BOARD MEETING DATE: April 3, 2026 AGENDA NO. 4

PROPOSAL: Execute Contract to Develop and Demonstrate Plug-In Hybrid Heavy-Duty Refuse Truck

SYNOPSIS: CARB's Advanced Clean Fleets (ACF) regulation mandates a transition to zero-emission vehicles for state and local government fleets. The plug-in hybrid vehicles with minimum all-electric range are permitted as compliance options for the ACF regulation. While plug-in hybrid technology development has been demonstrated for drayage applications, it has not yet been developed or proven in the refuse sector. Peterbilt Motors Company, in partnership with Brudeli Green Mobility, Cummins, and Hexagon Agility, proposes to develop a plug-in hybrid heavy-duty refuse truck and demonstrate it with Waste Management Collection & Recycling, Inc. The emissions testing will be conducted by University of California, Riverside Center for Environmental Research and Technology. This action is to execute a contract with Peterbilt Motors Company in an amount not to exceed $1,000,000 to develop and demonstrate a plug-in hybrid heavy-duty natural gas refuse truck, from the Clean Fuels Program Fund (31).

COMMITTEE: Technology, March 20, 2026; Recommended for Approval

RECOMMENDED ACTION:
Authorize the Executive Officer to execute a contract with Peterbilt Motors Company in an amount not to exceed $1,000,000 to develop and demonstrate a plug-in hybrid heavy-duty natural gas refuse truck from the Clean Fuels Program Fund (31).

Wayne Nastri
Executive Officer

AK:MW:VP:SC

Background

CARB's Advanced Clean Fleets (ACF) regulation mandates a transition to zero-emission (ZE) vehicles for state and local government fleets where feasible, and by using near-zero-emission technologies powered by clean, low-carbon renewable fuels everywhere else. Heavy-duty refuse trucks are subject to the ACF regulation and plug-in hybrid vehicles that combine an ultra-low emission engine with a battery that has substantial all-electric range can be used as compliance options under the ACF regulation. While ZE battery electric refuse trucks are now commercially available, many of the duty cycles required of these trucks cannot be met by using only the ZE technology. Development of plug-in hybrid refuse trucks that can operate in ZE mode and recover energy from stop-and-go refuse pick-ups can provide significant emission reductions relative to traditional combustion powertrains. Plug-in hybrid refuse trucks can deliver immediate efficiency improvement and emission reductions, while providing fleets operational experience that supports a transition to full electrification.

Peterbilt Motors Company (Peterbilt), a leading U.S. manufacturer of refuse vehicles, proposes to partner with Brudeli Green Mobility (Brudeli), a Norway-based plug-in hybrid technology developer, to develop a plug-in hybrid heavy-duty refuse truck with an automatic side-loader body that can comply with CARB's ACF regulation. The project will leverage Peterbilt's and its partners' core capabilities to develop and deploy an ACF-compliant plug-in hybrid heavy-duty refuse truck that is not currently commercially available.

Proposal

Peterbilt and its partners propose to develop a plug-in hybrid natural gas heavy-duty refuse truck using the Peterbilt 520 solid waste collection vehicle chassis. Brudeli and Cummins will engineer the plug-in hybrid powertrain, pairing it with the Cummins 8.9L ultra-low emission natural gas engine. The resulting vehicle is expected to deliver up to 45 miles of all-electric range, with the focus of operating in ZE while in neighborhoods and switching to an ultra-low emission hybrid mode when the charge is depleted. This vehicle is expected to achieve approximately 50% reductions in emissions and fuel use. Peterbilt will lead the final system integration at its engineering and production facilities in the US. Hexagon Agility will supply the fuel-storage tank system. The vehicle will then undergo real-world emissions testing by University of California, Riverside Center for Environmental Research and Technology and an extended in-service demonstration with Waste Management Collection & Recycling, Inc. for up to 12 months. To address the needs of typical solid waste collection vehicles, Waste Management Collection & Recycling, Inc. is providing a base CNG vehicle to develop a prototype CNG-hybrid retrofit and the Peterbilt will document the data collected and demonstrate the commercialization pathway in the final project report.

Benefits to South Coast AQMD
The proposed project aligns with South Coast AQMD priorities to reduce NOx and PM emissions from transportation sources in support of federal ambient air quality standards and public health protection. Support for the development and demonstration of advanced technologies is identified in the Technology Advancement Office Clean Fuels Program 2026 Plan Update under "Electric/Hybrid Vehicle Technologies". A successful demonstration will strengthen the commercial viability of plug-in hybrid technology and support broader deployment in the medium- and heavy-duty truck sector by expanding options for diverse fleet operating needs where ZE technologies are providing limitations.

Sole Source Justification
Section VIII.B.2 of the Procurement Policy and Procedure identifies provisions by which sole source awards may be justified. The request for sole source award is made under provision B.2.d.(1): Project involving cost-sharing by multiple sponsors. The proposed project includes cash and in-kind cost-sharing from the project proponents.

Resource Impacts
South Coast AQMD's cost-share will not exceed $1,000,000 from the Clean Fuels Program Fund (31). The estimated partners cost-share and total project cost are summarized below.

Proposed Partners	Amount	Percent (%)
Peterbilt	$275,000	6
Brudeli	$2,387,000	52
Cummins	$165,000	4
Hexagon Agility	$110,000	2
Waste Management	$650,000	14
South Coast AQMD *(requested)*	$1,000,000	22
Total Project Cost	**$4,587,000**	**100**

Sufficient funds are available in the Clean Fuels Program Fund (31) for this proposed project. The Clean Fuels Program Fund (31) is established as a special revenue fund resulting from the state mandated Cleans 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.