PMC-EF2a
(2.06.02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION

RECIPIENT: University of Central Florida **STATE:** FL

PROJECT TITLE : Florida Hydrogen Initiative - Florida State University (Development of a Low-Cost and High-Efficiency 500 W Portable PEMFC System)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
N/A - Earmark	GO14225	GFO-04-221f	GO14225

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 (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

Rational for determination:

Under the 2004 Congressionally Directed Project (DE-FC36-04GO14225), the University of Central Florida (UCF – formerly Florida Hydrogen Initiative) was awarded funding that would then be used to fund various research projects chosen by the university. Under the original NEPA determination (GFO-04-221) approved on September 20, 2004, UCF must submit NEPA documentation for each new project selected. The scope of the CDP has been expanded to include five new sub-award projects. This NEPA determination specifically analyses the new sub-award given to Florida State University (FSU) of Tallahassee, Florida for the project titled "Development of a Low-Cost and High-Efficiency 500 W Portable PEMFC System."

This project would be a bench scale, lab based work focused on improving fuel cell electrode and catalyst performance by using the mixed carbon nano-tube (CNT) and carbon nano-fiber (CNF) freestanding paper (buckypaper). Specific project work would include: development of a manufacturing technology to create buckypaper, demonstration of effective Platinum (Pt) coating techniques (on buckypaper), the study of electrochemical performances of the resultant Pt/buckypaper electrodes, development of large sized Membrane Electrode Assemblies (MEA) based on the optimized Pt/buckypaper electrode, and demonstration of a 500W fuel cell stack that meets or exceeds DOE's 2015 Platinum Group Metal (PGM) and cell performance targets.

Task 1 – Design and optimize the gradient structures to facilitate electrochemical reactions for improving cell performance.
Task 2 – Develop an effective technique for large size of gradient-structured bucky paper.
Task 3 – Investigate and develop surface coating techniques to optimize catalyst deposition on 16-cm2 buckypaper and increase catalyst efficiency.
Task 4 – Fabrication and characterization of 16-cm2 MEAs.
Task 5 – Assemble and test a short stack
Task 6 – Develop and demonstrate product prototype.
Task 7 – Reports

Project work would occur in the Power Sources Lab on FSU's campus and at Bing Energy, Inc. (BEI) facilities in Chino, California. BEI specializes in MEA manufacture and fuel cell stack assembly. BEI would also conduct the analysis of prototype development and commercialization feasibility studies. Testing would occur only at FSU facilities. Lab facilities comply with OSHA and National Fire Protection Association code standards of NFPA55, NFPA853, and OSHA29CFR1910 for fuel cells and hydrogen safety.

This project is comprised of information gathering, data analysis, document preparation, dissemination; and conventional laboratory operations; therefore the DOE has categorized this proposal into Categorical Exclusions A9

and B3.6.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

EF2a prepared by Casey Strickland

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Kristin Kerwin Date: 9/15/2010

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