

BOARD MEETING DATE: May 1, 2015

AGENDA NO. 3

PROPOSAL: Develop and Demonstrate Fuel Cell Hybrid Electric Medium-Duty Trucks 

SYNOPSIS: The Center for Transportation and the Environment (CTE) was awarded \$2,982,071 by DOE and \$1,100,000 by CEC to develop and demonstrate fuel cell hybrid electric medium-duty trucks. CTE and their partner UPS propose to demonstrate up to six trucks in Los Angeles and Orange counties. This action is to execute a contract with CTE to develop and demonstrate fuel cell hybrid electric medium-duty trucks in an amount not to exceed \$980,000 from the Clean Fuels Fund (31).

COMMITTEE: Technology, April 17, 2015; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Chairman to execute a contract with CTE to develop and demonstrate fuel cell hybrid electric medium-duty trucks in an amount not to exceed \$980,000 from the Clean Fuels Fund (31).

Barry R. Wallerstein, D.Env.
Executive Officer

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Background

In June 2011, the Board approved funds for UPS to develop and demonstrate electric delivery vans. The vans were demonstrated in the South Coast Air Basin but could not meet all the range requirements of UPS for deployment on a diverse set of routes. In order to meet greater range requirements and have more route flexibility, UPS and CTE have joined together to develop an electric van with a fuel cell range extender. CTE sought and received partial funding from the DOE and CEC for the development of a fuel cell walk-in van. These vans will have a smaller battery and a small fuel cell with

hydrogen storage to meet the majority of range needs and also the ability to refuel with hydrogen quickly for longer routes.

Proposal

This project is proposed in two phases. In Phase 1, a pre-2006 model diesel-powered walk-in van provided by UPS will be converted to electric drive and then integrated with the fuel cell, power electronics, hydrogen storage system and controls. The fuel cell hybrid vehicle will then be tested and validated before being demonstrated with UPS at West Sacramento for up to three months and then shipped to the South Coast Air Basin for an additional three months of testing. If the performance specifications are met and DOE approves, Phase 2 will commence.

In Phase 2, at least six additional fuel cell hybrid walk-in vans will be built for operation under real-world conditions at UPS's distribution facilities in Northern California and in the South Coast Air Basin for at least 5,000 hours of operation. At least four of the vehicles will be deployed in the South Coast Air Basin. Any design updates will be incorporated due to lessons learned from the demonstration and validation phase. The team will also collect, process and provide all required data and make an assessment of the economic/market opportunities for fuel cell hybrid walk-in vans.

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. This request for a sole source award is made under provision B.2.d.: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the AQMD. Specifically, these circumstances are: B.2.d. (1) Project involving cost sharing by multiple sponsors. This demonstration project will be cost shared by the DOE, CEC and UPS.

Benefits to SCAQMD

Projects to support implementation of various clean fuel vehicle incentive programs are included in the *Technology Advancement Office Clean Fuels Program Draft 2015 Plan Update* under the category "Develop and Demonstrate Medium- and Heavy-Duty Fuel Cell Vehicles". This project is to develop and demonstrate zero emission medium-duty trucks with fuel cell range-extended and electric technologies for goods movement operations. Diesel medium-duty delivery trucks are typically repowered with diesel engines. . The successful demonstration of this project will contribute to the attainment of clean air standards in the South Coast Air Basin by eliminating PM and NO_x emissions from re-powered diesel medium-duty delivery trucks.

Resource Impacts

The total cost for this proposed project is \$10,440,561. The SCAQMD will contract with the Center for Transportation and the Environment (CTE) who will act as the project lead and administrator. The contract with CTE shall not exceed \$980,000, with the funding divided between two phases (\$500,000 for Phase 1 and \$480,000 for Phase 2). Funding sources and proposed amounts are outlined in the table below:

Funding Source	Amount	Percent (%)
DOE	\$2,982,071	29
CEC	\$1,100,000	11
SCAQMD (<i>requested</i>)	\$980,000	9
UPS	\$5,378,490	51
Total	\$10,440,561	100

Sufficient funds are available from the Clean Fuels Fund (31), established as a special revenue fund resulting from the state-mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.