



**South Coast  
Air Quality Management District**  
21865 Copley Drive, Diamond Bar, CA 91765  
(909) 396-2000, [www.aqmd.gov](http://www.aqmd.gov)

## **TECHNOLOGY COMMITTEE MEETING**

### **Committee Members**

Council Member Joe Buscaino, Chair  
Supervisor Sheila Kuehl, Vice Chair  
Mayor Pro Tem Larry McCallon  
Council Member Judith Mitchell  
Council Member Dwight Robinson  
Supervisor Janice Rutherford

**July 21, 2017 ♦ 12:00 p.m. ♦ Conference Room CC8  
21865 Copley Dr., Diamond Bar, CA 91765**

**(The public may attend at the location listed above.)**

*Call-in for listening purposes only is available by dialing:*

*Toll Free: 866-244-8528*

*Listen Only Passcode: 5821432*

*In addition, a webcast is available for viewing and listening at:*

<http://www.aqmd.gov/home/library/webcasts>

## **AGENDA**

### **CALL TO ORDER**

### **ACTION ITEMS – Items 1 through 5**

- 1. Approve Additional Funds for Replacement of Onboard CNG Fuel Tanks on School Buses (*Motion Requested*)**  
Since 2001, the SCAQMD has replaced over 1,600 pre-1994 diesel school buses primarily with CNG school buses. In April 2012, the Board issued a Program Announcement using \$3 million from the Carl Moyer Program AB 923 Fund (80) to replace onboard CNG fuel tanks on a first-come, first-served basis for public school buses at least 14 years old. In November 2016, the Board approved an additional \$2 million to continue the Program, and these funds are now exhausted. This action is to approve an additional \$3 million from the Carl Moyer Program AB 923 Fund (80) to continue on a first-come, first-served basis the replacement of onboard CNG fuel tanks for public school buses.  

Vicki White  
Technology  
Implementation  
Manager

- 2. Execute Contract to Cosponsor Versatile Plug-In Auxiliary Power Systems Demonstration (*Motion Requested*)**

In December 2015, the Board awarded a contract to the Electric Power Research Institute, Inc., (EPRI) to cosponsor development and demonstration of a Versatile Plug-In Auxiliary (VAP) System. EPRI is now requesting to use the previously approved cost-share for the second phase of the VAP System demonstration to evaluate the benefits and impacts of electric auxiliary power on emissions and fuel usage in various on-board and stationary applications. Up to three units will undergo baseline tests at Southern California Edison's EV Technical Center prior to field demonstration within SCAQMD. This action is to execute a contract with EPRI to demonstrate up to three VAP systems in various applications in an amount not to exceed \$125,000 from the Clean Fuels Program Fund (31).

Lisa Mirisola  
Program  
Supervisor
- 3. Execute Contract to Demonstrate Low NOx Combustion Technology on Refinery Boiler (*Motion Requested*)**

The 2016 AQMP identifies development and implementation of new technologies to further reduce NOx emissions from stationary combustion sources as a key strategy. It is also equally important to assess new technologies to prevent or mitigate any negative impact on air quality and public health. ClearSign Combustion Corporation recently submitted an unsolicited proposal that addresses these needs using a low NOx, non-Selective Catalytic Reduction combustion technology. Staff recommends cost-sharing the proposed project to demonstrate retrofitting their Duplex low NOx combustion technology without the use of reagents, such as ammonia or urea, on a refinery boiler. This action is to execute a contract with ClearSign to cost-share this project in an amount not to exceed \$320,000 from the Rule 1118 Mitigation Fund (54).

Al Baez  
Program  
Supervisor
- 4. Recognize and Transfer Funds, Execute Agreements for Installation of Air Filtration Systems, and Reimburse General Fund for Administrative Costs (*Motion Requested*)**

U.S. EPA Region 9 and Wal-Mart Transportation, LLC, are executing a Supplemental Environmental Project (SEP) agreement to install air filtration systems at one or more schools in an Environmental Justice community in the South Coast region. Both parties have requested that SCAQMD act as the SEP implementer for this project. These actions are to recognize up to \$300,000 from Wal-Mart into the Air Filtration Fund (75), transfer the same amount as a temporary loan from the Clean Fuels Fund (31) to the Air Filtration Fund (75), and execute an agreement with Wal-Mart for SCAQMD to act as the SEP Implementer for installation of air filtration systems. These actions are also to execute a contract with IQAir North America for installation of air filtration systems in an

Patricia Kwon  
AQ Specialist

amount not to exceed \$285,000 and reimburse the General Fund for administrative costs up to \$15,000 from the Air Filtration Fund (75).

**5. Amend Contracts to Continue Implementation of Enhanced Fleet Modernization Program and Transfer Funds (*Motion Requested*)**

Lori Berard  
AQ Specialist

In February 2017, the Board recognized an additional \$5 million from CARB to continue implementation of the Enhanced Fleet Modernization Program (EFMP). The Board also approved contracts with consulting firms to provide assistance with implementation of the EFMP including case management, outreach and vehicle emissions testing. The Program has been highly successful. Consequently, this action is to amend contracts with consulting firms in an amount not to exceed \$500,000 from the HEROS II Special Revenue Fund (56) to continue program implementation, including the addition of a new outreach strategy involving vehicle emissions monitoring in disadvantaged communities to identify high-emitting vehicles for potential voluntary replacement with cleaner, more fuel-efficient vehicles. These actions are to also transfer up to \$850,000 (comprising the above amendments and a prior \$350,000 amendment for Opus Inspection approved in February 2017) as a temporary loan from the Clean Fuels Program Fund (31) into the HEROS II Special Revenue Fund (56), until receipt of the CARB revenue.

