



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS
MOBILE SOURCE COMMITTEE

COMMITTEE MEMBERS

SCOTT HAGGERTY – CHAIR
MARGARET ABE-KOGA
CAROLE GROOM
TYRONE JUE
NATE MILEY
JIM SPERING

DAVID CANEPA – VICE CHAIR
PAULINE RUSSO CUTTER
DAVE HUDSON
DOUG KIM
KAREN MITCHOFF

THURSDAY
SEPTEMBER 27, 2018
9:30 A.M.

1ST FLOOR BOARD ROOM
375 BEALE STREET
SAN FRANCISCO, CA 94105

AGENDA

1. CALL TO ORDER - ROLL CALL

PLEDGE OF ALLEGIANCE

PUBLIC MEETING PROCEDURE

The Committee Chair shall call the meeting to order and the Clerk of the Boards shall take roll of the Committee members. The Committee Chair shall lead the Pledge of Allegiance.

This meeting will be webcast. To see the webcast, please visit www.baaqmd.gov/bodagendas at the time of the meeting. Closed captioning may contain errors and omissions, and are not certified for their content or form.

Public Comment on Agenda Items *The public may comment on each item on the agenda as the item is taken up. Public Comment Cards for items on the agenda must be submitted in person to the Clerk of the Boards at the location of the meeting and prior to the Board taking up the particular item. Where an item was moved from the Consent Calendar to an Action item, no speaker who has already spoken on that item will be entitled to speak to that item again.*

2. **PUBLIC COMMENT ON NON-AGENDA MATTERS**

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3 *For the first round of public comment on non-agenda matters at the beginning of the agenda, ten persons selected by a drawing by the Clerk of the Boards from among the Public Comment Cards indicating they wish to speak on matters not on the agenda for the meeting will have two minutes each to address the Board on matters not on the agenda. For this first round of public comments on non-agenda matters, all Public Comment Cards must be submitted in person to the Clerk of the Board at the location of the meeting and prior to commencement of the meeting.*

Staff/Phone (415) 749-

3. **APPROVAL OF THE MINUTES OF JULY 26, 2018**

Clerk of the Boards/5073

The Committee will consider approving the attached draft minutes of the Mobile Source Committee meeting of July 26, 2018.

4. **PROJECTS AND CONTRACTS WITH PROPOSED GRANT AWARDS OVER \$100,000**

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will consider recommending Board of Directors' approval of Carl Moyer Program and Transportation Fund for Clean Air projects requesting grant funding in excess of \$100,000 and authorization for the Executive Officer/APCO to execute grant agreements for the recommended projects.

5. **UPDATE ON STATUS OF HEAVY-DUTY ZERO-EMSSION MOBILE SOURCE TECHNOLOGIES**

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will receive an informational update on the Air District's assessment of the availability of zero-emission technologies for heavy-duty vehicles and equipment, and the timeline for when viable zero-emissions technology options are anticipated to become commercially available for each of the equipment types.

6. **UPDATE ON AIR DISTRICT GRANT PROGRAM FUNDING FOR FISCAL YEAR ENDING (FYE) 2019**

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will receive an informational update on the incentive funding that is projected to be available in FYE 2019, a review of the types of projects and categories of equipment that are eligible for funding, and a summary of the air quality benefits that are estimated from the implementation of these incentive programs.

7. **PUBLIC COMMENT ON NON-AGENDA MATTERS**

Speakers who did not have the opportunity to address the Board in the first round of comments on non-agenda matters will be allowed two minutes each to address the Board on non-agenda matters.

8. **COMMITTEE MEMBER COMMENTS**

Any member of the Board, or its staff, on his or her own initiative or in response to questions posed by the public, may: ask a question for clarification, 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 take action to direct staff to place a matter of business on a future agenda. (Gov't Code § 54954.2)

9. **TIME AND PLACE OF NEXT MEETING**

Thursday, October 25, 2018, Bay Area Air Quality Management District Office, 375 Beale Street, San Francisco, California 94105 at 9:30 a.m.

10. **ADJOURNMENT**

The Committee meeting shall be adjourned by the Committee Chair.

CONTACT:

MANAGER, EXECUTIVE OPERATIONS
375 BEALE STREET, SAN FRANCISCO, CA 94105
vjohnson@baaqmd.gov

(415) 749-4941
FAX: (415) 928-8560
BAAQMD homepage:
www.baaqmd.gov

- To submit written comments on an agenda item in advance of the meeting. Please note that all correspondence must be addressed to the “Members of the Mobile Source Committee” and received at least 24 hours prior, excluding weekends and holidays, in order to be presented at that Committee meeting. Any correspondence received after that time will be presented to the Committee at the following meeting.
- To request, in advance of the meeting, to be placed on the list to testify on an agenda item.
- Any writing relating to an open session item on this Agenda that is distributed to all, or a majority of all, members of the body to which this Agenda relates shall be made available at the District’s offices at 375 Beale Street, Suite 600, San Francisco, CA 94105, at the time such writing is made available to all, or a majority of all, members of that body.

Accessibility and Non-Discrimination Policy

The Bay Area Air Quality Management District (Air District) does not discriminate on the basis of race, national origin, ethnic group identification, ancestry, religion, age, sex, sexual orientation, gender identity, gender expression, color, genetic information, medical condition, or mental or physical disability, or any other attribute or belief protected by law.

It is the Air District’s policy to provide fair and equal access to the benefits of a program or activity administered by Air District. The Air District will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by the Air District. Members of the public who believe they or others were unlawfully denied full and equal access to an Air District program or activity may file a discrimination complaint under this policy. This non-discrimination policy also applies to other people or entities affiliated with Air District, including contractors or grantees that the Air District utilizes to provide benefits and services to members of the public.

Auxiliary aids and services including, for example, qualified interpreters and/or listening devices, to individuals who are deaf or hard of hearing, and to other individuals as necessary to ensure effective communication or an equal opportunity to participate fully in the benefits, activities, programs and services will be provided by the Air District in a timely manner and in such a way as to protect the privacy and independence of the individual. Please contact the Non-Discrimination Coordinator identified below at least three days in advance of a meeting so that arrangements can be made accordingly.

If you believe discrimination has occurred with respect to an Air District program or activity, you may contact the Non-Discrimination Coordinator identified below or visit our website at www.baaqmd.gov/accessibility to learn how and where to file a complaint of discrimination.

Questions regarding this Policy should be directed to the Air District’s Non-Discrimination Coordinator, Rex Sanders, at (415) 749-4951 or by email at rsanders@baaqmd.gov

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT
375 BEALE STREET, SAN FRANCISCO, CALIFORNIA 94105
FOR QUESTIONS PLEASE CALL (415) 749-4941**

**EXECUTIVE OFFICE:
MONTHLY CALENDAR OF AIR DISTRICT MEETINGS**

SEPTEMBER 2018

| <u>TYPE OF MEETING</u> | <u>DAY</u> | <u>DATE</u> | <u>TIME</u> | <u>ROOM</u> |
|--|------------|-------------|-------------|--|
| Board of Directors Budget & Finance Committee <i>(Meets on the 4th Wednesday of each Month)</i> - CANCELLED | Wednesday | 26 | 9:30 a.m. | 1 st Floor, Yerba Buena Room #109 |
| Board of Directors Mobile Source Committee <i>(Meets on the 4th Thursday of each Month)</i> | Thursday | 27 | 9:30 a.m. | 1 st Floor Board Room |

