

BOARD MEETING DATE: February 7, 2014

AGENDA NO. 10

PROPOSAL: Recognize Funds, Execute Contracts for Electric School Bus Conversions and Demonstration, Amend Contract for School Bus Replacement, and Reimburse General Fund for Administrative Costs

SYNOPSIS: The SCAQMD has been awarded \$391,613 for diesel emissions reduction projects under the Diesel Emissions Reduction Act (DERA) from the U.S. EPA. This action is to recognize \$391,613 and place it in the Lower-Emission School Bus Fund (33). These actions are also to execute contracts to convert and replace diesel school buses with electric buses and to demonstrate vehicle-to-grid technology in the amount of \$936,552, comprised of \$686,552 from the Lower-Emission School Bus Fund (33) and \$250,000 from the Clean Fuels Fund (31). Finally, this action is to amend a contract for replacement of diesel school buses with CNG buses to partially replace the source of funds in the amount of \$214,211 from the Carl Moyer Program AB 923 Fund (80) to the Lower-Emission School Bus Fund (33), and reimburse the General Fund for administrative costs of up to \$21,402 from the Lower-Emission School Bus Fund (33).

COMMITTEE: Technology, January 24, 2014, Recommended for Approval

RECOMMENDED ACTIONS:

- A. Recognize upon receipt up to \$391,613 in DERA funds from the U.S. EPA and place them in the Lower-Emission School Bus Fund (33).
- B. Authorize the Chairman to execute contracts with the following entities:
 - 1. Torrance Unified School District to convert two diesel school buses to electric buses with vehicle-to-grid (V2G) capability in an amount not to exceed \$456,552 from the Lower-Emission School Bus Fund (33). Up to \$104,000 of this funding will be from the U.S. EPA DERA grant;

2. National Strategies, LLC to develop and demonstrate V2G technology in an amount not to exceed \$250,000 from the Clean Fuels Fund (31); and
 3. Newport-Mesa Unified School District to replace one diesel school bus with a new electric school bus in an amount not to exceed \$230,000 from the Lower-Emission School Bus Fund (33). Up to \$52,000 of this funding will be from the U.S. EPA DERA grant.
- C. Authorize the Chairman to amend a contract with the Los Angeles Unified School District for replacement of diesel school buses with CNG buses to replace the funding source for eight buses in the amount of \$214,211 from the Carl Moyer Program AB 923 Fund (80) to the DERA funds recognized in the Lower-Emission School Bus Fund (33).
- D. Authorize the Executive Officer to reimburse the General Fund for administrative expenses necessary to implement the projects in an amount not to exceed \$21,402 from the Lower-Emission School Bus Fund (33).

Barry R. Wallerstein, D.Env.
Executive Officer

MMM:FM:AA:RC

Background

In June 2012, SCAQMD applied for and, in December 2013, received a \$391,613 award from the U.S. EPA's DERA Program to convert two diesel school buses to electric school buses and to replace nine diesel school buses with one electric and eight CNG school buses. In addition, the two converted electric buses will be used in a vehicle-to-grid (V2G) technology demonstration project to evaluate the capability, reliability and revenue-saving potential of V2G technology on electric school buses.

The V2G Electric School Bus Demonstration Project seeks to demonstrate that V2G capable school buses can overcome the capital cost barriers associated with EV technology and be financially viable on a total cost-of-ownership basis. In October 2013, the CEC awarded National Strategies, LLC \$1,473,488 to develop and demonstrate six electric school buses with vehicle-to-grid and vehicle-to-building functionality (V2G/B) in school districts across California. School buses are ideal for V2G/B operation since they typically operate in the morning and afternoon for a few hours but remain parked most of the day. In this proposed project, two of the zero-emission school buses will be demonstrated in the South Coast Air Basin with Torrance Unified School District (TUSD).

Proposal

Diesel School Bus Conversion and Replacement Projects

The proposed projects will convert two Type C medium-duty diesel buses to fully electric propulsion systems, replace one diesel school bus with a new electric bus and fund replacement of eight heavy-duty diesel school buses with new CNG buses. The converted electric buses will also be used in a V2G technology demonstration project to evaluate the capability, reliability and revenue-saving potential of V2G technology on electric school buses.

This action is to recognize \$391,613 in DERA funds from the U.S. EPA and place them in the Lower-Emission School Bus Fund (33). The grant is comprised of \$370,211 in project funds and \$21,402 in administrative funds.

The first project will be with TUSD to convert two diesel school buses to electric buses in an amount not to exceed \$456,552 from the Lower-Emission School Bus Fund (33). This amount will include \$104,000 from the \$391,613 DERA grant.

The second project will be with the Newport-Mesa Unified School District to replace one diesel school bus with a new electric bus in an amount not to exceed \$230,000 from the Lower-Emission School Bus Fund. This amount will include \$52,000 from the \$391,613 DERA grant.