**OTHER MATTERS**

**6. Other Business** – *Any member of the Committee, or its staff, on his or her own initiative or in response to questions posed by the public, may ask a question for clarification, may make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter, or may take action to direct staff to place a matter of business on a future agenda. (Gov't. Code Section 54954.2)*

**7. Public Comment Period**

*Members of the public may address this body concerning any agenda item before or during consideration of that item (Gov't. Code Section 54954.3(a)). All agendas for regular meetings are posted at District Headquarters, 21865 Copley Drive, Diamond Bar, California, at least 72 hours in advance of a regular meeting. At the end of the regular meeting agenda, an opportunity is also provided for the public to speak on any subject within the Committee's authority. Speakers may be limited to three (3) minutes each.*

**8. Next Meeting Date** – Friday, September 15, 2017 at 12:00 pm

## **ADJOURNMENT**

### **Americans with Disabilities Act**

*The agenda and documents in the agenda packet will be made available, upon request, in appropriate alternative formats to assist persons with a disability (Gov't. Code Section 54954.2(a)). Disability-related accommodations will also be made available to allow participation in the Stationary Source Committee meeting. Any accommodations must be requested as soon as practicable. Requests will be accommodated to the extent feasible. Please contact Pat Krayser at 909.396.3248 from 7:30 a.m. to 6:00 p.m., Tuesday through Friday, or send the request to [pkrayser@aqmd.gov](mailto:pkrayser@aqmd.gov).*

### **Document Availability**

*All documents (i) constituting non-exempt public records, (ii) relating to an item on an agenda for a regular meeting, and (iii) having been distributed to at least a majority of the Committee after the agenda is posted, are available prior to the meeting for public review at the South Coast Air Quality Management District, Public Information Center, 21865 Copley Drive, Diamond Bar, CA 91765.*

[Go to SLIDES](#)

**DRAFT**  
**Technology Committee Agenda #1**

BOARD MEETING DATE: September 1, 2017

AGENDA NO.

PROPOSAL: Approve Additional Funds for Replacement of Onboard CNG Fuel Tanks on School Buses

SYNOPSIS: Since 2001, the SCAQMD has replaced over 1,600 pre-1994 diesel school buses primarily with CNG school buses. In April 2012, the Board issued a Program Announcement using \$3 million from the Carl Moyer Program AB 923 Fund (80) to replace onboard CNG fuel tanks on a first-come, first-served basis for public school buses at least 14 years old. In November 2016, the Board approved an additional \$2 million to continue the Program, and these funds are now exhausted. This action is to approve an additional \$3 million from the Carl Moyer Program AB 923 Fund (80) to continue on a first-come, first-served basis the replacement of onboard CNG fuel tanks for public school buses.

COMMITTEE: Technology, July 21, 2017; Recommended for Approval

**RECOMMENDED ACTION:**

Approve \$3 million from the Carl Moyer Program AB 923 Fund (80) and authorize the Chairman to execute grant agreements to continue the replacement of onboard CNG fuel tanks on a first-come, first-served basis for public school buses at least 14 years old, under an existing open Program Announcement (#PA2012-16).

Wayne Nastri  
Executive Officer

MMM:FM

---

**Background**

Since the commencement of the Lower-Emission School Bus Program in 2001, SCAQMD has spent about \$280 million in state and local funds to replace over 1,600 highly polluting diesel school buses with alternative fuel buses and retrofit over 3,000 diesel school buses with particulate traps. In April 2012, the Board approved the issuance of Program Announcement #PA2012-16 using \$3 million from the Carl Moyer Program AB 923 Fund (80) to fund on a first-come, first-served basis the replacement

of onboard CNG fuel tanks for school buses at least 14 years old but not older than 16 years that are owned by public school districts. Subsequently, in November 2016, the Board approved an additional \$2 million from the same funding source to continue the Program. Due to high demand, the entire \$5 million has been exhausted, and there is a backlog of applications for which funding is currently unavailable.

**Proposal**

This action is to approve an additional \$3 million from the Carl Moyer Program AB 923 Fund (80) to continue the replacement of onboard CNG fuel tanks for school buses at least 14 years old that are owned by public school districts. These funds will be added to the open Program Announcement #PA2012-16 to continue the ongoing program on a first-come, first-served basis.

**Benefits to SCAQMD**

Replacement of expired CNG tanks with new tanks would assist school districts by extending the useful life of their existing CNG buses, helping them continue to provide clean transportation for school children.

**Resource Impacts**

There are sufficient funds available in the Carl Moyer Program AB 923 Fund (80) to allocate an additional \$3 million to Program Announcement #PA2012-16 for onboard CNG fuel tank replacements for public school buses at least 14 years old.

# Agenda Item #1

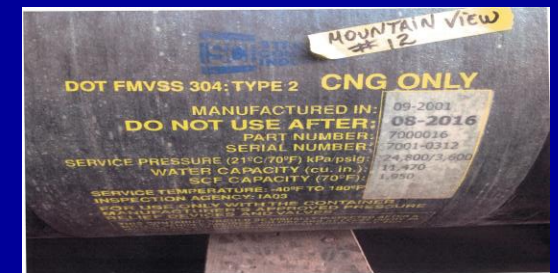
---

Vicki White

Approve Additional Funds for Replacement of  
Onboard CNG Fuel Tanks on School Buses

# Background

- In April 2012, the Board approved issuance of a Program Announcement with \$3M from AB 923 Fund (80) to replace onboard CNG fuel tanks on public school buses
- Applications approved on a first-come, first-served basis for fuel tanks at least 14 years old
- Funding up to \$20,000 per tank
- These funds were exhausted in Nov 2016





## Background (Cont'd)

---

- In November 2016, the Board approved an additional \$2 million from the Carl Moyer AB 923 Fund (80) to continue this program
- Continued implementing the program on a first-come, first-served basis for school buses with CNG fuel tanks at least 14 years old
- Funding is now exhausted and a backlog of applications exists
- Since 2001, over 1,600 replacements and 3,000 retrofits with particulate traps

# Proposal

- Allocate an additional \$3 million for the tank replacement program, given the high demand
- Continue program on a first-come, first-served basis until the funding is exhausted
- Continue to follow CARB's guidelines



# Recommended Action

---

Approve \$3 million from the Carl Moyer Program AB 923 Fund (80) to continue the replacement of onboard CNG fuel tanks on a first-come, first-served basis for public school buses at least 14 years old, under an existing open Program Announcement (#PA2012-16)

[Go to SLIDES](#)

**DRAFT**  
**Technology Committee Agenda #2**

BOARD MEETING DATE: September 1, 2017

AGENDA NO.

