

BOARD MEETING DATE: April 7, 2017

AGENDA NO. 4

PROPOSAL: Recognize Revenue and Execute Contracts to Demonstrate Zero and Near-Zero Emission Drayage Trucks and Cargo Handling Equipment

SYNOPSIS: SCAQMD received a \$10 million award to develop and demonstrate zero and near-zero emission technologies for drayage and cargo handling applications under CEC's AB118 Alternative and Renewable Fuel and Vehicle Technology Program. This action is to recognize the revenue into the Clean Fuels Fund (31) and execute contracts with Clean Energy, Velocity Vehicle Group and Hyster-Yale Nederland BV to develop and demonstrate advanced zero and near-zero emission drayage trucks and top handlers in an amount not to exceed \$11,600,106 from the Clean Fuels Fund (31).

COMMITTEE: Technology, March 17, 2017; Recommended for Approval

RECOMMENDED ACTIONS:

1. Recognize, upon receipt, up to \$10,000,000 from CEC into the Clean Fuels Fund (31).
2. Authorize the Chairman to execute contracts with the following entities totaling \$11,600,106 from the Clean Fuels Fund (31):
 - a) Clean Energy to repower and demonstrate 20 drayage trucks with near-zero natural gas engines in an amount not to exceed \$5,100,000;
 - b) Hyster-Yale Nederland BV to develop and demonstrate one battery electric top handler in an amount not to exceed \$2,931,806; and
 - c) Velocity Vehicle Group to develop and demonstrate one battery electric and three plug-in hybrid electric drayage trucks in an amount not to exceed \$3,568,300.

Wayne Nastri
Executive Officer

Background

Mobile sources in goods movement sectors make up the large portion of NO_x and PM emissions in the Basin with adverse impact on air quality and public health, particularly in Environmental Justice communities adjacent to the Ports of Los Angeles and Long Beach that are disproportionately impacted by goods movement operations and activities. In order to mitigate these port-related emissions, and further reduce petroleum usage, SCAQMD strongly supports accelerated deployment of zero and near-zero emission technologies in cargo transport and handling operations.

On January 26, 2017, SCAQMD submitted a proposal in response to a CEC solicitation under the AB 118 Alternative and Renewable Fuel and Vehicle Technology Program. The proposal is to develop and demonstrate zero and near-zero emission technologies in drayage and cargo handling applications, including repowered drayage trucks with 12L near-zero natural gas engines, battery electric and plug-in hybrid electric drayage trucks, and a battery electric top handler. On February 22, 2017, CEC notified SCAQMD that the project proposal to develop and demonstrate these trucks and cargo handling equipment had been selected for a \$10 million award, which is the full amount requested.

Proposal

This action is to recognize, upon receipt, up to \$10,000,000 from CEC and execute contracts for the following projects. The projects described below are based on the applicants' proposals and specifications may change as the designs are finalized.

Clean Energy

Clean Energy is the leading provider of natural gas for transportation in North America, both in number of stations and gallons sold per year with nearly two decades of experience in developing and implementing natural gas fueling solutions for high volume fleet customers. Clean Energy, in partnership with Cummins Westport Inc. (CWI), a leading developer of spark-ignited automotive natural gas engines for commercial transportation applications, will repower 20 Class 8 drayage trucks with the CWI pre-commercial near-zero natural gas engines that are capable of meeting the optional 0.02 grams per brake horsepower per hour (g/bhp-hr) NO_x standard, for demonstration in real-world service throughout the Basin. The CWI near-zero engine reduces emissions well below current standards while providing comparable performance to the diesel baseline technology, with both NO_x and ROG at 90% below the standards. In addition, with renewable natural gas to be provided by Clean Energy, the near-zero engines are expected to achieve as much as 80% in GHG reductions as well.

Hyster-Yale Nederland BV

Hyster-Yale Nederland BV (HYN), a global leader in the large forklifts and container handler market, will lead a team with extensive technical knowledge and resources to develop and demonstrate a pre-pilot electric container handler – known as a top handler - at the Port of Los Angeles in the APM Terminal. Top handlers are the largest-sized class of mobile cargo handling equipment at California ports and represent the highest remaining source of emissions, particularly NOx and PM, at the San Pedro Bay Ports. Leveraging the electrical power systems for its lighter industrial lifts, HYN will develop 40-50 ton electric top handler that can withstand rugged, high-utilization activities at container terminals. WAVE, a premiere developer of inductive charging solutions for medium- and heavy-duty vehicles in the United States, will provide a wireless charging system in this demonstration to enable the top handler to perform a full day of operation with opportunity charging during breaks to satisfy the terminal operator’ two-shift-per-day performance requirement.