OCTOBER 2018

| <u>TYPE OF MEETING</u> | <u>DAY</u> | <u>DATE</u> | <u>TIME</u> | <u>ROOM</u> |
|--|------------|-------------|-------------|--|
| Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i> - CANCELLED | Wednesday | 3 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Ad Hoc Refinery Oversight Committee <i>(At the Call of the Chair)</i> | Wednesday | 3 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i> | Wednesday | 17 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Public Engagement Committee <i>(At the Call of the Chair)</i> | Friday | 19 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors TIO Steering Committee <i>(At the Call of the Chair)</i> | Monday | 22 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Budget & Finance Committee <i>(Meets on the 4th Wednesday of each Month)</i> | Wednesday | 24 | 9:30 a.m. | 1 st Floor, Yerba Buena Room #109 |
| Board of Directors Mobile Source Committee <i>(Meets on the 4th Thursday of each Month)</i> | Thursday | 25 | 9:30 a.m. | 1 st Floor Board Room |
| Advisory Council Mtg. <i>(At the Call of the Chair)</i> | Monday | 29 | 10:00 a.m. | 1 st Floor Board Room |

NOVEMBER 2018

| <u>TYPE OF MEETING</u> | <u>DAY</u> | <u>DATE</u> | <u>TIME</u> | <u>ROOM</u> |
|---|-------------------|--------------------|--------------------|--|
| Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i> | Wednesday | 7 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Climate Protection Committee <i>(Meets on the 3rd Thursday of every other Month)</i> - CANCELLED | Thursday | 15 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Stationary Source Committee <i>(Meets on the 3rd Monday of every other Month)</i> | Monday | 19 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i> - CANCELLED | Wednesday | 21 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Mobile Source Committee <i>(Meets on the 4th Thursday of each Month)</i> - CANCELLED | Thursday | 22 | 9:30 a.m. | 1 st Floor Board Room |
| Board of Directors Budget & Finance Committee <i>(Meets on the 4th Wednesday of each Month)</i> | Wednesday | 28 | 9:30 a.m. | 1 st Floor, Yerba Buena Room #109 |

HL – 9/20/18 – 2:20 p.m.

G/Board/Executive Office/Moncal

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Scott Haggerty and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: September 17, 2018

Re: Approval of the Minutes of July 26, 2018

RECOMMENDED ACTION

Approve the attached draft minutes of the Mobile Source Committee (Committee) Meeting of July 26, 2018.

DISCUSSION

Attached for your review and approval are the draft minutes of the Mobile Source Committee Meeting of July 26, 2018.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Marcy Hiratzka
Reviewed by: Vanessa Johnson

Attachment 3A: Draft Minutes of the Mobile Source Committee Meeting of July 26, 2018

AGENDA 3A – ATTACHMENT

Draft Minutes – Mobile Source Committee Meeting of July 26, 2018

Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
(415) 749-5073

DRAFT MINUTES

Summary of Board of Directors
Mobile Source Committee Meeting
Thursday, July 26, 2018

1. CALL TO ORDER – ROLL CALL

Mobile Source Committee (Committee) Chairperson, Scott Haggerty, called the meeting to order at 9:34 a.m.

Present: Chairperson Scott Haggerty; Vice Chair David Canepa; and Directors Pauline Russo Cutter, David Hudson, Tyrone Jue, Nate Miley, and Karen Mitchoff.

Absent: Directors Margaret Abe-Koga, Carole Groom, Doug Kim, and Jim Spering.

Also Present: None.

2. APPROVAL OF THE MINUTES OF MAY 24, 2018

Public Comments:

No requests received.

Committee Comments:

None.

Committee Action:

Vice Chair Canepa made a motion, seconded by Director Hudson, to approve the Minutes of May 24, 2018; and the motion carried by the following vote of the Committee:

AYES: Canepa, Cutter, Haggerty, Hudson, Jue, and Mitchoff.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Groom, Kim, Miley, and Spering.

3. PROJECTS AND CONTRACTS WITH PROPOSED GRANT AWARDS OVER \$100,000 AND A REQUEST FOR A WAIVER FOR FISCAL YEAR ENDING 2018 TRANSPORTATION FUND FOR CLEAN AIR REGIONAL FUND POLICIES FROM THE TOWN OF LOS GATOS

Karen Schkolnick, Strategic Incentives Division (SID) Director, introduced Yu Zhang Liu, Staff Specialist, who gave the staff presentation *Projects and Grants with Proposed Awards Over \$100,000, and a Request for a Waiver for Fiscal Year Ending (FYE) 2018 Transportation Fund for Clean Air (TFCA) Regional Fund Policies from the Town of Los Gatos*, including: overview; Carl Moyer Program (CMP) and Mobile Source Incentive Fund (MSIF); Assembly Bill (AB) 134; Transportation Fund for Clean Air (TFCA); CMP/MSIF Community Health Protection Grant Program (CHPGP) funds awarded as of 7/6/18 and since 2009; request for a TFCA policy waiver; TFCA funds awarded by project category and county; and recommendations.

Public Comments:

No requests received.

Committee Comments:

The Committee and staff discussed the carryover of TFCA funds from one funding cycle to another; and the request that staff revisits policy waiver applications that were ineligible prior to July 1, 2018, which may now be eligible, consistent with the updates to the recently-Board-adopted policies for FYE 2019.

Committee Action:

Director Mitchoff made a motion, seconded by Chair Haggerty, to recommend that the Board **approve** staff recommendations; and the motion carried by the following vote of the Committee:

AYES: Canepa, Cutter, Haggerty, Hudson, Jue, and Mitchoff.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Groom, Kim, Miley, and Spering.

4. APPROVAL OF CONTRACT FOR CLEAN CARS FOR ALL PROGRAM CASE MANAGERS

Ms. Schkolnick introduced Tin Le, Staff Specialist, who gave the staff presentation *Approval of Contract for Clean Cars for All Program Case Managers*, including: outline; Clean Cars for All program, also known as “Enhanced Fleet Modernization Program (EMFP) Plus-Up”; replacement options and funding levels; consumer outreach and support; Case Manager Request for Proposals; next steps; and staff recommendation.

Public Comments:

No requests received.

Committee Comments:

The Committee and staff discussed the concern that too many Air District (District) regulatory restrictions on car dealerships will deter their participation in the program; the types of conflicts of interest that case manager candidates indicated in their proposals; the differences in approach and cost between the two candidates; the request that engagement with stakeholders regarding program outreach includes employers whose employees use shuttles and/or drive older cars; the suggestion that staff collaborates with the private sector to identify electric vehicle (EV) charging installation needs and opportunities; the suggestion that staff utilizes existing partnerships between counties and car dealerships to promote this program; and the suggestion that staff reaches out to headquarters of fast food companies to promote the program to their employees.

NOTED PRESENT: Director Miley was noted present at 10:03 a.m.

Committee Action:

Director Hudson made a motion, seconded by Vice Chair Canepa, to recommend that the Board **authorizes** the Executive Officer/Air Pollution Control Officer (APCO) to execute a contract with GRID Alternatives at a cost not to exceed \$250,000 for services performed in FYE 2018 and FYE 2019; and the motion carried by the following vote of the Committee:

AYES: Canepa, Cutter, Haggerty, Hudson, Jue, Miley, and Mitchoff.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Groom, Kim, and Spring.

5. NEW GRANT PROGRAM REVENUE AND REQUEST TO INCREASE STAFFING IN THE STRATEGIC INCENTIVES DIVISION

Damian Breen, Deputy Air Pollution Control Officer of Technology, introduced Ms. Schkolnick, who gave the staff presentation *New Grant Program Revenue and Staffing for the Strategic Incentives Division*, including: overview; Volkswagen (VW) Environmental Mitigation Trust; VW Beneficiary Mitigation Plan and tentative timeline; VW project funding categories and allocations; United States Environmental Protection Agency (US EPA) Clean Diesel Funding Assistance Program; other recent awards; estimate FYE 2019 total grant revenue; SID and Administration Resources Division: twenty-two full-time employees existing and eight proposed; staffing evaluation process; and recommendations.