**PROPOSAL:** Execute Contract to Cosponsor Versatile Plug-In Auxiliary Power Systems Demonstration

**SYNOPSIS:** In December 2015, the Board awarded a contract to the Electric Power Research Institute, Inc., (EPRI) to cosponsor development and demonstration of a Versatile Plug-In Auxiliary (VAP) System. EPRI is now requesting to use the previously approved cost-share for the second phase of the VAP System demonstration to evaluate the benefits and impacts of electric auxiliary power on emissions and fuel usage in various on-board and stationary applications. Up to three units will undergo baseline tests at Southern California Edison's EV Technical Center prior to field demonstration within SCAQMD. This action is to execute a contract with EPRI to demonstrate up to three VAP systems in various applications in an amount not to exceed \$125,000 from the Clean Fuels Program Fund (31).

**COMMITTEE:** Technology, July 21, 2017; Recommended for Approval

**RECOMMENDED ACTION:**

Authorize the Chairman to execute a contract with the Electric Power Research Institute, Inc., to cosponsor demonstration of up to three Versatile Plug-In Auxiliary Power systems in an amount not to exceed \$125,000 from the Clean Fuels Program Fund (31).

Wayne Natri  
Executive Officer

MMM:FM:NB:LHM

---

**Background**

In December 2015, the Board awarded a contract not to exceed \$125,000 to the Electric Power Research Institute (EPRI) to develop and demonstrate Versatile Plug-In Auxiliary Power (VAP) systems to provide job site electric auxiliary power to evaluate the emissions and fuel usage benefits.

The VAP System provides a multifaceted approach to electrify both fleet vehicles and job sites. The core principle is to use battery energy storage with various types of export power systems to provide zero emission electric power in place of a traditional vehicle engine or portable internal combustion (IC) generator-supplied power. The concept can be applied to vehicle systems, such as cabin cooling through electric air conditioning and chassis electrical support for laptops, tool chargers and vehicle lights to perform varying degrees of job site electrification and idle-free work operation.

In Phase 1, SCE conducted bench tests on the VAP units provided by LG Chem as originally proposed, but they were not acceptable, so the unit was not installed for on-road testing. Phase 1 costs totaled \$677,000 of in-kind support from project partners including SCE and EPRI. SCAQMD's cost-share was not expended because the on-road testing was not conducted. Based on the Phase I testing results, systems from alternative suppliers were evaluated and the scope of the project has expanded to include systems for portable power and portable DC fast charging.

### **Proposal**

This action is to execute a contract with EPRI to cosponsor demonstration of up to three VAP systems within the SCAQMD. The objective is to evaluate the emissions and fuel usage benefits and impacts of electric auxiliary power used in various applications (e.g., truck or trailer mounted or independent mobile configuration for job sites). Baseline tests will be done by SCE on all VAP systems prior to field demonstrations.

Leveraging cost reductions in lithium-ion battery technology and specifications, testing procedures, and lessons learned in the first phase of this project, this second phase will procure, test and demonstrate multiple electrical platforms in the following subcategories:

- Small Energy VAP System Platform for job site and vehicle electrification
- Large Energy VAP System Platform for job site electrification
- Large Energy VAP System Platform for portable electric vehicle DC fast charger

All three systems will be available for demonstrations with end-users such as military, police, fire and other users identified by the project team.

The small energy VAP system to be procured from Envoltz or another provider is smaller than originally proposed and intended for installation on a work vehicle and will focus on cabin cooling, chassis electrical support and export power for light electric loads such as portable lights and cordless tool chargers. The small VAP system may be demonstrated with utility work crews at various sites and within various applications.

The two large energy VAP systems to be procured from Freewire Mobi or another provider are larger than originally proposed, and will be demonstrated within a portable IC generator application. One large energy VAP system will focus on replacing portable IC generators in applications such as a fiber optics splicing vehicle, or underground cable installation vehicle, that have constant and high loads to run air blowers, welders, climate control systems and tools currently being supplied by on-board IC generators. The other 48 kWh large VAP system will be demonstrated as a DC fast charger application with a dedicated SAEJ177- compliant Combined Charging System (CCS) fast charger connection to evaluate the usefulness and demand of a DC fast charger without the high cost of infrastructure installation costs. These Freewire Mobi units re-use lithium ion (LiMn2O4) cells from Nissan Leaf EVs, but are liquid-cooled for improved life in stationary applications.

SCE will support the deployments and evaluate the VAP systems based on the real-world needs of participants, including feedback regarding ideal sizing of energy storage systems in the most effective manner. Additional VAP systems may be produced and demonstrated in additional applications, if additional cofunding is provided. Data will be collected from each VAP system for at least 12 months, then compiled and analyzed by EPRI in a publicly available report.

### **Benefits to SCAQMD**

The AQMP relies upon the expedited implementation of advanced technologies in Southern California to achieve air quality standards and to continue reductions in air toxic exposure. This project will apply advanced energy storage technologies in various platforms to identify best fit applications, determine their viability, gauge fleet interest and provide a pathway to commercialization. The proposed project is included in the *Technology Advancement Office Clean Fuels Program 2017 Plan Update* under “Demonstrate Alternative Energy Storage.”

### **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. These requests for sole source awards are 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 and B.2.d.(8): Research and development efforts with educational institutions or nonprofit organizations.

EPRI, founded in 1973 as a non-profit energy research consortium, manages a far-reaching program of scientific research, technology development and product implementation and has a long history of managing and supporting similar projects involving development and commercialization of new technologies. The team brought together by EPRI has significant experience in demonstration support, data acquisition,

system evaluation, emissions and performance assessment and new technology commercialization.

