

BOARD MEETING DATE: September 4, 2020

AGENDA NO. 4

**PROPOSAL:** Recognize Revenue, Transfer Funds, Amend and Execute Contracts to Demonstrate Class 8 Battery Electric Trucks, Retrofit Ocean-Going Vessel, Deploy Fuel Cell Transit Buses and Reimburse General Fund

**SYNOPSIS:** South Coast AQMD has been awarded up to \$37,821,301 from U.S. EPA. These actions are to recognize revenue from the Clean Air Technology Initiative Program up to \$500,000 into the GHG Reduction Projects Special Revenue Fund (67), up to \$25,906,601 into Fund 17, and up to \$11,414,700 into the Clean Shipping Technology Demonstration Special Revenue Fund (83); recognize revenue from the San Pedro Bay Ports up to \$300,000 into Fund 83; transfer up to \$2,205,000 from Clean Fuels Program Fund (31) into Fund 17; and transfer up to \$300,000 from the Air Quality Investment Fund (27) into Fund 83. These actions are to also: amend a contract adding up to \$500,000 from Fund 67 and execute contracts for up to \$21,635,681 to demonstrate battery electric trucks and infrastructure and for administrative project implementation from Fund 17; execute an MOU with the San Pedro Bay Ports; execute a contract for up to \$11,474,000 to retrofit an ocean-going vessel from Fund 83; execute a contract for up to \$6,111,601 to deploy fuel cell transit buses from Fund 17; and reimburse the General Fund for administrative costs.

**COMMITTEE:** Technology, August 21, 2020; Recommend for Approval

**RECOMMENDED ACTIONS:**

1. Recognize revenue, upon receipt, of up to \$500,000 from the U.S. EPA FY 20 Section 105 Clean Air Technology Initiative Program into the GHG Reduction Projects Special Revenue Fund (67) to demonstrate additional Class 8 battery electric trucks for the Volvo LIGHTS project.

2. Recognize revenue, upon receipt, into the Advanced Technology, Outreach and Education Fund (17) as follows:
  - a. Up to \$20,000,000 from the U.S. EPA FY 19 Targeted Airshed Grant Program to deploy 70 Class 8 battery electric trucks for the Volvo Switch-On project; and
  - b. Up to \$5,906,601 from the U.S. EPA FY 20 Targeted Airshed Grant Program to deploy up to five fuel cell transit buses.
3. Recognize revenue, upon receipt, into the Clean Shipping Technology Demonstration Special Revenue Fund (83) to develop and demonstrate selective catalytic reduction retrofit technology for an ocean-going vessel as follows:
  - a. Up to \$11,414,700 from the U.S. EPA FY 20 Targeted Airshed Grant Program; and
  - b. Up to \$300,000 from the San Pedro Bay Ports' Technology Advancement Program.
4. Transfer up to \$2,205,000 from the Clean Fuels Program Fund (31) for South Coast AQMD's project cost-share to the Advanced Technology, Outreach and Education Fund (17):
  - a. Up to \$2,000,000 to deploy battery electric trucks and infrastructure for the Volvo Switch-On project; and
  - b. Up to \$205,000 to deploy fuel cell transit buses.
5. Transfer any unspent Clean Fuels Program funds from the Advanced Technology, Outreach and Education Fund (17) to the Clean Fuels Program Fund (31) upon project completion.
6. Transfer up to \$300,000 from the Air Quality Investment Fund (27)-Rule 1111 for South Coast AQMD's project cost-share into the Clean Shipping Technology Demonstration Special Revenue Fund (83) to retrofit an ocean-going vessel (OGV).
7. Authorize the Chairman to amend a contract with Volvo Group North America, LLC, for up to \$500,000 to demonstrate additional battery electric trucks for the Volvo LIGHTS project from the GHG Reduction Projects Special Revenue Fund (67).
8. Authorize the Chairman to execute the following contracts from the Advanced Technology, Outreach and Education Fund (17):
  - a. Volvo Group North America, LLC, for up to \$21,460,000 to deploy up to 70 Class 8 battery electric trucks and EV infrastructure for the Switch-On project;
  - b. Green Paradigm, Inc., for up to \$175,681 for administrative project implementation support for the Switch-On project; and
  - c. SunLine Transit Agency for up to \$6,111,601 to deploy up to five fuel cell transit buses.
9. Authorize the Executive Officer to execute an MOU with the Ports of Long Beach and Los Angeles to accept cost-share of up to \$300,000 for retrofit of an OGV.