Public Comments:

No requests received.

Committee Comments:

The Committee and staff discussed the difference between the uses of the funds of the Beneficiary Mitigation Plan that resulted from the Environmental Mitigation Trust, and Volkswagen's subsidiary, Electrify America; the statewide project funding allocation breakdown among the three

joint administrators, one of which is the Bay Area Air Quality Management District; whether Volkswagen Beneficiary Mitigation Plan program guidelines will need to be officially adopted by air districts; the Committee’s concern that the consideration of accepting three individual funding sources was consolidated into one agenda item; the Request for Proposals process for the 2018 Diesel Emissions Reduction Act (DERA) competitive grant; what proportion of the estimated FYE 2019 total grant revenue will be allocated to District employee salaries versus project funding; the current number of full time employees at the District, and how that number compares to other air districts in California; the request for an action plan regarding the proposed management of the eight additional requested employees to support the Strategic Incentives Division, the difficulty of sustaining additional employee positions with grant money, and staff’s plan to bring its attrition plan to the Personnel and Executive Committees prior to December 2018; and how the District plans to use these new incoming funds to produce measurable “clean air” results.

Committee Action:

Director Cutter made a motion, seconded by Director Mitchoff, to recommend that the Board **approves** staff recommendations; and the motion carried by the following vote of the Committee:

- AYES: Canepa, Cutter, Haggerty, Hudson, Jue, Miley, and Mitchoff.
- NOES: None.
- ABSTAIN: None.
- ABSENT: Abe-Koga, Groom, Kim, and Spring.

6. PUBLIC COMMENT ON NON-AGENDA MATTERS

No requests received.

7. COMMITTEE MEMBER COMMENTS

None.

8. TIME AND PLACE OF NEXT MEETING

Thursday, September 27, 2018, Bay Area Air Quality Management District Office, 375 Beale Street, San Francisco, California 94105 at 9:30 a.m.

9. ADJOURNMENT

The meeting adjourned at 11:02 a.m.

Marcy Hiratzka
Clerk of the Boards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Scott Haggerty and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: September 17, 2018

Re: Projects and Contracts with Proposed Grant Awards Over \$100,000

RECOMMENDED ACTION

Recommend Board of Directors:

1. Approve recommended projects with proposed grant awards over \$100,000 as shown in Attachment 1; and
2. Authorize the Executive Officer/APCO to enter into all necessary agreements with applicants for the recommended projects.

BACKGROUND

The Bay Area Air Quality Management District (Air District) has participated in the Carl Moyer Program (CMP), in cooperation with the California Air Resources Board (CARB), since the program began in fiscal year 1998-1999. The CMP provides grants to public and private entities to reduce emissions of oxides of nitrogen (NO_x), reactive organic gases (ROG) and particulate matter (PM) from existing heavy-duty engines by either replacing or retrofitting them. Eligible heavy-duty diesel engine applications include on-road trucks and buses, off-road equipment, marine vessels, locomotives, and stationary agricultural pump engines.

Assembly Bill 923 (AB 923 - Firebaugh), enacted in 2004 (codified as Health and Safety Code (HSC) Section 44225), authorized local air districts to increase their motor vehicle registration surcharge up to an additional \$2 per vehicle. The revenues from the additional \$2 surcharge are deposited in the Air District's Mobile Source Incentive Fund (MSIF). AB 923 stipulates that air districts may use the revenues generated by the additional \$2 surcharge for projects eligible under the CMP.

In 2017, Assembly Bill (AB) 617 directed the CARB, in conjunction with local air districts to establish the Community Air Protection Program. AB 617 provides a new community-focused action framework to improve air quality and reduce exposure to criteria air pollutants and toxic air contaminants in communities most impacted by air pollution. In advance of the development of the Community Air Protection Program, the Governor and legislature established an early action component to AB 617 to use existing incentive programs to get immediate emission reductions in

the communities most affected by air pollution. AB 134 (2017) appropriated \$250 million from the Greenhouse Gas Reduction Fund (GGRF) to reduce mobile source emissions including criteria pollutants, toxic air contaminants, and greenhouse gases in those communities. The Bay Area has been allocated \$50 million of these funds for emission reduction projects. These funds will be used to implement projects under the CMP, and optionally under the Proposition 1B Goods Movement Emission Reduction Program.

On February 21, 2018, the Board of Directors (Board) authorized Air District participation in Year 20 of the CMP, and authorized the Executive Officer/APCO to execute Grant Agreements and amendments for projects funded with CMP funds or MSIF revenues, with individual grant award amounts up to \$100,000.

In 1991, the California State Legislature authorized the Air District to impose a \$4 surcharge on motor vehicles registered within the nine-county Bay Area to fund projects that reduce on-road motor vehicle emissions within the Air District's jurisdiction. The statutory authority for the Transportation Fund for Clean Air (TFCA) and requirements of the program are set forth in the HSC Sections 44241 and 44242. Sixty percent of TFCA funds are awarded by the Air District to eligible projects and programs implemented directly by the Air District (e.g., Spare the Air, electric vehicle charging station program) and to a program referred to as the TFCA Regional Fund. Each year, the Board allocates funding and adopts policies and evaluation criteria that govern the expenditure of TFCA funding.

On May 2, 2018, the Board authorized funding allocations for Fiscal Year Ending (FYE) 2019, cost-effectiveness limits for Air District-sponsored FYE 2019 programs and authorized the Executive Officer/APCO to execute Grant Agreements and amendments for TFCA-revenue funded projects with individual grant award amounts up to \$100,000. On June 6, 2018, the Board adopted policies and evaluation criteria for the FYE 2019 TFCA Regional Fund program.

The Bay Area Clean Air Foundation (Foundation) is a nonprofit support organization for the Air District. As part of its operation, the Foundation applies for grant funding from various sources and also accepts funding to reduce and offset air emissions within the boundaries of the Air District. To administer the grant programs associated with this funding, the Foundation has a contract with the Air District which allows for staff to be used to complete work to expend these monies. In late 2017, the Foundation was notified that it has been awarded approximately \$1.3 million in Reformulated Gas (RFG) funding to help accelerate the adoption of zero- and near-zero-emission equipment and vehicles.

Projects with grant award amounts over \$100,000 are brought to the Mobile Source Committee for consideration at least on a quarterly basis. Staff reviews and evaluates grant applications based upon the respective governing policies and guidelines established by the CARB and the Board.

DISCUSSION

Carl Moyer Program and Community Health Protection Grant Program:

For the CMP Year 20 cycle, the Air District had more than \$11 million available for eligible CMP and school bus projects from a combination of MSIF and CMP funds. The Air District started accepting project applications for the CMP Year 20 funding cycle on June 25, 2018 and applications are accepted and evaluated on a first-come, first-served basis. On December 20, 2017 the Board authorized the Air District to accept, obligate and expend \$50 million in AB 134 funds through the Community Health Protection Grant Program.

As of September 6, 2018, the Air District had received 69 project applications. Of the applications that have been evaluated between July 6, 2018 and September 6, 2018, eight eligible projects have proposed individual grant awards over \$100,000. These projects will replace six pieces of agricultural equipment, 32 school buses, two pieces of off-road equipment, and one marine engine, and will reduce over 6.7 tons of NO_x, ROG and PM per year. Staff recommends the allocation of \$8,477,366 for these projects from a combination of CMP funds, MSIF revenues and Community Health Protection Grant Program funds. Attachment 1, Table 1, provides additional information on these projects.

