

PMC-ND

(1.08.09.13)

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

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

PROJECT TITLE: Gen3 Gas Phase System Development and Demonstration

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001697	DE-EE0008368	GFO-0008368-004	GO8368

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, LLC to design a commercial-scale gas-phase Concentrating Solar Power (CSP) solution that would be developed and demonstrated via a subscale test facility. The megawatt-scale demonstration system would absorb concentrated solar energy from a heliostat field and deliver it into thermal energy storage integrated with a high-efficiency supercritical carbon dioxide (CO₂) power cycle.

The proposed project was originally organized into five Budget Periods (BP). Three NEPA Determinations (NDs) were previously completed, for work activities occurring in BP1 and BP2. The first ND, completed in August 2018, reviewed BP1 activities, which involved the development of a preliminary system design (GFO-0008368-001; CXs A9, B3.6). The second ND, completed in May 2020, reviewed BP2 activities, which involved prototype component fabrication, validation testing, and facility design (GFO-0008368-002; A9, B1.31, B3.6). Finally, the third ND, completed in September 2020, reviewed the inclusion of a new site location for the performance of field testing activities.

Since completion of the aforementioned reviews, the scope of the project has been reduced and the project activities modified to better align with the reduced scope and project time. BPs 3 -5, which would have consisted of the construction of an outdoor test facility and the performance of field demonstrations, have been excluded from the project. Instead, BP2 and the associated work activities have been extended, with slight modifications to the work activities to be performed. This NEPA Determination is applicable to the BP2 continuation.

The proposed BP2 continuation would consist primarily of an extension to the hardware testing to be performed as part of BP2. This would include performance testing of a number of sub-scale CSP prototype components, including solar receivers, a thermal energy storage system, heat exchangers, and heliostats. DOE previously reviewed installation of the test assemblies and performance testing utilizing these components. Some additional measurement devices (e.g., a pyrheliometer and solar field calibration camera) would be procured and integrated

into the existing hardware. However, no major pieces of equipment would be procured or installed that weren't previously reviewed.

Additionally, the fencing around the perimeter of the project site that was previously reviewed would be replaced with concrete barriers that would be placed around the same area to demarcate the project site boundary and close access to the public. This would be undertaken at the request of the municipality of Hampton, NH so that Brayton Energy may retain its permit for use of the site for the extended period.

Brayton Energy and its project partners would continue to adhere to established health and safety policies and procedures, including providing staff with relevant operational/safety training and appropriate personal protective equipment. Brayton Energy and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA provision.

Review completed by Jonathan Hartman, 07/22/2021

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: 7/23/2021

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: _____