THE CARL MOYER PROGRAM GUIDELINES

2017 Revisions

VOLUME I: PROGRAM OVERVIEW, PROGRAM ADMINISTRATION AND PROJECT CRITERIA

Approved by the Board: [DATE]

California Environmental Protection Agency

Air Resources Board

In Memory of Dr. Carl Moyer

(1937 - 1997)

This program is named in honor of the late Dr. Carl Moyer, whose extraordinary dedication, hard work, vision and leadership made this program possible. He created and masterminded this program, in a noble effort to unite business and government in the name of public interest to improve California's air quality.

This update was a collaborative effort and has benefited from the valuable contributions of the participating air districts and all other stakeholders. The Air Resources Board appreciates the considerable efforts of air district staff both in the development of these guidelines as well as the day-to-day implementation of the Carl Moyer Program.

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EXECUTIVE SUMMARY

Since 1998, the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program or Program) has cost-effectively reduced smog-forming and toxic emissions. Approximately $1 billion has been allocated to date and the Program continues to provide over $60 million in grant funding each year to clean up older polluting engines throughout California. The regulatory, technological and incentives landscape has changed significantly since the creation of the Moyer Program and to address evolving needs, the Legislature has periodically modified the Program to better serve the state. Most recently, Senate Bill (SB) 513 (Beall, 2015) has provided new opportunities for the Program to contribute significant emission reductions alongside implemented regulations, advance zero and near-zero technologies, and combine program funds with those of other incentive programs.

This report addresses the implementation of SB 513 by the Air Resources Board (ARB or Board) and California's air pollution control and air quality management districts (air districts) through new guidelines to serve California's air quality goals. SB 513 requires the Board to adopt updated guidelines by July 1, 2017.

California's strategic plans for air quality and mobility, including the State Implementation Plan (SIP) and the Sustainable Freight Action Plan, point to the need for combustion engines to transition to zero and near-zero emission alternatives. This move is critical to California's clean air mission, to the attainment of health-based air quality standards, and to meeting future transportation goals without harm to public health and the environment. Public incentive funds are an increasingly important part of this transition. Incentives both encourage customers to purchase cleaner technologies and stimulate the marketplace to manufacture cleaner technologies.

Collaboration is paramount to the Moyer Program's ongoing success. The changes made through SB 513 were supported and informed by a coalition that included air districts, environmental organizations, industry stakeholders, equipment dealers, and consumers. Many different alternatives and approaches were considered. The result was a working group consensus on new program objectives and improvements essential to continuing program value. In turn, ARB staff developed and conducted public workshops on a proposal to implement those program improvements. Three key changes to the program are described below.

Cost-effectiveness*.* SB 513 specified that the Board consider the cost of technology and the cost of regulations in establishing a new limit. Staff proposes a tiered cost-effectiveness approach that will allow the Program to more effectively incentivize deployment of cleaner technologies. This two-step approach would support both conventional diesel clean-up projects and emerging technologies at appropriate funding levels. First, staff proposes to increase the general cost-effectiveness limit from the current $18,260 up to $30,000 per weighted ton of emission reductions. This reflects the cost-effectiveness of more recent regulations and will enable more meaningful grants for cleaner engines at the required standard. For advanced technology projects that are zero-emission, or alternatively meet the cleanest certified optional standard applicable

by source category, staff proposes that districts be given the option to apply a cost-effectiveness limit of up to $100,000 per weighted ton, limited to the increment of emissions reductions beyond those achieved at the required standard. This higher limit would provide additional incentive to turn engines and fleets over to the cleanest certified technologies now emerging in the marketplace.

Infrastructure. SB 513 provides broader opportunity for air districts to support infrastructure projects. The staff proposes to provide air districts with the ability to fund infrastructure projects where the greatest penetration of commercially available advanced technology vehicles and equipment exists. These categories include commercial battery charging and alternative fueling stations for on-road and off-road vehicles and equipment, and continued support for marine shore power electrification and stationary agricultural projects. To provide project selection transparency for publicly accessible projects staff proposes requiring a competitive bid process when the project includes public access. Air districts would retain the flexibility to select projects that meet their local needs and priorities. Per SB 513, infrastructure projects would not be required to meet a cost-effectiveness limit.

Project Co-Funding. As envisioned in SB 513, leveraging of funds allows air districts to work with grant applicants to co-fund projects with other incentive programs up to the cost of the project, without penalizing project cost-effectiveness. Project cost sharing supports the deployment of the cleanest technologies statewide by providing opportunities to co-fund private, local, State and federal funding to cover technology costs. Staff proposes the following safeguards consistent with SB 513: the requirements of all contributing programs must be met, incentives must not exceed the total project costs, there can be no double counting of emission reductions for SIP credit, and the applicant should provide a 15 percent cost share for private sector projects.

Even as the 2017 Guidelines would implement the program improvements directed by SB 513, they retain the Moyer Program's longstanding core objectives. The proposed Guidelines are intended to:

- Ensure continued program accountability and good stewardship of public funds;
- Ensure Moyer projects provide emission reductions that the U.S. Environmental Protection Agency (EPA) will find creditable in the SIP;
- Emphasize reduction in communities with higher pollutant exposure, including communities of minority and low-income populations;
- Provide sufficient incentive to encourage California businesses to participate in and benefit from the program, getting surplus emission reductions within cost-effectiveness limits.

This report describes Moyer Program context and background, and explains how a renewed Moyer Program can support the changing landscape of clean air technology in

and beyond California. Staff's proposed changes will ensure that Moyer can assist the technology shifts that bring California closer to the clean air future called for in our state's strategies.

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THE CARL MOYER PROGRAM GUIDELINES

PROGRAM OVERVIEW, PROGRAM ADMINISTRATION AND PROJECT CRITERIA

VOLUME I

(The Carl Moyer 2017 Guidelines are comprised of two Volumes. Volume I includes the program overview, program administration, source category chapters and appendices. Volume II includes the On-Road and Off-Road Voucher Incentive Programs, and the Agricultural Assistance Program.)

THE CARL MOYER PROGRAM GUIDELINES

PART 1 of 3

PROGRAM OVERVIEW, PROGRAM ADMINISTRATION AND PROJECT CRITERIA

CHAPTER 1: PROGRAM OVERVIEW

The Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program or program) is a grant program that funds the incremental cost of cleaner-than-required engines, equipment, and other sources of air pollution. Since 1998, the Moyer Program has been successful in reducing smog-forming and toxic emissions cost-effectively. Although air pollution regulations have significantly reduced emissions and improved air quality across the State, many areas of California continue to experience unhealthy air. The Moyer Program complements California's regulatory program by providing incentives to obtain early or extra emission reductions, especially from emission sources in minority and low-income communities and areas disproportionately impacted by air pollution. Incentives encourage customers to purchase cleaner technologies, and stimulate the marketplace to manufacture cleaner technologies. Although the Moyer Program has grown in scope, it retains its primary objective of obtaining cost-effective and surplus emission reductions to be credited toward California's legally-enforceable obligations in the State Implementation Plan (SIP) – California's road map for attaining health-based national ambient air quality standards.

The 2017 Carl Moyer Program Guidelines (Guidelines) update the program to meet new opportunities provided by Senate Bill 513 (SB 513, Beall, 2015). These changes – cost-effectiveness limits that recognize technology and regulatory costs, the ability to leverage Moyer dollars with project co-funding, added eligibility for infrastructure projects – enable the Moyer Program to fully support emission reductions within the changing landscape of clean air technology.

This program update arrives in time to support the multiple strategic planning efforts that are relying on emission reductions from incentive programs. California's strategic plans for air quality and mobility, including both the Proposed 2016 State Strategy for the SIP and the Sustainable Freight Action Plan, point to the need for combustion engines to transition to zero and near-zero emission alternatives. This move is critical to the state's clean air mission, to the attainment of air quality standards, and to meeting future transportation goals without harm to public health and the environment. The Moyer Program is particularly important among mobile source strategies identified for the SIP, contributing reductions needed toward ozone attainment milestones in the South Coast Air Basin in 2023 and 2031.

The Guideline updates were developed in close and continuing consultation with air districts, who ultimately implement Moyer Program projects. This includes the formation of several teams with specific responsibilities in re-crafting the guidelines, and input from larger group and rural sections meetings. A total of five public workshops were held to collect input from the public, including initial workshops in the San Joaquin Valley and South Coast air basins.

A. Background

The Moyer Program has been a successful and popular air pollution reduction program. Since 1998, Moyer Program grants have enabled the owners of diesel engines to go

beyond regulatory requirements by retrofitting, repowering, or replacing their engines to gain early or extra emission reductions. Over the past 18 years more than $900 million in program grants have cleaned up over 50,000 engines, reducing oxides of nitrogen (NOx) and reactive organic gases (ROG) by 178,000 tons and toxic diesel particulate matter (PM) by 6,500 tons. Moyer incentive funds have not only removed old, dirty equipment that would have otherwise remained in operation for years to come, but have benefited the economy by increasing consumer demand for newer and cleaner technologies.

The Moyer Program has been successfully implemented through the cooperative efforts of the Air Resources Board (ARB) and California's air pollution control and air quality management districts (air districts). The Health and Safety Code (H&SC) directs ARB to oversee the program by managing and distributing funds; developing and revising guidelines, protocols, and criteria for covered vehicle projects; and determining methodologies to evaluate project cost-effectiveness. Air districts follow the Board-approved Guidelines to select, fund, and monitor specific clean air projects in their areas, providing grants to public and private entities for the incremental cost of cleaner-than-required engines and/or equipment.

Air districts enjoy considerable flexibility in implementing the Moyer Program. Each district may focus its funds on specific source categories, to tailor projects to meet local air quality objectives while still ensuring the proper and responsible use of State funds.

Emission reductions funded through the Moyer Program must be permanent, surplus, quantifiable, and enforceable in order to meet the underlying statutory provisions and be SIP-creditable. To ensure that projects are surplus to regulations, funded projects must not be required by any federal, State or local rule or regulation. In most cases project life – the period in which surplus emission reductions are delivered – must be at least three years, so that the program does not fund actions that would otherwise be taken to comply with regulatory deadlines, as well as to help ensure cost-effectiveness. A maximum project life is also established to ensure that the emission reductions remain real for a specified period.

The Guidelines require that emission control technologies be certified or verified by ARB or by U.S. EPA when ARB does not have an applicable certification or verification program. Robust administrative requirements also help ensure emission reductions are enforceable and are achieved for the life of a project. Grantees sign contracts or agreements enforceable for the life of a project. Their replaced engines must be scrapped. Incentive program review by ARB and fiscal audits by Department of Finance help ensure Moyer funds are serving the purpose of achieving expected emission reductions.

1. **Project Types**. The Moyer Program funds clean air projects involving a wide variety of vehicles and equipment. Typical project types include:

   (A) **Replacement.** An older vehicle or piece of equipment that includes an engine with remaining useful life is replaced with a newer, cleaner vehicle

or piece of equipment. On-road trucks and buses may be replaced through a fleet modernization contract or through a voucher incentive program (VIP). Off-road equipment also may be replaced under contract or through off-road VIP. In all cases, the older vehicles and equipment are scrapped.

(B) **Repower.** A newer, cleaner engine is installed in place of a higher-polluting engine in an existing vehicle or piece of equipment.

(C) **Retrofit**. An emission control system is added to an in-use engine, vehicle or piece of equipment.

(D) **Vehicle Retirement (car scrap).** Light duty scrap programs pay the owners of older, more polluting vehicles that still have remaining useful life to voluntarily retire those vehicles earlier than they would have otherwise.

(E) **Infrastructure.** Moyer funds provide for the installation of fueling or energy infrastructure to fuel or power covered sources. Though infrastructure does not directly deliver emission reductions, it enables the advanced clean vehicles and equipment that do.

More details on eligible project types can be found in the source category chapters of the Guidelines. Other projects may be eligible; interested applicants should reference the details in each section and consult with their local air district for additional solicitation material, program brochures, and to discuss potential Moyer Program projects.

2. Funding Sources. The Moyer Program has been funded through a variety of mechanisms since its inception in 1998. In the program's first four years, the California Legislature funded the Moyer Program through annual budget appropriations. Voter approval of *Proposition 40: The California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002* provided program funding for the fifth and sixth years.

Bills enacted in 2004 (SB 1107 and Assembly Bill (AB) 923) provided for continuous funding of the Moyer Program thereafter. The program is currently authorized at $69 million per year from these sources:

(A) **Smog Abatement Fee.** SB 1107 adjusted the smog abatement fee collected for new vehicles registered by the Department of Motor Vehicles (DMV) from $6 to $12, while extending the new vehicle Smog Check exemption period. This additional fee is directed to fund the Moyer Program (H&SC § 44091.1). SB 1107 funds do not have a sunset date.

(B) **Tire Fee.** AB 923 adjusted the tire fee that is assessed on purchasers of new tires from $1 per tire to $1.75 per tire (Public Resources Code section 42885). This legislation was due to sunset in 2015; AB 8 extended that date through 2023.

ARB receives from DMV the funds from the additional $6 portion of smog abatement fees, and from the Board of Equalization the funds from the additional $0.75 portion of tire fees. ARB distributes these funds, currently about $65 million per year to air districts following a statutory formula (H&SC § 44299.2).

In addition, AB 923 gave air district governing boards the authority to increase the vehicle registration surcharge by $2 to pay for specific clean air incentive programs, including projects eligible for grants under the Moyer Program. AB 923 $2 DMV funds have become the primary source of the 15 percent Moyer match required of districts receiving more than the minimum allocation. Nineteen air districts have adopted the $2 Motor Vehicle Registration fee, providing these districts about $50 million per year for incentive projects. The $2 DMV surcharge fees are sent directly by DMV to the air districts.

B. Program Legislative History

The Moyer Program was created in 1998 when $25 million was included in the fiscal year 1998-1999 State budget to fund a lower-emission heavy-duty engine incentive program. The ARB adopted the first set of Moyer Program Guidelines in early 1999, and legislation (AB 1571) enacted in 1999 formally established the statutory framework for the program (H&SC § 44275 et seq.). The program initially focused on reducing NOx emissions from heavy-duty diesel engines in order to implement a strategy in the 1994 California SIP for ozone that called for the early introduction of cleaner engines. The scope of the program has expanded over the years with statutory changes adding both new covered pollutants and new source categories.

Legislation enacted in 2001 (AB 1390) required air districts with a population of over 1 million to expend 50 percent of Moyer Program funds for projects that operate or are based in environmental justice areas (H&SC § 43023.5).

Legislation enacted in 2004 (AB 923 and Senate Bill (SB) 1107) provided increased and continued funding through 2015 while significantly expanding the Moyer Program. AB 923 expanded the Moyer Program to include light-duty vehicle projects and agricultural sources of air pollution as defined in Health and Safety Code section 39011.5(a). AB 923 also expanded the Moyer Program from a NOx focused incentive program to include projects that also reduce reactive organic gases and fine particulate matter (PM_{10}). This change allowed the Moyer Program to more comprehensively address California's air pollution challenges, including the air toxic risk associated with emissions from diesel engines. Additional legislation enacted in 2004 (AB 1394) directed ARB to include in the Moyer Program heavy-duty fleet modernization projects that reduce NOx and/or PM_{10} emissions through the replacement of old trucks.

Legislation enacted in 2005 (SB 467) required ARB to revise the Moyer Program Guidelines to include projects in which an applicant turns in off-road equipment powered by internal combustion engines and replaces that equipment with new zero-emission technologies.

Legislation enacted in 2006 (SB 225) provided additional resources for program administration to address the expansion of the program. This legislation increased allowable expenditures for air districts' program administration from 2 percent of program funds for outreach to 5 percent for air districts with one million or more inhabitants and to 10 percent for those with less than one million inhabitants. ARB was provided 4 percent of program funds for outreach, oversight, and administration. These additional resources enabled ARB and the air districts to improve program accessibility, efficiency and accountability.

Legislation enacted in 2009 (SBx2 3) allows a maximum project life of 10 years for off-road farm equipment projects. This legislation also allows for funding of these off-road farm equipment projects up to the compliance date as determined by statute, regulation or rule.

Legislation enacted in 2010 (AB 1507) required ARB to revise the Guidelines by July 1, 2011, to allow for the combination of Moyer Program funds with funds designed to reduce greenhouse gas emissions from federal programs or the Alternative and Renewable Fuel and Vehicle Technology Program without including them in the cost-effectiveness calculation for the Moyer Program funds.

Legislation enacted in 2013 (AB 8) extended funding of AB 923 tire fees ($1.75 per tire) through year 2023, effectively reauthorizing the Moyer Program and associated local funds through that year. AB 8 also directed ARB to convene a working group and work with local air districts to evaluate the Moyer Program and provide recommendations for program changes. The efforts of this working group led to SB 513.

Signed by the Governor in 2015, SB 513 provided new flexibilities that allow the Moyer Program to continue to make a viable contribution to emission reductions in California into the future. SB 513 was implemented in two phases; the early revisions became effective January 1, 2016, following a public meeting and 45-day public comment period, under authority delegated to the Executive Officer. Remaining updates are scheduled for consideration by the Board in April 2017. The most noteworthy changes enabled by SB 513 included:

1. Updating cost-effectiveness criteria, authorizing the Board, in collaboration with the air districts, to establish and revise cost-effectiveness limits to account for the costs of technology and regulation;

2. Allowing for a separate school bus cost-effectiveness limit to allow the Program to fund at the levels equivalent to the Lower-Emission School Bus Program. This change has already been implemented through the amendment of the 2011 Guidelines that became effective January 1, 2016.

3. Expanded opportunities for infrastructure projects; and

4. Allowing project co-funding without penalizing cost-effectiveness.

C. Summary of Changes for the 2017 Guidelines

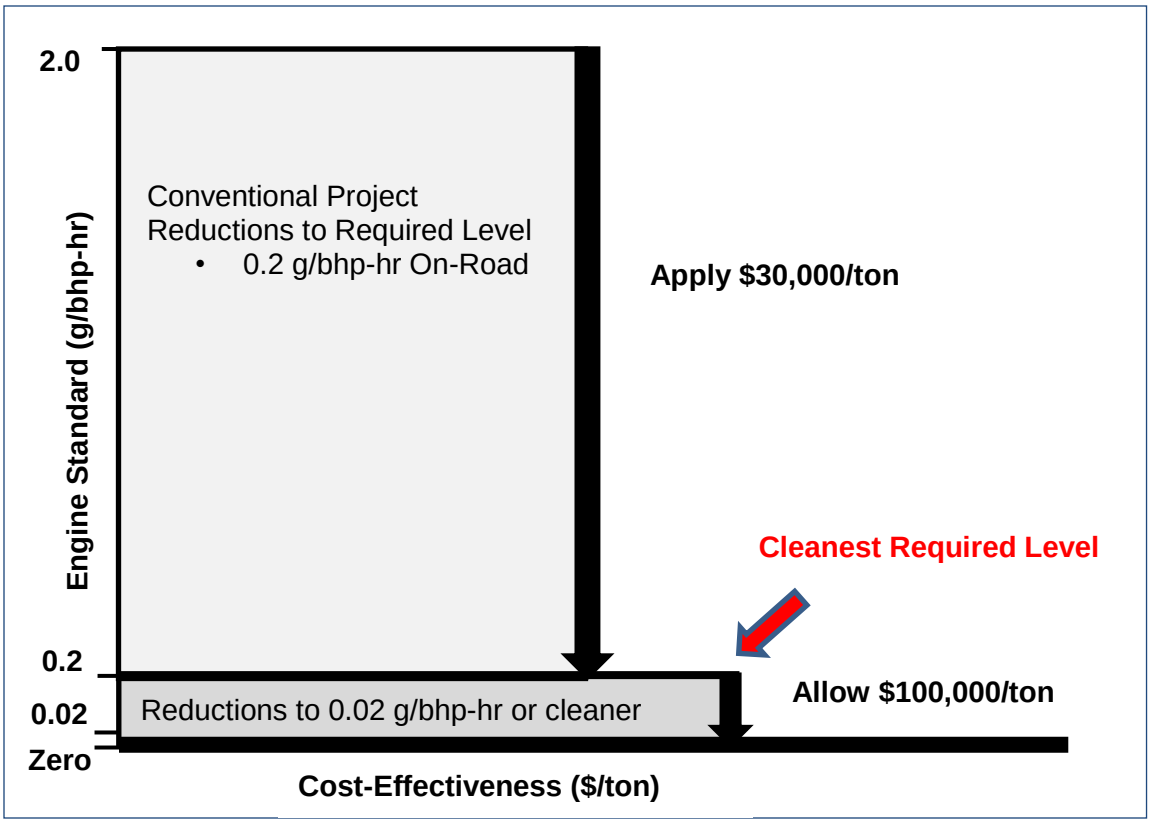
The 2017 Guidelines are proposed as an update to the Moyer Program to reflect the opportunity and flexibility provided by SB 513. The key program changes to be implemented through these Guidelines include the following. (Additional detail is included in the Staff Report issued to accompany Board consideration of these Guidelines.)