Attachment 2, lists all of the eligible projects that have been received by the Air District as of September 6, 2018, including information about the equipment category, award amounts, estimated emissions reductions, and county location. Approximately 37% of the funds have been awarded to projects that reduce emissions in highly impacted Bay Area communities. Attachment 4, Figures 4 and 5 summarize the cumulative allocation of CMP, MSIF, and Community Health Protection Grant Program funding since 2009 (more than \$232 million awarded to 1,067 projects).

Transportation Fund for Clean Air Program and Reformulated Gas Settlement (RFG):

In FYE 2019, the Air District will be awarding \$20.44 million of TFCA monies to eligible projects. This includes \$13.36 million in new TFCA monies and \$7.08 million in carryover funds from previous cycles. As of September 11, 2018, the Air District had received 12 project applications.

Of the applications that have been evaluated between July 1, 2018 and September 11, 2018, three eligible projects have proposed individual grant awards over \$100,000. These projects will deploy 1 electric heavy-duty truck, 5 electric forklifts, 1 electric bulk material conveyor (vacuum), 48 EVs in a carsharing service, and install 45 level 2 EV chargers. These projects are expected to reduce 0.182 tons of NO_x, ROG, and PM₁₀ per year. Staff recommends the allocation of \$939,000 for these projects from a combination of TFCA and RFG funds. Attachment 1, Table 2, provides additional information on these projects.

In addition to evaluating emissions reductions, projects that receive RFG funding are also evaluated on the amount of petroleum reduced; the three projects receiving RFG funding are expected to reduce petroleum (diesel and gasoline) consumption by approximately 37,000 gallons per year.

Attachment 3 lists all eligible TFCA and RFG projects that were evaluated as of September 11, 2018 and three Air District-sponsored projects previously approved by the Board, including information about the equipment category, award amounts, estimated emissions reductions, and county location. Approximately 21% of the funds have been awarded to projects that reduce emissions in highly impacted Bay Area communities.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None. The Air District distributes CMP, MSIF, Community Health Protection Grant Program, TFCA, and RFG funding to public agencies and private entities on a reimbursement basis. Funding for administrative costs is provided by each funding source.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Anthony Fournier and Ken Mak
Reviewed by: Karen Schkolnick, Anthony Fournier and Chengfeng Wang

- Attachment 1: Projects with grant awards greater than \$100,000
- Attachment 2: CMP/MSIF and Community Health Protection Grant Program approved projects
- Attachment 3: TFCA approved and eligible projects (evaluated 7/1/18-9/11/18)
- Attachment 4: Summary of funding awarded between 7/1/18 and 9/11/18

AGENDA 4 - ATTACHMENT 1

Table 1 - Carl Moyer Program/ Mobile Source Incentive Fund, and Community Health Protection Grant Program projects with grant awards greater than \$100k (Evaluated between 7/6/18 and 9/11/18)

| Project # | Applicant name | Equipment Category | Project Description | Proposed contract award | Total project cost | Emission Reductions (Tons per year) | | | County |
|-------------------|--|--------------------|--|-------------------------|--------------------|-------------------------------------|-------|-------|-------------|
| | | | | | | NOx | ROG | PM | |
| 19MOY163 | Bettencourt and Son (Commercial fishing) | Marine | Replacement of 1 diesel propulsion engine | \$ 180,000.00 | \$ 226,261.00 | 0.647 | 0.009 | 0.021 | San Mateo |
| 19MOY158 | Ocean Breeze Dairy | Ag/ off-road | Replacement of 1 diesel tractor | \$ 117,000.00 | \$ 147,160.30 | 0.310 | 0.020 | 0.015 | Sonoma |
| 19SBP12 | Moreland School District | School bus | Replacement of 4 diesel school buses | \$ 512,170.00 | \$ 559,677.00 | 0.237 | 0.016 | 0.000 | Santa Clara |
| 19MOY148 | The Lumber Baron, Inc. | Off-road | Replacement of 1 diesel forklift and 1 propane forklift | \$ 197,278.00 | \$ 276,542.16 | 0.178 | 0.044 | 0.008 | Alameda |
| 19SBP97 | Vallejo City Unified School District | School bus | Replacement of 8 diesel school buses with CNG buses | \$ 1,635,693.00 | \$ 1,635,693.00 | 0.826 | 0.065 | 0.000 | Solano |
| 20MOY51 | Johnson and Neles Dairy | Ag/ off-road | Replacement of 3 diesel tractors and 2 diesel loaders | \$ 467,856.00 | \$ 584,822.92 | 1.985 | 0.208 | 0.124 | Sonoma |
| 19SBP140 | Fremont Unified School District | School bus | Replacement of 18 CNG buses with 10 electric, 8 CNG buses + infrastructure | \$ 4,076,369.00 | \$ 6,341,046.75 | 1.717 | 0.139 | 0.034 | Alameda |
| 20SBP45 | Campbell Union School District | School bus | Replacement of 2 CNG buses + infrastructure | \$ 1,291,000.00 | \$ 1,438,530.00 | 0.104 | 0.006 | 0.000 | Santa Clara |
| 8 Projects | | | | \$ 8,477,366 | \$ 11,209,733 | 6.003 | 0.508 | 0.201 | |

**Table 2 - Summary of Transportation Fund for Clean Air projects
with grant awards greater than \$100k (Evaluated between 7/1/18 and 9/11/18)**

| Project # | Applicant name | Equipment Category | Project Description | Proposed contract award | Total project cost | Emission Reductions (Tons per year) | | | County |
|-------------------|---------------------------------|--------------------|--|-------------------------|--------------------|-------------------------------------|-------|-------|------------------------|
| | | | | | | NOx | ROG | PM | |
| 19RFG04* | Wyse Logistics | Off-road (non-ag) | Purchase 5 electric forklifts, 1 electric vacuum unit, and 1 electric terminal truck (\$80,000 TFCA) | \$ 221,000 | \$ 562,460 | 0.107 | 0.015 | 0.008 | Alameda |
| 19RFG06* | Hayward Unified School District | LD Infrastructure | Install 45 dual port level 2 EV charging stations (\$180,000 TFCA) | \$ 279,000 | \$ 1,072,245 | 0.014 | 0.003 | 0.001 | Alameda |
| 19RFG09* | Envoy Technologies | LD Vehicles | Deploy 48 EVs in carsharing service (\$48,000 TFCA) | \$ 439,000 | \$ 1,950,068 | 0.027 | 0.005 | 0.002 | Alameda / Contra Costa |
| 3 Projects | | | | \$ 939,000 | \$ 3,584,773 | 0.148 | 0.023 | 0.011 | |

