

PMC-ND

(1.08.09.13)

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



RECIPIENT: Georgia Institute of Technology

STATE: GA

PROJECT TITLE Sodium Ion Expansion Power Block for Distributed CSP

:

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001186	DE-EE0007110	GFO-0007110-002	GO7110

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:

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 the Georgia Institute of Technology (GA Tech) to develop a modular heat engine power block for applications in distributed Concentrated Solar Power technologies. A previous final NEPA Determination (GFO-0007110-001; CXs A9, B3.6; 08/21/2015) reviewed all project activities; however, since that time the award has undergone a novation from Ceramatec, Inc. to GA Tech. Although the nature and scope of project activities (described below) remain the same, this NEPA Determination is to review the new project location.

The proposed project would consist of data analysis, computer modeling, and bench-scale research and development tasks occurring entirely indoors within an existing university laboratory at GA Tech (Atlanta, GA). Associated activities would include: the design of a heat engine module integrating ion-conducting conversion materials; the modeling of 3D electrodes to minimize over-potential losses; the development of ceramic manufacturing techniques to make low membrane thicknesses; the fabrication of evaporator and condensation components; and the assembly and testing of a working sodium thermal-electro-chemical heat engine prototype.

The Carbon Neutral Energy Solutions Laboratory at GA Tech is purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed project. No change in the use, mission or operation of existing facilities would arise out of this effort. The facility has all applicable permits in place, and would not need additional permits for the proposed activities.

The proposed project would involve the use and handling of hazardous chemicals. Such materials would be utilized in small quantities within a controlled laboratory setting following established health and safety policies and procedures. All waste would be disposed of in accordance with applicable local, state, and Federal regulations. At the conclusion of the proposed project, materials and equipment would be recycled or repurposed for future research if feasible.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not

connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. This proposal is 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 the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Solar Energy Technologies Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Whitney Doss on 05/30/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:  Electronically Signed By: Kristin Kerwin Date: 5/30/2018
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