Vehicle Velocity Group

Velocity Vehicle Group (VVG) is a consortium of companies with expertise in the commercial vehicle industry and owns one of the largest Freightliner truck dealerships on the West Coast. VVG is leading a team with a strong presence in California as well as a deep understanding of the heavy-duty vehicle market to develop and demonstrate one battery electric and three plug-in hybrid electric drayage trucks, using the PowerDrive™ technology developed by Efficient Drivetrains, Inc., (EDI) a global leader and innovator of advanced, high-efficiency electric drivetrains, exportable power and vehicle control software. EDI will serve as the technical lead and vehicle integrator, working together with Freightliner Trucks to develop battery electric and plug-in hybrid electric drive platforms that meet end-user fleet requirements and which both post-production truck modification service companies can easily integrate and certified Freightliner dealerships can service and repair. In this project, CALSTART will provide project management and Mayor Logistics and Total Transportation Services will deploy the trucks in their revenue service for demonstration.

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies provisions under which a sole source award may be justified. Specifically, this request for sole source awards is made under the provisions B.2.c.(1): The unique experience and capabilities of the proposed contractor or contractor team; B.2.c.(2): The project involves the use of proprietary technology; and B.2.d.(1): Project involving cost-sharing by multiple sponsors. The manufacturers and vehicle integrators involved in this project--CWI, EDI, Freightliner, HYN and WAVE--each have extensive knowledge and experience in advanced zero and near-zero emission engine and vehicle technologies that are needed to successfully complete the projects. They will also utilize their proprietary technologies in the development of demonstration trucks and top handlers. In addition,

these demonstration projects will be cost-shared by the project partners as discussed in the Resource Impacts section.

Benefits to SCAQMD

The proposed projects are relevant to the SCAQMD’s priorities to reduce NOx and PM emissions from goods movement operations to achieve national ambient air quality standards and protect public health.

The proposed drayage truck repower project by Clean Energy will provide opportunities for fleets to test the CWI near-zero engine in their own operations to prove its reliability and performance. Successful demonstration will lead to widespread adoption of the near-zero emission natural gas trucks by fleets, providing significant reductions in NOx and other criteria pollutant emissions from drayage trucking operations. In addition, utilization of renewable natural gas in this project will achieve considerable benefits in GHG reductions as well. Similar benefits can also be expected from successful demonstration of the proposed battery electric and plug-in hybrid electric drayage trucks using EDI’s PowerDrive™ technology.

Electrification of top handlers and other cargo handling equipment of similar weight class can help to significantly reduce NOx and PM emissions, along with GHG co-benefits, from container cargo handling operations at the San Pedro Bay Ports.

The proposed projects are included in the *Technology Advancement Office Clean Fuels Program 2017 Plan Update* under the categories of “Electric/Hybrid Technologies & Infrastructure” and “Engine Systems.”

Resource Impacts

The total estimated cost for the proposed projects is \$15,476,008, to be funded with \$10,000,000 from CEC, as a pass-through via SCAQMD’s Clean Fuels Fund as described in the Recommended Actions, \$1,600,106 from SCAQMD’s Clean Fuels Program (Fund 31), and \$3,875,902 of in-kind cost-share from project partners, as follows:

Project Partner	Funding Amount	Percent
CEC	\$10,000,000	65
Clean Energy/CWI	\$2,500,000	16
HYN	\$746,202	5
VVG/EDI	\$629,700	4
SCAQMD (<i>requested</i>)	\$1,600,106	10
Total	\$15,476,008	100

The \$10,000,000 in revenue from CEC will be recognized, upon receipt, into the Clean Fuels Fund (31). The proposed sources of funds and contractors are outlined in the table below:

Funding Source	Clean Energy	HYN	VVG
CEC	\$4,450,000	\$2,564,005	\$2,985,995
Proponents	\$2,500,000	\$746,202	\$629,700
SCAQMD <i>(requested)</i>	\$650,000	\$367,801	\$582,305
Total	\$7,600,000	\$3,678,008	\$4,198,000

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.