* Awards for these projects includes a total of \$631,000 of RFG funding

AGENDA 4 - ATTACHMENT 2

*CMP/MSIF and Community Health Protection Grant Program approved projects
(between 7/6/18 and 9/6/18)*

| Project # | Equipment category | Project type | # of engines | Proposed contract award | Applicant name | Emission Reductions (Tons per year) | | | Board approval date | County |
|-----------|--------------------|-----------------------|--------------|-------------------------|--|--|-------|-------|---------------------|--------------|
| | | | | | | NOx | ROG | PM | | |
| 19MOY166 | On-road | Equipment replacement | 1 | \$ 45,000.00 | Deol Trans / Piara Singh | 0.668 | 0.050 | 0.004 | APCO | Contra Costa |
| 19MOY168 | Ag/ off-road | Equipment replacement | 1 | \$ 33,000.00 | Rancho Las Juntas Vineyard | 0.028 | 0.006 | 0.004 | APCO | Contra Costa |
| 19MOY163 | Marine | Engine replacement | 1 | \$ 180,000.00 | Bettencourt and Son (Commercial fishing) | 0.647 | 0.009 | 0.021 | TBD | San Mateo |
| 19MOY182 | On-road | Equipment replacement | 1 | \$ 45,000.00 | Thy Trucking | 0.677 | 0.050 | 0.004 | APCO | Alameda |
| 19MOY185 | On-road | Equipment replacement | 1 | \$ 60,000.00 | Puerta Trucking | 0.717 | 0.097 | 0.032 | APCO | Merced |
| 19MOY158 | Ag/ off-road | Equipment replacement | 1 | \$ 117,000.00 | Ocean Breeze Dairy | 0.310 | 0.020 | 0.015 | TBD | Sonoma |
| 19MOY159 | Ag/ off-road | Equipment replacement | 1 | \$ 40,480.00 | Trefethen Farming LLC | 0.173 | 0.030 | 0.021 | APCO | Napa |
| 19MOY176 | Ag/ off-road | Equipment replacement | 1 | \$ 60,930.00 | Bazan Vineyard Management | 0.198 | 0.033 | 0.025 | APCO | Napa |
| 19SBP12 | School bus | Equipment replacement | 4 | \$ 512,170.00 | Moreland School District | 0.237 | 0.016 | 0.000 | TBD | Santa Clara |
| 19MOY148 | Off-road | Equipment replacement | 2 | \$ 197,278.00 | The Lumber Baron, Inc. | 0.178 | 0.044 | 0.008 | TBD | Alameda |
| 19SBP97 | School bus | Equipment replacement | 8 | \$ 1,635,693.00 | Vallejo City Unified School District | 0.826 | 0.065 | 0.000 | TBD | Solano |
| 19MOY175 | Off-road | Equipment replacement | 1 | \$ 75,680.00 | Mt. Diablo Landscape Centers, LLC | 0.189 | 0.031 | 0.023 | APCO | Contra Costa |
| 20MOY51 | Ag/ off-road | Equipment replacement | 5 | \$ 467,856.00 | Johnson and Neles Dairy | 1.985 | 0.208 | 0.124 | TBD | Sonoma |
| 20MOY52 | On-road | Equipment replacement | 1 | \$ 60,000.00 | James Marlowe Carson | 0.904 | 0.068 | 0.005 | APCO | Napa |
| 19MOY181 | Ag/ off-road | Equipment replacement | 1 | \$ 50,300.00 | Jensen Ranch | 0.122 | 0.019 | 0.011 | APCO | Marin |

AGENDA 4 - ATTACHMENT 2

| Project # | Equipment category | Project type | # of engines | Proposed contract award | Applicant name | Emission Reductions (Tons per year) | | | Board approval date | County |
|--------------------|--------------------|-----------------------|--------------|-------------------------|---------------------------------|-------------------------------------|--------------|--------------|---------------------|-------------|
| | | | | | | NOx | ROG | PM | | |
| 19SBP140 | School bus | Equipment replacement | 18 | \$ 4,076,369.00 | Fremont Unified School District | 1.717 | 0.139 | 0.034 | TBD | Alameda |
| 20SBP45 | School bus | Equipment replacement | 2 | \$ 1,291,000.00 | Campbell Union School District | 0.104 | 0.006 | 0.000 | TBD | Santa Clara |
| 17 Projects | | | 50 | \$ 8,947,756.00 | | 9.679 | 0.892 | 0.331 | | |

AGENDA 4 - ATTACHMENT 3

Summary of all TFCFA approved and eligible projects (evaluated between 7/1/18 and 9/11/18)

| Project # | Project Category | Project Description | Award Amount | Applicant Name | Emission Reductions (Tons per year) | | | Board Approval Date | CARE Area | County |
|-----------|--------------------|---|--------------|---|-------------------------------------|-------|-------|---------------------|-----------|------------------------|
| | | | | | NO _x | ROG | PM | | | |
| 18EV049 | LD Infrastructure | Install and operate 12 single-port Level 2 (high) charging stations at 6 destination facilities in San Mateo, Burlingame, San Bruno, and Millbrae | \$36,000 | San Mateo Union High School District | 0.020 | 0.025 | 0.000 | 7/5/18 | No | San Mateo |
| 18EV056 | LD Infrastructure | Install and operate 3 dual-port Level 2 (high) charging stations at 3 destination facilities in Richmond and El Cerrito | \$12,000 | West Contra Costa Unified School District | 0.007 | 0.009 | 0.000 | 7/5/18 | Yes | Contra Costa |
| 18EV047 | LD Infrastructure | Install and operate 4 single port Level 2 (high) charging stations at 1 destination facility in San Mateo | \$12,000 | Nazareth Plaza Owners' Association | 0.007 | 0.009 | 0.000 | 7/30/18 | No | San Mateo |
| 18EV035 | LD Infrastructure | Install and operate 4 single-port Level 2 (high) charging stations at 1 destination facility in Greenbrae | \$12,000 | Marin Rowing Association | 0.007 | 0.009 | 0.000 | 7/31/18 | No | Marin |
| 18R18 | Bicycle Facilities | Install 0.09 miles of Class I and 0.28 miles of Class IV bikeways in Los Gatos | \$242,000 | Town of Los Gatos | 0.029 | 0.056 | 0.039 | 8/1/18 | No | Santa Clara |
| 18R21 | Bicycle Facilities | Install 40 electronic bicycle lockers in Danville | \$96,000 | Town of Danville | 0.014 | 0.018 | 0.026 | 8/3/18 | No | Contra Costa |
| 18R22 | Bicycle Facilities | Install 16 electronic bicycle lockers in San Francisco | \$32,000 | San Francisco Community College District | 0.004 | 0.006 | 0.007 | 8/3/18 | No | San Francisco |
| 18R14 | Bicycle Facilities | Install + maintain 3.62 miles of Class III bikeways in Petaluma | \$48,500 | City of Petaluma | 0.007 | 0.009 | 0.014 | 8/6/18 | No | Sonoma |
| 18R20 | Bicycle Facilities | Install and maintain 1.57 miles of Class II bikeways and 23 bike racks (2 bikes per rack) | \$38,000 | City of Gilroy | 0.008 | 0.010 | 0.013 | 8/22/18 | No | Santa Clara |
| 19R01 | Trip Reduction | Enhanced Mobile Source & Commuter Benefits Enforcement | \$554,842 | BAAQMD | NA | NA | NA | NA | No | Regional |
| 19R02 | LD Vehicles | Vehicle Buy Back Program | \$150,000 | BAAQMD | NA | NA | NA | NA | No | Regional |
| 19R03 | Trip Reduction | Spare The Air/Intermittent Control Programs | \$2,305,927 | BAAQMD | NA | NA | NA | NA | No | Regional |
| 19RFG04* | Off-road (non-ag) | Purchase 5 electric forklifts, 1 electric vacuum unit, and 1 electric terminal truck | \$221,000 | Wyse Logistics | 0.107 | 0.015 | 0.008 | Pending | Yes | Alameda |
| 19RFG06* | LD Infrastructure | Install 45 dual port level 2 EV charging stations | \$279,000 | Hayward Unified School District | 0.014 | 0.003 | 0.001 | Pending | Yes | Alameda |
| 19RFG09* | LD Vehicles | Deploy 48 EVs in carsharing service | \$439,000 | Envoy Technologies | 0.027 | 0.005 | 0.002 | Pending | Yes | Alameda / Contra Costa |

