PMC-ND

(1.08.09.13)

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

RECIPIENT: Greenway Energy LLC **STATE:** SC

PROJECT TITLE: Novel Metal Hydride Material Development for High Efficiency andLow-Cost Hydrogen Compressors

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001847	DE-EE0008430	GFO-0008430-001	GO8430

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 Greenway Energy LLC (GWE) to design, develop, fabricate, and test metal hydride (MH) materials for use in high-efficiency low-cost hydrogen compressors. A prototype compression system based on the new class of MH materials would also be identified and assessed.

The types of activities associated with the proposed project would include data analysis, computer modeling, technical advice and assistance, in addition to small-scale laboratory research and development activities to be undertaken by certain project participants. Specifically, laboratory activities would be undertaken by GWE, the University of South Carolina (USC), the National Institute of Standards and Technology (NIST), and several DOE National Laboratories.

Technoeconomic analysis and predictive modeling would be performed by GWE (Aiken, SC) with support from Argonne National Laboratory (ANL; Lemont, IL). Subrecipient RCB Hydrides (RCBH) would provide desktop-based consultation services only and would not perform any experimental work for the proposed project. MH material development and synthesis would be carried out at both GWE and the Savannah River National Laboratory (SRNL; Aiken, SC). GWE and SRNL would also identify and simulate a compressor system using the new materials. NIST (Boulder, CO) would conduct thin layer material development, deposition, and modeling. Characterization studies utilizing hydrogen absorption and desorption would be performed by GWE and USC (Columbia, SC).

All project work would occur entirely indoors within existing offices or dedicated laboratory facilities that would not require modifications to accommodate project activities. No change in the use, mission or operation of existing facilities would arise out of project efforts. GWE and subrecipients have all applicable permits in place, and would not need additional permits to conduct project work.

The proposed project involves the use and handling of hazardous materials, including high pressure hydrogen and air sensitive chemicals. All such handling would occur in-lab following existing environmental, health, and safety policies and procedures (EH&S). The only two locations at which hydrogen would be utilized are GWE and USC, which have proper pressure protection and ventilation in place for the management of hydrogen under the proposed study conditions. Air sensitive materials would be handled and stored under inert gas. Expected quantities of alloy and chemical waste generated by project activities would not exceed those generated on a routine basis at the aforementioned laboratories. Hazardous waste would be handled, stored, and disposed of following established

guidelines set forth by the responsible EH&S office at each facility. The facilities at which project work would occur were purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed activities at any location.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

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.

Insert the following language in the award:

You are required to:
Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

Note to Specialist :

Fuel Cells Technologies Office
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 10/17/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Casey Strickland Date: 10/18/2018

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