1. **Establish New Cost-Effectiveness Limits.** SB 513 specified that the Board, in collaboration with the air districts, should consider the cost of technology and the cost of regulations in establishing cost-effectiveness values. The proposed Guidelines include a tiered cost-effectiveness approach that will allow the program to meet dual needs – supporting both conventional projects and emerging technologies. The general cost-effectiveness limit would be increased from the current $18,260 up to $30,000 per weighted ton of emission reductions (particulate matter (PM) reductions would still be weighted by a factor of 20 due to diesel PM toxicity). The increase in the base limit reflects more recent regulatory costs and will enable more meaningful grants for cleaner engines at the required standard.

   For advanced technology engines that are zero-emission or, alternatively, meet the cleanest optional standard level certified, the proposal allows districts to choose to apply a cost-effectiveness limit of up to $100,000 per weighted ton. This higher limit would provide additional incentive to turn engines and fleets over to the cleanest certified technologies now emerging in the marketplace.

   Figure 1 below illustrates how the dual cost-effectiveness limits would be implemented under the proposed change for an on-road engine meeting the 0.02 g/bhp-hr Optional Low NOx standard.

Figure 1: Illustration of Dual Cost-Effectiveness Limit for On-Road Projects



2. **School Buses**: Note that a separate cost-effectiveness limit of $276,230 per weighted ton will continue to apply to school bus projects, to enable consistency with the funding levels used in California's Lower-Emission School Bus program as directed by SB 513. This program change has already been made, through a revision to the Moyer Program 2011 Guidelines effective January 1, 2016.

3. **Expansion of Infrastructure Program**. SB513 provided new opportunities to fund installation of fueling or energy infrastructure for zero and near zero alternative vehicles and equipment and other projects that enable clean air technologies. Under SB 513, infrastructure projects are not subject to the cost-effectiveness limit. Infrastructure categories included in the chapter are commercial battery charging and alternative fueling stations for on-road and off-road vehicles and equipment, and continued support for marine shore power electrification and stationary agricultural electrification projects. Proposed funding limits for infrastructure projects are as follows:

   (A) Up to 50 percent of eligible costs for all projects;

   (B) Up to an additional 10 percent (total of 60 percent) for publicly accessible stations;

(C) Up to an additional 15 percent (total of 65 percent) for projects including on-site solar or wind power generation;

(D) Up to 100 percent for electric charging stations and alternative fueling stations for school buses. This is consistent with recent Board direction to consider opportunities for funding to assist public school buses.

To provide project selection transparency for public accessible projects staff proposes requiring a competitive bid process when the project includes access to the public. The proposal also provides flexibility for air districts to select projects that meet their local needs and priorities.

4. **Opportunity to Co-Fund Moyer Projects with Other Public Funds.** Proposed Guideline changes would provide now opportunities for Moyer Program funds to co-fund projects with other incentive programs without a cost-effectiveness penalty, as provided for in SB 513. Co-funding would allow projects to be approved with support from multiple program grants up to the total eligible cost of the project. Moyer Program and AB 923 funds would continue to be subject to cost-effectiveness limits (except in the case of infrastructure), regardless of whether such thresholds apply in other contributing programs. There is no limit on the number of co-funding sources that can be used to fund a project, as long as the total project costs are not exceeded and a 15 percent applicant cost share requirement is met for private sector projects. Provisions in the General Criteria and Program Administration Chapters would safeguard against double counting of emission reductions, and the Moyer Program will account for all emission reductions for SIP purposes. Projects would still be required to meet the individual requirements of each funding source.

5. **Changes to Program Administration**. Program administration affects district implementation of all Moyer projects, and ARB staff has worked with air districts to streamline and reorganize the administrative requirements that ensure program accountability. A major reporting update made in SB 513 was changing the two year expenditure deadline for grant funds to a four year liquidation deadline. Guideline changes to reflect this provide additional time to complete more complex projects, while contract execution will serve as an interim milestone for progress tracking. Another key change to the chapter is the phase-in of accounting principles, as recommended by California Department of Finance, to improve fiscal transparency and lower the cost of program audits. The updated Guidelines also provide districts procedures for redirection of unallocated grant funds to districts with ready projects.

6. **Changes to the On-Road Sections**. This version of the Guidelines would merge previous 2011 Guideline chapters 4, 5 and 6 into one comprehensive chapter for heavy-duty trucks and buses. The On-Road Voucher Incentive Program (VIP) program would remain separate in Part II of the Guidelines. A significant change in the on-road section is the addition of funding caps for new technologies such as Optional NOx and zero emission engines. Staff also

modified VIP funding caps for conventional project types. The fleet size limit of ten or less vehicles was removed; however, fleets larger than ten would have to use cleaner engine technology.

7. **Changes to the Off-Road Sections**. The proposed 2017 Guidelines would combine previous chapters 7, 8, 9 and 10 into one off-road equipment chapter, while Off-Road VIP remains separate. Staff proposes to extend the eligibility for large fleets (more than 5,000 horsepower) to one additional opportunity after January 1, 2017. This will provide large fleets a path to add Tier 4 final equipment while retaining broader opportunity for medium fleets within this time frame. Program changes also allow equipment with Tier 3 engines and portable equipment to be eligible for equipment replacement.

8. **Changes to the Locomotive Section**. Program guidelines would be updated for locomotive projects to require all new equipment be Tier 4 or cleaner. Staff also proposes to allow the reuse and/or the recycling of the baseline chassis while still requiring the baseline engine to be destroyed. Idle limiting devices and retrofit projects would no longer be eligible for funding.

9. **Changes to the Marine Section**. For marine projects, proposed changes would include allowing the cleanest technologies to be eligible for the highest maximum percentage of eligible cost, and allowing compliant Tier 2 engines to be repowered. Vessels that are compliant with the Commercial Harbor Craft replacement schedule would become eligible for the same funding amounts as unregulated vessels. Provisions would also be added for hybrid system vessel retrofits.

10. **Emissions Estimates and Deterioration**. Staff proposes that project evaluation consider the emissions that occur due to deterioration of vehicles and equipment emission controls over time. Deterioration factors used in ARB emissions inventories are available for on-road trucks and off-road equipment. Including these factors in Moyer Program emissions and cost-effectiveness calculations for both old and new equipment will better reflect real-world engine emissions over project lives, and align Moyer calculation methods with those used in ARB planning inventories and SIP air quality modeling.

11. **Other Changes**.

    (A) New purchase projects that expand fleets would no longer be eligible projects, due to SIP creditability concerns.

    (B) The baseline vehicle for Light Duty Vehicle projects must have an engine model year of 2003 or older.

    (C) Only minor changes are proposed for the Agricultural Assistance Program (Part III).

(D) Appendices have been re-worked. Calculations in Appendix C are updated to improve the flow of calculations; formulas have been added to account for engine deterioration and calculate the new dual cost-effectiveness limits. Emission factors have been updated in Appendix D and now include deterioration. The appendices for acronyms, definitions and references have been updated. Previous appendices E and G have been removed, with cost-effectiveness information moved to Appendix C and capital recovery tables moved to Appendix D.

CHAPTER 2: GENERAL CRITERIA

The criteria listed below apply to all Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) projects. In addition to the criteria below, Moyer Program projects must also meet the additional project criteria found in the applicable source category chapter and the Program Administration Chapter. In cases where there is a conflict between the Guidelines and statute, the Carl Moyer statutory provisions take precedence over the Guidelines. In cases where the source category requirements conflict with either the criteria listed below or Program Administration requirements, the source category requirements take precedence.

A. Covered emission reductions obtained through Moyer Program projects must not be required by any federal, state or local rule or regulation, memorandum of agreement, memorandum of understanding, settlement agreement, mitigation requirement, or other legal mandate.

B. If a Moyer Program project contract has not been fully executed prior to the approval date of an air quality management district or air pollution control district (air district) governing board or Air Resources Board (ARB) rule or regulation (or the promulgation date of a federal regulation) the air district must consider the rule or regulation when evaluating a project's eligibility. If a Moyer Program project contract has been fully executed prior to that date, the air district does not need to consider the rule in evaluating whether the project's emission reductions are surplus.

C. An air district must consider all applicable rules or regulations when determining eligibility for a project. If an existing contract is amended to increase the total Moyer Program funding of the project, then the air district must reevaluate eligibility and consider all applicable rules or regulations. If the total dollars do not increase, then the air district does not need to reevaluate eligibility.

D. A grant applicant subject to an in-use regulation may be eligible to receive funding through the Moyer Program if the applicant has met all compliance requirements of applicable regulations. Documentation of regulatory compliance must be provided by applicants to air districts prior to funding.

E. Participating air districts retain the authority to impose additional more stringent requirements in order to address local concerns.

F. No project funded by the Moyer Program may be used for credit under any federal or state emission averaging, banking or trading program throughout the contract term. No covered emission reductions generated by the Moyer Program may be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity throughout the contract term (H&SC § 44281(b)).

G. The new engine, vehicle, or equipment must remain in service for the entire contract term, which must extend to the end of the project life. Throughout the contract term, the emission reductions funded by the Moyer Program must not be used to generate credits or compliance extensions and must be excluded when determining regulatory compliance (H&SC § 44281(b)).

H. The state board and the districts shall take all appropriate and necessary actions to ensure that all covered emission reductions achieved from a Moyer Program project are creditable in the State Implementation Plans (SIP) and are enforceable, surplus, quantifiable and permanent (H&SC § 44286(g)).

I. When Moyer funds are used for co-funded projects, the Moyer Program will account for all covered emission reductions for SIP purposes (H&SC § 44287.2(a)(4)).

J. ARB will provide protocols for calculating surplus covered emission reductions over the life of representative project types (H&SC § 44283(c)).

K. Engines operating under flexibility provided by an enforcement discretion advisory, mail-out or other advisory issued by ARB, an air district, or the United States Environmental Protection Agency (U.S. EPA) are not eligible for funding.

L. Projects funded by the Moyer Program must be included when determining the size of the fleet for regulatory compliance.

M. Projects selected for funding must meet cost-effectiveness limits per weighted ton of oxides of nitrogen (NOx), reactive organic gases, and particulate matter reduced, as calculated in accordance with Appendix C, except in the case of infrastructure projects.

N. Moyer funds, all local air district AB 923 funds, and match funds must be included in the project cost-effectiveness calculation and are subject to cost-effectiveness limits (H&SC § 44283(d)). Funds from sources other than those listed here are not required to be included in the project cost-effectiveness calculation (H&SC § 44287.2(a)).

O. Applicants must report to districts all private or public financial incentives applied for or used to co-fund Moyer projects (HSC § 44283(g)). The air district must ensure that the sum of the other incentive funds and the Moyer funds does not exceed the total project cost (H&SC § 44287.2(b)). Appendix C contains an example of the calculation methodology.

P. Projects co-funded with Moyer and other public funds must meet all requirements of the contributing programs. Grantees from non-public entities must provide at least 15 percent of the Moyer eligible cost from non-public sources.

Q. Moyer Program grants can be no greater than a project's incremental cost. Incremental cost is defined in Appendix B, and some source category chapters provide additional guidance.

R. Moyer Program funds cannot be used to pay for energy or fuel costs. However, local funds under an air district's budget authority or fiduciary control (i.e., match or other local funds) may be used to fund energy or fuel costs other than standard gasoline or diesel fuel, when those costs are integral to a project receiving grant funding under the Moyer Program (H&SC § 44283(f)).

S. Projects must have at least 75 percent of their total activity for the project life in California, unless otherwise stated in the source category chapters. Activity outside of California is excluded from the covered emission reductions used to determine grant funding and SIP emissions benefits.

T. Project engines and retrofits must use only the fuel allowed by the engine certification or retrofit device verification during the project life. Fuel additives are prohibited unless specifically allowed in the engine certification or retrofit device verification.

U. Emission reduction technologies must be certified or verified by ARB. If an ARB certification or verification process does not exist or if engines or retrofits are preempted from ARB certification/verification, then an engine or retrofit must be certified/verified to Federal standards as applicable. For the purposes of the Moyer Program, a technology granted a conditional certification/verification by ARB is considered certified/verified. An ARB certification process may not exist for some zero-emission technologies. See the relevant source category chapter for specific requirements for zero-emission technologies.

V. In circumstances where an eligible vehicle or piece of equipment has more than one engine, the air district may choose to base the cost-effectiveness calculation on overall vehicle/equipment emission reductions rather than on a per engine basis. The project must meet the current project cost-effectiveness limit.

W. Prior to destruction, an engine that is required to be dismantled may be used as a test engine for purposes of retrofit or fuel verification. This can occur as long as the engine complies with the requirements of the guidelines, and the old engine must be destroyed before a payment to the grantee is issued for the new engine.

X. Funding is not available for projects where a spark-ignition engine (i.e., natural gas, gasoline, etc.) is replaced with a diesel engine.

Y. For repower and replacement projects the replacement engine must achieve an annual NOx emissions benefit of at least 15 percent to receive any funding for NOx reductions.

Z. For a repower project, the installation of the engine must be completed in a manner that does not void the engine warranty provided by the manufacturer or any remaining warranty provided by the equipment/vehicle manufacturer.

AA. No public monies are allowed for the support of any sectarian or denominational school, or any school not under the exclusive control of the officers of the public schools. (Cal. Const. Art. 16 § 5 and Art. 9 § 8).

BB. The revised cost-effectiveness limit and capital recovery factors may be used by air districts once the Board adopts the updated Moyer Program Guidelines, but must be used by July 1 following its adoption. ARB will update the cost-effectiveness limit and capital recovery factors annually through a Mail-Out.

CC. ARB may approve, on a case-by-case basis, projects that vary from the requirements of these Guidelines or that do not meet all eligibility criteria in the Guidelines. Projects with case-by-case approvals must provide permanent, surplus, quantifiable, enforceable, cost-effective emission reduction benefits in California for the full contract term. Additional information regarding approval of case-by-case projects is found in the Program Administration chapter.

CHAPTER 3: PROGRAM ADMINISTRATION

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CHAPTER 3: PROGRAM ADMINISTRATION

This chapter describes the administrative requirements that ARB, air districts, and interested parties must follow to ensure that Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) projects achieve State Implementation Plan (SIP)-creditable emission reductions.

A. Background

An air district may choose to require more stringent administrative procedures in implementing its local program. Some source category chapters of the Guidelines give additional administrative requirements. In a case where the source category requirements conflict with requirements specified in this chapter, the source category requirements take precedence.

These 2017 Carl Moyer Program Guidelines (Guidelines) must be used for all projects funded with fiscal year 2017-18 (Moyer Program Year 20) and subsequent years' funds. The 2017 Guidelines may be utilized for previous year funds after the Board approval date, and applied to projects for which contracts are fully executed after the Board approval date. When an air district begins applying the 2017 Guidelines to projects, it must continue to apply only the 2017 Guidelines to all subsequently funded projects. ARB will follow these 2017 Guidelines for administration of the Moyer Program following Board approval.

For projects funded using fiscal year 2016-17 (Year 19) and previously awarded funds, an air district may use either the 2011 Guidelines or these 2017 Guidelines, with any applicable program advisories and mail-outs. A district may not apply elements of both Guidelines to a project.

B. Grant Fund Allocation and Solicitation

1. **Grant Funds Notification**. During each fiscal year, ARB will send a solicitation letter to each air district's Air Pollution Control Officer (APCO) with notification that Moyer Program funds for that year are available. Enclosures with the letter will include the application for funds, a tentative allocation of regular program funds (not including State Reserve funds) for all air districts showing a breakdown of project and administrative funds, and any associated match funds requirement.

2. **Tentative and Final Funds Allocation**. After a review of projected revenues for the current fiscal year, a tentative funds allocation for all air districts will be determined by ARB under the requirements of Health and Safety Code section 44299.2(a); it may include funds returned or reverted to ARB under section 44287(j). Following receipt and review of air district applications, ARB will determine a final funds allocation that (a) considers any update in projected revenues and (b) redistributes any funds declined by air districts to other districts that have requested additional funds. This redistribution will also follow the

allocation requirements of Health and Safety Code section 44299.2(a). The typical timeline for the initial allocation, district application, final allocation, disbursement and subsequent expenditure of a fiscal year's grant funds is provided in Table 3-1.

Table 3-1
Moyer Program Regular Funds Timeline

Date	Action
By end of January	ARB sends application packet to air districts
By end of March	Air districts apply to ARB for funds
By end of April	ARB notifies air districts of final awards
By end of May	Air districts return signed grant agreements
June 30 of Following Year	Target date for contracts to be executed
June 30 of Second Year	Deadline for air districts to receive fund disbursements.
June 30 of Fourth Year	Deadline for air districts to liquidate funds

3. **State Reserve Funds**. ARB may direct up to 10 percent of Moyer Program funds available each fiscal year to eligible projects selected in accordance with Health and Safety Code section 44286(d). ARB shall annually post on its website a solicitation packet for State Reserve projects. The solicitation packet will include the application requirements and due date, project eligibility criteria, and project selection criteria.

C. Air District Applications for Grant Funds

1. **District Options**. An air district may consider the following options upon receiving the solicitation:

   (A) Accept the tentative allocation in full without change, and commit to the associated match funds amount;

   (B) Accept the tentative allocation but request additional funds, and commit to the associated match funds amount;

   (C) Accept the minimum allocation of $200,000, with no match requirement;

   (D) Accept the minimum allocation and authorize the funds be designated to the Rural Assistance Program, for the current year and up to four additional years unless rescinded in a future year;

   (E) Accept the tentative allocation and authorize the funds be designated to a lead air district for Moyer Program funding in the region, for the current year and up to four additional years unless rescinded in a future year;

   (F) Decline an allocation. In this case the district's share of funds will be redistributed with the final funds allocation.

2. **Application and Resolution**. Within 60 calendar days of the date of the solicitation letter, a district accepting or designating funds will provide ARB a

completed application indicating the option chosen above and signed by the APCO. The application will include a board resolution or minute order that supports the option chosen, and will indicate the district is maintaining a Moyer Program Policies and Procedures manual that meet the requirements of this section. For districts accepting funds the resolution or minute order will commit the district to participate in the Moyer Program, comply with Program requirements, and commit to providing matching funds if requesting funds above the minimum allocation. If the district board is unable to consider the Moyer Program application within the 60 days following the solicitation letter, the application will indicate when a resolution or minute order will be considered by the board.

3. **Match Funds**. An air district requesting the tentative allocation or a greater amount must make a match funds commitment equal to 15 percent of State funds requested. The air district will indicate on its application the source of match funds. An air district may account for up to15 percent of its match requirement with in-kind contributions. Sources and requirements for match funds are described in Section I of this chapter.

4. **Policies and Procedures**. To remain eligible for continued funding, an air district will maintain a Moyer Program Policies and Procedures manual. The manual will focus on the district's local implementation of the Moyer Program Guidelines, including roles and responsibilities within the district and local application of Moyer Program policies. District staff will review the manual at least once a year and make it available when requested by ARB staff or a member of the public. The manual will include at least the following elements:

   (A) Roles and responsibilities within the air district for program implementation, including staff or positions responsible for: responding to ARB funding solicitations; evaluation, selection and inspection of projects; and obtaining governing board approval for program participation and projects to be funded;

   (B) Identification of the project source categories supported by the district Moyer Program, and the schedule for solicitation and review of applications to be submitted under these source categories;

   (C) Procedures for project selection, including cost-effectiveness or other criteria applied to rank projects, or whether projects are selected in order of application receipt (first-come, first-serve); and any procedures that vary by source category;

   (D) Procedures for notifying successful applicants of their grant awards, and for notifying applicants who have not been awarded grants;

   (E) Where applicable, project selection procedures that ensure priority for funding projects that will reduce air pollution in communities with the most significant exposure to air pollution (H&SC § 43023.5);

(F) Where applicable, the procedures for selecting projects to be funded with Moyer Program match funds;

(G) The method for calculating interest earned on Moyer Program funds held by the district;

(H) Procedures for grantees to submit program invoices and receive payment, including itemization required to limit reimbursement to eligible costs, conditions for progress or partial payment, and practices for withheld payments pending grantee reporting;

(I) Methods the district will use to verify the destruction of engines and equipment when required, consistent with minimum standards specified in these Guidelines by source category;

(J) Methods the district will use to store and retrieve digital photographs documenting project inspections along with associated project-specific information;

(K) Procedures, schedules and required content for grantee reports;

(L) The types of acceptable documentation for establishing historical annual usage, and procedures for considering and granting usage waiver requests, including supporting information to be provided by the grantee;

(M) Procedures for working with nonperforming grantees to gain full compliance with contracts and program requirements;

(N) Any district program requirements that are more stringent than those specified in Moyer Program Guidelines and Mail-Outs;

(O) Any ARB approvals of district program elements that vary from those required by Moyer Program Guidelines and Mail-Outs, e.g., methods of ensuring engine or equipment destruction that vary from those specified in the source category chapters.