The third project is with the Los Angeles Unified School District (LAUSD) for replacement of older diesel school buses with CNG buses. Under an existing contract LAUSD is to replace 70 diesel school buses with 55 new CNG and 15 new propane buses using funds from the Carl Moyer Program AB 923 Fund (80). The proposed no-cost amendment would replace \$214,211 of the funding amount from the Carl Moyer Program AB 923 Fund (80) with an equal amount of funds from the DERA grant to be placed in the Lower-Emission School Bus Fund (33).

V2G Electric Bus Demonstration Project

This proposed project consists of developing, installing and demonstrating a fully electric propulsion system with V2G/B capability for medium-duty Type C buses. The project is based on converting existing buses from diesel to fully electric propulsion rather than purchasing new buses. The electric propulsion system for the Type C V2G/B electric buses consists of a battery-electric drive system using low-cost electric motors, lithium iron phosphate batteries, electrically powered accessories and advanced power controls. The buses will also be equipped with a bidirectional charger and grid interface software that will allow electrical energy that has previously been stored in the on-board batteries to flow back to the electric grid. This creates the opportunity for the buses' owners to participate in "ancillary service" wholesale electricity markets. Outbound electricity can also be retained for "behind the meter" use, i.e., by buildings and operations that are

supplied by the same electric service used to charge the bus. Staff recommends the Board's approval to execute a contract with National Strategies, LLC to develop and demonstrate the electric propulsion system and the V2G system in an amount not to exceed \$250,000 from the Clean Fuels Fund (31).

Benefits to SCAQMD

Replacement of diesel school buses with CNG and electric school buses will reduce exposure of school children – a particularly vulnerable segment of our population – to harmful emissions, while also mitigating the broader problems associated with criteria pollutants and greenhouse gases. Over the remaining lifetime of the 11 school buses, these upgrades are estimated to reduce emissions of NO_x by 15.5 tons, PM_{2.5} by 0.7 tons, hydrocarbons by 1 ton, CO by 5.1 tons and CO₂ by 447 tons. Additionally, the reduction of PM_{2.5} emissions will also reduce black carbon, which influences climate by directly absorbing light, reducing the reflectivity (“albedo”) through deposition, and interacting with clouds. The project will also conserve nearly 16,000 gallons of diesel fuel annually. This project also furthers the development of electric conversions of buses and evaluates the vehicle-to-grid concept. This project is included in the *2013 Clean Fuels Program Plan Update* under “Electric/Hybrid Technologies & Infrastructure”.

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 to National Strategies, LLC 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 SCAQMD. Specifically, these circumstances are: B.2.d.(1) Project involving cost sharing by multiple sponsors. The details of cost-sharing by National Strategies, LLC, CEC and Newport-Mesa Unified School District are shown in the following section.

V2G Electric Bus Demonstration Project

National Strategies, of which TUSD is a project partner, was awarded a \$1,473,488 grant by CEC to develop and demonstrate six electric school buses with V2G in school districts across California. National Strategies, LLC was selected under a public solicitation issued by CEC. In addition, TUSD has expressed interest and commitment to operate and maintain school buses with electric propulsion and V2G systems.

Diesel School Bus Conversion and Replacement Projects

On April 6, 2012, SCAQMD issued a Program Announcement PA 2012-15 to solicit projects for replacement of school buses with new alternative fuel buses owned by public school districts. By the closing of the Program announcement, 31 public school districts applied for 417 school bus replacements. Staff evaluated and selected all 31 school districts for funding. Of those, Newport-Mesa and Los Angeles Unified School Districts

are selected for these projects because they have expressed interest and commitment to convert or replace their school buses with electric or CNG buses.

Resource Impacts

SCAQMD's total share of the projects costs shall not exceed \$900,763 from the Lower-Emission School Bus Fund (33), of which \$370,211 will be from the DERA grant to be placed in that fund and \$250,000 from the Clean Fuels Fund (31). The \$530,552 from the School Bus Fund (33) are turnback funds from previous school bus projects that were funded with SCAQMD's own funds. All the projects are completed and the returned funds are mostly from the unused portion of the completed projects.

The total projects costs and the amount of cost-sharing by other entities are summarized in the table below.

Proposed Project	Funding Partners (DERA Grant)	Funding Amount
Diesel School Bus Conversions and Replacement	DERA Grant from U.S. EPA (to be placed in Fund 33)	\$370,211
	SCAQMD (own funds from Fund 33)	\$530,552
	Total	\$900,763

* An additional \$1,077,789 in previously Board-approved SCAQMD AB923 school bus projects will be claimed as matching funds for the DERA grant.

Proposed Project	Funding Partners	Funding Amount
V2G Electric Bus Demonstration	National Strategies, LLC	\$1,654,201
	CEC	\$1,473,488
	SCAQMD (Clean Fuels Fund 31 requested)	\$ 250,000
	Total	\$3,377,689

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.