

PMC-ND

(1.08.09.13)

U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION

**RECIPIENT:** Brayton Energy**STATE:** NH

PROJECT TITLE: Creep and Fatigue Characterization of High Strength Alloy Thin Sections in Advanced CO2 Heat Exchangers

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002064	DE-EE0008994	GFO-0008994-001	

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

A9 Information gathering, analysis, and dissemination Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)

B3.6 Small-scale research and development, laboratory operations, and pilot projects Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Brayton Energy to characterize and model elevated temperature creep and fatigue behavior for thin sheet and foil forms of nickel alloy with Concentrated Solar Power heat exchanger application.

Activities associated with the proposed project would include: heat exchanger performance modeling; basic materials research and fabrication of test specimens for characterization, and; experimental design and bench-scale laboratory experiments. Analytical and experimental efforts would be carried out indoors at Brayton Energy (Hampton, NH) and Oak Ridge National Laboratory (Oak Ridge, TN) facilities. Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

Since project work would occur exclusively within purpose-built research facilities, no physical modifications, new equipment installations, or decommissioning plans would be necessary. These facilities have all applicable permits in place, and would not need additional permits, licenses, and/or authorizations for the proposed activities. No change in the use, mission, or operation of existing facilities would arise out of this effort.

The proposed project would utilize laboratory equipment with high pressure components. Standard institutional procedures would be followed during all such operations to ensure compliance with applicable health and safety regulations, and minimize workplace hazards. The proposed project would not involve the use or handling of hazardous materials.

Small quantities of non-hazardous solid metallic sheets (approximately 500 lbs) would be procured from one or more 3rd party commercial vendors and used during various in-lab project activities. The proposed research is not expected to generate any waste; excess materials would be retained by Brayton Energy and moved to inventory storage at the conclusion of this award.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

[Solar Energy Technologies Office](#)

[This NEPA Determination does not require a tailored NEPA Provision.](#)

[NEPA review completed by Whitney Doss Donoghue, 2/13/2020](#)

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) 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 proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action 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.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

Electronically
Signed By: Kristin Kerwin

NEPA Compliance Officer

Date: 2/13/2020

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
 Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____

Field Office Manager

Date: _____