D. Grant Application Review and Grant Award

1. **Review Period**. ARB will review an application immediately upon receipt and, when necessary, provide the air district with a written explanation of what is missing from the application within 10 working days of its receipt. ARB will approve completed applications that fulfill all criteria no later than 60 working days after receipt, including time for ARB review and comment on district Policies and Procedures if desired (H&SC § 44287(m)).

2. **Conditional Approval**. ARB may elect to approve an application that is missing a particular item and make the submittal of that item a Special Term and Condition of the Grant Agreement. For example, sometimes air district staff is unable to obtain a board resolution or minute order before the application deadline. In such a case, ARB may allow a board resolution or minute order to be submitted with the signed Grant Agreement or prior to the air district's initial disbursement.

3. **Policies and Procedures Review**. The grant application includes a district's statement that it is maintaining a manual of current Policies and Procedures consistent with the requirements above. ARB may choose to review an air district's Policies and Procedures manual, and an air district may request ARB's review of its manual's completeness and consistency with these Guidelines. ARB comments on an air district's Policies and Procedures manual will be provided by email or in other written format. An air district's policies and procedures as implemented can only be fully evaluated during a program review process.

4. **Grant Award Notification and Signature**. ARB will prepare and submit to qualifying districts each year a notification of final grant awards, accompanied by a Grant Agreement for review and signature. A deadline for district acceptance of the grant award will be specified in a cover letter sent with the Grant Agreement. The Grant Agreement package will include two copies of a cover sheet indicating the amounts of funds granted for projects and for administration, the required amount of match funds if applicable, any Special Terms and Conditions, and General Terms and Conditions for the grant. The district APCO will sign both copies of the cover sheet and return them with original signatures to ARB. Following signature by ARB Budgets Chief, ARB will return one original copy to the district for its records.

E. Fund Disbursement

1. **Procedure**. ARB may disburse funds following signature of the Grant Agreement by both parties. To obtain funds the air district will submit a completed current Grant Disbursement Request Form, available on the Moyer Program website. The Grant Disbursement Request Form must include an original signature by a party authorized and designated by the air district's Governing Board. Any Special Terms and Conditions in the Grant Agreement must be met before ARB will disburse funds associated with the grant award. Disbursement requests must be received by ARB by May 15 each year to ensure payment within the fiscal year. Any funds not disbursed by June 30 two years following the award will be reallocated to all districts in the subsequent grant cycle.

2. **Initial and Additional Disbursements**. An air district may request an initial disbursement of $200,000 or 10 percent of its project funds, whichever is greater. The district may request additional disbursements when the criteria below have been met.

   (A) The preceding Yearly Report demonstrates on-time liquidation consistent with Health and Safety Code section 44287(j); or if not, any funds not liquidated on time have been received by ARB. ARB will not require a return of funds under executed contract. ARB may require a district to change the funding years from which funds are assigned to projects in the

statewide database (Clean Air Reporting Log or CARL) to facilitate on-time liquidation.

(B) The Grant Disbursement Request Form is accompanied by a list of projects under executed contract with invoices pending, approved by a district governing board, or under district staff review for eligibility and funding. The total cost of the projects listed should equal or exceed the amount of the disbursement request.

3. **Administration Funds**. An air district may also request some or all of its administrative funds with an initial disbursement. The district will receive one check for both program administration and project funds, but must account for the expenditure of administration and project funds separately.

F. Redirection of Funds

1. **Procedure**. A district may redirect funds to another district or the Rural Assistance Program by submitting to ARB the items below. For funds already disbursed by ARB and due for liquidation by June 30 of the current fiscal year, the district must submit these items no later than March 31 to allow time for processing new grant agreements. For funds not yet disbursed by ARB and due for disbursement by June 30 of the current fiscal year, the district must submit these items no later than March 15 to allow time for processing new grant agreements and subsequent processing of a disbursement request for the district receiving the redirected funds. A redirection request includes:

(A) The Moyer Program Redirection of Funds form, with the appropriate portions completed in consultation with ARB staff and indicating the sums of project and administrative funds to be redirected, which may include interest or other earned funds due for liquidation;

(B) Resolutions or minute orders adopted by the boards of the districts transferring and receiving funds that authorize the redirection;

(C) A memorandum of understanding (MOU) or equivalent signed by the air pollution control officers of the affected districts. The MOU must:

(1) Specify the details and conditions of the redirection of funds;

(2) Identify which district is responsible for any required match associated with the redirected funds;

(3) Identify the funding year and the associated liquidation deadline for the redirected funds;

(4) Specify how and when payment will be made to the district receiving the funds, including one of the following:

a. If the transferring district has not submitted a disbursement request to ARB, the MOU will specify that the district that is receiving the funds will submit the request to ARB following ARB approval of revised grant agreements.

b. If the transferring district has the funds already, the MOU will specify that it will pay the receiving district directly, following ARB approval of revised grant agreements.

2. **Amended Grant Agreements**. After receiving the items above from the transferring district, ARB staff will develop new or amended grant agreements. District APCOs must sign and return the grant agreement cover sheets for signature by the ARB Budgets Chief. After ARB signature of both revised grant agreements, the receiving district may request either a disbursement of funds from ARB or payment from the transferring district. A district receiving funds from another district will submit a copy of the check to Moyer Program staff.

3. **Retention of Administrative Funds**. Districts redirecting project funds but retaining, with approval of the receiving district, associated administrative funds must provide to ARB by the close of the fiscal year in which the funds were transferred a description of how administrative funds were utilized for the period since the grant award, including but not limited to the following:

   (A) A summary of district activities to solicit project applications, including copies of any written grant solicitations and lists of potential applicants to which outreach was directed;

   (B) A list of project applications submitted and reviewed;

   (C) A breakdown of staff time devoted to Moyer Program activities;

   (D) A summary of any Moyer Program training activities for district staff.

G. Rural Assistance Program

1. **Purpose**. The Rural Assistance Program (RAP) is a partnership among rural air districts, the California Air Pollution Control Officers Association (CAPCOA), and ARB to enhance rural district participation in the Moyer Program. RAP facilitates district participation by streamlining the grant administrative process and by encouraging the pooling of financial and technical resources. The reduction in cost and staff resources lowers the threshold for participation in the Moyer Program and maximizes project funding in rural areas.

2. **Designation or Redirection to RAP**. An air district may designate funds to RAP in its application for Moyer Program funds (see Section C.1.(D)). An air district may also redirect funds to RAP after it has executed a grant with ARB, but must do so by March 1 of the year by which funds must be disbursed, as shown in the example timeline below. RAP funds that have been disbursed to districts and subsequently returned to ARB will be reallocated to other RAP projects whenever possible.

Table 3-2
Example RAP Funds Calendar:
Moyer Program Year 18 (Fiscal Year 2015-2016)

January–April 2016	Air district applies for funds and executes Year 18 Grant Agreement; funds are designated to RAP.
March 1, 2018	Deadline to redirect district's grant funds to RAP
June 30, 2018	Deadline for air districts to receive fund disbursements. Target date to expend Year 18 grant award.
June 30, 2020	Deadline to liquidate Year 18 grant award

3. Roles and Responsibilities among RAP Program partners are as follows:

(A) ARB notifies CAPCOA of funds designated or redirected to RAP, and develops and administers grant agreements between ARB and recipient air districts.

(B) CAPCOA selects a program administrator, which may be CAPCOA staff, an air district, or a third party. CAPCOA also establishes criteria for project selection and approves projects selected by the Program Administrator.

(C) The RAP Program Administrator provides outreach for RAP, prepares the application and project solicitation, performs initial application screening, ensures project eligibility, ranks projects based on CAPCOA criteria, selects projects, and determines recipient districts.

(D) Donor air districts designate all or a portion of their Moyer allocations to RAP on their Moyer grant award application, or redirect grant funds already accepted to RAP using the procedure in Section F of these Guidelines. District boards approve designation or redirection of RAP funds via resolution or minute order.

(E) Recipient air districts sign grant agreements with ARB to accept funds for RAP projects, maintain a Policies and Procedures Manual, and are responsible for grant obligations, including contracts with grantees for project implementation, project inspections, monitoring and reporting. District boards approve receipt of RAP funds via resolution or minute order.

H. AB 923 - $2 Motor Vehicle Fee

1. Project Eligibility. State law allows air districts to collect an additional $2 motor vehicle registration surcharge (MV Fee) (H&C § 44223) which must be used to fund the following project categories (summarized) (H&SC § 44229(b)):

(A) Projects eligible for grants under the Moyer Program.

(B) The new purchase, retrofit, repower or add-on equipment for previously unregulated agricultural sources of air pollution (Agricultural Assistance Program, H&SC § 39011.5).

(C) Purchase of new school buses or the repower or retrofit of emissions control equipment for existing school buses pursuant to the Lower-Emission School Bus Program adopted by the Board.

(D) An accelerated vehicle retirement or repair program that is adopted by ARB.

(E) Onboard natural gas tank replacements in existing school buses 14 years or older or the enhancement of deteriorating natural gas fueling dispensers of fueling infrastructure pursuant to the Lower-Emission School Bus Program adopted by the Board.

(F) Alternative fuel and electric infrastructure projects solicited and selected through a competitive bid process.

2. **Match**. $2 MV Fees used to meet the Moyer Program match fund requirement (See Section I) are subject to the same eligibility, reporting, review and auditing requirements as State-provided Moyer Program funds. $2 MV Fee funds used to meet the match requirement are not required to be expended within two years from the date of their collection. However, air districts must expend sufficient match funds to meet the obligations for the Moyer Program funds received each year.

3. **Reporting and Oversight**. Reporting and oversight of the $2 MV Fee depends upon whether the fee is used to meet the Moyer Program's match requirement and whether the air district takes SIP credit for $2 MV Fee projects. Table 3-3 summarizes the various scenarios for treatment of $2 MV Fee funds and projects. Sections M and R of this chapter further describe $2 DMV fee reporting and oversight.

Table 3-3
Summary of $2 MV Fee Requirements and Oversight

Requirement	$2 MV Fee Used as Match	$2 MV Fee Used for SIP Credit	$2 MV Fee Not Match/ not SIP
Liquidation of funds within four years	(1)	--	--
Meet full and complete Moyer Program Guideline criteria	√	--	--
Subject to ARB Incentive Program Review	√	--	(2)
Subject to ARB project eligibility evaluation (e.g., cost-effective and surplus)	√	√	√
Fiscal reporting to ARB (list total funds expended in seven basic categories)[2]	√	√	√
Detailed reporting to ARB (project specifics submitted in current database)	√	√	--

(1) Sufficient funds must be liquidated, regardless of their year of origin or source, to provide the required match by that year's liquidation deadline. For example, for Year 18, air districts must complete liquidation of applicable Year 18 match funds by June 30, 2020. When those funds were received is not a factor in determining this deadline.
(2) Non-Match projects funded with AB 923 $2 MV Fee may be evaluated by ARB in conjunction with Incentive Program Review. Evaluation of these projects will be limited to project eligibility. Any irregularities regarding non-match AB 923 $2 MV Fee project eligibility must be reported separately from Incentive Program Review findings.

I. Air District Match Funds

1. **Requirement**. Air districts participating in the Moyer Program are required to provide match funding. Air districts implementing the Moyer Program must commit match funds equaling 15 percent of the regular Moyer Program funds received. An air district receiving the minimum grant award of $200,000 is exempt from this match requirement.

2. **Federal Funds**. Air districts may use federal funds as Moyer Program match if written confirmation is received from the administering federal agency (for example, the United States Environmental Protection Agency) that (1) the administering agency has no objection to the air district using those funds as match, and (2) the emission benefits obtained from those funds will not be used by the administering agency in a State Implementation Plan. The air district must also ensure that it will not use such funds as match for any other program and that the use of the funds as Moyer Program match does not conflict with any State or local requirements regarding the funds. If this option is used, supporting documentation must be included in all relevant project files.

3. **Program Basis**. Air districts may meet their matching fund requirement on an overall program basis rather than a project-by-project basis. In other words, air districts do not need to provide match funds towards each project funded, but

must fund enough projects (in total or in part) with match funds in order to meet the match requirement. Match funds are included in cost-effectiveness calculations and subject to the same cost-effectiveness limits as other Moyer program funds.

4. **Match Fund Sources**. Match funds may be any funds under an air district's budget authority or fiduciary control that are committed to be expended in accordance with Moyer program requirements. Match funds may also be provided by a port authority, or a local government teamed with an air district. Match funds provided by a port authority or a local government shall not exceed 30 percent of the total required matching funds in any district that applies for more than $300,000 of the state board funds (H&SC § 44287(e)). Port authorities may participate through projects involving their own equipment, or by soliciting port tenants to apply for project funding.

5. **In-Kind Contributions**. Up to 15 percent of an air district's match requirement may be fulfilled through in-kind contributions (H&SC § 44287(h)). Air districts may use any funds under their budget authority -- except for Moyer Program administrative funds and interest or other funds earned on Moyer Program funds -- to cover their in-kind contributions. When using air district funds for in- kind match, air districts must follow all relevant statute, guidelines, and other legal requirements for expending such funds. In-kind contributions have the same expenditure timeline as match funds. Air district in-kind match funds spent on program administration and outreach must meet the documentation requirements in Section J.

6. **Eligible Projects**. Match funds may be used to pay for any project that meets all Moyer Program criteria. Match funds may also be used to pay for the incremental cost of electricity or alternative fuels serving a Moyer program eligible source category.

J. District Administrative Funds

1. **Air District Funding**. Air districts with one million or more inhabitants may use up to 6.25 percent of their Moyer Program funds on program outreach and administration, while air districts with under one million inhabitants may use up to 12.5 percent of their Moyer Program funds (H&SC § 44299.1(c)-(d)). Air districts shall maintain an outreach program consistent with Health and Safety Code section 44290.

2. **Allowable Costs**. Table 3-4 lists allowable administrative costs and documentation that the district is required to maintain for Moyer Program administrative funds. Air districts will make available the documentation shown in the table for review during ARB or other State agency monitoring visits, reviews and audits. Such administrative records for a given funding year must be retained for a minimum of five years following the applicable funding year liquidation deadline. For example, for Year 16 (fiscal year 2013--2014) funds, the

funding year liquidation deadline is June 30, 2018, and administrative records would be retained through June 30, 2023.

Table 3-4
Administration and Outreach Costs and Documentation

Allowable Cost	Required Documentation
Air district staff time	Personnel documentation that may include timesheets or output of labor tracking software; duty statements or job descriptions indicating percentage of staff time; or written summaries of Moyer Program staff activities with time estimates by activity or task.
Consultant fees	Consultant contracts and invoices
Printing and mailing costs	Receipts and invoices. Copies of solicitations and outreach materials indicating availability of grants
Travel expenses	Receipts and invoices. Travel cost criteria must be consistent with written district travel policies for other air district programs, cited in the Policies and Procedures Manual or local administrative manual.
Indirect costs	Indirect cost calculation methodologies must be described or cited in the Policies and Procedures Manual or local administrative manual, and calculated costs must be documented.

3. **Mitigation for Unallowable Costs**. An air district that charges unallowable costs for program administration or outreach must substitute eligible administration and outreach expenses equal to the dollar amount found ineligible, or return the funds for the unallowable cost to ARB.

K. Accounting Principles

Districts must establish accounting practices for Carl Moyer Program funds consistent with the requirements below, as early as practicable and no later than July 1, 2019.

1. **Moyer Funds Account**. Carl Moyer Program funds (Moyer funds) must be accounted for as separate funds within the district's general ledger following generally accepted accounting principles (GAAP). A district receiving a total allocation of one percent or more of all Fiscal Year 2016-17 Carl Moyer Program funds must use a Special Revenue Fund for Moyer funds accounting. Other districts may use a Trust Fund.

2. **Timing of Recognition in Financial Statements**. Moyer Program grants are voluntary non-exchange transactions to the district. As such the district should recognize revenues in the fiscal period when all eligibility requirements have

been met and the resources are available. [For reference see Governmental Accounting Standards Board (GASB) Statements 33 and 34.]

3. **Required Financial Statements**. Financial statements containing at minimum the following account balances and transaction classes, as applicable, will be prepared at least annually.

(A) Balance Sheet:

(1) Cash and Cash Equivalents (cash, investment pools, petty cash)

(2) Moyer Program Fund Revenue Receivable (grant funding from the Air Resources Board)

(3) Recapture Revenue Receivable (recapture funds receivable from grant participants for unmet contractual obligations)

(4) Salvage Revenue Receivable (revenue receivable from retired equipment sold or auctioned for scrap metal)

(5) Accounts Payable (vendor invoices pending for Moyer projects)

(6) Fund Balance

a. Restricted for District Projects
b. Restricted for State Reserve, Multi-District, RAP Projects
c. Restricted for Administration and Operating Costs

(B) **Statement of Revenues, Expenditures, and Changes in Fund Balance:**

(1) Revenue Subsidiary Ledgers

a. Regular Moyer Funds Project Revenue
b. State Reserve and Multi-District Project Revenue
c. Rural Assistance Program Project Revenue
d. Administration and Operating Revenue
e. Recapture Revenue
f. Salvage Revenue
g. Interest Revenue

(2) Expenditure Subsidiary Ledgers:

a. Project Expenditures (from regular Moyer grant, recapture, salvage, interest)
b. State Reserve and Multi-District Project Expenditures
c. Rural Assistance Program Project Expenditures
d. Administration and Operating Expenditures including indirect costs

(3) Awards Returned: Moyer Program district money returned to ARB for reallocation

(4) Transfers In/Out

4. **Interest Revenue**. Any interest earned on investment of Moyer fund cash balances must be deposited in the Moyer funds account and used to fund Moyer-eligible projects, or to fund administration up to the portion provided for in Health and Safety Code section 44299.1(c)-(d), or be remitted to ARB.

   (A) A district electing not to invest Moyer Program fund cash balances but investing other cash balances should deposit the Moyer Program funds in a separate checking account to clearly indicate that no such moneys were invested.

   (B) When invested, Moyer Program funds should receive equitable pro-rated interest earned on the total funds invested. As State funds, Moyer Program funds may be invested only in accounts or instruments that reflect the risk appetite of the State. [For reference see Office of the State Treasurer Local Agency Investment Guidelines.] Any loss from investments not made in accordance with standards set forth in California Government Codes must be covered by the district.

5. **Recapture and Salvage Revenue**. Revenues earned or collected by the air district through Carl Moyer Program resources, including revenues obtained through salvage and sale of scrapped equipment, must be reported and either retained as a supplemental source of funds for Moyer projects or forwarded to ARB for deposit to the Air Pollution Control Fund. If recaptured funds or salvage revenues are invested, such revenues must meet the requirements of Section K.4.(B) above. Districts are not required to earn funds through program actions, or expected to base business decisions on their ability to generate returns or collect funds through program activity.

6. **Expenditures for Moyer Program Projects**. All project expenditures out of the Moyer funds account must meet the Carl Moyer Program Guidelines current at the time of contract execution, including any revisions to those Guidelines in effect at the time of contract execution.

7. **Reporting Requirements**. No later than six months after the district fiscal year end, the district will append to its Yearly Report a Balance Sheet and a Statement of Revenues, Expenditures and Changes in Fund Balance, in formats consistent with GAAP.

8. **Records Retention**. Grant receipts and expenditure documents including invoices, contracts, vouchers, personnel and payroll records should be retained for five years after the grant liquidation period or the last recorded grant transaction, whichever is later.

L. Co-funding Moyer Program Projects with Other Funding Sources

1. **Purpose**. Senate Bill 513 (Beall, 2015) provides new opportunities to co-fund Moyer Program projects with other funding sources. These Guidelines specify requirements that apply when multiple funding sources are proposed to support a

Moyer Program eligible project. All co-funded projects must adhere to the Moyer Program objective to achieve cost-effective and surplus emission reductions to be credited toward California's legally enforceable obligations in the SIP (H&SC §44286(g)). There is no limit on the number of co-funding sources to fund a project as long as total project costs are not exceeded and the applicant cost share requirement is met.

2. **Designation of Non-Moyer Funds**: Funds other than Moyer Program grant funds may be used to co-fund Moyer Program eligible projects, when all program criteria associated with each funding source are met. Funding sources are grouped into the following categories. Definitions of these categories can be found in Appendix B.

   (A) Federal funds;

   (B) State funds;

   (C) Local funds;

   (D) Penalty funds;

   (E) Other applied funds.

3. **Mitigation Funds**. Mitigation funds may be used to co-fund a Moyer project if a district submits a request for a case-by-case determination in accordance with Section U and receives ARB approval.

4. **Cost-effectiveness Calculation**. The non-Moyer funds described above are not required to be included in Moyer project cost-effectiveness calculations (H&SC §44287.2(a)). Match funds and all AB 923 $2 DMV Fees are required to be included in project cost-effectiveness calculations.