15 Projects*

\$4,478,269

0.249 0.173 0.111

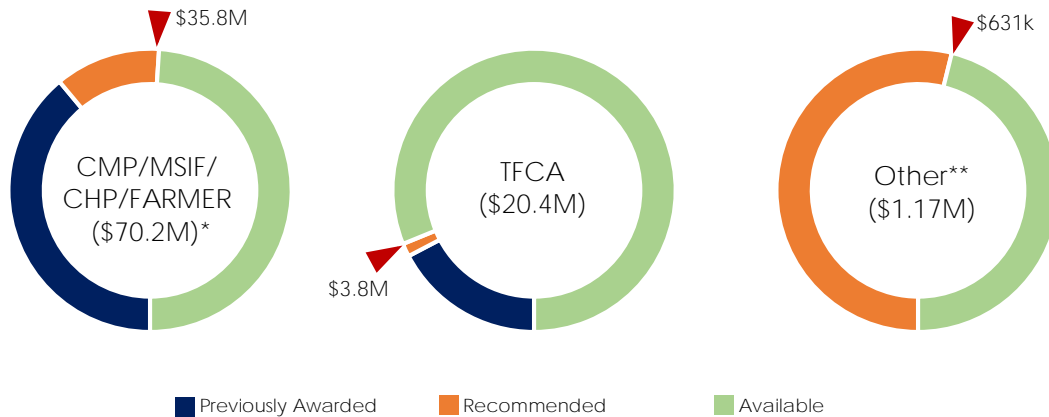
* The award amounts for these projects include a total of \$631,000 of RFG funds

AGENDA 4 - ATTACHMENT 4

Summary of funding awarded between 7/1/18 and 9/11/18

- Carl Moyer Program (CMP)
- Community Health Protection Program (CHP)
- Funding Agricultural Replacement Measures for Emission Reductions (FARMER)
- Mobile Source Incentive Fund (MSIF)
- Transportation Fund for Clean Air (TFCA)
- Reformulated Gasoline Settlement Fund (RFG)

Figure 1. Status of funding by source



* Includes awards from FYE 2018

** Other includes RFG

Figure 2. Funding awarded by county

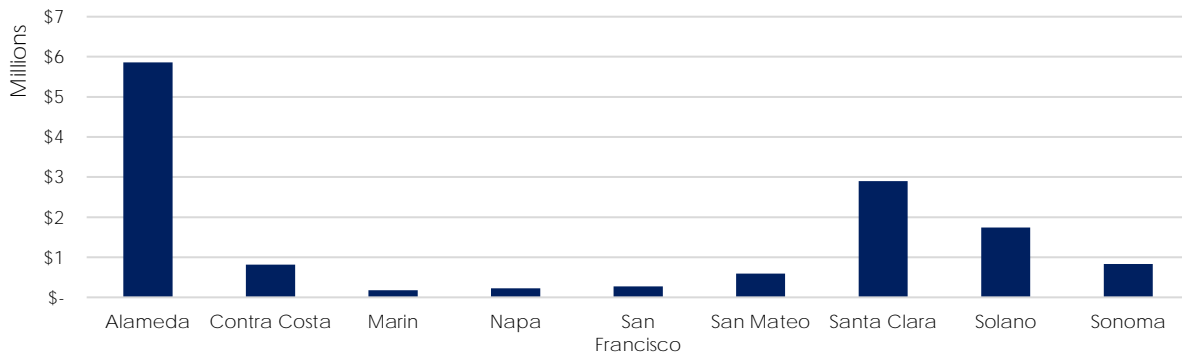
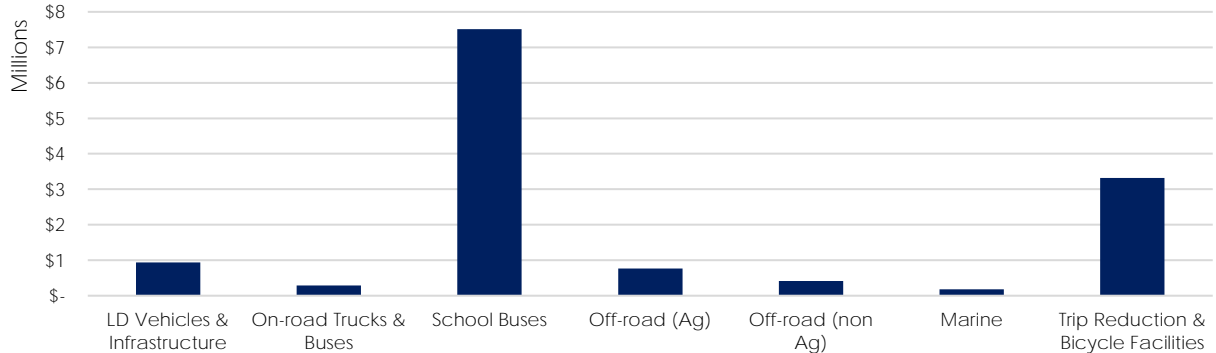


Figure 3. Funding awarded by project category



AGENDA 4 - ATTACHMENT 4

Figure 4. CMP/MSIF/CHP/FARMER funding awarded since 2009 by county

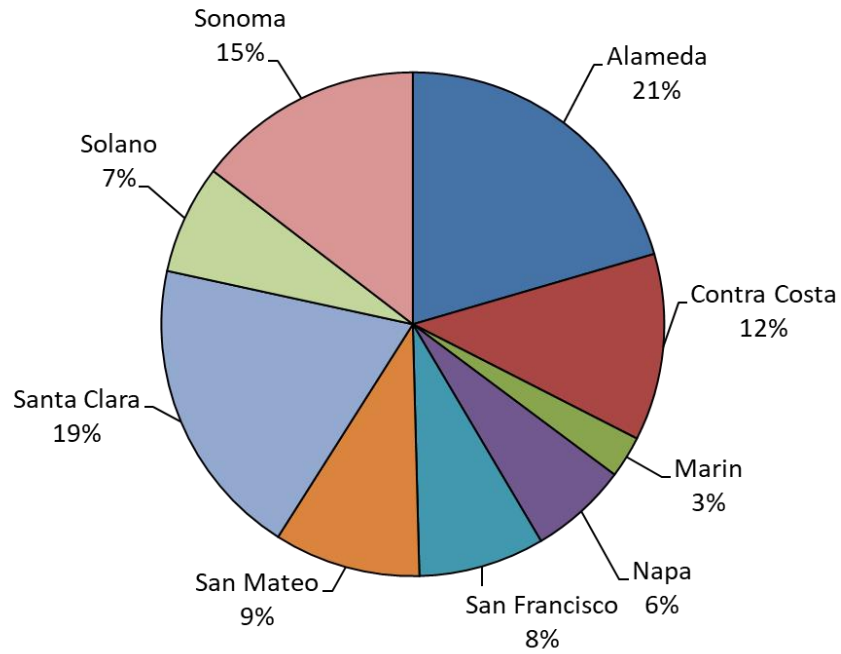
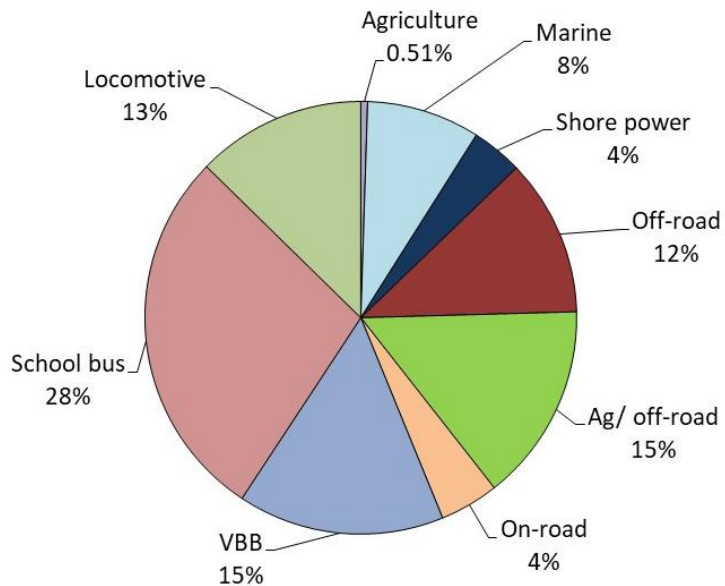