### **Resource Impacts**

Funding from the Clean Fuels Program Fund (31) shall not exceed \$125,000. Project partners and proposed funding for Phase 2 demonstration are as follows:

<b>Project Partner</b>	<b>Funding</b>	<b>(In-kind)</b>
SCE	\$128,000	Labor for VAP operation in SCE fleet, data collection
Utility/Military/Police/Fire	\$20,000	LADWP invited or other partner*
SCAQMD ( <i>requested</i> )	\$125,000	
<b>Total</b>	<b>\$273,000</b>	

\*EPRI is in negotiation with LADWP and/or another potential demonstration partner

Sufficient funds are available in the Clean Fuels Fund (31), which is established as special revenue 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.

# Agenda Item #2

---

**Lisa Mirisola**

Execute Contract to Cosponsor  
Versatile Plug-In Auxiliary Power (VAP)  
Systems Demonstration



# Background

- In Dec 2015, the Board awarded EPRI a contract for VAP Systems Demonstration
- Retrofit plug-in auxiliary power packs
  - Cost-effective, near-term option for existing trucks
  - Significant benefit potential
- Phase 1 development and evaluation
  - Bench tests on original units unacceptable; no demonstration (no SCAQMD \$ expended)
  - Alternative units bench tested and proposed for demonstration in Phase 2

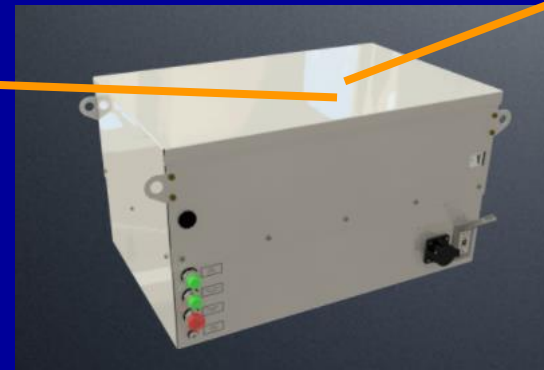


# Small VAPS Option

- Envoltz Inc. (or another qualified provider)
  - Builder of electrified field equipment
    - Underground pullers, overhead tensioners and export power packs, all using lithium-ion batteries
  - Integrate onto SCE vehicle and perform field demonstrations
    - Underground vault work, fiber optics mobile slice lab, night work lights and tools



SCE underground pull using Envoltz



# Large VAPS Options

- Freewire Mobi (or another qualified provider)
  - True 2nd life Nissan Leaf batteries – 48kWh
  - Portable export power configuration – 120VAC, 240VAC, 12VDC
  - Mobile DC fast charger configuration to evaluate effectiveness of fast charging with minimal infrastructure investment
  - 120VAC or 240VAC grid charged, EVSE compatible



# VAP System

- Lab Evaluation
  - Functionality, safety, battery capacity testing
- Vehicle integration and demonstration of small energy VAPS
  - Integrate on SCE field vehicle
  - Demonstrate with crews
- Field evaluation of two large energy VAP
  - Demonstrate at various SCE, LADWP and other job sites requiring export power
- Target diesel genset applications



# Proposed Funding

Project Partners	Proposed Funding
SCE	\$128,000
Utility/Military/Police/Fire*	\$20,000
SCAQMD ( <i>requested</i> )	\$125,000
<b>Total</b>	<b>\$273,000</b>

\*EPRI is in negotiation with LADWP and/or another potential demonstration partner

# Recommended Action

---

Execute a contract with Electric Power Research Institute, Inc., to demonstrate up to three VAP systems in an amount not to exceed \$125,000 from the Clean Fuels Fund (31)



[Go to SLIDES](#)

**DRAFT**  
**Technology Committee Agenda #3**

BOARD MEETING DATE: September 1, 2017

AGENDA NO. \_

**PROPOSAL:** Execute Contract to Demonstrate Low NO<sub>x</sub> Combustion Technology on Refinery Boiler

**SYNOPSIS:** The 2016 AQMP identifies development and implementation of new technologies to further reduce NO<sub>x</sub> emissions from stationary combustion sources as a key strategy. It is also equally important to assess new technologies to prevent or mitigate any negative impact on air quality and public health. ClearSign Combustion Corporation recently submitted an unsolicited proposal that addresses these needs using a low NO<sub>x</sub>, non-Selective Catalytic Reduction combustion technology. Staff recommends cost-sharing the proposed project to demonstrate retrofitting their Duplex low NO<sub>x</sub> combustion technology without the use of reagents, such as ammonia or urea, on a refinery boiler. This action is to execute a contract with ClearSign to cost-share this project in an amount not to exceed \$320,000 from the Rule 1118 Mitigation Fund (54).

**COMMITTEE:** Technology, July 21, 2017; Recommended for Approval

**RECOMMENDED ACTION:**

Authorize the Chairman to execute a contract with ClearSign Combustion Corporation to conduct the demonstration of retrofitting their Duplex low NO<sub>x</sub> combustion technology on a refinery boiler in an amount not to exceed \$320,000 from the Rule 1118 Mitigation Fund (54).

Wayne Natri  
Executive Officer

MMM:FM:NB:AHB

---

**Background**

The SCAQMD region has the need to achieve significant NO<sub>x</sub> reductions in order to meet the national ambient air quality standards for ozone. NO<sub>x</sub>-emitting stationary sources regulated by the SCAQMD include RECLAIM facilities (e.g., refineries and power plants) and other combustion equipment (e.g., boilers, heaters, burners and

flares). The 2016 AQMP includes control measures to achieve NO<sub>x</sub> reductions from new regulations on RECLAIM facilities, non-refinery flares and commercial cooking, as well as residential and commercial appliances. Although such combustion sources are already regulated with the lowest NO<sub>x</sub> emissions levels achievable, pre-commercial, new technologies with the potential to further reduce NO<sub>x</sub> emissions are available for varying combustion equipment.

Selective catalytic reduction (SCR) has been extensively used as an aftertreatment technology to reduce NO<sub>x</sub> emissions from combustion equipment. SCR requires the injection of ammonia or urea that is reacted over a catalyst bed to reduce the NO<sub>x</sub> formed during the combustion process. Challenges arise if ammonia distribution within the flue gas or operating temperature is not optimal, resulting in ammonia emissions leaving the SCR in a process referred to as “ammonia slip.”