5. **Applicant Cost Share**. An applicant that is not a public entity must provide at least 15 percent of a project's Moyer eligible cost from non-public sources. The applicant cost share cannot be covered through in-kind contributions. An air district may request a case-by-case determination from ARB to waive all or part of an applicant's cost share, in accordance with Section U. In its waiver request, an air district must identify the source(s) and amount(s) of the proposed project's funding and explain the reasons for the cost share waiver, discussing at a minimum either or both of the following factors:

   (A) The public benefit of the project that is above and beyond the emission reductions achieved;

   (B) How the project will advance newer and cleaner technology.

6. **Applicant Disclosure and Payment**. The sum of project funding from all sources may not exceed the total project cost (H&SC § 44287.2(b)). Applicants must disclose all sources of funding applied for at the time of the Moyer project application, and again when submitting each invoice to the air district, prior to

payment of Moyer Program grant funds (H&SC § 44283(g)). An air district may not issue payment of Moyer Program grant funds until all funding sources have been identified and verified and the district can ensure that the sum of the grants awarded to the project, including both Moyer and non-Moyer funds, does not exceed the total project cost.

7. **Emission Reductions**. All covered emission reductions achieved from a project with multiple funding sources will be credited as reductions from the Moyer Program to ensure proper SIP accounting, improve the likelihood of federal credit, and avoid risk of double-counted reductions. Other emission reductions, such as greenhouse gases, may be claimed by other programs that co-fund a project.

8. **Reporting of Project Data**. For co-funded projects an air district will report in CARL consistent with the reporting requirements of Section M. The district will also report other co-funding sources and funding amounts. When reporting project funding sources to CARL, air districts will categorize certain co-funding sources as specified below.

   (A) Funding from investor owned utilities will be reported as “other applied funds,” and funding from publicly owned utilities as “local funds.”

   (B) Supplemental environmental project funds will be reported as “other applied funds.”

   (C) Funds from local transit agencies will be reported as “local funds.”

M. Yearly Report

1. **Reporting Requirement**. Each year by June 30, ARB will prepare and make available to air districts a certification form with instructions for completion of the Yearly Report. Districts will complete, certify and submit the Yearly Report by August 29. A district that has designated to another district or the Rural Assistance Program all grant funds for all years covered in the Yearly Report is not required to complete a report.

2. **Reporting in CARL**. Air districts will report project information in the Clean Air Reporting Log (CARL) database, either via CARL forms or batch import, sufficient to populate the required data fields and to calculate covered emission reductions and cost-effectiveness for source categories where required. The air district will ensure the information in CARL is complete, correct, and supported by documentation. The air district will report on projects funded in whole or part with these funds:

   (A) Granted Moyer Program funds;

   (B) Match funds;

(C) Interest and other non-grant revenues earned to support the Moyer Program;

(D) Multi-district and State Reserve funds;

(E) Rural Assistance Program funds;

(F) Non-Moyer funds as specified in Section L;

(G) AB 923 $2 DMV fees used for projects claimed for SIP credit;

(H) Other funds that ARB oversees relative to the Moyer Program.

3. **Report Content**. The Yearly Report will include the following information as of June 30, the end of the past fiscal year:

(A) Output generated by the Required Reports utility of CARL for the default years specified in the utility.

(B) Contract execution and liquidation status of Moyer Program funds, including match funds, earned interest funds, multi-district and State Reserve funds, RAP funds, and other funds for which the district has a Moyer Program obligation during the fiscal years covered by the report. Funds will be reported relative to the progress milestones identified in Sections N and O below.

(C) A funding summary by project type of non-match projects funded with AB 923 $2 MV fees when no State Implementation Plan (SIP) credit is claimed. Projects funded with AB 923 $2 DMV fee funds not used as match and not claimed for SIP credit need not be entered into CARL, but the district will summarize in the Yearly Report the amounts of such funds expended for each of the project categories identified in Section H.1.

(D) For the most recent fiscal year, additional funds available to the Moyer Program from the following sources. These funds will be included in the target for the funding year due for liquidation in four years unless the district directs ARB staff to include them in an earlier year target.

(1) The amount of any interest accrued on Moyer Program funds held in local accounts. A district may choose to designate in the Yearly Report all or a portion of this interest for remittance to ARB.

(2) Funds recaptured from liquidated projects, including funds provided back to the district following ARB enforcement actions, identified by project name and funding year.

(3) Non-grant revenue earned for the Moyer Program by the district, such as from the sale of scrapped engines or equipment.

(E) A list of any projects identified as non-performing and a brief narrative of any related enforcement actions.

(F) The portion of match funds to be met through in-kind contributions, as provided in Section I.5.

4. **Report Certification and Documentation.** The district APCO, Chief Financial Officer (CFO), and Moyer Program administrator must sign and certify that the project and fiscal information contained within the Yearly Report is, to the best of their knowledge, accurate and complete. The APCO may also serve as the Moyer Program Administrator. The APCO may designate an alternate to the CFO if the designated alternate is someone other than the APCO or Program Administrator. The air district will maintain documents in support of the report at the air district office, and make them available to ARB staff upon request.

5. **Project Eligibility**. Receipt of a Yearly Report by ARB does not imply ARB approval of project eligibility. Air district staff is responsible for project approval and funding eligibility determinations. Air districts that are found to have funded ineligible projects will be required to substitute eligible projects equal to the amount found ineligible or return the ineligible amount to ARB.

N. Progress Tracking

1. **Progress Milestones**. To support timely emission reductions and track progress toward statutory fund liquidation requirements, districts and ARB will work together to meet recommended progress milestones as follows. After execution of a grant agreement with ARB for Moyer Program funds, districts will make every effort to have 50 percent of the project funds awarded under executed contract by June 30 of the next calendar year, and 100 percent of the project funds under executed contract by June 30 of the second calendar year after the agreement. Districts will also make every effort to have 50 percent of project funds liquidated within two years, and 75 percent of project funds liquidated within three years. Similar progress milestones apply to any match funds associated with granted project funds. Progress will be reported in Yearly Reports. Table 3-5 shows an example of progress milestones for the 2018 Yearly Report.

Table 3-5
Example Progress Milestones: 2018 Yearly Report

Timeline	Fiscal Year	Funding Year	Milestone
1 year	2016-17	19	50% of project funds under executed contract
2 years	2015-16	18	100% of projects funds under executed contract
			50% of project funds liquidated
3 years	2014-15	17	75% of project funds liquidated
4 years	2013-14	16	100% of grant funds liquidated (Section O)

2. **Cumulative Tracking**. ARB will provide tools in CARL to track district progress toward milestones. Except in the case of a four-year funds liquidation deadline,

districts may track progress on a cumulative basis. In the table above, for example, an air district demonstrating the portion of funding year 17 project funds liquidated would count any funds liquidated from funding years 18 to 20.

3. **Funding Targets**. To assist cumulative tracking and reporting, ARB will maintain in CARL appropriate progress tracking targets for each funding year. These funding targets will include the total funds required to meet contract execution and liquidation progress milestones. ARB will adjust progress tracking targets to account for the movement of funds into and out of an air district's account, including redirected funds, RAP grants, adjustments for in-kind match, and other changes agreed to in consultation with districts.

4. **Execution Progress for Vouchers**. For Moyer voucher programs, the voucher issue date is used in lieu of executed contract date to gauge progress in contract execution.

5. **Cancelled Contracts**. Any funds associated with an engine, vehicle, or equipment cancelled from a contract prior to the liquidation of the contract as a whole will no longer be considered executed beginning at the time of the cancellation.

6. **Follow-up Actions**. Progress milestones are advisory in nature. ARB liaisons and management will work with air districts that do not demonstrate sufficient progress toward contract execution and project liquidation targets in the Yearly Report. When a district cannot demonstrate at least one-half of funds are under contract after two years, and one-half of funds liquidated after three years, the district will append to the Yearly Report a progress statement. The statement will address the reasons for delays in executing contracts or completing payment for projects, and the schedule for follow-up actions. Such actions may include specific steps to improve progress or the redirection of funds to districts better equipped to meet statutory liquidation deadlines.

O. Funding Year Liquidation

1. **Liquidation Requirement**. By June 30 of each year, air districts must have liquidated all Moyer Program funds associated with the funding year four calendar years prior, as well as interest, recaptured funds, and other funds added to the funding target for that year. For example, funds awarded for Year 18 (fiscal year 2015-2016) must be fully liquidated by June 30, 2020. Before submitting the Yearly Report a district may attempt to resolve an apparent liquidation shortfall by modifying in the CARL database the funding years from which funds are assigned to projects.

2. **Match Liquidation**. Match funds must be liquidated by the same liquidation deadline as the Moyer Program funds with which they are associated regardless of the date such funds were collected by the air district.

3. **Liquidation Terms**. Districts are advised of the distinction between project liquidation used for cumulative progress tracking in Section N and funding year liquidation as required in this section. Project liquidation is demonstrated when all funded equipment in a project are paid-in-full and post-inspected; liquidated projects are credited in cumulative progress tracking. Funding year liquidation is demonstrated when all funds assigned to a funding year have been paid out in full, with the exception of any withheld payments. Liquidated projects are credited in cumulative progress tracking.

4. **Data Completion**. A funding year that has been liquidated by an air district and all associated projects will be removed from cumulative tracking. Projects associated with liquidated funding years may not be revised in or removed from the CARL database after the funding year is liquidated, except in unusual circumstances following consultation with and written approval by ARB staff.

5. **Withheld Payments**. For completed projects for which all invoices have been paid except for a small amount withheld pending grantee reporting, both the paid funds and the withheld funds will be considered liquidated for the purpose of funding year liquidation. Withheld payment practices must be addressed in the project's contract and in the district's Policies and Procedures Manual. Withheld progress payments considered to be liquidated per this section that are not ultimately paid to the grantee due to non-performance will be reported as recaptured funds.

P. Return and Reallocation of Funds

1. **Return of Unliquidated Funds**. If the Yearly Report identifies a liquidation shortfall that cannot be resolved through reassignment of liquidated funds from more recent years, and the remaining unliquidated funds are not under executed contract, the air district must submit and ARB must receive a check for the shortfall amount by September 28 (i.e., 90 days after the June 30 liquidation deadline and 30 days after the Yearly Report deadline). ARB will provide Instructions for the return of funds in the Yearly Report certification form. No additional disbursements will be made to the air district until funds subject to return have been received by ARB.

2. **Return of Other Funds**. An air district choosing to remit to ARB all or a portion of earned interest, or to return other funds following consultation with ARB, may do so following instructions in the Yearly Report certification form.

3. **Reallocation**. ARB will add funds returned by air districts to the subsequent cycle of Moyer Program funding, following the allocation requirements of Health and Safety Code section 44299.2.

Q. Program Nonperformance

1. **Monitoring Nonperformance**. As directed by Health and Safety Code section 44291(d), ARB monitors air district programs to ensure that participating air

districts conduct their programs consistent with the criteria and guidelines established by the Board. Program non-performance is an air district's non-compliance with program Guidelines or statute that is not corrected by the air district in a timely or satisfactory fashion. ARB may become aware of possible air district non-performance through Yearly Reports, Incentive Program Review, district self-reporting or other means. Examples of program non-compliance with program guidelines or statute include, but are not limited to, the following:

(A) Failure to return unliquidated funds within 90 days of the liquidation deadline (Health and Safety Code § 44287(j));

(B) Misuse of Moyer Program funds, including funding of ineligible projects;

(C) Insufficient or improper program oversight and enforcement, including widespread deficiencies in project contracting, inspections, reviews or audits;

(D) Insufficient, incomplete, or inaccurate project documentation;

(E) Failure to submit timely and accurate reports to ARB;

(F) Other non-compliance with program guidelines or statute.

2. **Nonperformance Procedures**. When ARB determines that an air district program is not complying with program guidelines, the ARB liaison and manager will work with air district staff to understand the issues, and develop a plan and timeline to resolve them. If the ARB Branch Chief determines that the issues related to program nonperformance have not been resolved, ARB will send by email to the air district program contact a program nonperformance notification, that contains the following:

(A) Description of the unresolved issues, including pertinent details such as names of involved persons and projects, dates, dollar amounts, and citations of relevant program guidelines sections, Health and Safety Code sections, and regulations; and

(B) Possible solutions to the problem, if some have been identified, and/or an offer ARB assistance; and

(C) Arrangements for a possible meeting between the ARB Branch Chief and the air district APCO to agree on a plan and timeline for resolving the problem. The plan and timeline shall be recorded by the ARB air district liaison and emailed to the air district APCO within five business days of the meeting.

3. **Withholding of Funds by ARB**. Lacking satisfactory resolution of the issues that have resulted in the nonperformance notification, the ARB Executive Officer will determine if the nonperformance warrants withholding funds that have been granted to the air district and not yet awarded to approved projects. If so, ARB will send a letter of program non-performance to the air district APCO. The letter will set a public meeting to be held at the air district's offices (or other appropriate

facility within the air district). The purpose of the meeting will be to consider public comments prior to withholding any funds.

R. Incentive Program Review

1. **Purpose**. ARB conducts Incentive Program Reviews to help ensure that air district programs achieve expected emission reductions and are implemented in a manner consistent with these Guidelines and State law (H&SC § 44291, 39500). ARB Incentive Program Reviews place emphasis on collaboration with the affected district in the review process. Features of this approach include a joint initial review of project files, ongoing and regular communication with district staff throughout the file review process, and where possible an opportunity for districts to correct problems prior to their inclusion as findings in the final report.

2. **Scale of Review**. ARB uses a risk-based approach to select specific air district programs and projects to review, and to select fiscal years within the scope of each review. Districts are selected for Incentive Program Review based on identified need or with consideration of program funding amount. ARB's objective is to review over a five-year period air district programs receiving at least 80 percent of Moyer Program funds. Air district implementation of other State incentive programs will be selected as appropriate for review at the same time as the Moyer Program review.

3. **Fiscal Compliance Audits**. ARB may also contract with independent auditors including the California Department of Finance Office of State Audits and Evaluations, to conduct audits of incentive program fiscal compliance. The independent auditors will conduct these audits in accordance with Generally Accepted Government Auditing Standards, and will prepare reports on the results of the audits including any findings. ARB retains final authority with respect to corrective measures and follow-up, in consultation with the air district.

4. **ARB Responsibilities**. ARB will conduct Incentive Program Reviews in a manner that reflects its entrusted accountability and responsibilities.

   (A) ARB will generally define the scope of a Moyer Program review to cover a period of up to five fiscal years not covered in the previous review. The scope of years within review may vary for other incentive programs. Once a funding year is reviewed, ARB will not review it again unless warranted. ARB may investigate possible fraud or misuse of funds in any program year.

   (B) ARB will maintain open channels of communication with the air district during the review. ARB will fully explain the review's scope and procedure at the beginning of the process, discuss preferred channels of communication with the district, inform the district of potential issues as they unfold, provide full and ongoing opportunity for district input, provide the district opportunities to correct problems that arise during the review process, thoroughly discuss any findings and recommendations with the

district before and during the exit interview, and provide the district an opportunity to formally respond to the Incentive Program Review report.

(C) To ensure objectivity and predictability, ARB will base its findings and recommendations on State law, applicable guidelines and Mail-Outs, grant agreements, email communications between ARB and the air district, the district's Policies and Procedures Manual, case-by-case determinations, and the district's local requirements.

(D) All Incentive Program Review reports, air district responses, and related documents shall be made available to the public via posting on ARB's Moyer Program website.

(E) ARB will conduct follow-up activities to ensure any deficiencies remaining following review are promptly and effectively mitigated. ARB will offer its assistance to air districts working to correct deficiencies.

5. **Air District Responsibilities**. Air district staff and management will participate in entrance and exit interviews, support collaborative review and open communication with ARB staff, ensure that program files and other requested information are available to reviewing staff of ARB and the Department of Finance, work to fully and promptly mitigate deficiencies identified during the review, work to resolve any disagreements, and request assistance from ARB as necessary.

6. **DMV Fee Project Evaluation**. AB 923 $2 MV Fee projects are subject to Incentive Program Review or evaluation as follows:

(A) A Moyer Program match project funded with the AB 923 $2 MV Fees will be subject to the same review and oversight requirements and protocols as other Moyer Program match projects.

(B) A non-match project funded with the AB 923 $2 MV Fee may be evaluated by ARB in conjunction with an Incentive Program Review. Evaluation of these projects will be limited to project eligibility. Any irregularities regarding non-match AB 923 $2 MV Fee project eligibility will be reported separately from other Incentive Program Review findings.

S. Requirements for Project Applications

1. **Data Required for CARL**. Project applications must include the information needed for calculation of project cost-effectiveness in the CARL database.

2. **Existing Engine Usage**. Project applications must include documentation of existing engine usage, such as miles traveled, hours operated, or fuel consumed per year, for 24 months or as specified in these guidelines by source category. This information will be used to evaluate project cost-effectiveness and the maximum grant award amount.

3. **Active Duty Military Applicants**. If an applicant has been on active military duty at any time during the previous twenty four (24) months, documentation prior to deployment and covering the same length of time as the deployment period may be used to meet the title, registration, usage, and operation in California requirements as applicable for each source category. The applicant must submit a copy of DD Form 214, Certificate of Release or Discharge from Active Duty to verify military service during the deployment period.

4. **Third Party Signature**. Applications must include a signature and date section for third parties. A third party may complete an application or part of an application on an owner's behalf if the vehicle, engine, or equipment owner signs and dates the application.

5. **Applicant Certification**. Project applications must include language informing the applicant that by signing and submitting the application, the applicant certifies under penalty of perjury that the information in the application is accurate and true. In addition, the application must include the following statements that the applicant or the applicant's designee must certify as accurate and true:

   (A) A disclosure statement consistent with Section L.6. of this chapter, specifying whether the applicant has submitted an application for incentive funds to any other entity or program for the same equipment (for example, repowering of the same engine). The applicant must disclose to whom other applications were submitted, whether funds have been awarded or may be awarded, and the amount or potential amount of other funding.

   (B) A regulatory compliance statement certifying that the applicant is currently in compliance with all federal, state, and local air quality rules and regulations at time of application submittal, and is not aware of any outstanding or pending enforcement actions.

6. **Applicant Non-Disclosure**. An applicant who is found to have applied for or received incentive funds from another entity or program for the same project without disclosing that information as required by these Guidelines shall be disqualified from funding for that project from all sources within the control of an air district or ARB. The air district or ARB may also seek civil penalties for such non-disclosure.

7. **Subsequent Applications**. An applicant may re-apply for project funding if a previous application for the same project has been rejected by the air district and is no longer being considered for funding.

T. Application Evaluation and Project Selection

1. **Review for Completeness**. Air districts must review all applications for completeness upon receipt, and notify an applicant within 30 working days of receipt if the application is not complete (H&SC § 44288(a)). The air district must

make every effort to clearly state to the applicant what is required to make the application complete. The application and all correspondence with the applicant should be kept in the applicant's project file. Additionally, the record of each project's rating and ranking as applicable, receipt date, and other project selection criteria must be maintained with the project file.

2. **Credibility**. Air districts are responsible for determining that project applications are credible, made in good faith, and in compliance with the Moyer Program and its objectives.

3. **Eligibility**. Air districts must ensure that the emission reductions provided by selected projects are eligible and surplus to adopted regulations and other legal requirements. This should include checking to ensure the project meets the minimum requirements in the appropriate source category chapter, including:

   (A) Documentation of historical vehicle, equipment, or engine usage;

   (B) Documentation of project costs;

   (C) Engine or retrofit device Executive Orders, if applicable;

   (D) Proof of a vehicle compliance check as needed for on-road projects;

   (E) Other documentation identified in the source category chapter.

4. **Application Tracking**. Air districts must have a system for tracking applications. CARL may be used to satisfy this requirement if an air district enters the data from all applications received into this database, whether the application is provided funding or not. Air districts not using CARL will track the information needed to populate required CARL data fields. A tracking system is not required for districts receiving under one-half percent of the current fiscal year total Moyer Program Funds, or $450,000, whichever is less.

5. **Project Selection**. After reviewing applications for project eligibility, the air district must follow its Policies and Procedures Manual in selecting projects to fund. Projects approved for funding must meet all applicable requirements of these guidelines.

6. **Communities with Most Significance Exposure**. Air districts with a population of one million or more residents must select projects from their applicant pools in a way that ensures that 50 percent or more of their Moyer Program funds are expended to reduce air pollution in communities with the most significant exposure to air pollution (H&SC § 43023.5). Air districts may track this on a cumulative basis.

7. **Project Evaluation**. A district must evaluate projects to ensure each project selected for funding meets the emission reduction and cost-effectiveness requirements of the Moyer Program as applicable. Projects may not be funded when CARL indicates these requirements are not met. In such cases, an air

district representative believing a project should qualify may contact his or her ARB liaison to further evaluate project eligibility.

