PMC-EF2a

(2.04.02)

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

RECIPIENT: Plug Power Inc. **STATE:** NY

PROJECT TITLE : Fuel Cell Powered Airport Ground Support Equipment Deployment

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000701	DE-EE0006093	GFO-0006093-001	EE6093

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.)

B5.1 Actions to conserve energy or water (a) Actions to conserve energy or water, demonstrate potential energy or water conservation, and promote energy efficiency that would not have the potential to cause significant changes in the indoor or outdoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, manufacturers, and designers), organizations (such as utilities), and governments (such as state, local, and tribal). Covered actions include, but are not limited to weatherization (such as insulation and replacing windows and doors); programmed lowering of thermostat settings; placement of timers on hot water heaters; installation or replacement of energy efficient lighting, low-flow plumbing fixtures (such as faucets, toilets, and showerheads), heating, ventilation, and air conditioning systems, and appliances; installation of drip-irrigation systems; improvements in generator efficiency and appliance efficiency ratings; efficiency improvements for vehicles and transportation (such as fleet changeout); power storage (such as flywheels and batteries, generally less than 10 megawatt equivalent); transportation management systems (such as traffic signal control systems, car navigation, speed cameras, and automatic plate number recognition); development of energy-efficient manufacturing, industrial, or building practices; and small-scale energy efficiency and conservation research and development and small-scale pilot projects. Covered actions include building renovations or new structures, provided that they occur in a previously disturbed or developed area. Covered actions could involve commercial, residential, agricultural, academic, institutional, or industrial sectors. Covered actions do not include rulemakings, standard-settings, or proposed DOE legislation, except for those actions listed in B5.1(b) of this appendix. (b) Covered actions include rulemakings that establish energy conservation standards for consumer products and industrial equipment, provided that the actions would not: (1) have the potential to cause a significant change in manufacturing infrastructure (such as construction of new manufacturing plants with considerable associated ground disturbance); (2) involve significant unresolved conflicts concerning alternative uses of available resources (such as rare or limited raw materials); (3) have the potential to result in a significant increase in the disposal of materials posing significant risks to human health and the environment (such as RCRA hazardous wastes); or (4) have the potential to cause a significant increase in energy consumption in a state or region.

B5.22 Alternative fuel vehicle fueling stations The installation, modification, operation, and removal of alternative fuel vehicle fueling stations (such as for compressed natural gas, hydrogen, ethanol and other commercially available biofuels) on the site of a current or former fueling station, or within a previously disturbed or developed area within the boundaries of a facility managed by the owners of a vehicle fleet. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rational for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Plug Power Inc. (PPI) to demonstrate and analyze fuel cell electric ground support vehicles under real world conditions. PPI would partner with FedEx Express to design, retrofit and deploy 15 Charlatte CT5E airport Baggage Tow Tractors (BTTs) with their GenDrive PEM (Proton Exchange Membrane) fuel cells. Traditional BTTs operate off of diesel, gasoline, or propane engines. The proposed project would analyze reductions in petroleum usage and harmful emissions and alternative methods of supply energy for BTTs at airports with the goal of accelerating the development and commercialization of fuel cell powered ground support vehicles.

The proposed project would have two phases. The first phase is a one-year research and development phase where PPI would design, fabricate and test an 80V (~20 kW) fuel cell system for the BTT application. The second phase is a two-year demonstration where a fleet of fuel cell system BTTs would be integrated and deployed into a fleet of existing conventional BTTs at two existing FedEx Express facilities within two national airports. Data from the deployment would be collected and analyzed. To facilitate the demonstrations, self-contained modular hydrogen generation fueling stations would be installed at each of the airport demonstration sites.

PPI would design, fabricate and test the proposed GenDrive PEM 80V (~20 kW) fuel cell system at their existing research, development and manufacturing facility located at 968 Albany-Shaker Road, Latham, New York. PPI completed an R&D questionnaire addressing the protocols for laboratory and facility safety, risk management and waste disposal. The facility complies with standard safety procedures and all processes and procedures are monitored by appropriate staff. The facility has all applicable permits in place. All handling and disposal of gases, chemicals, wastes and liquid effluents at the facility comply with appropriate regulations.

PPI would contract with Nuvera to purchase and install two Nuvera PowerTap modular hydrogen generation fueling stations. Nuvera, a commercial hydrogen fueling station manufacturer has installed modular PowerTap systems at various locations around the world. The proposed hydrogen generation fueling station installation sites would be within existing FedEx Express airport facilities located at the Memphis-Shelby County Airport at 2240 Democrat Road, Memphis, Shelby County, Tennessee and the Oakland International Airport at 1 Airport Drive, Oakland, Alameda County, California. A Fueling Station Questionnaire was completed describing each installation site, the hydrogen generation fueling station production, storage and dispensing specifications, appropriate safety measures and the necessary utilities and permits needed for the installations. The PowerTap stations use grid electricity, municipal water, and natural gas to create pressurized hydrogen gas and are modular with integrated generation, compression, storage, and dispensing systems. The PowerTap stations would be installed on previously disturbed land within existing FedEx Express facilities at each airport. The installation of the modular system would be site specific but each site would be approximately 35 feet by 30 feet and would include a concrete pad, modular generation and dispensing equipment, utility connections, vehicle barriers and a protective security fence. Each station would conform to industry and national standards for safety and risk management and the necessary permits to install the PowerTap stations would be obtained by FedEx Express and Nuvera prior to installation.

During the demonstration and analysis phase of this project, PPI would deploy ten hydrogen fuel cell powered BTTs at the Memphis FedEx Express airport facility and five at the Oakland FedEx Express airport facility. The Nuvera PowerTap stations would produce and dispense approximately 30-40 kg of hydrogen fuel per day at the Memphis site and approximately 15-20 kg of hydrogen fuel per day at the Oakland site.

Shelby County, Tennessee is an EPA designated Nonattainment Area for 8-Hr Ozone and Alameda County, California is a designated Nonattainment Area for 8-Hr Ozone and particulate matter (PM)-2.5. Small amounts of criteria air pollutants (NOx, CO, and SOx) and hydrocarbons would be generated by the hydrogen fuel production systems and the installation of these systems. However, converting traditional fuel powered BTTs to hydrogen fuel cell powered BTTs would reduce fuel consumption during the demonstration by approximately 175,000 gallons, thereby reducing air emissions as BTT vehicle emissions are limited to water vapor, oxygen, and trace amounts of hydrogen gas. The installation of the hydrogen fuel production systems at each site would not have significant impacts as the systems are small in size and modular. The proposed project would not adversely affect local air quality and national ambient air quality standards for each location. Resources including threatened or endangered species, wetlands, floodplains and historic or cultural resources would not be adversely affected as they are not known to occur at the proposed installation and deployment locations.

Based on the review of project information and the above analysis, DOE has determined that the installation of two modular hydrogen generation fueling stations at existing locations and the demonstration and analysis of fuel cell electric ground support vehicles would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed installation is consistent with actions contained in DOE categorical exclusions A9 "information gathering," B5.1 "actions to conserve energy," and B5.22 "alternative fuel vehicle fueling stations," 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 :

Obadiah Broughton 1/29/2013

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 1/29/2013
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