Recently, ClearSign submitted an unsolicited proposal to demonstrate their proprietary Duplex low NO<sub>x</sub> combustion technology without the use of reagents, such as ammonia or urea, on a refinery boiler with a target to achieve 3 ppm NO<sub>x</sub> and lower PM emissions, achieving further reductions below the current applicable rules and BACT.

### **Proposal**

ClearSign, in partnership with Torrance Refining Company, proposes to conduct a demonstration project by retrofitting a 291 million Btu per hour refinery gas-fired boiler with their Duplex burner technology. Previous studies of the Duplex technology installed on a small refinery heater demonstrated NO<sub>x</sub> emissions between 2.5 ppm and 4.5 ppm. For the proposed project, the goal will be to achieve and validate 3 ppm NO<sub>x</sub> emissions using a third-party source testing firm. The Duplex technology incorporates a high-temperature porous ceramic tile matrix on which combustion is sustained after the tile has been heated using a conventional burner. Once the proper tile temperature and system parameters have been achieved, transition from conventional burner to Duplex mode is done where combustion is fully sustained on the tile matrix. In addition to very low NO<sub>x</sub> levels without the use of reagents, such as ammonia or urea, the Duplex technology is expected to provide other benefits such as enhanced CO oxidation, enhanced radiation heat transfer and noise reduction. This proposal is to cost-share a one-year demonstration of the Duplex burner technology.

### **Sole Source Justification**

Section VIII.B.2 of the Procurement Policy and Procedure identifies provisions under which a sole source award may be justified. This request for sole source awards is made under provisions B.2.c: The desired services are available from only the sole-source based on the following reasons; (1) The unique experience and capabilities of the proposed contractor or contractor team; (2) The project involves the use of proprietary technology; and (3) The contractor has ownership of key assets required for project performance. In addition to 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. Such circumstances may include but are not limited to projects involving cost-sharing by multiple sponsors. ClearSign has developed and holds sole property and intellectual rights to the Duplex burner technology, and significant in-kind and cash cost-share will be provided by ClearSign and Torrance Refining Company, as detailed below.

### **Benefits to SCAQMD**

The proposed project is relevant to the SCAQMD's priorities to reduce NO<sub>x</sub> and PM emissions from stationary sources to achieve national ambient air quality standards and protect public health. The proposed demonstration of the Duplex burner technology will help support the policy objective of the 2016 AQMP of investing in strategies and technologies meeting multiple objectives regarding air quality and reducing emission impacts on local neighborhoods and disadvantaged communities. In addition, the successful demonstration of the Duplex burner technology will support control measure CMB-05 in the 2016 AQMP to identify approaches in implementing Best Available Retrofit Control Technology (BARCT) and generate further NO<sub>x</sub> emission reductions at RECLAIM facilities.

### **Resource Impacts**

The total estimated cost for the proposed project is \$960,000, of which SCAQMD's proposed cost-share will not exceed \$320,000 from the Rule 1118 Mitigation Fund (54), as summarized below:

**Proposed Project Cost-Share**

<b>Project Partner</b>	<b>Total by Project Partner</b>
ClearSign (in-kind)	\$320,000
Torrance Refinery	\$320,000
SCAQMD ( <i>requested</i> )	\$320,000
<b>Total Project Cost</b>	<b>\$960,000</b>

Sufficient funds are available in Rule 1118 Mitigation Fund (54) for this proposed project. Rule 1118—Control of Emissions from Refinery Flares regulates emissions from flares used at refineries as a safety device. The rule imposes an annual limitation on sulfur dioxide emissions from flaring. If a refinery exceeds a flaring limitation in the rule, the refinery is required to pay mitigation fees to the SCAQMD, as specified in the rule. The funds are to be used to develop air quality improvement projects and fund mitigation projects.

# Agenda Item #3

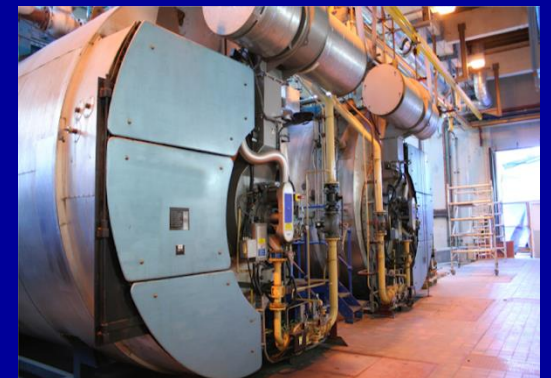
---

**Alfonso Baez**

**Execute Contract to Demonstrate Low NOx  
Combustion Technology on Refinery Boiler**

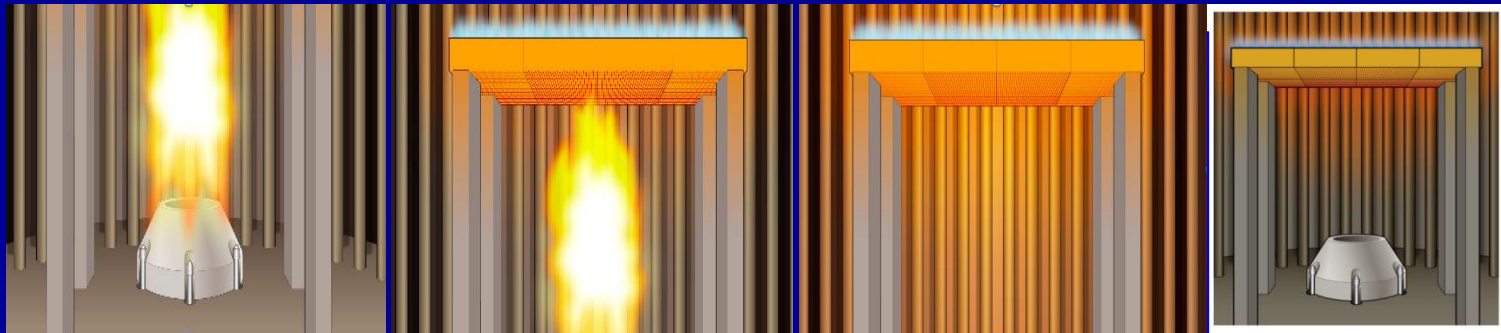
# Background

- Critical to develop and implement new stationary source emission control technologies to meet ambient air quality standards
- Equally important to prevent or mitigate any negative impact from new technologies
- Proposal from ClearSign Combustion Corp. to demonstrate retrofit of their Duplex low NO<sub>x</sub> combustion technology on a refinery boiler