8. **Recordkeeping**. The air district must maintain a file for each project selected for funding. Files may be retained in an electronic format if complete and easily accessible. Unless otherwise specified by source category or in Section K.8., project files must be retained three years following the end of the contract term. In the event final payment has not been issued prior to the end of the contract term, the three-year clock is re-started upon final payment. Applications for unfunded projects must be kept a minimum of two years following the solicitation period, or two years from receipt if there is not a specified solicitation period.

9. **Subsequent Application and Double-Counting**. Carl Moyer Program participants that received funding and are still under contract may not apply for funding for the same project from the Moyer Program (including a Voucher Incentive Program), from the Proposition 1B Goods Movement Emission Reduction Program, or any other program.

   (A) If an air district chooses to amend a contract to reduce the term, the amended project must be cost-effective during the reduced contract term, based on the cost-effectiveness values and limit that applied when the original contract was executed. If an air district agrees to accept a prorated repayment of the Moyer Program grant, the repayment and amended contract execution must both occur prior to the execution of any new contract for funding.

   (B) Emissions reductions from previously funded projects must not be included as emissions benefits of any subsequent project for the Moyer Program (including a Voucher Incentive Program) or the Proposition 1B Goods Movement Emission Reduction Program.

U. Case-by-Case Determination Process

1. **Limitations**. ARB Moyer Program staff may approve on a case-by-case basis a project that varies from specific requirements of these Guidelines only if such approval will not adversely affect achievement of surplus, quantifiable, enforceable and permanent emission reductions. Case-by-case approvals also may not result in an exceedance of the applicable cost-effectiveness limit, or reduce program transparency, or cause a violation of law or regulation. Air districts are required to request a case-by-case determination even if they believe a project is similar to previously-approved case-by-case projects.

2. **Procedure**. An air district may request ARB review of the project for a case-by-case determination using the procedure below. After receipt of all information needed, ARB will respond to the air district within 15 business days with a determination or estimated date of determination.

(A) The air district will submit the following to the Moyer Program district liaison:

(1) A summary of the request, with reference(s) to the pertinent area(s) of the Guidelines for which the air district is asking for additional guidance and approval;

(2) Documents providing information essential to the determination, including but not limited to: baseline and new engine information; the associated ARB engine Executive Orders and/or U.S. EPA Certificates of Conformity for baseline and new engines; other related applicant information from a completed application;

(3) Other information and documents as requested by Moyer Program staff.

(B) ARB will make one of the following determinations:

(1) Approved. Approval of a project does not imply or equate to "blanket approval" of other similar projects.

(2) Not Approved. Non-approval of a project does not imply or equate to "blanket non-approval" of other similar projects.

(3) No Action / Case-by-Case Approval Not Required: ARB evaluation concludes that a case-by-case determination is not required as the request already conforms to the requirements or intent of the Guidelines.

3. **Public Availability and Recordkeeping**. ARB will post on the Moyer Program website all case-by-case determinations submitted for review. Air districts will keep a copy of the determination, either approved or not approved, in the project file.

4. **After Contract Execution.** Air Districts should always attempt to request a case-by-case determination prior to contract execution. ARB will consider requests for case-by-case determination subsequent to contract execution only when an unforeseen event leads to a project or program element that varies from the requirements of these Guidelines.

V. Minimum Contract Requirements

1. **General Requirements**. Except as specified for on-road and off-road voucher incentive programs, air districts participating in the Moyer Program must execute contracts with prospective grantees who will receive funds under the Moyer Program. All Moyer Program project contracts must include the elements described in this section. Projects funded by the Moyer Program may not be used to generate a compliance extension or credit for regulatory compliance. All executed project contracts and contract amendments must be kept in the air district's project files.

2. **Party Names and Date**. All contracts must state the name of the air district and the grantee as parties to the contract. Contracts must include signature blocks with an area for the dates the contract is signed, or the execution date must otherwise be clearly indicated in the contract. In any case where digital signature is used in lieu of original signature, the digital signature must comply with California Government Code section 16.5 and Title 2, California Code of Regulations, sections 22000 – 22005.

3. **Notices**. All contracts must include contact information for both parties to the contract, including how to send and receive notices.

4. **Funds from Other Sources**.

   (A) Grantees must certify that they have disclosed all funding sources that they have applied for or received for a project, and that the grantee will notify the district of additional sources of funding received for the total cost of the project, including any sources that become available after contract execution (H&SC § 44283(g)).

   (B) Grantees that co-fund a project must meet all criteria associated with each funding source used to fund the project (H&SC § 44287(a)).

   (C) A grantee that is not a public entity must provide at least 15 percent of a project's Moyer eligible costs from non-public sources (see Section L). The contract must prohibit the grantee from receiving grants and other funds that exceed the total project cost.

   (D) A grantee may receive Moyer Program funding from multiple air districts for the same project if these entities are coordinating to jointly fund portions of the project. The contract must list the entities involved and funding provided.

5. **Contract Term**. All contracts must specify the term of the contract. The contract term shall include two time frames – "project completion" and "project implementation" – to ensure that the air district and ARB can fully enforce the contract during the life of the Moyer Program-funded project.

   (A) Project Completion. Project completion is the time frame starting with the date of execution of the contract to the date the project post-inspection confirms that the project has become operational. This includes the time period when an engine, equipment, or vehicle is ordered, delivered and installed. The contract must include a specified time frame in which project completion will occur so that the contract is liquidated within four years from the original date of contract execution. Under no circumstance may the liquidation date be extended beyond four years from the original date of contract execution.

   (B) Project Implementation. The project implementation time frame is the second part of the contract term, and must equal the project life used in

the project cost-effectiveness calculation. The contract must specify that the grantee is required to operate and maintain their Moyer Program-funded project according to the terms of the contract for the full project implementation period.

6. **Project Specifications**. All contracts must include detailed information on the baseline and new vehicles, equipment, and/or engines that were used in the project cost-effectiveness calculation. This requirement may be met by including the project application as an attachment to the contract as long as the application is accurate and complete.

   (A) A program-eligible replacement vehicle, equipment and/or engine that is verified or certified to achieve equivalent or greater reductions than the original project replacement vehicle, equipment and/or engine may be substituted with prior approval of the air district.

   (B) At least twenty-four (24) months of documented and verified historic usage is required for the baseline engine, such as miles traveled, hours operated, or fuel consumed, and in this case usage is not required to be in the contract. If this information is not available, the air district may estimate the usage for the old engine and the estimated usage must be included in the contract.

      (1) The types of acceptable documentation for establishing historical annual usage will be clearly defined in each air district's Policies and Procedures Manual and will be subject to ARB approval.

      (2) Additional forms of documentation to verify historical annual usage that are not included in an air district's Policies and Procedures Manual can be evaluated and approved by ARB on a case-by-case basis.

   (C) Contracts must also contain a statement that the project complies with the Moyer Program Guidelines and that the grantee will meet the following requirements:

      (1) Certify that the grantee's fleet, engine(s), or equipment/vehicle is in compliance with all applicable federal, state, and local air quality rules and regulations at time of contract execution.

      (2) Maintain compliance with all applicable federal, state, and local air quality rules and regulations for the full contract term.

      (3) For repower projects, the installation of the engine must be completed in a manner such that it does not void the engine warranty provided by the manufacturer and any remaining warranty provided by the equipment/vehicle manufacturer.

   (D) Contracts must specify the following:

(1) Projects funded by the Moyer Program must be included when defining the size of the fleet for determining regulatory requirements.

(2) Throughout the contract term, projects funded by the Moyer Program must not be used to generate credits or compliance extensions, and must be excluded when determining regulatory compliance.

7. **Maintenance**. All contracts must require the grantee to maintain the vehicle, equipment, engine, and/or funded infrastructure according to the manufacturer's specifications for the life of the project, and include a prohibition on engine tampering. The grantee must maintain a working hour meter for projects that use hours of operation as a means of calculating emission reductions and cost-effectiveness. If the hour meter fails, the grantee must immediately notify the air district, and remain responsible for validating any hours not recorded by the hour meter. The grantee must either repair or replace the non-operating meter or provide other documentation of equipment operating hours acceptable to the air district.

8. **Payment**. Before a Moyer Program payment may be made to a project participant, the project contract must be executed, an eligible invoice must be received by the air district, and the project post-inspection must be successfully completed to document the completion of the work specified in the invoice. The equipment must be operational before the final payment is issued. All contracts must include the following payment terms:

   (A) **Maximum Contract Amount**. The maximum contract amount must not exceed the maximum funding level corresponding to the current program cost-effectiveness limit, nor may the maximum contract amount exceed the project incremental cost. The maximum contract amount must also comply with any funding caps and other criteria for the specific project category as identified in these Guidelines.

   (B) **Itemized Invoices**. Payment terms must require itemized invoices from the engine or equipment supplier for repowers and infrastructure projects, paid invoices from the vehicle owner for new vehicles, and satisfactory post-inspection by the air district prior to payment of the owner's invoice. An invoice payment for a specific vehicle, engine, or equipment may not exceed the amount indicated on the project contract for that vehicle, engine, or equipment. The contract should be clear that the air district will pay the lower of the contract amount or the final invoice amount. Invoices must meet the minimum requirements of Section Y to be eligible for Moyer Program funding.

9. **Reporting**. All contracts must include a provision for grantees to submit annual reports commencing no later than 18 months after project post-inspection and continuing annually thereafter throughout the project implementation phase of the

contract. The air district must include the dates the grantee Annual Report is due.

(A) During the project implementation phase, the air district is responsible for monitoring the project to assure the project is operational and the project emissions reductions are realized.

(B) The contract must inform the grantee that noncompliance with the reporting requirements will require on-site monitoring or inspection(s).

10. **On-Site Inspections, Audits and Records**. All contracts must include language that allows the air district, ARB, or their designee to conduct an inspection or audit of the project, including the engine, vehicle or equipment and associated records, during the contract term. Contracts must also require the owner to maintain and retain usage and other records associated with the project for at least three years after the end of the contract term.

11. **Repercussions for Nonperformance**. Air districts must include repercussions for non-compliance with the obligations of the contract.

(A) The contract must specify that by executing the contract, the grantee understands and agrees to operate the vehicle, equipment, and/or engine according to the terms of the contract and to cooperate with the air district and ARB in implementation, monitoring, enforcement, and other efforts to assure the emission benefits are real, quantifiable, surplus, and enforceable.

(B) The contract must describe the repercussions to the grantee for noncompliance with contract requirements, including but not limited to cancelling the contract and recapturing project funds in proportion to any loss of emission reductions or underutilization as agreed to in the contract (H&SC § 44291(c)).

(C) The contract must inform the grantee that ARB and the air district have the authority to seek any remedies available under the law for noncompliance with Moyer Program requirements and nonperformance with the contract.

(D) The contract must state that ARB, as an intended third party beneficiary, reserves the right to enforce the terms of the contract at any time during the contract term to ensure emission reductions are obtained.

W. Project Pre-Inspection

1. **Requirements**. Upon confirming a project's eligibility the air district must complete a pre-inspection prior to contract execution, except as specified in this section.

(A) All projects must be pre-inspected personally by air district staff, except that air districts may choose to allow public agencies (e.g., public works departments, transit organizations, and school districts) to provide

documentation of the engine(s), equipment, and usage in lieu of a pre-inspection.

(B) Air districts receiving less than one-half of one percent of the current fiscal year total Moyer Program Funds, or $450,000, whichever is less, may reduce their required project pre-inspections to a minimum of 25 percent of the total number of projects associated with the current fiscal year funds. At least one project must be selected from each source category funded, however.

2. **Documentation**. The pre-inspection form and information to be documented must include, at a minimum, the following:

(A) Information regarding the baseline engine, vehicle, or equipment as needed to uniquely identify, establish eligibility, provide a basis for emission calculations, populate the CARL database, and ensure contract enforceability. Such information includes (as applicable) make, model, year, horsepower, fuel type, engine family, engine tier, serial number, vehicle identification number (VIN), and any additional information pertinent to the project. Engines without a visible and legible serial number must be uniquely identified by having the engine block stamped with a Moyer Program number or alternative permanent marking such as an engine tag.

(B) The project usage (hours or miles) meter reading if used in the project cost-effectiveness calculation. The inspector must verify that stated project usage is reasonable given the usage meter reading.

(C) Verification that the engine is operational (with a start-up) and that the engine is working as described in the application (document function and use).

(D) Photo documentation of the engine, vehicle, or equipment information. The photos must include the legible serial number of the engine (if available) and/or any other identifying markings.

(E) Other relevant information including, but not limited to:

(1) Name of inspector;

(2) Date of inspection;

(3) Name and contact information of engine or equipment owner; and

(4) Location of the engine or equipment.

3. **Compliance Certification**. No later than the time of pre-inspection the district must obtain certification and submission of supporting documentation from the applicant that their engine(s), vehicle/equipment, or project fleet is currently in compliance with the applicable rules or regulations affecting the engine(s), vehicle/equipment for which they are requesting funding.

4. **Recordkeeping**. The air district must maintain a hard copy of the completed pre-inspection form in the air district's project file.

5. **Inspection after Contract Execution**. The project pre-inspection must be completed prior to a project contract execution and the information in the contract must be consistent with the information gathered during the pre-inspection. An air district may apply to ARB for approval to conduct pre-inspections after contract execution only on a case-by-case basis. Case-by-case approval of such a procedure will depend upon the following conditions being met:

   (A) The air district describes the program benefits it would achieve by conducting pre-inspections after contract signature.

   (B) The project contract includes language to indicate contract terms may be adjusted or the contract may be deemed void based upon information collected during the pre-inspection. The air district must also include a process for informing the prospective grantee of such.

   (C) The air district's Policies and Procedures Manual clearly specifies the process for conducting pre-inspections after contract execution and any additional procedures enacted to ensure the project achieves real, surplus, enforceable, and quantifiable emission reductions. Work on the project engine, vehicle, or equipment may not commence until after the pre-inspection.

X. Project Post-Inspection

1. **Requirement**. An air district must gather and document post-inspection information on all projects funded under the Moyer Program. For post-inspection of infrastructure projects, see Chapter 10 for further guidance.

   (A) The air district will conduct a post-inspection after it receives an invoice for a project from the grantee or otherwise receives notice the project is complete. Information on the invoice must be consistent with the information gathered at the post-inspection. If the post-inspection occurs before the air district receives the project invoice, the invoice must be reviewed for consistency with the new engine, vehicle, or equipment information from the post-inspection form.

   (B) When 20 or more vehicles are included in a vehicle replacement project for a public fleet or transit agency, the air district is not required to post-inspect each replacement vehicle, but must inspect no fewer than five percent of the vehicles included in the project.

   (C) The inspector must record, at a minimum, information regarding the new project engines, vehicles/equipment, and retrofit devices as needed to uniquely identify, establish eligibility, provide a basis for emission calculations, and ensure contract enforceability. Information sufficient to populate all required fields in CARL must be recorded. Submersible pump

inspections may have the applicant take a picture of the motor name plate information including, make, model, and serial number prior to installation inside the irrigation well. The district will verify the make, model and horsepower rating information with the project invoice.

(D) The engine must be operational in the equipment or vehicle as stated in the contract. The inspector must visually witness all engine startups and operation of all mobile projects.

(E) The engine, vehicle/equipment, and retrofit information must be documented with photos. The photos must include the serial number of the engine or retrofit (if legible) and/or any other identifying markings. Photos of the scrapped or destroyed engine must be included.

(F) The post-inspection form must also contain other relevant information including, but not limited to:

(1) Name of inspector;

(2) Date of inspection;

(3) Name and contact information of engine or equipment owner; and

(4) Location of the engine or equipment.

(G) The air district must maintain a hard copy of the completed post-inspection form in the air district's project file.

2. **Equipment Labels**. Post-inspection of a retrofit device requires the collection of additional information from the labels affixed on both the retrofit device and the engine. If the proper labels are missing, payment may not be made until this is corrected. Potential scenarios are summarized below, which air district staff must address prior to payment:

(A) The retrofit device is properly labeled but the engine lacks a label: An engine label should be readily obtainable from the retrofit manufacturer by reference to the serial number. The air district may make payment once the grantee has been informed that the engine must also be labeled.

(B) The retrofit device is labeled but the label does not have the required items: The air district may make payment once it gets approval from ARB regarding an approved alternate label or a compliant label has been installed on the retrofit device.

(C) The engine is properly labeled but the retrofit device lacks a label: The air district may make payment once a compliant label has been installed on the retrofit device.

(D) No label is found on either the engine or the retrofit device: The air district may make payment once a compliant label has been installed on both the engine and the retrofit device.

3. **Electric Motors**. Post-inspection of a new electric motor on an agricultural pump must also include recording of the serial number of the variable frequency device if the project includes one.

4. **Verification of Destruction**. The air district must verify that the existing (old) engine is destroyed and rendered permanently unusable and irreparable, consistent with requirements in the source category chapters of these guidelines and with the district Policies and Procedures Manual.

   (A) Air district staff must verify and document through photographic or video evidence that the destroyed engine serial number matches that on the project contract.

   (B) Air district staff must verify that engines without a visible and legible serial number are uniquely identified by the correct air district stamp or other permanent marking prior to engine destruction.

5. **Consistency with Contract**. The air district must verify that the information collected in the post-inspection is consistent with the project contract.

Y. Project Invoice and Payment

1. **Prior to Payment**. Except as specified below, an air district will make payment for a project or equipment only after district post-inspection finds the project or equipment in place and operational, and the district receives an invoice itemized in sufficient detail to ensure that only completed and eligible project costs are reimbursed, and other sources and amounts of funding for the project are reviewed to ensure the sum of all project funds does not exceed the total project cost (per Section L). Exceptions are limited to progress or partial payments in cases where the grantee provides the air district with sufficient evidence of completing milestones specified in the contract, consistent with conditions specified in district Policies and Procedures. The air district must maintain a clear record of progress payments in the project file and in records of the district administration or fiscal unit of the air district. Progress payments include final payments that are withheld until all reporting requirements are met (also known as “withheld payments”).

2. **Eligible Costs**. Equipment and parts on engine repower or retrofit projects are eligible for funding only if they are required to ensure the effective installation and functioning of the new engine or retrofit, and are not part of typical vehicle or equipment maintenance or repair. Taxes and the installation and transport costs for eligible hardware are eligible for funding at the air district’s discretion. For labor expenses paid, the invoice must detail the number of hours charged and the hourly wage. See source category chapters for additional specification of eligible costs.

3. **Ineligible Costs**. Ineligible repower costs include tires, axles, paint, brakes, and mufflers. See source category chapters for additional specification of ineligible costs.

4. **Limitations on Applicant Action before District Approval**. An applicant may not order or make a down payment on a new engine, piece of equipment, or vehicle prior to contract execution or approval by the air district governing board or board designee. Dealers ordering engines, equipment, or vehicles prior to air district approval of grant applications assume all financial risk and are in no way ensured program funds. A grantee may not receive engines, equipment, or vehicles, nor may work begin on a repower or retrofit project, until the project contract is fully executed, unless the air district has provided the potential grantee with written notification that any work performed is not guaranteed funding until a contract is executed. For infrastructure projects, discretionary costs may be accrued by an applicant prior to contract execution, but such costs are not reimbursable until after contract execution.

5. **Invoice Procedures**. The air district will maintain copies of all invoices and documentation of payment in the project file or otherwise keep copies on-site at the air district office and be readily available. Invoices received after the project post-inspection has been complete must be evaluated for consistency with the information gathered during the project post-inspection. Additional project invoicing requirements may also be included in the source category chapters of these guidelines.

6. **On-Road Compliance Checks**. For all on-road and emergency vehicle projects, should a compliance check indicate that there is an outstanding violation with any vehicle in the applicant's fleet, no payment may be made until the applicant provides proof to the district that each violation has been corrected and each fine has been paid.

7. **Regulatory Compliance**. Where a contract requires a grantee to demonstrate that specific regulatory compliance requirements have been met in order to receive funding (such as engines subject to the Portable Equipment ATCM), air districts may not pay invoices until the grantee has provided documentation that the requirements have been met. A project participant may demonstrate this via a detailed letter signed by the vehicle or equipment owner or legal representative or, if the regulation requires ARB (or the air district) to certify compliance, through ARB (or air district) certification. For more information, see the associated source category chapter. Air districts are not to be held liable if a grantee falsifies this documentation.

8. **Payment Recipients**. Payments typically will be made directly to the grantee. Payments may be made directly to a dealer or distributor only if such payment arrangements are specified in the contract.

Z. Grantee Annual Reporting

1. **Requirement**. Air districts will require all grantees to submit annual reports within 18 months of the project post-inspection and annually thereafter for the term of the contract.

2. **Report Format**. The district will prescribe a format for the project annual report, to include the following information:

   (A) Grantee name, address, and telephone number.

   (B) Information needed to uniquely identify the project engine, vehicle, or equipment, such as engine make, model, horsepower, and serial number.