10. Authorize the Chairman to execute a contract with MAN Energy Solutions USA Inc. for up to \$11,474,000 to retrofit an OGV from the Clean Shipping Technology Demonstration Special Revenue Fund (83).
11. Reimburse the General Fund up to \$1,061,620, comprising up to \$364,319 from the Advanced Technology, Outreach and Education Fund (17), \$540,700 from the Clean Shipping Technology Demonstration Special Revenue Fund (83) and \$156,601 from the Clean Fuels Program Fund (31), for administrative costs necessary to implement the above-mentioned projects.

Wayne Natri  
Executive Officer

MMM:NB:JI:PSK:MW:MH

---

### **Background**

The 2016 AQMP identifies the need for NO<sub>x</sub> reductions in meeting upcoming national ambient air quality standards. On-road diesel trucks and ocean-going vessels (OGVs) are major contributors to NO<sub>x</sub> emissions in the South Coast Air Basin. Significant increases in NO<sub>x</sub>, PM and GHG emissions from these sources are expected due to increased demand in goods movement activities. Accelerating the deployment of zero emission Class 8 battery electric trucks to the Ports and freight handling facilities, demonstrating and potentially deploying lower-emitting technologies from OGVs serving the Ports and implementing zero emission buses will reduce NO<sub>x</sub> emissions. CARB has also adopted regulations requiring the manufacture and implementation of zero emission trucks and transit buses.

Staff submitted multiple applications to the U.S. EPA for Targeted Airshed Program grants, each for up to \$20 million, for deploying heavy-duty zero emission battery electric trucks, retrofitting Tier II OGVs and replacing CNG transit buses with zero emission transit buses. In June 2020, U.S. EPA notified staff that three of the five projects had been selected for \$37,321,301 in funding. In a separate action, U.S. EPA, using Clean Air Technology Initiative (CATI) funds, awarded an additional \$500,000 to a current battery electric project.

### Volvo LIGHTS Project

Volvo Group North America, LLC, (Volvo) has partnered with South Coast AQMD on the Volvo LIGHTS (Low Impact Green Heavy Transport Solutions) project to develop and demonstrate Class 8 battery electric trucks and off-road equipment and install charging infrastructure and solar. Based on the current incremental cost of battery electric trucks, additional funding is critical to enable the purchase of zero emission trucks to comply with CARB's Advanced Clean Trucks Regulation.

### Switch-On Project

The Switch-On project is the next phase of the Volvo LIGHTS project and will deploy commercial Class 8 battery electric trucks which have been certified by CARB for sale in California. This 70-truck deployment is one of the largest single deployments of commercial Class 8 battery electric trucks and will provide additional data on how these trucks perform in revenue service in drayage and freight applications. Volvo and the fleets will each provide cash and in-kind cost-share towards each truck.

### Ocean-Going Vessel Retrofit

OGVs are mainly regulated by the International Maritime Organization (IMO), with current requirements for vessels built after January 1, 2016 required to meet Tier III emission standards. Based on Port studies, few IMO Tier III vessels are expected until late 2030, so retrofit technologies are a promising strategy to achieve NOx reductions, especially since OGVs remain in service for 25 years or more, whereas building a new OGV requires significant capital investment. South Coast AQMD and MAN Energy Solutions USA Inc. (MAN) have initiated a retrofit project for Water-In-Fuel technology to lower NOx emissions and have identified other promising retrofit technologies, such as selective catalytic reduction (SCR), that can achieve IMO Tier III NOx levels on two-stroke, slow-speed diesel engines.