# Background (cont'd)

- Duplex technology incorporates a high-temperature porous ceramic tile matrix on which combustion is sustained after the tile has been heated using a conventional burner
- Initial operation of Duplex technology on small refinery heater showed NO<sub>x</sub> emissions between 2.5 and 4.5 ppm without the use of reagents such as ammonia or urea



# Proposal

- ClearSign to demonstrate retrofit of Duplex low NOx combustion technology on a 291 MMBtu/hr refinery gas-fired boiler at Torrance Refinery
- Secure all required permits, engineering, design, fabrication, installation and commissioning
- Goal to achieve and validate 3 ppm NOx
- One-year demonstration project
- Measure NOx, PM and CO emissions through source test using SCAQMD-approved source test methods



# Proposed Project Cost

Project Partner	Proposed Funding
ClearSign	\$320,000
Torrance Refinery	\$320,000
SCAQMD ( <i>requested</i> )	\$320,000
<b>Total Project Cost</b>	<b>\$960,000</b>

# Recommended Action

---

Execute a contract with ClearSign Combustion Corp. to demonstrate retrofit of their Duplex low NOx combustion technology on a refinery boiler in an amount not to exceed \$320,000 from the Rule 1118 Mitigation Fund (54).

[Go to SLIDES](#)

**DRAFT**  
**Technology Committee Agenda #4**

BOARD MEETING DATE: September 1, 2017

AGENDA NO. x

**PROPOSAL:** Recognize and Transfer Funds, Execute Agreements for Installation of Air Filtration Systems, and Reimburse General Fund for Administrative Costs

**SYNOPSIS:** U.S. EPA Region 9 and Wal-Mart Transportation, LLC, are executing a Supplemental Environmental Project (SEP) agreement to install air filtration systems at one or more schools in an Environmental Justice community in the South Coast region. Both parties have requested that SCAQMD act as the SEP implementer for this project. These actions are to recognize up to \$300,000 from Wal-Mart into the Air Filtration Fund (75), transfer the same amount as a temporary loan from the Clean Fuels Fund (31) to the Air Filtration Fund (75), and execute an agreement with Wal-Mart for SCAQMD to act as the SEP Implementer for installation of air filtration systems. These actions are also to execute a contract with IQAir North America for installation of air filtration systems in an amount not to exceed \$285,000 and reimburse the General Fund for administrative costs up to \$15,000 from the Air Filtration Fund (75).

**COMMITTEE:** Technology, July 21, 2017; Recommended for Approval

**RECOMMENDED ACTIONS:**

1. Recognize, upon receipt, up to \$300,000 from Wal-Mart Transportation, LLC, into the Air Filtration Fund (75);
2. Transfer up to \$300,000 as a temporary loan from the Clean Fuels Fund (31) into the Air Filtration Fund (75);
3. Authorize the Executive Officer to execute an agreement with Wal-Mart Transportation, LLC, for SCAQMD to act as the SEP Implementer for installation of air filtration systems;
4. Authorize the Chairman to execute a contract with IQAir North America for installation of air filtration systems at one or more schools in an amount not to exceed \$285,000 from the Air Filtration Fund (75); and



5. Reimburse the General Fund from the Air Filtration Fund (75) for administrative costs up to \$15,000, as needed, to implement the air filtration project.

Wayne Nastri  
Executive Officer

MMM:FM:NB:PSK

---

### **Background**

U.S. EPA Region 9 and Wal-Mart Transportation, LLC, are executing a Supplemental Environmental Project (SEP) agreement to install air filtration systems at one or more schools in Environmental Justice communities. Both parties have requested SCAQMD act as the SEP Implementer for this project, which must be completed by September 2019.

IQAir North America was previously selected through two separate competitive bid processes in 2011 and 2013 for air filtration projects, and last year staff performed a technology status check to ensure no new technologies had come on the market. Furthermore, IQAir was the only qualified manufacturer of high performance filters and stand-alone units to meet the performance standards in SCAQMD's 2009 air filtration pilot study as well as through a national testing opportunity conducted by the University of California Riverside CE-CERT at Sunnyslope Elementary School in 2010. To date, through its contractor IQAir, SCAQMD has installed air filtration systems at 71 schools and community centers. Performance standards from SCAQMD's air filtration pilot study include an average removal efficiency of at least 85 percent for ultrafine PM and black carbon, no pressure drop for panel filters, no ozone generation and a noise level below 45 decibels for stand-alone units.

### **Proposal**

Staff from the U.S. EPA Region 9 have requested that selected schools receiving air filtration systems be in Environmental Justice communities or other areas disproportionately impacted by diesel PM and project completion must occur by September 2019. Staff will execute a new Memorandum of Agreement (MOA) with the identified school districts and utilize an existing MOA with the Los Angeles Unified School District, providing access to any schools in these communities.

The proposed schedule for installation of air filtration systems in one or more schools in Environmental Justice communities is as follows:

<b>Date</b>	<b>Event</b>
September 2017	Board Approval
September 2017	Anticipated Contract Award
September - October 2017	Selection of School(s), Site Assessments
October 2017 – February 2018	Installation
February 2018	Final Report

These actions are to recognize up to \$300,000 from Wal-Mart into the Air Filtration Fund (75), transfer the same amount as a temporary loan from the Clean Fuels Fund (31) to the Air Filtration Fund (75), and execute an agreement with Wal-Mart for SCAQMD to act as the SEP Implementer for installation of air filtration systems.

