

PMC-EF2a

(20402)

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



RECIPIENT: University of Central Florida

STATE: FL

**PROJECT TITLE :** FHI - University of South Florida (Design and Development of an Advanced Hydrogen Storage System using Novel materials)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
GO14225	GO14225	GFO-04-221i	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 the University of South Florida (USF) for "Design and Development of an Advanced Hydrogen Storage System using Novel materials."

This research and development project would design and develop conducting polymeric nano-materials with reversible hydrogen storage characteristics (refillable) for an on-board hydrogen storage system. The work also would demonstrate the synthesized polymers' performance at small pilot scale with a prototype system that can simulate the actual test conditions. An education component would also be introduced in the Master's degree program on Renewable Energy concerning hydrogen fuel cells.

Task 1: Fabrication of polymer nanostructures for reversible hydrogen storage

Task 2: Modification of polymer nanostructures with dopants, such as CNT, graphene and/or transition metal catalysts.

Task 3: Pilot system level design, development and testing of polymer nanostructures for on-board applications

Task 4: Hydrogen/Fuel-Cell University wide Education and Outreach

All the laboratory work including materials synthesis, characterization, property measurements, and system design would take place at the Clean Energy Research Center (CERC) and Nanomaterials and Nano Research and Education Center (NREC) laboratories at the University of South Florida in Tampa, Florida. The CERC and NREC laboratories have a total of three fume hoods that include alarms for low flow or shut down. Labs are also equipped with handheld combustible gas detectors (hydrogen, CO and H<sub>2</sub>S) that trigger alarms in the event of detection. Fire extinguishers, safety showers, eyewash stations and overhead sprinklers are also present in all laboratories. USF facilities comply with all requirements of the Environmental Protection Agency (EPA), the Florida Department of Environmental Protection, the National Fire Protection Association and State Fire Marshal's Office, and the USF Chemical Hygiene Plan. A Laboratory Safety Evaluation was also conducted by the DOE Hydrogen Safety Panel. Unused gases are stored in separate outdoor areas that are designated for compressed gas cylinder storage. All chemicals are stored by compatibility in appropriate cabinets. All waste is stored in appropriate waste containers until picked up by a contracted company. No toxic waste, air pollutants, or genetically modified organisms are expected to be created over the course of the project. No prototypes will be tested outside of the laboratory facilities.

This project is comprised of information gathering, data analysis, document preparation, dissemination; as well as conventional laboratory operations and a small-scale pilot project; 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