### Fuel Cell Transit Bus Deployment

SunLine Transit Agency provides transit services to the Coachella Valley, an ozone non-attainment area, including Eastern Coachella Valley, which is a Year 2 Community under South Coast AQMD's AB 617 Program. SunLine has recently commissioned their onsite renewable hydrogen fueling station at a 900 kg per day capacity, which is the largest onsite hydrogen generation station at any U.S. transit agency, and their existing fleet includes 20 zero emission transit buses (16 fuel cell and 4 battery electric transit buses). SunLine's goal is to accelerate the transition to a fully zero emission bus fleet by 2035 to comply with CARB's Innovative Clean Transit (ICT) regulation.

## **Proposal**

### Volvo LIGHTS Project

Volvo will produce and demonstrate additional production Class 8 battery electric trucks in their Volvo LIGHTS project utilizing funds from a U.S. EPA CATI Grant. Five pilot trucks have already been deployed to California through the LIGHTS project. These actions are to recognize revenue up to \$500,000 from the U.S. EPA FY 2020 Section 105 CATI Program into the GHG Reduction Projects Special Revenue Fund (67) and amend a contract with Volvo Group North America, LLC, for the Volvo LIGHTS project.

### Switch-On Project

The Switch-On project will deploy up to 70 commercial Class 8 battery electric trucks and EV infrastructure with up to five fleets located in the Inland Empire and the San Fernando Valley in the City of Los Angeles. The trucks will be owned by the fleets and will continue in commercial service beyond the initial data collection period of up to two years. The trucks will be available in various configurations including Class 7 and 8 rigid frame trucks, as well as Class 8 tractors from 65,000 to 80,000 lbs., depending on fleet needs. These trucks will be produced and deployed in several phases in 2021 and 2022.

In addition, through a competitive bid process, Green Paradigm, Inc., (formerly Clean Fuel Connection, Inc.) has been providing the South Coast AQMD with technical expertise and project implementation assistance on various projects with electric vehicles, charging and fueling infrastructure. Staff proposes to utilize their services similarly for the Switch-On project.

These actions are to: 1) recognize revenue up to \$20,000,000 into Advanced Technology, Outreach and Education Fund 17; 2) transfer up to \$2,000,000 from the Clean Fuels Program Fund (31) for South Coast AQMD's project cost-share into Fund (17); 3) execute contracts with Volvo Group North America, LLC, and Green Paradigm, Inc., for the Switch-On project; and 4) reimburse the General Fund up to \$364,319 from Fund 17 for project implementation support.

### Ocean-Going Vessel Retrofit

South Coast AQMD is partnering with MAN to retrofit an IMO Tier II OGV, which will be the first SCR retrofit of an older IMO Tier II OGV to address emission reductions and functionalities below 25% engine load conditions. MAN will design and oversee the manufacturing of the SCR based on the vessel's operational profiles for the main and auxiliary engines, with an SCR for each engine. The SCRs will be manufactured specifically for the vessel. Vessel selection is being finalized.

These actions are to: 1) recognize revenue up to \$11,414,700 from U.S. EPA FY 20 Targeted Airshed Grant Program and up to \$300,000 from the San Pedro Bay Ports' Technology Advancement Program into the Clean Shipping Technology Demonstration Special Revenue Fund (83); 2) transfer up to \$300,000 from the Air Quality Investment Fund (27)-Rule 1111 for South Coast AQMD's project cost-share into the Fund 83; 3) authorize the Executive Officer to execute an MOU with the Ports of Long Beach and Los Angeles to accept cost-share of up to \$300,000; 4) execute a contract with MAN for up to \$11,474,000; and 5) reimburse the General Fund up to \$540,700 from Fund 83 for project implementation support.

