

BOARD MEETING DATE: July 6, 2018

AGENDA NO. 4

PROPOSAL: Recognize and Transfer Revenue and Execute Contract to Develop and Demonstrate Zero Emission Trucks and EV Infrastructure

SYNOPSIS: SCAQMD fosters development and demonstration of zero emission goods movement technologies. Daimler Trucks North America LLC (DTNA) proposes to develop 20 heavy-duty electric trucks with EV infrastructure that includes energy storage systems to demonstrate the trucks in real-world commercial fleet operations in and around environmental justice communities. These actions are to recognize revenue up to \$2,000,000 from the San Pedro Bay Ports and \$500,000 from U.S. EPA and transfer up to \$4,440,000 from the State Emissions Mitigation Fund (39) and \$11,230,072 from the Clean Fuels Program Fund (31) into the Advanced Technology Goods Movement Fund (61). Of the \$11,230,072, up to \$2,500,000 is for a temporary loan pending receipt of the cofunding and \$8,730,072 is for SCAQMD's cost-share for the project. Staff is actively seeking additional cofunding; if realized, SCAQMD's cost-share may decrease, subject to Board consideration. This action is to also execute a contract with DTNA to develop and demonstrate 20 heavy-duty electric trucks and EV infrastructure in an amount not to exceed \$15,670,072 from the Advanced Technology Goods Movement Fund (61).

COMMITTEE: Technology, June 15, 2018; Recommended for Approval

RECOMMENDED ACTIONS:

1. Recognize, upon receipt, up to \$2,000,000 from the San Pedro Bay Ports into the Advanced Technology Goods Movement Fund (61) to develop and demonstrate zero emission trucks and EV infrastructure;
2. Recognize, upon receipt, up to \$500,000 from U.S. EPA FY18 Section 105 Clean Air Technology Initiative funding into the Advanced Technology Goods Movement Fund (61) to develop and demonstrate zero emission trucks and EV infrastructure;

3. Transfer up to \$4,440,000 from the State Emissions Mitigation Fund (39) into the Advanced Technology Goods Movement Fund (61) to develop and demonstrate zero emission trucks and EV infrastructure;
4. Transfer \$8,730,072 from the Clean Fuels Program Fund (31) into the Advanced Technology Goods Movement Fund (61) for SCAQMD's project cost-share;
5. If needed, transfer up to \$2,500,000 as a temporary loan from the Clean Fuels Program Fund (31), pending receipt of cofunding;
6. Transfer any unspent funds from the Advanced Technology Goods Movement Fund (61) to the Clean Fuels Program Fund (31) upon project completion; and
7. Authorize the Chairman to execute a contract with Daimler Trucks North America LLC to develop and demonstrate up to 20 heavy-duty electric trucks and EV infrastructure in an amount not to exceed \$15,670,072 from the Advanced Technology Goods Movement Fund (61).

Wayne Natri
Executive Officer

MMM:FM:NB:JI

Background

The SCAQMD is committed to achieving healthful air in the South Coast Air Basin (Basin) and all areas within the SCAQMD's jurisdiction. The 2016 AQMP seeks to achieve and maintain all state and federal air quality standards within attainment deadlines by the earliest date achievable to comply with federal Clean Air Act requirements. In order to meet these goals, the 2016 AQMP includes an integrated control strategy addressing multiple objectives for a more efficient path in meeting all clean air standards. Demonstration and commercialization projects will be crucial to help deploy and reduce costs for zero emission technologies. A key element of the implementation strategy is to engage original equipment manufacturers (OEMs) in the development and demonstration of zero emission technologies. The OEMs have the ability to design, develop, manufacture, market and service large volumes of vehicles which are needed in the Basin to get the emission reductions to meet air quality goals in the region.

There has been an increased interest in the marketplace for zero emission trucks including battery-electric technology in the heavy-duty goods movement sector, and the adoption of the San Pedro Bay Ports' Clean Air Action Plan has further stimulated this interest among fleets and others. While the benefits of electric drive vehicles are widely accepted, the cost of the technology and the availability of charging assets needs to be carefully considered and planned for implementing new technology programs. Additionally, OEMs are in desperate need of operational data and available vehicles to

provide this data. Daimler Trucks North America LLC (DTNA), the world's leader in heavy-duty truck sales, proposes to implement the Daimler Zero Emission Trucks and EV Infrastructure Project.

Proposal

Under the Daimler Zero Emission Trucks and EV Infrastructure Project, DTNA will develop battery-electric heavy-duty trucks and demonstrate them in real-world commercial fleet operations in and around environmental justice communities within the SCAQMD's jurisdiction to gather data and information from the end-users including performance under specific duty-cycle applications. DTNA will utilize the data and information to move toward the commercial production and sales phase. DTNA will supply ten Class 6 trucks with a gross vehicle weight rating (GVWR) up to 26,000 pounds and ten Class 8 trucks with a GVWR up to 80,000 pounds, including associated EV charging infrastructure. Fleet partners will be identified and the trucks integrated into a range of services and applications to gather operational data to improve each charging and utilization scheme, with seven of the Class 8 trucks to be used in port drayage operations, supporting the goods movement industry.

