PMC-ND
(1.08.09.13)

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

RECIPIENT: Arizona State University **STATE:** AZ

PROJECT TITLE: Economic Weekly and Seasonal Thermochemical and Chemical Energy Storage for Advanced Power Cycles

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002064	DE-EE0008991	GFO-0008991-001	

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 Arizona State University (ASU) to design, develop, fabricate, and test extended-term energy storage materials and key new components for concentrated solar power (CSP) systems. The proposed project would also model and analyze system integration and operation, and techno-economics.

The technical scope of the proposed project would be limited to data analysis, computer modeling, and small-scale indoor research and development (R&D) activities. Design, development, synthesis, fabrication, and laboratory testing of materials and prototype devices would be conducted at ASU (Tempe, AZ). Additional in-lab experiments would occur at Oregon State University (OSU; Corvallis, OR). Materials synthesis and characterization would occur at the Sandia National Laboratories (SNL; Albuquerque, NM). Desktop-based analytical activities would be performed by Siemens Corporate Technology (Princeton, NJ) and Southwest Research Institute (San Antonio, TX). No change in the use, mission, or operation of these existing facilities would arise out of project-related efforts.

Proposed laboratory activities would involve the use and handling of bench-scale quantities of various hazardous materials, such as metals, solid and liquid chemicals, and industrial solvents. Associated processes employed by the project would include the use of specialized equipment to generate high temperatures and voltages, as well as high (and vacuum) pressures. All such work would occur in purpose-built R&D facilities at ASU, OSU, and SNL. Hazardous materials would be managed in accordance with applicable Federal, state, and local regulations. Existing environmental health and safety policies and procedures would be followed, including proper employee training, failure modes and effects analyses, administrative and engineering controls, monitoring, personal protective equipment, and internal assessments.

The proposed activities are not expected to generate any waste beyond trace amounts of spent chemicals and standard laboratory/office consumables, which would be disposed of via routine services already in place at project locations. Since work would be centered in existing facilities, no physical modifications, new equipment, or

decommissioning plans would be required. At the conclusion of the proposed project, fabricated materials and components would be retained for future research towards laboratory capability-building.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

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, 1/31/2020

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 Date: 2/3/2020

NEPA Compliance Officer

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: _____ Date: _____

Field Office Manager