### Fuel Cell Transit Bus Deployment

South Coast AQMD will partner with SunLine Transit Agency to purchase and deliver up to five fuel cell transit buses. The newly upgraded hydrogen fueling station has a capacity for 30 buses, with a total of 16 buses now utilizing the station. Buses will operate on several routes in disadvantaged communities and replace older model year CNG transit buses. SunLine expects to operate up to five fuel cell transit buses for their 12-year equipment lifetime.

These actions are to: 1) recognize revenue of up to \$5,906,601 from the U.S. EPA FY 20 Targeted Airshed Grant Program into the Advanced Technology, Outreach and Education Fund (17); 2) transfer up to \$205,000 from the Clean Fuels Program Fund (31) into Fund 17; 3) execute a contract with SunLine for up to \$6,111,601 to deploy up to five fuel cell transit buses; and 4) reimburse the General Fund up to \$156,601 from the Clean Fuels Program Fund (31) for project implementation support.

### **Sole Source Justification**

Section VIII.B.3 of the Procurement Policy and Procedure identifies four major provisions under which contracts funded in whole or in part with federal funds may be made as a sole source award. The request for sole source awards for the Volvo, Green Paradigm, MAN and SunLine contracts are made under the provisions B.3.c, which states the awarding federal agency or pass-through entity expressly authorizes non-competitive proposals in response to a written request from the non-Federal entity.

### **Benefits to South Coast AQMD**

Projects to support development and demonstration of battery electric trucks, freight handling equipment and infrastructure are included in the *Technology Advancement Office Clean Fuels Program 2020 Plan Update* under the categories of “Develop and Demonstrate Electric and Hybrid Vehicles,” “Develop and Demonstrate Electric Container Transport Technologies,” and “Develop and Demonstrate Electric Charging Infrastructure.” These projects are to develop and demonstrate zero emission heavy-duty trucks, freight handling equipment and infrastructure. Successful demonstrations of such projects will contribute to the attainment of national ambient air quality standards in the South Coast Air Basin by eliminating PM and NO<sub>x</sub> emissions from replaced diesel heavy-duty trucks and off-road freight handling equipment.

Projects to support development and demonstration of OGVs are included in the *Technology Advancement Office Clean Fuels Program 2020 Plan Update* under the categories of “Engine Systems/Technologies.” This project is to retrofit an IMO Tier II OGV with SCR, an exhaust gas treatment capable of reducing NO<sub>x</sub> emission by at least 75% from actual Tier II OGV emissions. Successful development and demonstration of SCR retrofit technology for Tier II OGVs can provide nearer-term NO<sub>x</sub> reductions until more IMO Tier III vessels are deployed closer to 2030.

Projects to support deployment of fuel cell transit buses and infrastructure are included in the *Technology Advancement Office Clean Fuels Program 2020 Plan Update* under the categories of “Hydrogen/Mobile Fuel Cell Technologies and Infrastructure.” This project is to deploy zero emission fuel cell transit buses and infrastructure. Successful deployment of fuel cell transit buses will contribute to the attainment of national ambient air quality standards in the South Coast Air Basin by eliminating PM and NOx emissions from replaced CNG transit buses. These projects also assist transit agencies to transition towards zero emission fleets and comply with CARB’s ICT regulation.

**Resource Impacts**

Volvo LIGHTS Project

The contract amendment to demonstrate additional trucks under the Volvo LIGHTS project will not exceed \$46,091,592 from the GHG Reduction Projects Special Revenue Fund (67). This includes previously recognized CARB funding of \$41,591,592, \$4,000,000 in South Coast AQMD cost-share previously approved by the Board from the Clean Fuels Program Fund (31), and the \$500,000 in U.S. EPA CATI funding being recognized in this Board letter. Funding for this project is detailed in the table below.