   (C) Estimated percentage of time the vehicle or equipment has been operated in California since the previous annual report.

   (D) Readings of the usage device (e.g., hour meter, odometer, or electronic monitoring unit).

   (E) Except for projects in which usage is not required to be specified in the contract (as allowed per Section V.6.(B)(1) above), if usage is more than 30 percent below that identified in the project application, the grantee must describe any conditions that are likely to have affected project usage, such as weather, permits, or major maintenance. In instances where annual usage is significantly lower than the contracted level due to unforeseen circumstances beyond the control of the grantee, the grantee may request a waiver from the air district per Section BB(4).

3. **District Review**. The air district will review the annual report for completeness, accuracy, and reported usage, and will maintain in the project file a copy of the report that is initialed and dated by the reviewing staff. An air district choosing an alternative method to indicate its review and approval of annual reports will specify the method in its Policies and Procedures Manual.

4. **Unsatisfactory Reporting**. If an annual report is incomplete, inaccurate or not received from the grantee on schedule, the air district will make a reasonable attempt to obtain a complete and accurate report from the grantee. If the air district is unable to obtain the report, the air district will identify the project for audit as described in Section AA below.

5. **Subsequent Grants**. Grantees that have not submitted complete required reports will not be granted funds for new Moyer Program projects until all reports are satisfactorily submitted.

AA. Air District Audit of Projects

1. **Requirement**. The air district will conduct audits of projects funded with Moyer Program funds. On an annual basis these audits will include five percent of

active projects or 20 active projects (whichever is less), including any audits conducted following unsatisfactory annual reporting as described in Section Z.4.

2. **Project Inspection**. Audits must be completed by air district staff and will at a minimum include an inspection that verifies that the engines, equipment, and emission control devices paid for are still owned by the grantee named in the contract, are still operational in the same equipment, and meet the mileage, fuel usage, or hours of operation indicated in the executed contract. This must be performed by checking the serial number of the engine; witnessing the operation of the engine; and checking the usage meter or fuel receipts.

3. **Multiple Equipment**. Audits of multi-equipment/engine projects of up to 25 pieces must include inspection of at least two pieces or equipment, and for projects of 25 pieces or more must include inspection of at least five pieces.

BB. Nonperforming Projects

1. **Requirement**. The air district will work with nonperforming project grantees to ensure Moyer Program project requirements are met and emission reductions are achieved, consistent with procedures outlined in the Policies and Procedures Manual. Air districts may consider unforeseen circumstances beyond the grantee's control in determining repercussions for nonperformance.

2. **Off-Road Contract Extension**. Off-road contracts for which usage requirements are not being met may be extended to capture the required usage, even if the contract extension overlaps the required compliance date. This revision only applies to off-road contracts that have been executed prior to August 15, 2008, and does not modify similar Moyer policy for other eligible categories.

3. **Recapturing Funds**. When a district is not successful in gaining grantee compliance with the usage and program requirements specified in a contract, the district will make all reasonable efforts to recapture Moyer Program funds from the grantee. Recaptured funds will be reassigned to projects that achieve the shortfall in emission reductions or usage. The district's efforts to recapture funds may be guided by circumstances such as suspected or actual fraud or misuse of funds, the amount of Moyer Program funding involved, or the ability of the grantee to repay the funds.

4. **Usage Threshold and Waiver Procedure**. The air district must take appropriate action to ensure emission reductions are realized for engines, equipment, vehicles or fleets, as well as usage for infrastructure projects. Except for projects in which usage is not required to be specified in the contract (as allowed per Section V.6.(B)), when average usage over a three year period for a contracted engine, equipment, vehicle or fleet is less than 70 percent of the activity required in the contract, the air district may choose, but is not limited to, the options below to address the underutilization. (In cases of projects which

may have a contracted project life of less than three years, the same activity threshold of less than 70 percent applies, averaged over the project life.)

(A) Extend the project contract for additional years (precluding overlap with an applicable rule implementation requirement).

(B) Return funds in proportion to the loss in emission reductions.

(C) Transfer ownership of the engine, vehicle, or equipment to another entity committed to complying with the contract terms.

(D) Recalculate a project's cost-effectiveness based on the reported decrease in usage. Based on this recalculation, if the project is still below the cost-effectiveness limit, consistent with the limit and methodology in effect on the date of contract execution and prior to the end of the contract, the air district must continue to monitor the project over the next year to determine if additional actions are necessary. (This option does not apply to infrastructure projects not subject to a cost-effectiveness limit.)

(E) Grant a usage waiver, without penalty, to the grantee for a defined time period. The grantee must demonstrate to the air district's satisfaction that the engine, vehicle, or equipment is not being underutilized in favor of operating other, higher-polluting equipment, and that the underutilization was due to unforeseen conditions beyond the grantee's control.

(1) The conditions under which a waiver may be issued include, but are not limited to, the following:

a. A decrease in usage due to economic recession;
b. Unforeseen fluctuations in water allocations or pumping needs for agricultural irrigation pump engines; or
c. Significant land fallowing for off-road agricultural equipment and agricultural irrigation pump engines.

(2) To be considered for a waiver, the grantee must provide a written request to the air district along with documentation that substantiates the need for the waiver and verifies that higher-polluting equipment is not consequently receiving more use.

a. The air district will specify the length of time for which the waiver is valid. The waiver will not exempt the grantee from any contract requirement to provide annual usage reports.
b. The waiver will be documented in writing, approved by the Air Pollution Control Officer or designee, and included in the project file.

(3) For projects that include multiple pieces of equipment or engines the district may review and recalculate the funded equipment collectively to see if the project as a whole has performed as expected. A waiver is not required in this event.

5. **Funds Recaptured Following ARB Enforcement**. Program funds recaptured from a project grantee as a result of a settlement agreement executed by ARB shall be returned to the air district that granted the funds. Any penalties resulting from a settlement agreement executed by ARB or the Attorney General shall be deposited in the Air Pollution Control Fund (H&SC § 44291(e)).

CHAPTER 4: ON-ROAD HEAVY-DUTY VEHICLES

This chapter describes the minimum criteria and requirements for on-road heavy-duty vehicles. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

A. Projects Eligible for Funding

The Air Resources Board (ARB) has adopted many fleet rules that affect on-road heavy-duty vehicles. Various types of projects can be incentivized to provide surplus emission reductions from on-road heavy duty vehicles. Table 4-1 summarizes project types and categories eligible for funding as well as whether those projects may be executed through contracts or the Voucher Incentive Program (VIP or Voucher). For more information on VIP, please see the VIP Guidelines at: https://www.arb.ca.gov/msprog/moyer/voucher/voucher.htm.

Table 4-1
Summary of On-Road Heavy-Duty Projects

Project Category *	Project Type		Execution Path
	Replacement	Repower/Conversion	
Heavy-Duty Trucks and Buses	✓	✓	Voucher or Contract
School Bus	✓	✓	Contract
Transit Fleet Vehicles	✓	✓	Contract
Drayage Trucks	✓	✓	Voucher or Contract
Solid Waste Vehicles	✓	✓	Contract
Public Agency/Utility Vehicles	✓	✓	Contract
Emergency Vehicles	✓		Contract

* Retrofit projects may also be eligible for funding on a case-by-case basis.

1. **Vehicle Project Types**. Projects must include commercially available technologies certified by ARB to be cleaner than the baseline engine (unless otherwise noted). Project types and applications include:

   (A) Vehicle Replacements. The replacement of an older, dirtier vehicle with a newer, cleaner one. These projects may be funded through contracts or the VIP.

(B) Repowers. Repowers involve the replacement of an older, dirtier engine with a newer, cleaner one. Repowers may be funded in various applications. However, due to technological constraints presented with the limited feasibility of newer engines with advanced emissions control equipment fitting into older chassis and maintaining durability, repowers with diesel engines are rare project types for trucks. Repowers with alternative fuel engines may not have the same technological constraints and may become more prevalent. To ensure durability certain projects may require prototype testing, but if the project has been previously completed by the manufacturer prototype testing is not required. Districts that wish to fund repowers must receive prototype testing results. The testing must comply with the engine manufacturer quality assurance process that is equivalent to an OEM package. In these cases, a prototype vehicle (or vehicles) is thoroughly reviewed and tested to ensure that the installation meets OEM requirements, and the successful prototype installation is then replicated in other vehicles with the same chassis and engine combination. Air districts may approve repower projects that meet the OEM quality assurance process described above, subject to the following:

(1) Moyer Program funding may not be used for any costs associated with the prototype vehicle or vehicles.

(2) Repower contracts may not be executed until the prototype testing specified by the engine manufacturer is successfully completed.

(3) Written documentation from the engine manufacturer confirming that the prototype was successful must be maintained in the project file.

(4) If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not required. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements.

(C) Conversions. Conversions involve the replacement or modification of the original engine or vehicle to include either a cleaner engine or other system that provides motive power and change of the fuel type used. Hybrid conversion systems using internal combustion engines must be certified according to “California Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems.” The baseline engine model year for hybrid conversions must be 2010 or newer. Tier 1 and Tier 2 certified conversion systems are certified to sell a limited number of units in California. The conversion system manufacturer must provide written confirmation that the funded vehicle would not exceed the certified allowable limit. All-electric conversion systems must

receive an exemption Executive Order per Vehicle Code Section 27156. The conversion system manufacturer must certify that the converted vehicle adheres to all applicable local, state, and federal requirements including safety standards issued by National Highway Traffic Safety Administration and California Highway Patrol.

2. **Project Categories**. Taking the above project types into consideration, the following categories may be eligible for funding:

   (A) Heavy-Duty Trucks and Buses. Heavy-duty diesel trucks and buses with gross vehicle weight ratings (GVWR) greater than 14,000 pounds (lbs.) are subject to the Statewide Truck and Bus Regulation. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see Section C.2.(A).

   (B) School Buses. School buses as defined in Vehicle Code Section 545 are subject to the Statewide Truck and Bus Regulation. They are required to be filtered unless operating under an ARB-issued extension up to January 1, 2018. Project types include replacements, repowers, and conversions. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see Section C.2.(B).

   (C) Transit Vehicles. Transit vehicles are subject to the Fleet Rule for Transit Agencies and must be compliant with final regulatory requirements. Project types for surplus reductions include replacements and repowers. All transit projects must use engines certified to optional low oxides of nitrogen (NOx) standards or cleaner. For more information, see Section C.2.(C).

   (D) Drayage Trucks. Drayage trucks are subject to the Statewide Drayage Truck Regulation. As of January 1, 2014, drayage trucks are required to be equipped with 2007 or newer engines. Therefore, engines older than 2007 are not eligible. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. Cleaner technologies are currently being demonstrated, and may become available in the near future to enable opportunities for more funding. For more information on drayage truck funding opportunities, see section C.2.(D)

   (E) Solid Waste Collection Vehicles. Vehicles equipped with 2006 and older engines are subject to the Solid Waste Collection Vehicle Regulation and must meet final regulatory requirements. Vehicles equipped with 2007 and newer engines are subject to the Statewide Truck and Bus Regulation. All solid waste collection vehicle projects must use engines certified to optional low NOx standards or cleaner. For more information, see section C.2.(E).

(F) Public Agency and Utility Vehicles. Vehicles with GVWR over 14,000 lbs. owned by a municipality or utility that are equipped with engines certified to Particulate Matter (PM) emission standards greater than 0.01 grams per brake horsepower-hour (g/bhp-hr) are subject to the Fleet Regulation for Public Agencies and Utilities, except fleets that do not include any diesel engines. Engines are required to use the Best Available Control Technology as defined in the California Code of Regulations, title 13, section 2022.1(b). Private utilities become subject to the Statewide Truck and Bus Regulation starting January 1, 2021. Replacement engines certified to the 2010 emissions standards or cleaner are eligible.

(G) Emergency Vehicles. Emergency vehicles are not subject to in-use emissions regulations. Eligible vehicles also include prisoner transport buses. Project types mainly include replacements. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see Section C.2.(F).

(H) Case-by-Case Projects. These projects do not fall under any previously described category or do not meet all of the requirements of the Guidelines but otherwise provide real, surplus, quantifiable, enforceable, cost-effective emission reduction benefits in California for the entire project life. These may include transport refrigeration units (TRU), auxiliary power units (APU), and vehicles with 8,501-14,000 lbs. GVWR. For more information, see Section C.2.(G).

3. **Infrastructure Projects**. See the infrastructure Chapter 10 for details regarding applicant eligibility and project types for infrastructure projects in support of on-road applications. This includes infrastructure such as electrical charging (and solar-generated electricity) and alternative fuel stations for light, medium and heavy heavy-duty trucks. It also includes infrastructure for truck stop electrification, TRUs, transit vehicles, emergency vehicles and school buses.

B. Determining Funding Amounts

The information contained in this section shall be used to determine the funding amount for which any given heavy-duty on-road project is eligible.

1. **State Funding Limits**. Funding for an on-road heavy duty project includes funds from all State sources including the Carl Moyer Program. The maximum dollar amount or maximum percentage of eligible cost (Tables 4-2 through 4-7), as applicable, represents a funding cap, or the maximum funding available for the project. If the project is co-funded with other State funds, the funding cap represents the maximum amount funds from all State sources that can be applied to the project. Federal, local, or other non-State grant funds can be used in addition to the funding caps stated in this chapter, if the criteria for co-funded projects in Chapter 3, Section L are satisfied.

2. **Cost-Effectiveness**. The maximum amount of funding available to a project is limited by a cost-effectiveness limit (see Appendix C), in addition to the funding caps specified below.

3. **Maximum Funding Percentage**. For fleets with 10 or less vehicles over 14,000 lbs. GVWR, the state funding amount cannot exceed 80 percent of the vehicle cost for new or used replacement vehicles (excluding taxes and fees). For fleets with more than 10 vehicles, the funding amount cannot exceed 50 percent of the vehicle cost for used replacement vehicles, except for school buses and emergency vehicles. The funding caps that apply from these maximum percentages of eligible cost and maximum dollar amounts, as applicable, are summarized in Tables 4-2 through 4-7.

Table 4-2
State Funding Caps for Moyer School Bus Projects

Project Type	Funding Cap
School Bus Diesel or Alternative Fuel Replacements	$165,000
School Bus Optional Low-NOx or Hybrid Replacements	$220,000
School Bus Zero-Emission Replacements	$400,000
School Bus Repowers	$70,000
School Bus Electric Conversions	$400,000

Table 4-3
State Funding Caps for Conventional Diesel or Alternative Fuel or Hybrid Replacements (2013+ engine model year; 0.2 g/bhp-hr NOx or cleaner standard)

Weight Class	Funding Cap*
Heavy Heavy-Duty (HHD) GVWR > 33,000 lbs.	$60,000
Medium Heavy-Duty (MHD) GVWR 19,501-33,000 lbs.	$40,000
Light Heavy-Duty (LHD) GVWR 14,001-19,500 lbs.	$30,000
Emergency Vehicles GVWR > 14,000 lbs.	80% of Cost

* No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-4
State Funding Caps for Optional Low NOx Replacements*

Optional Low NOx standard (g/bhp-hr)	HHD	MHD	LHD
0.02	$100,000	$80,000	$70,000
0.05	$80,000	$60,000	$50,000
0.10	$70,000	$50,000	$40,000
Transit Buses	$25,000		

* No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-5
State Funding Caps for Optional Low NOx Repowers

Vocation Type	Funding Caps*
Transit Bus	$20,000
Other trucks and Buses	$30,000

* No more than 80 percent of repower cost for fleets with 10 or less vehicles, no more than 50 percent of repower cost for larger fleets.

Table 4-6
State Funding Caps for Zero Emission Replacements or Conversions

Weight Class/Vocation Type	Funding Caps*
Transit Bus	$80,000
HHD Truck or Bus	$200,000
MHD Truck or Bus	$150,000
LHD Truck or Bus	$80,000

* No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-7
State Funding Caps for Hybrid Conversions

Weight Class	Funding Caps*
LHD	$ 7,500
MHD	$10,000
HHD	$15,000

* No more than 80 percent of system cost for fleets with 10 or less vehicles, no more than 50 percent of system cost for larger fleets except for emergency vehicles.

4. **Project Life**. The minimum eligible project life for all projects is one year. The maximum eligible project life for each project type is summarized in Table 4-8.

Table 4-8
Maximum Project Lives for On-Road Vehicle Projects

Project Type	Maximum Project Life
Replacements	7 Years
Transit Bus Replacements	12 Years
Repowers	7 Years
School Bus Replacements	10 Years
Electric Conversions	5 Years
Emergency Vehicles	14 Years
Other On-Road Projects	3 Years

A longer project life may be approved on a case-by-case basis if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements that may reduce the actual project life.

5. **Annual Usage**. Grant amounts will be based on the minimum of two 12-month periods of California usage during the previous twenty-four months. Fleet averages cannot be used. If a fleet has reported the existing vehicle in the Truck Regulations Upload and Compliance Reporting System (TRUCRS) under a limited-usage compliance option (such as the Low-Mileage Work Truck Option, the NOx Exempt Area Extension, etc.) and the historical usage exceeds the limit, the usage limit for that compliance option must be used to determine the State grant amount instead. On-road calculations shall be based on historical annual mileage instead of fuel usage or engine hours due to the fact that the mileage-

based exhaust emission factors are more robust. Applicants must submit conclusive documentation of the existing engine or vehicle's mileage such as logbooks, and maintenance records maintained for individual vehicles, or CHP inspection reports. In cases where only fuel use records are available, a CBC request must be submitted. The applicant must provide two years of historical fuel usage documentation to the district. Documentation must show specific usage of the existing vehicle and may include fuel logs, International Fuel Tax Association reports for single fleets, purchase receipts or ledger entries. If the CBC is approved, fuel use will be converted to mileage according to the vocation.

6. **Calculating emissions**. Emission factors and deterioration rates in Appendix D, Tables D-1 through D-6 must be used to determine the emissions of the baseline and reduced engines; consequently the engine model year and applicable emission standard will determine the relevant emission factors. Emission reductions for hybrid conversion systems must be based on the projected reduced usage of the baseline engine in the converted vehicle compared to the original vehicle. This can be based on estimated usage reductions for the specific application or vocation type provided by the dealer, installer, or manufacturer. Calculations for new hybrid vehicles will incorporate the certified emission standard and may also include projected reduced engine usage relative to a non-hybrid equivalent provided by the dealer, installer, or manufacturer. The emission factors and deterioration rates contained in Appendix D are based on ARB mobile source emissions inventory model (EMFAC2014) values. Information on EMFAC2014 is available at: http://www.arb.ca.gov/msei/modeling.htm.

7. **Two-for-One Replacement Calculations**. Projects in which two old vehicles of similar design and function are replaced with one vehicle are eligible for Carl Moyer grant funding. The two baseline vehicles must be in the same weight class (LHD, MHD, or HHD) but may be in different weight classes if there is a 10 percent or less variation in GVWR. If the two baseline engines are not the same model year, the newest engine model year must be used when calculating emission reductions. The maximum State funding amount must also be funded according to the lighter weight class of the two vehicles. The replacement vehicle's annual usage must be determined by adding the annual usage of both baseline vehicles together. The maximum annual usage that can count toward grant determinations for the two baseline vehicles is 30,000 miles each for a maximum total annual usage of 60,000 miles for the replacement vehicle. The replacement vehicle is eligible for only one grant based on the combined usage of the baseline vehicles.

8. **Expenses Eligible for Funding**. Moyer grant funding can only be used to pay for items essential to the operation of the vehicle. Electronic monitoring units – while they are not required by ARB – are an eligible expense if they are required by an air district. For replacements, eligible project costs include the cost of the cab and chassis including parts that are integrated into the vehicle. The cab and chassis cost may include but is not limited to the following:

(A) The capital cost of the cab.

(B) The capital cost of the chassis which may include but is not limited to:

(1) Engine

(2) Transmission

(3) Suspension system

(4) Steering system

(5) Frame

(6) Electrical system

(7) Cooling System

(8) Fuel system

(9) Emission system

C. Project Criteria

1. General Criteria

(A) Fleet Size: All fleet sizes are eligible for funding. The following criteria must be followed for each group:

(1) Fleet Size 1-10: To ensure smaller fleets have significant funding opportunities, districts must reserve or prioritize funding for smaller fleets and should do so in a manner that works best with their programs. For example, districts that issue on-road solicitations may review applications from smaller fleets first and award those fleets that are eligible prior to awarding fleets with more than 10 vehicles. Districts that fund projects on a first-come, first-served basis may modify or remove the reserve to meet liquidation deadlines and demand after smaller fleets have had a certain amount of time to apply for funding as specified in the district's Policies and Procedures. Reserve funds may be used for school bus projects at any time.

(2) Fleet Size > 10: Fleets with greater than 10 vehicles must select optional low NOx or zero emission technologies except for certain operating vocations and locations defined in the Statewide Truck and Bus Regulation (i.e., school buses, log trucks, low mileage work trucks, agricultural vehicles, and NOx Exempt Areas).

