PMC-ND
(1.08.09.13)

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

RECIPIENT: GE Global Research **STATE:** NY

PROJECT TITLE : Physics-Based Reliability Models for Supercritical-CO2 Turbomachinery Components

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000861	DE-EE0006345	GFO-0006345-001	

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 GE Global Research (GEGR) to research and develop physics-based life prediction and reliability models for two key components used in supercritical CO2 (sCO2) turbomachinery related to Concentrated Solar Power (CSP). Supercritical sCO2 turbomachines must contain reliable seals and bearings, the two key components are a Hybrid Gas Bearing (HGB) and a Dry Gas Seal (DGS). The focus of this project would be the development the component life prediction and reliability models, which would mostly be analytical and computational in nature, however small-scale laboratory based material validation testing would occur. Funding would be used for model design and development, data analysis, computer modeling, and laboratory based material testing activities. All research and development activities would be small-scale and occur within laboratory environments. Field testing would not occur.

To complete the proposed project GEGR would partner with the Southwest Research Institute (SwRI). Primary research, development, modeling and testing activities would occur at GEGR's industrial research facility located at 1 Research Circle, Niskayuna, New York. Testing activities would also occur at the SwRI's research facility located at 6220 Culebra Road, San Antonio, Texas. Both facilities are existing permitted research and development facilities. Both facilities have standard safety procedures and equipment in place, and comply with appropriate federal, state and local regulations. Both facilities have all applicable permits in place, and would not need additional permits for the proposed activities. All handling and disposal of hazardous and non-hazardous wastes, gases, chemicals, and effluents would comply with appropriate federal, state and local regulations.

Additional, testing activities would be subcontracted to industry-related vendors or contractors and would occur in facilities dedicated to the proposed activities.

Based on review of the project information and the above analysis, DOE has determined the proposed research and development activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusions A9 "information gathering, analysis and dissemination," and B3.6 "small-scale research and development, laboratory operations and pilot projects," and 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 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 :

This NEPA Determination does not require a tailored NEPA provision.

Obadiah Broughton 8/29/2013

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Lori Gray Lori Gray Date: 8/30/2013

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