Finally, these actions are also to execute a contract with IQAir North America for installation of air filtration systems in an amount not to exceed \$285,000 and reimburse the General Fund for administrative costs up to \$15,000 from the Air Filtration Fund (75).

### **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 is made under provision B.2.c(1): The desired services are available from only the sole-source based upon the unique experience and capabilities of the proposed contractor or contractor team. IQAir is the only manufacturer of high performance panel filters and stand-alone units identified by SCAQMD and CARB Research Division staff that meet the performance standards in SCAQMD's 2009 air filtration pilot study. Staff has also consulted with CARB Research Division staff to confirm that no new manufacturers of air filtration technologies that meet or exceed the performance standards in the pilot study have been identified since the last RFP process in 2013.

### **Benefits to SCAQMD**

This project will reduce children's exposure to criteria and toxic pollutants and ultrafine PM. Health studies have determined that fine and ultrafine PM, including diesel PM, present the greatest air pollution health risk to sensitive receptors in Environmental Justice communities in Southern California.

### **Resource Impacts**

Upon receipt, up to \$300,000 from the SEP revenue will be recognized into the Air Filtration Fund (75). Until receipt, up to \$300,000 from the Clean Fuels Fund (31) will be used as a temporary loan. Of the \$300,000 SEP revenue, the contract with IQAir North America to install air filtration systems will not exceed \$285,000 and reimbursement of administrative costs will not exceed \$15,000.

# Agenda Item #4

Patricia Kwon

Recognize and Transfer Funds,  
Execute Agreements for Installation of  
Air Filtration Systems and Reimburse  
General Fund for Administrative Costs

# Background

- U.S. EPA Region 9 and Wal-Mart Transportation, LLC, executing Supplemental Environmental Project (SEP) to install air filtration systems at schools - \$300,000
- SCAQMD as SEP implementer
  - Previous project experience
  - Board-approved contractor



# Background (cont'd)

- SCAQMD selected IQAir as air filtration contractor
  - Two prior competitive bid processes
  - National testing opportunity
  - Worked with CARB to conduct recent technology review
- SCAQMD/CARB staff not aware of another technology meeting performance standards of pilot study



# Air Filtration Technologies

- High performance panel filters + stand alone units
- 90% average removal efficiency ultrafine PM, black carbon
- Noise level below 45 dB(A) for stand-alone units (no interference with classroom learning)



# Proposal

---

- SCAQMD as SEP implementer – MOA with Wal-Mart Transportation, LLC
- Identify school(s) – in EJ or other disproportionately impacted areas
- Work with contractor
  - Installation
  - Operational/maintenance needs, including replacement filters

# Proposed Schedule

Date	Task
Sept 2017	Board approval
Sept 2017	Anticipated contract award
Sept – Oct 2017	School selection, site assessments
Oct 2017 – Feb 2018	Installation
Feb 2018	Final report



# Recommended Actions

---

- Recognize, upon receipt, \$300,000 from Wal-Mart into Air Filtration Fund (75)
- Transfer up to \$300,000 as temporary loan from Clean Fuels Fund (31) into Air Filtration Fund (75)
- Authorize Executive Officer to execute an agreement with Wal-Mart for SCAQMD to act as SEP implementer to install air filtration systems

# Recommended Actions

---

- Execute contract with IQAir for installation of air filtration systems in an amount not to exceed \$285,000 from Air Filtration Fund (75)
- Reimburse the General Fund from the Air Filtration Fund (75) for administrative costs up to \$15,000, as needed, to implement the air filtration project

[Go to SLIDES](#)

**DRAFT**  
**Technology Committee Agenda #5**

BOARD MEETING DATE: September 1, 2017

AGENDA NO.

**PROPOSAL:** Amend Contracts to Continue Implementation of Enhanced Fleet Modernization Program and Transfer Funds

**SYNOPSIS:** In February 2017, the Board recognized an additional \$5 million from CARB to continue implementation of the Enhanced Fleet Modernization Program (EFMP). The Board also approved contracts with consulting firms to provide assistance with implementation of the EFMP including case management, outreach and vehicle emissions testing. The Program has been highly successful. Consequently, this action is to amend contracts with consulting firms in an amount not to exceed \$500,000 from the HEROS II Special Revenue Fund (56) to continue program implementation, including the addition of a new outreach strategy involving vehicle emissions monitoring in disadvantaged communities to identify high-emitting vehicles for potential voluntary replacement with cleaner, more fuel-efficient vehicles. These actions are to also transfer up to \$850,000 (comprising the above amendments and a prior \$350,000 amendment for Opus Inspection approved in February 2017) as a temporary loan from the Clean Fuels Program Fund (31) into the HEROS II Special Revenue Fund (56), until receipt of the CARB revenue.

**COMMITTEE:** Technology, July 21, 2017; Recommended for Approval

**RECOMMENDED ACTIONS:**

1. Authorize the Chairman to amend contracts from the HEROS II Special Revenue Fund (56) with the following entities:
  - A. Opus Inspection: adding up to \$300,000 to conduct outreach activities, assist program participants in processing vehicle retirements and identifying replacement vehicles, transit pass or car-sharing programs, and implement a new outreach strategy for vehicle emissions monitoring in disadvantaged communities; and
  - B. Foundation for California Community Colleges: adding up to \$200,000 to conduct outreach activities and assist program participants in processing vehicle

retirements and identifying replacement vehicles or transit pass or car-sharing programs; and

2. Transfer up to \$850,000 (comprising the above amendments and a prior \$350,000 amendment for Opus Inspection approved in February 2017) as a temporary loan from the Clean Fuels Program Fund (31) into the HEROS II Special Revenue Fund (56), as administration funds until receipt of the CARB revenue.

Wayne Nastri  
Executive Officer

MMM:FM:VAW

---

### **Background**

Since early 2015, the SCAQMD has been implementing a successful vehicle retirement and replacement program, branded by the SCAQMD as the Replace Your Ride Program. The Program was initially funded through CARB's AB 118 Air Quality Improvement Program (AQIP), then augmented using CARB's Low Carbon Transportation Greenhouse Gas Emission Reduction Fund (GGRF) to add an EFMP "Plus-Up" Program for participants living in or near disadvantaged communities.