(B) Weight Class Range:

(1) The replacement vehicle must be in the same weight class as the existing vehicle (either LHD, MHD, or HHD as defined in Appendix

B). An MHD vehicle can replace an HHD vehicle if they both have the same axle configuration (e.g. an existing HHD vehicle with two axles can be replaced with an MHD vehicle with two axles) but the funding amount must be at the MHD funding level.

(2) On-road heavy-duty (HD) vehicles (with GVWR over 14,000 pounds) must be powered by an engine certified to the applicable HD intended service class as shown on the engine certification Executive Order. However, the following cases may be allowed:

a. Medium heavy-duty (MHD) engines may be installed in heavy heavy-duty (HHD) vehicles with GVWR up to 36,300 pounds (10 percent higher than 33,000 pounds GVWR) with written warranty verification by the engine and chassis manufacturer. A copy of the written warranty verification must be maintained in the air district project file.

b. Heavy heavy-duty (HHD) engines may be installed in medium heavy-duty vehicles if necessary for vocational purposes but only if the GVWR are within 10 percent of the HHD intended service class (i.e., GVWR of 29,701 pounds or greater).

(C) At least 51 percent total annual usage must occur in California. Only usage in California can be used for on-road calculations.

(D) Compliance Check:

(1) Before contract execution, participants must be pre-screened for regulatory compliance, outstanding violations, open cases and previous project funding by supplying to the district the registered owner's name, company name or Doing Business As (DBA), address, Vehicle Identification Number (VIN) of the vehicle being replaced/repowered/converted, and TRUCRS ID or Drayage Truck Registry (DTR) number, if applicable. VINs of vehicles not subject to in-use diesel rules, such as CNG vehicles, need not be submitted, but every vehicle in the fleet needs to be in compliance and have no outstanding violations in order to receive funding. The district need not validate this information and will not be held liable if participants falsify this information. The district shall email this information to its ARB district liaison.

a. Vehicles Subject to the Statewide Truck and Bus Regulation:

i. The fleet owner is required to report in TRUCRS. The owner must also provide the district with the following:

ii. A copy of the TRUCRS Fleet List located on the Vehicle Info tab showing the compliance option each vehicle in the fleet is using, and

iii. A copy of the TRUCRS General Fleet and Compliance Information Summary showing compliance located on Compliance Status tab ("Meets Small Fleet Option" will specify "yes" if the fleet is using the Small Fleet option); and

iv. A copy of the Compliance Certificate printed from TRUCRS.

b. For Vehicles subject to the Drayage Truck Regulation, a copy of the DTR Compliance Search Page printout showing VIN and compliance status.

c. Vehicles Subject to Other On-Road Regulations:

i. Fleet information must be submitted by the district to the ARB district liaison to check compliance with other regulations such as the Public Agency and Utility Regulation, when applicable. The fleet information needed for the compliance check may change with time.

ii. To receive funding, a fleet owner/operator must be compliant with all federal, state, and local air quality rules and regulations including the Periodic Smoke Inspection Program (PSIP). The application must include a statement of compliance in which the applicant must certify that they are in compliance at the time of application submittal. Districts must also include the following language with a checkbox for the fleet owner/operator to indicate compliance:

I have read and understand that I am responsible for meeting the requirements of the PSIP. I am either currently in compliance with PSIP requirements or I have paid all penalties for non-compliance and continue to meet requirements since payment.

d. A regulation index for statewide on-road regulations is available at http://www.arb.ca.gov/msprog/truckstop/azregs/azregs.htm

(2) The liaison will email the air district the result of the compliance check within 10 business days. All compliance check documentation must be kept in the project file.

(3) If the vehicle has already received funding and is still under contract, the air district will be notified and the project must be rejected.

(4) If there is an open case or outstanding violation, or if the fleet is not in compliance, the air district shall inform the participant in writing that no disbursement may be made until the owner provides proof that the fleet has been brought into compliance and all fines have been paid. If the outstanding violation is based on problems with the baseline engine (e.g., gross polluter), then the violation must be cleared. The engine owner must pay the fine for each violation and submit documentation of violation correction with, or before submitting, the invoice.

(5) *Compliance Check Tool*: A compliance check tool for the Truck and Bus Regulation is available on ARB's website located at: https://www.arb.ca.gov/msprog/onrdiesel/tblookup.php To help with the initial review, districts may check current compliance status by entering any part of the company name, TRUCRS ID, or Motor Carrier Number in the search field. Only fleets that have confirmed compliance requirements and printed their certificate will be listed. Applicants must still meet the requirements in Section C.1.(D)(1)a.

(6) Other compliance tools issued by ARB may be used to meet the requirements of Section C.1.(D)(1) as they become available and are approved for use for the Moyer Program.

(E) Emission Reduction Technologies: Emission reduction technologies must be certified or verified by the California Air Resources Board (ARB) and must comply with durability and warranty requirements. A technology granted a conditional certification or verification by ARB is considered certified or verified.

(F) Obtaining Financing: The participant may obtain financing to assist in the purchase of the emission reduction technology.

(G) Equipment Leasing is Not Allowed: If financing is necessary, the equipment purchase must be financed with a conventional purchase loan.

(H) Surplus requirements are determined by the regulation to which a project is subject. Any vehicle with an off-road engine that is subject to an on-road regulation must also comply with the on-road surplus requirements described in this chapter. For example, a yard truck with an off-road engine that is subject to the Statewide Truck and Bus Regulation must comply with all off-road eligibility and funding criteria described in Chapters 5, as well as all on-road surplus criteria described in this chapter.

(I) Engines operating under an extension not included in the applicable regulation, such as the Statewide Truck and Bus Regulation, or under

program advisory are not eligible. This includes extensions received under enforcement settlement agreements. Fleets with PM filter availability extensions and economic hardship extensions are eligible but PM reductions will not be funded. Fleet owners must submit documentation confirming extensions.

(J) The existing vehicle must be based in California as shown through vehicle registration. Air districts have the option to limit eligibility to applicants that reside within the district's air basin or operate their vehicles within specified air basins.

2. Project Categories and Applicable Project Types

(A) Heavy-Duty Trucks and Buses (Non-drayage)

(1) Eligibility: Heavy duty vehicles following the Engine Model Year Schedule or taking one of the Statewide Truck and Bus Regulation compliance options below as defined in the Statewide Truck and Bus Regulation, California Code of Regulations, title 13, section 2025(f), (g), (h), (i), (m) and (p) may apply for funding:

a. Small Fleet option
b. Low Mileage Work Truck option
c. PM Filter Phase-In option
d. Log Truck Phase-In option
e. NOx Exempt Area extension
f. Agricultural Vehicle extension

Other vehicles subject to the Statewide Truck and Bus Regulation such as heavy cranes and sweepers or other vehicles approved to use credits or extensions specified in the regulation may also be eligible.

(2) Replacement Projects: Most replacement projects using engines certified to the 0.20 g/bhp-hr NOx and 0.01 g/bhp-hr PM standard are executed through the Voucher Incentive Program, including two-for-one replacements. This includes on-road vehicles subject to the Truck and Bus Regulation that are replaced with newer vehicles equipped with diesel or alternative fueled engines meeting the current standards with a surplus funding period of one to three years. Voucher replacement projects are not eligible for case-by-case requests. All requirements must be met. If the district wishes to fund a replacement using criteria that does not meet voucher requirements such as having a longer project life or a minimum California usage of 51 or more percent, the project must be executed under this chapter through a contract.

(3) Repower and Conversion Projects: If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Other Project Types: Other project types may be eligible if approved through CBC and must be funded through contract.

(5) Surplus: Vehicles can have a filter compliance deadline that is less than one year from the post-inspection date as long as PM emission reductions are not funded. The 2010 standard compliance deadline must be at least one full year from when the replacement vehicle is delivered and post-inspected.

(6) Maximum State Funding Amounts: The maximum amount of state funding that can go toward the purchase of a replacement vehicle equipped with either a diesel or alternative fuel engine meeting 0.2 g/bhp-hr NOx and 0.01 g/bhp-hr PM standards is shown in Table 4-3. Maximum funding for Optional Low NOx and Zero-Emission replacements are shown in Tables 4-4 and 4-6.

(7) Log Truck Requirements: Log trucks using the Log Truck Phase-In option must have log bunks permanently attached at pre- and post-inspection. Vehicles taking the Log Truck Phase-In option are not eligible for two-for-one replacements as described in Section B.7.

(B) School Buses

(1) General Eligibility: School buses are eligible for Moyer Program funding if they meet the general program criteria in Section C.1, as well as additional criteria in this subsection.

(2) Eligible Applicants: Public school districts in California that own their own school buses are eligible for funding. Where a Joint Power Authority (JPA) has been formed by several public school districts and the JPA holds ownership of the school buses, then the JPA is also eligible for funding. School transportation contractors, non-profit agencies, private schools, and other private companies are not eligible to receive funding for school bus projects.

(3) Truck and Bus Regulation Compliance: School buses subject to the Truck and Bus Regulation are only eligible if they meet one of the following requirements:

a. The existing school bus must have an OEM diesel particulate filter (DPF) installed.

b. The existing school bus must be retrofitted with a DPF that reduces diesel PM emissions by at least 85 percent.

c. The existing school bus must be reported in TRUCRS under the Low-Use exemption.

d. The existing school bus must be reported in TRUCRS under the Extension for the Unavailability of Verified Diesel Emission Control Strategy (VDECS). This extension expires on January 1, 2018, at which point such school buses will no longer be eligible for Moyer Program funding.

(4) Used Vehicle Eligibility: Used school buses are not eligible as replacements. The replacement vehicle for any project must be new.

(5) Maximum State Funding Amounts: School bus projects have unique maximum grant amounts as summarized in Table 4-2, and also a unique cost-effectiveness limit of $276,230/ton. This cost-effectiveness limit allows for funding amounts consistent with the Lower-Emission School Bus Program (LESBP) funding caps based on average school bus operating usage as determined by a limited number of previously-funded Moyer school bus projects. Individual vehicle usage that falls below the average may result in lower funding amounts.

(6) Calculating Emissions: Zero-emission school bus projects (including replacements, repowers, and electric conversions) are eligible for NOx, ROG, and PM emission reductions. All other school bus projects are eligible only for NOx and ROG emission reductions.

(7) Engine Intended Service Class: The weight class range for school buses is determined as in Section C.1.(B), but in cases where the Executive Order of the baseline school bus engine does not list an intended service class, the intended service class of the engine shall be assumed to be MHD.

(8) California Highway Patrol (CHP) Safety Certification. All existing school buses must have a current CHP safety certification (CHP Form 292) at the time funding is awarded for the project (i.e., the school bus may not have a lapsed CHP safety certification), and it must be currently registered with the Department of Motor Vehicles.

(9) School Bus Electric Conversion Projects. The baseline vehicle chassis must be ten years old or newer. CHP requires engineering plans, certified by a California licensed engineer, to be able to safety certify the school bus. All-electric school bus conversions using technologies that have already been demonstrated on school buses and that have engineering plans are eligible for funding through the CBC process.

(C) Transit Vehicles (Urban Buses and Transit Fleet Vehicles)

(1) Eligibility. Transit vehicles that have achieved compliance with all applicable regulatory requirements are eligible for surplus emission reduction funding. New regulation requirements may affect surplus and funding amounts in the future.

(2) Replacement Projects: A replacement engine for a replacement vehicle project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner.

(3) Repower and Conversion Projects: A replacement engine for a repower project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner. If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not required. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing must be completed as described in Section A.1.(B). Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Maximum State Funding Amounts: The Federal Transit Administration (FTA) provides up to an 80 percent grant (Federal funding) for new urban bus purchases and repowers. Maximum state funding for transit projects has been specified to account for greater access to other funding resources. Funding caps for various project types are shown in Tables 4-4 through 4-6. If the Moyer grant is used to co-fund an eligible project, the sum of all grants funds received cannot exceed the total project cost. Additional criteria on co-funding projects with a Carl Moyer grant can be found in Chapter 3, Section L.

(5) Applicable Emission Factors: Emission Factor tables for transit urban buses are included in Appendix D as Tables D-3 and D-4. Other transit fleet vehicles such as shuttle buses must use the MHD or HHD emission factor tables, Tables D-1 and D-2. Cost-effectiveness calculations for transit urban buses do not include

deterioration since those fleets are generally well-maintained per EMFAC 2014. Deterioration must also not be included in the cost-effectiveness calculations for other transit vehicles.

(6) Calculating Emission Reductions: Cost-effectiveness calculations can only include emission reductions from the 2010 engine model year for a 12-year maximum project life. If the baseline engine model year is 2007 to 2009, calculations may include additional emission reductions from the baseline engine model year to the 2010 engine model year for a maximum of three years. No other additional emission reductions may be included. Only NOx and ROG surplus emission reductions can be funded. PM emission reductions may also be funded for zero emission projects.

(D) Drayage Trucks

(1) Eligibility: Drayage trucks as defined in California Code of Regulations, title 13, section 2027(c)(15), are eligible for Moyer Program funding for up to one year before the applicable compliance deadline.

(2) Existing Engine: The baseline engine must be 2007 or newer. Beginning on January 1, 2023, drayage trucks will be subject to the Statewide Truck and Bus Regulation and must be compliant to the regulation to be eligible for funding (i.e., baseline engine must be model year 2010 or newer). If the baseline truck is not currently used for drayage activities and the engine is older than 2007, the replacement truck will be added to the Drayage Truck Registry (DTR) as non-compliant for the contract term.

(3) Replacement Projects: Replacements may be funded through voucher or contract.

(4) Repower and Conversion Projects: If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(5) Calculating Emission Reductions: Only NOx and ROG emission reductions can be funded. PM emission reductions may be funded for zero emission projects.

(E) Solid Waste Collection Vehicles (SWCV such as transfer trucks; Refuse Trucks)

(1) Eligibility: SWCV fleets that have achieved compliance with the final SWCV Regulation (CCR, title 13, sections 2020-2021.2) deadline are eligible for funding. Solid waste transfer trucks and vehicles equipped with 2007 and newer engines are subject to the Statewide Truck and Bus Regulation and surplus will be determined according to that regulation.

(2) Replacement Projects: A replacement engine for a replacement project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner.

(3) Repower and Conversion Projects: A replacement engine for a repower project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner. If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Applicable Emission Factors: Emission factor tables for refuse trucks are included in Appendix D as Tables D-5 and D-6. Transfer trucks use Tables D-1 and D-2.

(5) Calculating Emission Reductions: Only NOx and ROG emission reductions can be funded. PM emission reductions may be funded for zero emission projects.

(F) Emergency Vehicles

(1) Eligible Vehicles: Authorized emergency vehicles as described in the California Vehicle Code 165 including, but not limited to fire apparatus, pumpers, ladder trucks, and water tenders. Other medium heavy-duty (MHD) or heavy heavy-duty (HHD) diesel authorized emergency vehicles, such as prisoner buses, are also eligible for funding under this chapter.

(2) Replacement Projects: Eligible projects are those in which a new or used replacement vehicle with an engine meeting the current model year California emission standard replaces an older, more polluting equipment or vehicle. The older, replaced vehicle must be destroyed. A fire truck reuse option is also available on a case-by-

case basis. The fire truck reuse option allows fire departments to give away the existing old vehicle and destroy another older vehicle in its place.

(3) Eligible Costs: Eligible project costs include those parts specified in Section B.8. but excludes parts that are not bolted on and movable, such as the tank on the water tender. In addition, the following costs are eligible:

a. Tax and transport for eligible parts or costs.

b. Labor for installation of or modification to parts eligible for funding.

(G) Case-By-Case (CBC) Projects

(1) On-road heavy-duty diesel vehicles with GVWR of 8,501-14,000 pounds may be considered for Moyer Program funding on a case-by-case basis.

(2) Retrofits

a. Only projects that reduce NOx emissions, including alternative fuel retrofit systems, are eligible for funding. The retrofit must be certified or verified by ARB to reduce NOx by at least 15 percent and reduce emissions to the optional low NOx 0.02 g/bhp-hr NOx standard or cleaner. If the baseline engine does not meet 0.01 g/bhp-hr PM standards, the retrofit must also reduce emissions by at least 85 percent (verified Level 3).

b. The maximum state funding amount for retrofit projects is $20,000.

(3) TRUs: Transport refrigeration unit projects are eligible for limited funding opportunities, but emission benefits are generally low because many older TRUs have already been replaced to meet regulatory requirements.

a. Funding opportunities may exist for zero emission replacement projects only.

b. Alternative technologies such as electric standby and pure cryogenic systems are not required to be verified, but ARB must review and approve such systems in writing on a case-by-case basis.

c. The participant shall install an hour-meter or other means to measure usage on the TRU to track operating hours, and shall provide this information to ARB or the air district upon request.

d. The maximum state funding percentage is 50 percent.

(4) APUs: Limited funding will be available for auxiliary power units and only for projects approved through CBC. APUs are subject to the Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, California Code of Regulations, title 13, section 2485.

(5) Cost-effectiveness calculations for projects with power take-off (PTO) will be considered by ARB on a case-by-case basis. Hours of PTO operation must be documented through hour meter records or data from the emission control module.

(6) CBC projects must receive approval from ARB prior to contract execution. These projects must follow the requirements as described in Chapter 3, Section U.

3. Participant Requirements

(A) Ownership: The participant must currently be the sole owner of the existing vehicle, documented through a copy of the existing vehicle title. The title must show no active lienholders. The title need not be a California title. In addition, the participant must have owned and operated the vehicle the previous 24 months. If the title does not show sole ownership for the previous 24 months, the applicant must be listed as one of the owners or shown as a registered owner on registration documentation for the previous 24 months. If the existing vehicle title is not available, then all three of the following must be used as alternative documentation until a duplicate title is received from the California Department of Motor Vehicles (DMV): 1) a copy of the current and valid vehicle registration, 2) a copy of the DMV Vehicle Registration Record (printout), and 3) a copy of the DMV receipt for duplicate title request. A copy of the duplicate title must be received by the air district before contract execution. If it is unclear whether a vehicle is owned or leased by a participant, the air district will determine whether the vehicle is eligible.

(B) Usage documentation and self-certification for CA minimum usage: Covering each 12-month period for the previous 24 months, the participant must:

(1) Submit conclusive documentation (logbooks, maintenance records, tax records, etc.) of annual miles traveled in California, and

(2) Certify that at least 51 percent of total usage has been in California.

(C) Military service provision: If an applicant has been on active military duty at any time during the previous 24 months, documentation prior to deployment and covering the same length of time as the deployment period may be used to meet the title, registration, usage, and operation in California requirements as described in Sections C.3.(A)-(B) and C.4.(C). The applicant must submit a copy of DD Form 214, Certificate of Release or Discharge from Active Duty to verify military service during the deployment period.

(D) Participants may only apply to one district at a time for each project.

(E) Participants must submit an application for funding consideration.

(F) Participants must provide the district with the full contact information of the seller/dealer of the replacement vehicle, or the business that performs the conversion or repower.

(G) The participant must be the sole registered owner of the replacement engine or vehicle for the duration of the contract term. Throughout the contract term (project life), the participant must annually:

(1) Provide registration and proof of insurance to the air district.

(2) Provide reports that include items specified by the air district which may include miles driven in the air district and in California, and details regarding maintenance and servicing.

(3) Operate the engine/vehicle within California for at least the percentage of time specified in the contract.

(H) Report accident or loss of vehicle: If the replacement engine/vehicle is in an accident or is stolen, the accident or theft must be reported to the district within 10 business days. The participant must provide the police report, a letter from the insurance company regarding the accident or theft, and other information requested by the district. The participant must repair the vehicle and return it to operation, if possible. If the vehicle is totaled, the participant and the air district staff must come to an agreement regarding any requirements that still need to be met. If the participant will continue the business, efforts should be made to obtain a substitute vehicle that can take over the terms of the contract. The substitute vehicle must be at least as clean as the original Moyer funded vehicle, be in the same weight class, and cannot have more miles than would have accumulated based on the mileage used to determine the funding amount or no more than 600,000 miles for HHD vehicles, 350,000 miles for MHD vehicles, and 250,000 miles for LHD vehicles.

(I) Any change of ownership, change in registration status, or change of mailing address during the contract term must be reported to the air district within 10 business days.

4. Existing Engine and Vehicle Requirements

(A) The existing vehicle must currently operate on diesel fuel or alternative fuel such as compressed natural gas.

(B) The existing vehicle must have an engine of model year 2010 or older, except if it is a school bus or log truck which may be powered by an engine of any model year. The maximum chassis age for all-electric conversions must be no more than 10 years old.

(C) The existing vehicle must either be: 1) currently registered and have been registered in California for the past 24 months supported by documentation showing no lapses (except for seasonal vehicles and those eligible under the military service provision); or 2) must have been registered in California for the previous eight (8) consecutive months with supporting documentation supplemented by alternate documentation showing California operation for the past twenty-four (24) months. California International Registration Plan (IRP) documents are acceptable. Out of state IRP or registration is not eligible. The existing vehicle must be based in California.