Figure 5. CMP/MSIF/CHP/FARMER funding awarded since 2009 by category



BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Scott Haggerty and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: September 17, 2018

Re: Update on Status of Heavy-Duty Zero-Emission Mobile Source Technologies

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

Emissions from mobile sources in the San Francisco Bay Area account for about half of certain criteria air pollutants, including nitrogen oxides, reactive organic gases, and particulate matter, and about 41% of the Greenhouse Gases (GHG) generated in the region¹. Reducing emissions from the mobile source sector is essential to helping the Bay Area attain State and Federal ambient air quality standards and meeting State and local GHG reduction goals. For this reason, the Bay Area Air Quality Management District (Air District) has invested significant resources to incentivize and achieve voluntary emissions reductions from mobile sources.

Accelerated wide-scale adoption of zero emission technologies is essential to reducing emissions from heavy-duty vehicles and equipment in the Bay Area and is one of the key strategies to help the Bay Area achieve local, State, and Federal emission reduction targets and its clear air and climate protection goals.

This report provides a summary of the status of these technologies based on a literature review and Air District staff's knowledge.

DISCUSSION

The Air District recently assessed options for replacing heavy-duty diesel combustion vehicles and equipment with zero-emission technologies to help the region achieve the goal of "Diesel Free by '33." Technology assessment reports from the California Air Resources Board (CARB) were the

¹ BAAQMD 2017 Clean Air Plan, Emissions Inventory for year 2015. Mobile Sources include: Passenger Cars, Light-, Medium-, Light-Heavy-, Medium-Heavy-, Heavy-Heavy-Duty Trucks, School/Urban Buses, Motor-Homes, Motorcycles, Lawn & Garden Equipment, Transportation Refrigeration Units, Agricultural Equipment, Construction and Mining Equipment, Industrial Equipment, Light Duty Commercial Equipment, Trains, Off-Road Recreational Vehicles, Ships, Commercial Harbor craft, Recreational Boats, and Airport Ground Support Equipment.

primary source of literature review used in the development of this assessment². As part of its assessment, Air District staff assigned one of the following four readiness levels to each of the project categories that were reviewed:

- **Commercially Available** - technologies that are readily available for purchase and have comparable costs to conventional technologies with or without incentives
- **Early Commercialization** - technologies that are commercially available but have higher capital costs than similar conventional technologies due to low sales volumes
- **Demonstration** - technologies that as of 2018 are being tested in very small quantities and that may reach early or full commercialization level by 2033
- **Not Yet Available** - categories of equipment and vehicles that have not yet been demonstrated as zero-emissions and the timeline for when these technologies will be commercialized is currently unknown.

Table 1 summarizes the results of the assessment of readiness levels of zero-emission technologies for heavy-duty vehicles and equipment and Attachment 1 provides more information about the availability of these technologies.

Table 1: Status of zero-emission technologies by vehicle/equipment category, as of 2018

| Technology Readiness Level | Vehicle / Equipment Category |
|--------------------------------|---|
| Commercially Available | Buses |
| | Cargo handling equipment |
| | Locomotives - switchers/yard goats |
| | Ocean going vessels (at berth) |
| | Transportation refrigeration units |
| | Medium-duty trucks |
| Early Commercialization | Small construction equipment |
| Demonstration | Heavy-duty trucks |
| | Commercial harbor craft |
| | Cargo handling equipment (container top/side picks) |
| Not Yet Available | Large construction equipment |
| | Locomotive - line haul |
| | Ocean going vessels (at sea) |

² California Air Resources Board, Technology and Fuels Assessments, <https://www.arb.ca.gov/msprog/tech/tech.htm>, Accessed in June 2018.

Since the Air District does not have regulatory authority over mobile sources of air pollution in the Bay Area, the Air District relies on education, outreach, and financial incentives to encourage heavy-duty vehicle and equipment owners and operators to reduce emissions beyond what is required by the state and federal regulations and other legal or contractual obligations. This fiscal year, the Air District is projected to have more than \$132 million in funding to distribute to eligible projects, with most of this funding being available for zero-emissions heavy duty projects.

At the Mobile Source Committee meeting, staff will provide an overview of the Bay Area's heavy-duty vehicle and equipment fleet and air emissions, a summary of the heavy-duty vehicle and equipment zero-emission technologies needed to help the Bay Area achieve its clean air and climate protection goals, and the timeline for when viable zero-emissions technology options are anticipated to become commercially available for each of the equipment types.

Staff will also provide an overview of all the available funding sources administered by the Air District that can help owners and operators in their transition to zero-emissions as part of separate agenda item.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Chengfeng Wang
Reviewed by: Karen Schkolnick

Attachment 1: Technology Assessment of Medium- and Heavy-Duty Mobile Source Zero-Emission Technologies

AGENDA 5 - ATTACHMENT 1

Technology Assessment of Mobile Source Zero-Emission Technologies

Buses

Buses are typically 35 to 45 ft. in length (or longer) and are primarily used to transport passengers. Buses can range in size from small shuttles with seating for 10 to 20 passengers, to school and transit buses that can seat 40 to 80 passengers, to articulated and double-decker buses that can carry over 200 passengers. In the Bay Area, most buses are propelled by an internal combustion engine (ICE) that burns diesel or compressed natural gas, or as a hybrid that operates on a combination of diesel fuel and batteries.



Battery electric buses are commercially available for use as transit, school, and shuttle buses. Recent advancements in battery and wireless inductive charging technologies are also making wide adoption of battery electric buses more feasible and cost-effective. Other zero-emission bus technologies, including hydrogen fuel cells, are actively being tested and demonstrated in the Bay Area. Many Bay Area transit agencies have started to test or deploy zero-emission buses, such as the San Francisco Municipal Transportation Agency and San Mateo County Transit District, or SamTrans, who have committed to fully electrify bus fleets by 2035 and 2033, respectively.

Medium- and Heavy-Duty Trucks

Medium- and heavy-duty trucks are large motor vehicles that are primarily used to transport goods and equipment. Medium-duty trucks range in Gross Vehicle Weight Rating (GVWR) from 10,001 to 26,000 pounds (lbs.) and heavy-duty trucks have a GVWR of 26,001 lbs. and above. Medium- and heavy-duty trucks have historically been powered by diesel or natural gas internal combustion engines.



Today, medium-duty battery electric delivery trucks are commercially available. These trucks are well-suited for local applications as their typical 100-mile range allows the vehicle to return-to-base for refueling. Zero-emission technologies for other medium-duty applications and heavy-duty trucks are being developed and demonstrated with a limited number of models. In California, specifically the Bay Area, several early tests and demonstrations of zero-emission medium- and heavy-duty trucks are being conducted, including battery electric delivery trucks operating in urban areas and battery electric heavy-duty trucks operating in and around the Port of Oakland. Many vehicle manufacturers, both those long established in the industry and new start-up companies, are developing zero-emission medium- and heavy-duty vehicles, and some are already producing vehicles at low volume. Among the larger automotive companies, Daimler has announced that it expects to begin production on a fully electric heavy-duty truck in 2020.