In September 2016 and February 2017, the Board recognized a total of \$15 million from CARB's GGRF for the EFMP Plus-Up Program. The Plus-Up Program funds will be used in combination with the base EFMP incentive amount to provide up to \$9,500 to those program participants living in or near disadvantaged communities. The Board's actions in February also included executing or amending contracts with consulting firms based on a formal bid process to provide assistance with implementation of the EFMP including case management, outreach and vehicle emissions testing. The Program has been highly successful. Given the popularity of the Program coupled with the increased funding, staff anticipates the need for additional case management support, enhanced outreach in disadvantaged communities, and other program implementation activities, including adding vehicle emissions monitoring in disadvantaged communities to identify high-emitting vehicles for potential voluntary replacement with cleaner, more fuel-efficient vehicles.

### **Proposal**

Opus Inspection has been providing case management support, including bilingual assistance, to process applications and assist consumers with each step of the voucher process, including vehicle retirements and identifying replacement vehicles or other clean mobility options. Opus Inspection will also assist with outreach efforts in addition to weekend vehicle emissions testing events. Case managers will be hired from the communities that they serve. Opus Inspection will assist SCAQMD with a new outreach strategy involving vehicle emissions monitoring in disadvantaged communities

to identify high-emitting vehicles for potential participation in the EFMP Plus-Up Program. Owners of high-emitting vehicles identified through the emissions monitoring will be sent a notice informing them about the Replace Your Ride Program. SCAQMD will evaluate this new strategy over a period of six-months or more to see if it is successful in attracting new consumers to the Program.

This action is to amend a contract with Opus Inspection adding up to \$300,000 to provide extra staffing for case management support as well as to implement a new program element involving vehicle emissions monitoring in disadvantaged communities to identify high-emitting vehicles for potential participation in the EFMP Plus-Up Program. Staff anticipates that about one-third of the funding will be dedicated to the new outreach strategy.

The Foundation for California Community Colleges (FCCC) has also been providing case management support, including bilingual assistance, to process applications and assist consumers with each step of the voucher process including vehicle retirements and identifying replacement vehicles or other clean mobility options, such as transit passes or car sharing programs. FCCC will continue to provide case management support, maintain an updated list of frequently asked questions encountered during current program implementation by call center staff and case managers, provide program informational materials for the website and events, assist with developing training materials, and deliver training courses to dealerships, dismantlers and other strategic partners. FCCC will also continue to hold sign-up and emissions testing events at community colleges and other venues, as needed, to complement the vehicle emissions testing to be performed by Opus Inspection.

This action is to amend a contract with FCCC adding up to \$200,000 for continued support with implementation of the EFMP and EFMP Plus-Up.

This action is to also transfer up to \$850,000 as a temporary loan from the Clean Fuels Program Fund (31) into the HEROS II Special Revenue Fund (56) until receipt of the CARB revenue. The \$850,000 comprises the above amendments and a prior \$350,000 amendment for Opus Inspection approved in February 2017 using anticipated CARB revenue, which has not yet been received.

### **Benefits to SCAQMD**

The continued successful implementation of the EFMP and EFMP Plus-Up will further reduce emissions by accelerating the turnover of high-emitting vehicles with cleaner, less-polluting vehicles or alternatively provide an incentive for public transportation, car sharing and other mobility options. Incentives for program participation will continue to be provided to low- and middle-income vehicle owners to ensure that their neighborhoods will benefit from the retirement of high-emitting vehicles and the replacement with cleaner replacement vehicles or other modes of clean transportation.

The EFMP Plus-Up Program will provide additional incentives for residents living in or near disadvantaged communities, which is expected to increase program participation and provide additional emission reductions.

**Resource Impacts**

The Board previously recognized, upon receipt, CARB revenue up to \$15 million in the HEROS II Special Revenue Fund (56) for continued implementation of the EFMP Plus-Up Program. Up to 15 percent of these funds may be used for administrative costs (10%) and consumer outreach (5%). These contract amendments will use a portion of the administrative and outreach funds. Once this revenue is received, there will be sufficient funds available in the HEROS II Special Revenue Fund (56). Until then, up to \$850,000 from the Clean Fuels Program Fund (31) will be used as a temporary loan.

# Agenda Item #5

---

Lori Berard

Amend Contracts to Continue Implementation of  
Enhanced Fleet Modernization Program and  
Transfer Funds

# Background

- SCAQMD started the retire and replace program in 2015 – branded as **Replace Your Ride**
- In addition to CARB revenue, program funding has been augmented using other funding sources
- Program implementation assistance has been provided by contractors





# Background (cont'd)

---

- Due to increased CARB funding and program demands, there is a need for additional program implementation support by contractors
- There is also a need for new outreach strategies
- A temporary loan from Clean Fuels is also needed due to slight delay in receiving CARB revenue

# Proposal

- Continue implementation support
- Implement new outreach strategy for community monitoring
- Amend contracts adding funds for program implementation assistance
- Transfer funds for temporary loan (includes loan for prior February 2017 Board action)



# Proposal (cont'd)

## New outreach strategy for community monitoring

- Vehicle emissions testing in disadvantaged communities
- Identify high-emitting vehicles for potential program participation



# Recommended Actions

---

- Amend contracts from HEROS II Special Revenue Fund (56):
  - Opus Inspection: add \$300,000 to conduct outreach activities, assist program participants in processing vehicle retirements and identifying replacement vehicles, transit pass or car-sharing programs, and implement new strategy to conduct vehicle emissions monitoring in disadvantaged communities; and
  - Foundation for California Community Colleges: add \$200,000 to conduct outreach activities and assist program participants in processing vehicle retirements and identifying replacement vehicles, transit pass or car-sharing programs

## Recommended Actions (cont'd)

---

Transfer up to \$850,000 (comprising above amendments and a prior \$350,000 amendment for Opus Inspection approved in February 2017) as a temporary loan from the Clean Fuels Program Fund (31) into the HEROS II Special Revenue Fund (56), until receipt of the CARB revenue