PMC-EF2a

(20402)

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

RECIPIENT: GENCO Infrastructure Solutions, Inc. **STATE:** PA

PROJECT TITLE : Fuel Cell-Powered Lift Truck Fleet Deployment (Topic 7B) - Wegmans

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-PS36-08GO98009	DE-EE0000483	GFO-10-089-001	EE483

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:

B5.1 Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.

Rational for determination:

GENCO Infrastructure Solutions, Inc. has DOE ARRA funding available to support the construction of a hydrogen fueling storage and dispensing system for fuel cell-powered lift-trucks at the .

GENCO is the prime recipient under this award, the facility manager, and the 3rd party logistic provider for the site and this grant. The project has an additional three subawadrees/subcontractors under this award: Wegmans Food Markets, Inc. owns the warehouse and forklifts; Plug Power will be supplying and installing the fuel cell units for the forklifts; and Air Products who will be supplying and installing the hydrogen compressor, storage, and dispensing equipment

Funding will be used for the purchase of 136 Plug Power GenDrive (100 Class-3 systems & 36 Class-2 systems) systems, installation of the units into lift trucks, installation of the hydrogen fueling infrastructure at the Wegmans' facility, and the daily operation of the lift trucks and infrastructure. Data collection and evaluations will also be ongoing throughout the project.

The fork lift trucks will be retrofitted to accept the fuel cell units. No modifications to the trucks will be required as the new fuel cell units are designed to have the same size, weight, and center of gravity as existing battery packs. The fuel cell systems will range from 5-kW to 20-kW and will replace the existing lead/acid base batteries and their charging station infrastructure.

The Project activity is divided among the following 4 tasks:
Task 1 – Program Management and Reporting
Task 2 – Power Unit Construction
Task 3 – Start-Up and Training
Task 4 – Lift Truck Operation and Evaluation

Location and Traffic:
The Wegmans grocery retail service and distribution center is located in Pottsville, Pennsylvania. The site is currently under construction to add an additional 350,000 square feet to their distribution center. The hydrogen forklifts will be used in this new area of the center.

The proposed hydrogen system will be located on the east side of their new multi temperature warehouse currently under construction. This is on the east side of Wegmans' large facility and just north of their tractor trailer parking lot.

The only additional traffic created by this project will be the hydrogen delivery truck that arrives every 20 days. The

Wegmans retail service center has numerous truck deliveries and deployments of products on a daily basis; therefore the addition of a truck delivery of hydrogen every 20 days will not greatly increase the current level of traffic for the area.

Construction/Installation:
Two refueling dispensers will be installed and located inside the building for operators to re-fill the forklifts. The hydrogen supply (liquid storage), compression, and high pressure storage will be located outside the warehouse building in a secured area. Liquid hydrogen will be delivered to the site by truck and transferred to the tanks via cryogenic hose.

The hydrogen compression and storage equipment will be installed on concrete foundations and pads (approx 20' X 60') on the south side of the site. This equipment will be fabricated at a vendor shop and shipped to the Wegmans' site for installation. The interconnecting piping and electrical tie-ins will be completed on site. An underground trench will be required for the hydrogen feed from the storage equipment to the distribution center wall. This will be dug by a trench excavator and will take place on a site that has been previously disturbed and paved. Fencing and additional lighting will also be installed around the compression and storage equipment.

Hydrogen Fueling Equipment and infrastructure construction will be conducted by Air Products technicians and local contractors working with and commissioned by Air Products's engineers. Installation will comply with latest editions of NFPA 52, 55 and IFC that specifies measures to protect environment and public safety.

Equipment:
The Hydrogen Fueling Station consists of four modules: Liquid Storage, Compressor system, Gaseous buffer storage, and Automated Dispensers.

Inside the distribution center, two dispensers with hose breakaway devices, de-watering pumps, and fueling control panels will be located in a convenient location for the operator. Outside the 15' fueling zone, a control panel is located which displays the overall station status to the operator.

The compressor system will typically be in a "standby" mode with the buffer storage filled to nominally 7,000 psig. When a lift truck arrives at the indoor dispenser to fuel, a portion of the mass of hydrogen in the storage tubes is transferred by pressure to the vehicle tank until the local PLC determines a full fill (final pressure is compensated for temperature). After multiple fueling, the outdoor storage tube pressure becomes reduced and the compressor automatically restarts to keep it full.

Hydrogen will be delivered to the site as a liquid (in ~ 12,000 gallon trailers). The hydrogen will be stored on site as a liquid and then vaporized and compressed for utilization as required.

GenDrive installations onto the lift trucks will be conducted by Plug Power Technicians.
Installation will comply with latest editions of NFPA 52, 55 and IFC that specifies measures to protect environment and public safety.