Transport Refrigeration Units

A transport refrigeration unit (TRU) is defined as a refrigeration system powered by a diesel integral (inside housing) internal combustion engine designed to control the environment of temperature sensitive products that are transported in trucks and refrigerated trailers. TRUs may be capable of both cooling and heating.



Zero-emission technologies (battery electric, plug-in electric, fuel cell, cryogenic, etc.) for TRU are commercially available; however, these options have specific infrastructure and operational requirements that need to be considered by fleet operators.

Mobile Cargo Handling Equipment

Mobile cargo handling equipment (CHE) is any mobile equipment used at ports, rail yards, and warehouse distribution centers to either handle freight or to perform other on-site activities, such as maintenance. Types of CHEs include yard trucks, top handlers, side handlers, reach stackers, forklifts, and gantry cranes, dozers, excavators, and loaders. In 2018, most CHEs, especially the larger vehicles, are powered by diesel internal combustion engines.

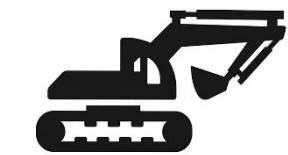


Today, several options for deploying zero-emission technologies for cargo handling equipment, such as automated electric equipment, electric rubber tired or rail mounted gantry (RTG or RMG) at container terminals, fuel cell and battery electric fork lifts, yard trucks at distribution centers, electric aircraft ground support equipment, battery electric belt loader, electric baggage tug, are commercially available. Zero-emission technologies for container top/side picks currently are not commercially available although two electric container top picks are currently being demonstrated at the Port of Los Angeles.



Construction & Earthmoving Equipment

Construction and earthmoving equipment refers to heavy-duty vehicles, specially designed to move, compact, haul, hoist, earth and other loose or bulk materials; and other types of construction equipment, such as bulldozers, graders, excavators, scrapers, loaders, trenchers, and backhoes. In 2018, most of these vehicles and equipment are powered by diesel internal combustion engines.



Zero-emission technologies are in the early commercialization stage for smaller construction equipment. The technology for providing full battery electric heavy-duty machinery will require further technological improvements as it has yet to meet parity with conventional powertrains.

Locomotives

A locomotive is a self-propelled vehicle used to push or pull trains, and the combination of locomotive(s) pulling freight or passenger railcars forms a train. Most of the freight and passenger locomotives in the Bay Area are powered by a diesel-electric system whereby an internal combustion engine that is fueled by diesel drives an electrical generator or alternator, which in turn powers electric motor(s) that drive the wheels.



While electric train and rail technology is commercially available, it would currently be cost prohibitive to widely deploy this technology for long haul freight and passenger use. Therefore, in the near-term, the most technologically feasible and cost-effective advanced technology available to reduce toxic and criteria pollutant emissions is the installation of a compact aftertreatment system (e.g., combination of Selective Catalytic Reduction and Diesel Oxidation Catalysts) onto new and remanufactured diesel-electric freight interstate line haul locomotives. Emissions in communities that are disproportionately impacted by diesel emissions can be further

reduced by augmenting this control equipment with a combination of on-board batteries and geofencing technologies.

Zero-emission technologies are commercially available for switch (yard) operations (e.g., a railway electrification system that provides power through overhead or third line powerline). Battery electric technologies are also being tested for switch (yard) locomotives in other parts of the United States.

Ocean-Going Vessels

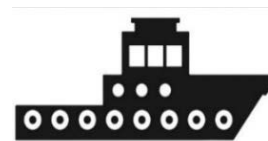
Ocean-going vessels (OGV) are large vessels designed for deep water navigation. Types of OGVs include large cargo vessels such as container vessels, tankers, bulk carriers, and car carriers, as well as passenger cruise vessels. These vessels transport containerized cargo, bulk items such as vehicles, cement, and coke, liquids such as oil and petrochemicals, and passengers. OGV propulsion (main) engines are primarily fueled by residual fuel oil and auxiliary engines that are mainly powered by diesel fuel. The majority of vessels that visit California ports are foreign-flagged vessels.



As of 2018, technologies (e.g., shore-side power, fuel cells, and emissions capture and control systems) are commercially available that enable vessels at dockside to achieve zero and near-zero emissions. Other than nuclear power, no other zero-emissions technology has been developed for vessels at sea; however, an all-electric autonomous container ship is being planned in Norway.

Commercial Harbor Craft

Commercial harbor craft means any private, commercial, government, or military marine vessel including, but not limited to, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push-boats, crew and supply vessels, pilot vessels, fishing vessels, research vessels, U.S. Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going or recreational vessels. Nearly all commercial harbor craft vessels are powered by diesel fuel.



While no zero-emission technologies are commercially available for harbor craft, dedicated battery electric systems are being developed for larger ships but have not yet been adopted for commercial harbor craft. Also, several demonstration and early commercialization projects are underway including a zero-emission hydrogen fuel cell ferry project funded by the ARB with funding from the “California Climate Investments” (CCI) program that is being administered by the Air District in partnership with Golden Gate Zero Emission Marine Inc. Another demonstration project funded by US Environmental Protection Agency (USEPA) will convert an existing ferry to full electric in Alabama. Proton Exchange Membrane or Polymer Electrolyte Membrane (PEMFC) systems have been used in harbor craft demonstrations in New York, electric ferries are being built and operated in Norway, and a hybrid tugboat has been demonstrated at the Ports of Los Angeles and Long Beach.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Scott Haggerty and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: September 11, 2018

Re: Update on Air District Grant Program Funding for Fiscal Year Ending (FYE) 2019

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

Emissions from mobile sources in the San Francisco Bay Area account for about half of certain criteria air pollutants, including nitrogen oxides, reactive organic gases, and particulate matter, and about 41% of the Greenhouse Gases (GHG) generated in the region¹. Reducing emissions from the mobile source sector is essential to helping the Bay Area attain State and Federal ambient air quality standards and meeting State and local GHG reduction goals. As part of our efforts to reduce emissions from mobile sources, the Bay Area Air Quality Management District (Air District) administers grant and incentive programs that offer funding to public agencies, private companies, and local residents to help offset a portion of the cost to implement eligible emissions reduction projects.

Most of the Air District's grant funding revenue comes from motor vehicle registration surcharges, smog abatement and tire fees, and bond sales that are distributed to the Air District. The Air District also applies and receives funding from state and federal agencies, and settlement funds.

DISCUSSION

In a staff report presented to the Mobile Source Committee (Committee) on February 22, 2018, the estimated funding for FYE 2019 was \$96 million, based on information received through early 2018. More recently, the funding estimate projected for FYE 2019 has been revised up to \$132 million, as staff learned of the availability of the Volkswagen (VW) Environmental Mitigation Trust and other new state funding revenues.

¹ BAAQMD 2017 Clean Air Plan, Emissions Inventory for year 2015. Mobile Sources include: Passenger Cars, Light-, Medium-, Light-Heavy-, Medium-Heavy-, Heavy-Heavy-Duty Trucks, School/Urban Buses, Motor-Homes, Motorcycles, Lawn & Garden Equipment, Transportation Refrigeration Units, Agricultural Equipment, Construction and Mining Equipment, Industrial Equipment, Light Duty Commercial Equipment, Trains, Off-Road Recreational Vehicles, Ships, Commercial Harbor craft, Recreational Boats, and Airport Ground Support Equipment.

At the Committee meeting, staff will provide an update on the total incentive funds that are projected to be available for award this fiscal year from the various funding sources, review the types of projects and categories of equipment that are eligible for funding, and provide a summary of the air quality benefits that are estimated from the implementation of these incentive programs.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Chengfeng Wang and Anthony Fournier
Reviewed by: Damian Breen and Karen Schkolnick