The drivetrain of the Class 6 electric trucks is capable of delivering over 220 horsepower, and the design allows for a burdened load with GVWR up to 26,000 pounds. Each charge of the battery can give operators 150-200 miles of service range, and the medium-duty design comes with a 4x2 axle configuration with a day cab of 106 inches. The batteries that come equipped with the Class 6 truck design will have a capacity of 225-300 kilowatt hours (kWh). The truck is capable of being charged with a Combined Charging Standard Type 1 (CCS T1).

The Class 8 truck model will be designed to have a range of 150-200 miles between charging. The electric drivetrain is capable of delivering over 455 horsepower and is designed to meet the needs and specifications of transportation of a GVWR of up to 80,000 pounds. The vehicles will have a 6x4 axle configuration with a 116-inch day cab, and the battery system will provide 400-600 kWh of usable power. The Class 8 vehicles will also use the CCS T1 charging systems.

DTNA will install DC fast charger stalls at four fleet locations providing an adequate number of chargers to support their fleet of 20 trucks. Each fast charger will be equipped with an SAE J1772 Combo (CCS T1) interface and will be capable of charging at up to 160 kW. The chargers will also be connected remotely for troubleshooting, management and data collection. Each DC fast charger will be paired with multiple battery energy storage systems (ESS) to optimize utility costs and reduce infrastructure enhancements required to support the chargers. DTNA will deploy the battery-based ESS paired with each high power vehicle charger. The proposed chargers will allow an 80% state of charge for the Class 6 trucks in two hours and the Class 8 trucks in three hours. Deploying two chargers per site will result in potential peak

power demands of approximately 335 kW. The ESS will be comprised of two or more modular units paired with a single charger. Each unit will be capable of delivering 60-70 kW at 480 volts AC power and will store 110-120 kWh of energy. Utilizing grid-aware scheduling algorithms, the ESS will charge from the grid during low-cost periods and over extended periods of time. This allows the ESS to recharge from the grid at a much lower peak power demand, reducing utility and facility infrastructure requirements and reducing or eliminating utility demand charges.

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. The request for a sole source award for this project is made under provision B.2.d.(1): Projects involving cost-sharing by multiple sponsors. This development and demonstration project will be cost-shared by the Ports, EPA Region 9 and DTNA, with additional cofunding actively being sought. In addition, Section VIII.B.3 identifies provisions under which a sole source award may be justified when contracts are funded in whole or in part with federal funds. This request for sole source award is made under provision B.3.c., which states the awarding federal agency authorizes noncompetitive proposals.

Benefits to SCAQMD

SCAQMD's Clean Fuels Program supports development and demonstration of zero emission electric transportation powered by batteries for goods movement technologies. The SCAQMD has also supported a number of activities directed toward the commercialization of electric vehicles and associated infrastructure. This proposed project is included in the *Technology Advancement Office Clean Fuels Program 2018 Plan Update* under "Develop and Demonstrate Electric and Hybrid Vehicles" and "Develop and Demonstrate EV Infrastructure for Deployment of Plug-In Electric and Hybrid Electric Vehicles."

Resource Impacts

The total cost for the Daimler Zero Emission Trucks and EV Infrastructure Project will not exceed \$31,340,144. DTNA will contribute \$15,670,072. A transfer of \$4,440,000 will be made from the State Emissions Mitigation Fund (39) to the Advanced Technology Goods Movement Fund (61) for this project, and SCAQMD's contract with DTNA will not exceed \$15,670,072 from the Advanced Technology Goods Movement Fund (61). The revenue from the San Pedro Bay Ports and U.S. EPA FY18 Section 105 Clean Air Technology Initiative will be used to cofund the project in the amount of \$2,000,000 and \$500,000, respectively, although additional cofunding is actively being sought. SCAQMD's cost-share will not exceed \$8,730,072 from the Clean Fuels Program Fund (31), but may decrease if additional cofunding is realized. A temporary loan of up to \$2,500,000 will be made from the Clean Fuels Program Fund (31) to the Advanced Technology Goods Movement Fund (61), pending receipt of cofunding. Any

unspent funds will be transferred back to the Clean Fuels Program Fund (31) after project completion.

The funding sources and partners for this project are identified in the following table.

Funding Source	Amount	Percent
DTNA	\$15,670,072	50
State Emissions Mitigation Fund (39)	\$4,440,000	14
San Pedro Bay Ports*	\$2,000,000	6
U.S. EPA Region 9	\$500,000	2
SCAQMD (<i>Requested</i>)	\$8,730,072	28
Total	\$31,340,144	100

**pending funding approval by Harbor Commissions*

Sufficient funds are available in the Clean Fuels Program Fund (31). The Clean Fuels Fund was 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.

The State Emissions Mitigation Fund (39) was established during FY 2002 to account for funds received from CARB to fund selected projects on emission reductions within the South Coast Air Basin. This was in response to the Governor’s statewide program to mitigate excess emissions from peaker power generation units to alleviate the power crisis in California. In January 2018, the Board approved the allocation of \$4,440,000 for mobile source emission reduction projects and supporting infrastructure from the State Emissions Mitigation Fund (39). The proposed mobile source emission reduction and infrastructure project has been selected to utilize these funds.

The Advanced Technology Goods Movement Fund (61) was established to facilitate the development and deployment of low and zero emission goods movement technologies. With the transfers from Funds 31 and 39, there will be sufficient funds for the proposed project with DTNA.