Operations/Training:
A liquid trailer affixed with an insulated DOT storage tank will deliver hydrogen to the fueling stations. The trailer will temporarily park on the delivery pad and offload product via pressure transfer to the onsite tank.

The flow of hydrogen from the liquid tank to the compressors is controlled by an automatic isolation valve. When required, hydrogen is then fed to a compressor (CP-10) to increase the pressure to 250 bar.

After leaving the compressor, gas is directed to one bank of high pressure storage tubes. Approximately, 4,000 kg liquid and 60 kg gas will be stored on site within a cryogenic tank and high pressure storage tubes. It is estimated that approximately 150kg of hydrogen will be used each day to run the 136 lift trucks.

All on-site operators and maintenance personnel will be trained during a two-day session. It will include power unit training, including operation, planned maintenance, service, hydrogen safety and emergency response in a "train the trainer" arrangement.

Additional sessions will be organized on an as needed basis. Fueling station operating manuals, service manuals and training materials will be available to all personnel.

Air Products will conduct the training for hydrogen fueling system safety and vehicle dispensing practices/procedures. Plug Power will conduct the GenDrive fuel cell system training and safety-related training.

Permits:
Station design, equipment, and infrastructure will comply with latest editions of NFPA 52, NFPA 55 and IFC.

No state or federal licensing is necessary other than PE license. Local permitting and inspections will provided by licensed state PEs for this project.

Genco and Wegmans Food Markets, Inc. will obtain the required electrical, mechanical, and construction permits from local and state authorities for the site, with assistance from Air Products, as required.

Waste stream:
Most of the GenDrive units will be installed in brand new electric lift trucks which are replacing the older, LPG lift trucks. The old LPG lift trucks being replaced will be redeployed in other locations within the Wegmans distribution centers. If older lift trucks are converted, their batteries will be removed and be used as spares in other battery-powered lift trucks throughout the facility.

Noise:
The project and installation site for the hydrogen fueling unit is in a large and existing warehouse and distribution center. The storage and compression units will be located outside the warehouses over 100' from the property line.

Per Air Products, the hydrogen compressors make a minimal amount of noise and the compressor is not audible at distances further than 100'. Noise levels are less than 75 dB at 3 meters when the compressor is operating. The additional noise created by the hydrogen dispenser and compression units will not exceed existing noise made by the traffic created by distribution trucks in and out of the facility and the additional warehouse distributing equipment found around the site.

Safety:
The Air Products has supplied to DOE a Safety Plan and Safety Review Plan that addresses their compressed hydrogen vehicle fueling protocols and mitigation being applied to all aspects of their, especially in regards to the indoor dispensing units and their safety protocols.

Additional safety measures in place include:

General - Multi-layer redundant features –

*Feed initiated only after system check,
*Refueling rate limited to 2 kg/min,
*24/7 monitoring & automatic shut-off,
*Pressure and Temperature limits for fuel tank,
*Gas detector, inside and outside,
*Fire eye for dispensing area,
*Emergency shut off,
*Local and remote (20 to 100 ft.),
*Class 1 div 2 within 15 ft,
*NFPA 52 2009, section 9.4.

Dispenser Safety Features –

*Non-interchangeable nozzles,
*Special design nozzles per SAE J2600,
*Extensive testing, third party approvals,
*Double block and bleed, unlike industrial connections,
*Cannot be opened unless connected,
*Multiple shutdown features,
*Storage isolated at outdoors before entering building,
*Two valves outside, additional valve inside,
*No mechanical fittings inside building except in cabinet,
*Self-sealing break away joints,
*For vehicle pull-away/accident,
*Vehicle and station electrically bonded through nozzle,
*Vehicle grounded through parking surface,
*Verified at startup.

A ventilation system review will be held for all enclosed hydrogen lines and a vent system analysis will be done to determine backpressure and stack height.

The hydrogen fueling equipment control systems will include PLC alarming for both precautionary alarms and shut-down alarms. These signals are monitored by Air Products 24-hr control center via information transferred over dedicated phone lines at the site installation.

Emergency first-responder response protocols will be established with the site during preparations for site commissioning. If necessary, the alarm signals that Air Products receives at its 24-hr control center can also be sent to an emergency responder station (e.g. Fire Company).

The DOE Hydrogen Program will mandate that a draft Hydrogen Safety Plan be submitted by Genco and their subs, 90 days after the award is signed. Subsequently, the revised Safety Plan will be due 30 days after DOE has provided comments on the draft plan.

Genco, Air Products, Plug Power and Wegmans Food Markets, Inc. committed actions include, but will not be limited to: worker safety (include trainings and equipment provided), equipment maintenance (storage and forklift), acquisition of permits, and monitoring of fuel systems when in use.

Based on the information discussed above and the supporting documentation submitted to DOE, this project's impacts to the human and natural environment can be deemed less than significant and this project will qualify for a CXB5.1 "actions to conserve energy".

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 1/14/10

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