barrier to the development and adoption of hybridized SOFC/engine power systems.

Project activities will be conducted at existing facilities at Nexceris, LLC (Lewis Center, OH), CZero Solutions (Fort Collins, OH), and Brayton Energy (Hampton, NH) designed for the applicable activities. 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. Minor facilities modifications may be required to accommodate the electrical loads required for both component testing and operation of the 100+ kW hybrid system. Nexceris, LLC, under the terms of its ARPA-E Cooperative Agreement, is prohibited from commencing planned facility modifications before (1) obtaining the necessary permits and approvals and (2) providing written assurances to ARPA-E of the same.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

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: 2020.07.08 13:39:20 -04'00' Date Determined: 07/08/2020

(This form will be locked for editing upon signature)