PMC-ND
(1.08.09.13)

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

RECIPIENT: University of California, Los Angeles **STATE:** CA

PROJECT TITLE: Thermochemical Storage with Anhydrous Ammonia: Optimizing the Synthesis Reactor for Direct Production of Supercritical Steam

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-EE0006536	GFO-0006536-003	GO6536

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

CX, EA, EIS APPENDIX AND NUMBER:

Description:

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 the University of California at Los Angeles (UCLA) to investigate and develop reversible ammonia dissociation reactions as a thermochemical energy storage mechanism for solar thermal power.

Activities associated with the proposed project would include design, fabrication and lab-testing of an ammonia synthesis reactor that is optimized for the direct production of supercritical steam and investigation and analysis of drilled wells, converted gas wells, and other types of engineered underground storage in order to identify the optimal storage system for large amounts of energy-rich mixtures of hydrogen and nitrogen. These activities would be completed at the Boiling Heat Transfer Lab on campus at UCLA in Los Angeles, CA. This facility was designed for this type of research; therefore, no new construction, modifications or new permits, additional licenses and/or authorizations would be required and no significant impacts to the environment are expected as a result of the proposed project.

The proposed project would necessitate the use of Nitrogen (N2) and Hydrogen (H2) gas and the synthesis and dissociation of Ammonia (NH3) in a closed loop. Additionally, supercritical steam will flow in a closed loop. The UCLA Environmental, Health and Safety Office (EH&S) and the UCLA fire department (FD) have been informed of the activities to be performed as part of this project and have provided safety procedures and guidelines to be followed. The closed loop would be disassembled upon completion of this project and any water, iron, catalysts and/or metal pipes would be disposed of at that time according to University, State and Federal requirements. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

Based on review of the project information and the above analysis, DOE has determined the proposed project would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that this project is consistent with actions outlined in DOE categorical exclusion B3.6 "Small-scale research and development, laboratory operations, and pilot projects" and is therefore categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

Solar Energy Technology Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Rebecca McCord, 12/22/2015.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 12/22/2015
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

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

Field Office Manager's Signature: _____ Date: _____
Field Office Manager