**Proposed Volvo LIGHTS Project Costs**

Source	Amount	Percent
CARB	\$41,591,592	45%
Volvo and partners (cash & in-kind)	\$45,855,308	50%
South Coast AQMD (approved Nov 2018)	\$4,000,000	4%
U.S. EPA CATI (new)	\$500,000	1%
<b>Total</b>	<b>\$91,946,900</b>	<b>100%</b>

Switch-On Project

The contracts with Volvo and Green Paradigm, Inc., will not exceed \$21,460,000 and \$175,681, respectively, for the Switch-On project from the Advanced Technology, Outreach and Education Fund (17). This includes U.S. EPA funding of \$20,000,000, of which \$540,000 is allocated towards project implementation support for South Coast AQMD staff time and contractual support, and \$2,000,000 in South Coast AQMD cost-share from the Clean Fuels Program Fund (31). Additional co-funding is actively being sought by staff, Volvo and its project partners through multiple sources including the Mobile Source Air Pollution Reduction Review Committee (MSRC), utility charger rebate programs, CEC and other funding sources. South Coast AQMD’s cost-share from the Clean Fuels Program Fund (31) may decrease if additional co-funding is realized. Any unspent funds will be transferred back to the Clean Fuels Program Fund (31) after project completion. Reimbursement of administrative costs will not exceed \$364,319 from Fund 17. Funding for this project is detailed in the table below:

**Proposed Switch-On Project Costs**

<b>Source</b>	<b>Amount</b>	<b>Percent</b>
U.S. EPA FY 19 Targeted Airshed Grant	\$19,460,000	62%
Volvo and fleets (cash & in-kind)	\$10,080,000	32%
South Coast AQMD ( <i>requested</i> )	\$2,000,000	6%
<b>Total</b>	<b>\$31,540,000</b>	<b>100%</b>

Ocean-Going Vessel Retrofit

The contract with MAN for the retrofit of an OGV will not exceed \$11,474,000 from the Clean Shipping Technology Demonstration Special Revenue Fund (83). This includes U.S. EPA FY 20 Targeted Airshed Grant funding of \$11,414,700, of which \$540,700 is for project implementation support, as well as \$300,000 cost-share from the San Pedro Bay Ports and \$300,000 in South Coast AQMD cost-share from the Air Quality Investment Fund (27). Funding for this project is detailed in the table below:

**Proposed OGV Retrofit Project Costs**

<b>Source</b>	<b>Amount</b>	<b>Percent</b>
U.S. EPA FY 20 Targeted Airshed	\$10,874,000	94.0%
San Pedro Bay Ports	\$300,000	2.5%
MAN (in-kind)	\$100,000	1.0%
South Coast AQMD ( <i>requested</i> )	\$300,000	2.5%
<b>Total</b>	<b>\$11,574,000</b>	<b>100%</b>

Fuel Cell Transit Bus Deployment

The contract with SunLine for fuel cell transit buses will not exceed \$6,111,601 from the Advanced Technology, Outreach and Education Fund (17). This includes U.S. EPA funding of \$5,906,601 and \$205,000 in South Coast AQMD cost-share from the Clean Fuels Program Fund (31). Funding for this project is detailed in the table below:

**Proposed Fuel Cell Transit Bus Project Costs**

<b>Source</b>	<b>Amount</b>	<b>Percent</b>
U.S. EPA FY 20 Targeted Airshed	\$5,906,601	85%
SunLine Transit Agency	\$806,204	12%
South Coast AQMD ( <i>requested</i> )	\$205,000	3%
<b>Total</b>	<b>\$6,917,805</b>	<b>100%</b>

Sufficient funds will be available to execute the Volvo, Green Paradigm, Inc., MAN, and SunLine contracts in the GHG Reduction Projects Special Revenue Fund (67), Advanced Technology, Outreach and Education Fund (17) and Clean Shipping

Technology Demonstration Special Revenue Fund (83), once the U.S. EPA CATI and Targeted Airshed grant funds are recognized.

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