(D) If the existing vehicle operates seasonally, then the existing vehicle may be eligible to participate if it has been registered in California for three (3) to six (6) continuous months per twelve (12) month period for the previous twenty four (24) months. DMV partial year registration documentation for each period the vehicle was registered must be included with the application.

(E) The participant must provide proof of insurance for the old vehicle for the previous 24 months.

(F) The existing vehicle must meet the criteria for either an LHD vehicle, MHD vehicle, or an HHD vehicle, as defined below:

(1) LHD vehicles must have a manufacturer GVWR of 14,001-19,500 pounds.

(2) MHD vehicles must have a manufacturer GVWR of 19,501 through 33,000 pounds.

(3) HHD vehicles must have a manufacturer GVWR of 33,001 pounds or greater.

(4) GVWR may be documented with a photo of the vehicle manufacturer tag or a copy of the manufacturer build sheet. Air districts may request ARB approval of alternate GVWR documentation on a case-by-case basis.

(G) Engine Verification:

(1) The district file must include a copy of the existing engine EO. If an EO is not available, the district may request approval of alternative documentation on a case-by-case basis.

(2) If the old vehicle engine tag is missing, then verification of the engine information can be satisfied with the engine serial number. The participant must provide verification of the engine make, model, model year, engine serial number, and horsepower from the manufacturer. The participant may also verify the horsepower with the results of a dynamometer test. The dynamometer test will take into account a 15 percent loss in actual horsepower, accounting for transmission loss. Verification can include a letter or a printout from an engine manufacturer or dealership. On a case-by-case basis, the Air Resources Board (ARB) may approve other means of obtaining the information.

(H) The existing vehicle must be in operational or roadworthy condition, as determined through a California Highway Patrol (CHP) Biennial Inspection of Terminals (BIT) or equivalent air district-approved inspection. If the air district does not conduct a pre-inspection, the following methods may be used:

(1) The vehicle owner may submit a completed CHP 90-Day Safety Inspection Form documenting an inspection that occurred within 90 days of the application date; or

(2) An air district approved contractor may conduct the inspection of the old vehicle and provide pictures verifying that the vehicle is in operational condition. The participant will pay the cost of the inspection.

(I) Glider Kits: Glider kits are replacement chassis and cabs for on-road heavy-duty vehicles. Glider kits are generally identified with a VIN starting with the letters “GL”. In situations where the model years of the glider kit vehicle’s chassis and engine differ, approval determination shall be made using the model year of the engine. Existing glider kit vehicles are eligible to participate but the replacement vehicle has to be a complete Original Equipment Manufacturer vehicle; i.e., the replacement vehicle cannot be a glider kit.

(J) Existing Vehicle Body Components: The body of the existing vehicle does not play a part in the participation in the program. Program funds can only be used to purchase the new vehicle, not external body components or parts used for a particular vocation (e.g., dump body). The common practice for vehicle owners to remove non-emission related body components from the existing vehicle and place them on the replacement vehicle is still permissible as long as the components do not exist on the replacement vehicle and are not a part of the paid components for the replacement vehicle.

(K) Operation of Existing Vehicle After Approval: If the existing vehicle is in an accident or has an engine failure AFTER receiving approval from the air district but prior to replacement, then the existing vehicle will still be eligible for receiving funds from the program as long as all other On-Road requirements have been met.

5. Replacement Engine and Vehicle Requirements

(A) Emission standards: Replacement vehicles with a 2013 model year or newer engine certified to a PM emission standard of 0.01 g/bhp-hr and a NOx family emission limit or NOx standard level of 0.2 g/bhp-hr or lower are eligible for funding (unless noted otherwise). New electric vehicles and non-combustion hybrid vehicles (e.g., electric vehicles powered by a hydrogen fuel cell) must have an ARB approval letter confirming the vehicle does not emit any vehicle exhaust emissions or fuel-based evaporative emissions. If the baseline engine model year is 2010, the replacement engine must be certified to a NOx standard level of 0.1 g/bhp-hr NOx or lower.

(B) Engine class: The engine's primary intended service class must match the replacement vehicle's weight class (i.e., an MHD diesel engine is used in a vehicle with a GVWR of 19,501- 33,000 pounds and an HHD diesel engine is used in a vehicle with a GVWR greater than 33,000 pounds). As an exception, an HHD engine may be installed in an MHD vehicle if necessary for vocational purposes, but only if the GVWR is within 10 percent of the engine's intended service class (i.e., GVWR of 29,701 pounds or greater). Also, an MHD engine may be installed in an HHD vehicle, but only if the GVWR is within 10 percent of the engine's intended service class (i.e., GVWR of 36,300 pounds or less).

(C) Mileage: A used HHD replacement vehicle must have less than 500,000 miles, a used MHD replacement vehicle must have less than 250,000 miles, and a used LHD replacement vehicle must have less than 150,000 miles with odometer verification to occur at the post inspection.

(D) All-Electric Range: Electric vehicles and hybrid vehicles (new or converted) must demonstrate an all-electric range of at least 35 miles.

Those with fast charge capability must demonstrate an all-electric range of at least 20 miles. If a vehicle is not certified to meet this range, it may only be approved for funding following ARB evaluation of demonstration test data verifying that minimum all-electric range requirements are met. If demonstration data has already been submitted to another ARB funding program and approved, demonstration requirements may be waived.

(E) Horsepower: The replacement engine horsepower must be no more than 25 percent greater than the existing engine horsepower. In limited situations, such as the non-availability of the original horsepower range for the specific application, the air district may approve a greater than 25 percent increase in horsepower.

(F) Weight Class: The replacement vehicle must be in the same weight class as the existing vehicle (either LHD, MHD, or HHD). An MHD vehicle can replace an HHD vehicle if they both have the same axle configuration (e.g. an existing HHD vehicle with two axles can be replaced with an MHD vehicle with two axles) but the funding amount must be at the MHD funding level.

(G) Body and Axle Configuration: The replacement vehicle must have the same axle and body configuration as the old vehicle. The air district may allow slight changes based on the latest technology. Changes must be requested and approved prior to the purchase of the replacement vehicle.

(H) Title: The replacement vehicle must have a clean title prior to purchase. The replacement vehicle must not have a salvage title and must not have been in an accident, repaired, and became available for resale.

(I) California Registration: The replacement vehicle must be registered in California or in the California IRP.

(J) The participant must maintain insurance coverage for the replaced/repowered/converted vehicle as required by law for the duration of the project life. The participant is encouraged to have replacement value insurance coverage to ensure complete repair or replacement in the event of major damage to the vehicle. If the vehicle is not repaired and replaced during the project life, the applicant must return prorated funds. See Section C.6.(I)(3).

(K) Warranty requirements: The following warranty requirements apply:

(1) Except for school buses, hybrids, and zero-emission vehicles, all participants must purchase a minimum of a one-year or 100,000-mile major component engine warranty for the replacement new or used vehicle or repowered engine. The warranty must cover parts and labor. If the purchase of a new or used replacement vehicle already includes a minimum one year or 100,000 mile warranty as

specified above, a separate supplemental warranty is not required. However, it is recommended that the highest grade warranty be purchased in order to avoid expensive repairs in the future.

(2) Electric vehicles, hybrid vehicles, and conversion systems must have a minimum warranty period of 3 years or 50,000 miles. The warranty must cover the engine (if applicable) or motor, drivetrain, battery or energy storage, and parts and labor (including any part on the converted vehicle or engine that is damaged by the hybrid conversion system).

(3) For school buses, the vendor warranty must provide protection for a minimum of 60 months or 75,000 miles, whichever comes first, and provide full warranty coverage of, at a minimum, zero-emission or all-electric motor, drive train, batteries/energy storage system(s), parts and labor. Warranties must be fully transferrable to subsequent school bus purchasers for the full warranty coverage period. Warranties must cover the following for the full warranty period (unless otherwise denoted):

a. Extended Motor, Drivetrain (including Battery), and Zero-Emission Components: Provide warranty coverage against defects in material and workmanship for the motor, transmission, rear axle, and electric or zero-emission system components including the battery. Gaskets and seals are not required to be included under the warranty coverage.

b. Frame Rails, Cross Members, and Cab: For new school buses, coverage extends to structural cracks in the frame caused by defects in material workmanship and against corrosion perforation of the cab. For school bus conversions, the all-electric school bus vendor is only responsible for damage or corrosion tied to, or resulting from, their workmanship on, or handling of, these parts.

c. Battery Degradation Warranty: Provide warranty coverage against battery degradation below 80 percent of capacity.

(4) No Moyer Program funds will be issued for maintenance or repairs related to the operation of the vehicle. The participant takes sole responsibility for ensuring that the vehicle is in operational condition throughout the agreement period.

(L) Engine and Emission Control Modifications: Emission controls on the replacement vehicle engine cannot be modified except as permitted by law. Unauthorized modification to engine performance including, but not limited to, changes in horsepower, emission characteristics, engine

emission components (not including repairs with like-original equipment manufacturers replacement parts), and modifications to the engine's emission control function or the electronic monitoring unit are not allowed.

(M) Service: At least one California service provider approved by the manufacturer must be available to repair and service the engine/vehicle.

6. District Requirements

(A) Requirements described in Chapter 3: Program Administration must be met unless otherwise stated in this chapter.

(B) Air districts must include the on-road category as a funding option in the air district's Moyer Program Policies and Procedures before funding on-road projects. The Policies and Procedures must include the administrative tools that are needed to manage on-road projects, including memorandum of understandings (MOU) or agreements with vehicle dealerships/providers and dismantlers, reimbursement procedures, inspections, monitoring and enforcement, contract development, etc. Air districts are not required to submit the initial policies and procedures to ARB for approval, but it must be available upon request.

(C) Air districts may fund on-road projects through a regional program administered by one designated air district. The designated air district may be located within the region, or may be a large air district located outside the region.

(D) Air districts must have separate agreements or MOUs with vehicle dealerships and dismantlers that contain, at a minimum, the program requirements (including, but not limited to, the requirement that the dealer delivers the existing vehicle to a qualified dismantler within 60 calendar days of the date that the old vehicle was turned in to the dealer by the applicant) that are expected of each entity and the repercussions for non-compliance with the terms of the agreement or MOU for each entity. Certain applications and project types such as school bus replacements may not involve dealers in normal practice and are not required to have an MOU with dealers. However, an agreement or MOU will be required with the responsible parties to ensure the existing engine and/or vehicle in the repower, conversion, or replacement project is scrapped in accordance with program requirements. Districts that fund projects through both VIP and this chapter can have one agreement with each dealer and dismantler for both programs as long as the dealer and dismantler agree to follow requirements of each program. State funds must not be provided by the air district for any dismantler or material costs, including hazardous waste abatement fees, labor costs, fines, permits, or other charges resulting from destruction or disposal.

(E) Reimbursement: To ensure that an application package is complete, the following items must be included and complete prior to reimbursement:

(1) Signed and complete application and fully executed contract.

(2) Documentation showing that the existing vehicle is roadworthy. This includes documentation showing that the old vehicle has passed a CHP BIT inspection in the past 90 days or conduct an equivalent vehicle inspection and sign as appropriate. If documentation is provided by a dealership, the air district reserves the right to audit the dealership's record of inspection.

(3) Invoices of the purchase and all work performed. If work was performed on the replacement vehicle, the invoices must include all engine, transmission, engine horsepower derating, body and other work performed on the replacement vehicle.

(4) Digital photographs of the existing vehicle and the replacement vehicle or engine. If a contractor conducts any inspections, the air district will specify the required digital format. Reimbursement will not be processed until all photographs are received and verified by the air district. All photographs must be clear, and all VIN and engine serial numbers must be legible.

a. Photographs of the old vehicle must include the following views:

i. Right Side - hood down.
ii. Front - hood down.
iii. Left Side - hood down.
iv. Rear.
v. VIN Tag - inside vehicle or on frame rail.
vi. Engine Serial Number and Engine Information, if available (make, model year, engine family) - either tag or stamp on block.
vii. License plate.
viii. Left and right side of engine.

b. Photographs of the replacement engine or vehicle must include the following views:

i. At least one side of the vehicle.
ii. VIN Tag - inside vehicle or on frame rail.
iii. Engine Serial Number and Engine Information – tag (or primary motive power components).
iv. License plate.
v. Odometer Reading.
vi. Left and right side of engine.
vii. Modifications (if any).

(5) Dealer/Provider/Installer certification that the old engine and/or vehicle will be delivered to a qualified dismantler within 60 calendar days of receipt of the old engine or vehicle. The certification must include the make, model, year, vehicle identification number (VIN), engine make, engine serial number, and the date the engine or vehicle is expected to be delivered to the dismantler. The location of the dismantler yard where the engine/vehicle will be destroyed must also be provided.

(6) Documentation of replacement vehicle warranty and registration (if applicable).

(7) Proof of Project Financing: The financing package will enable the air district to determine the reimbursement costs that may be accrued in case the participant defaults on the contracted performance requirements. Proof of project financing can be a document showing the lender and the amount loaned, which at a minimum is a copy of the check given to the dealer equal to the portion of the project that was not Moyer Program funded. Proof of project financing is always required unless the grantee paid cash for the portion of the project that was not Moyer funded.

(8) For replacements, dealerships must possess pre-inspection documentation of the existing and replacement vehicles prior to releasing the replacement vehicle to the participant. If the district conducts the inspections, the dealership must receive approval from the district before releasing the replacement vehicle. Upon request of the air district, ARB may waive inspection requirements.

(9) Proof of sale after the application and all required documentation have been approved by the air district.

(10) Copy of Title of Existing Vehicle. For replacement projects, the title must be signed and dated by the applicant.

(F) A third party (e.g., engine dealer or distributor) may complete an application or part of an application on an owner's behalf only if the vehicle owner signs and agrees to the application. Applications must include a signature section for third parties. The third party signature section must include signature and date lines, and sections for the third party to disclose how much they are being paid, if anything, to complete the application and the source of funds used to pay them. To make the Moyer Program accessible to all potential applicants, including those that cannot afford to hire third party assistance, air districts are encouraged to provide assistance to applicants.

(G) Air districts must ensure the vehicle and engine are scrapped within 60 calendar days of the dismantler's receipt of the vehicle. This must be confirmed through post-inspection by the air district or an air district approved contractor. The destruction of the old vehicle and engine must be properly documented in accordance with the Moyer program requirements.

(H) Inspections: The following inspections must be performed for each funded engine/vehicle (exceptions are allowed for public fleets and transit agencies as specified in Chapter 3) as shown in Table 4-9:

Table 4-9
Required Inspections for On-Road Projects

Inspection Type	Purpose(s)	Timing
Pre-inspection	• Verify existing vehicle is in operational condition • Verify existing vehicle application information	After application is submitted to air district but prior to approving the application.
Post-inspection	• Verify replacement vehicle meets emission standard • Verify application information	Before replacement engine/vehicle is delivered, and prior to payment being issued.
Pre-dismantle inspection (Replacements Only)	• Verify existing vehicle is in operational condition and has not been stripped of parts (except those allowed in Section C.4.(J)) per Section C.7.(F) • Verify existing vehicle application information	• After existing truck is delivered to dealership before payment is issued. • Existing truck is at dealership location and must be delivered to dismantler within 60 days.
Dismantle inspection	• Verify engine destruction (see Section C. 8.(C)(4)) • Verify that frame rails are completely severed • Obtain copy of REG 42 form filed with DMV	• After engine and frame rail destruction. • Within 60 days after dismantler receipt. • If dismantler takes photos, they must be provided to the district within 10 business days of dismantling

Documentation requirements are specified in Chapter 3, Section W. and X. Air districts may enter into a contract, written agreement, or memorandum of understanding with a contractor to perform project inspections (pre-inspections, post-inspections, or dismantle inspections). If an air district chooses to use contractors to perform inspections, air district staff must conduct and document at least one inspection on each project without the use of a contractor. Air districts must ensure all inspection requirements are met and shall retain legal responsibility for full compliance with the inspection provisions of these Guidelines, regardless of the use of contractors. Air districts that do not conduct 100 percent of required inspections themselves must audit 5 percent of each type of inspection (pre, post, pre-dismantle, and dismantle). Audits should be done randomly and occur throughout the implementation timeline of the air district.

(I) Recovery of Moyer Grant Funds: The air district must establish a mechanism to assure the participants fulfill all contractual obligations, including owning and operating the funded vehicle for the project life. The air district will determine noticing requirements and the method to achieve fund recovery. Air districts may consider the following options:

(1) List the air district as co-lien holder on the title of the funded vehicle for the term of the agreement. The participant must submit a completed Uniform Commercial Code-1 Financing Statement Form to the California Secretary of State, with a copy sent to the air district, within 30 days of the project sale. The financing statement must have the air district as the secured party and the vehicle should be listed as collateral.

(2) If the funded vehicle is sold during the project life, the new owner must assume the obligations under the participant's contract with the air district and comply with the terms and conditions of the contract. The air district must approve the change in ownership prior to the sale.

(3) The grant recipient may return funds according to the following prorated formula:

$$\begin{aligned} Recapture\ Amount\ (\$) &= Funding\ Amount\ (\$) \\ &- \left(Elapsed\ Portion\ of\ Project\ Life\ (Yrs) \right. \\ &\left. * \frac{Funding\ Amount\ (\$)}{Project\ Life\ (Yrs)} \right) \end{aligned}$$

(J) Air districts and ARB reserve the right to deny funding to applicants that have previously received funds and did not meet the terms and conditions of the funding agreement.

(K) Projects may be reviewed through a solicitation process or first-come, first-served as described in the district's Policies and Procedures.

(L) Districts must perform compliance checks (see section C.1.(D).

(M) Districts must provide training, as described in Section C.7.(A)(3) and C.8.(B)(2), and additional training in a timely manner whenever there have been substantive Moyer program revisions.

7. Dealership/Installer Requirements

(A) Dealerships and Installers must warrant that they meet the following minimum qualifications and will continue to meet these qualifications throughout participation in the Program:

(1) Dealership/Installer has had a valid business license issued in California for a minimum of the last two years.

(2) Dealership has had a valid vehicle dealership license with DMV for a minimum of the last two years. The installer is authorized by the manufacturer.

(3) Dealership/Installer maintains a minimum of one employee that has successfully completed the training by the air district regarding terms, conditions and requirements of the Program. If a participating dealership maintains more than one location for truck sales, then each location must have at least one employee trained.

(4) Dealership/Installer agrees to allow the air district or ARB to inspect vehicles or audit program records covered under the agreement during normal business hours.

(B) Vehicle dealers must:

(1) Provide basic information to vehicle owners about the Moyer Program.

(2) Help participants complete the application, if necessary. It is important to make sure that all information is filled out correctly and that the participant understands the meaning of the program and the contract. Once complete, the dealer may submit the application package to the air district according to the agreement or MOU.

(C) Dealerships and installers must adhere to agreement or MOUs established with the air district.

(D) Dealerships and installers must submit all supporting documentation required under the district agreement for each project. Once all dealership/installer requirements have been met, reimbursement will be issued to the dealer/installer according to the agreement or MOU, when applicable.

(E) Dealerships/installers must possess pre-inspection documentation of the existing and replacement engines/vehicles prior to releasing the replacement engine/vehicle to the participant. If the agreement or MOU specifies that the air district or other third party will perform any inspections, the dealership must receive air district approval before releasing the replacement engine/vehicle. Upon request of the air district, ARB may waive inspection requirements.

(F) For replacements, the dealership must ensure the existing vehicle is in similar condition as found in the pre-inspection. The dealer should reject the condition of the existing vehicle if it is deemed unroadworthy or if parts were stripped from the existing vehicle (except for parts essential to vocation that will be installed on the replacement vehicle). Reimbursement to the dealer or release of funds to the grantee will be withheld until the dealer (or air district) approves of the condition of the existing vehicle and it is delivered to the dealership.

(G) The dealer or installer must deliver the existing engine/vehicle to a qualified dismantler as specified in the agreement or MOU within 60 calendar days of delivering the replacement engine/vehicle to the grantee. The dealer or installer must immediately notify the air district of the location and date of delivery of the existing vehicle to the dismantler. The participating dismantler may also pick up the existing vehicle.

(H) Use of Engine or Vehicle Pending Destruction: The dealer/installer may not use or permit the use of, the engines or vehicles, except use necessary to move it for destruction or storage.

(I) For electric or hybrid vehicles (new or converted), the dealership/installer/manufacturer must provide the district with a copy of the owner's manual and other materials that will be provided to the purchaser/participant. The owner's manual and other materials must at least include the following information:

(1) A brief description of the vehicle/conversion system, including major components and their theory of operation and proper operating procedures;

(2) Battery maintenance best practices and charging procedures and protocols, if applicable;

(3) A listing of necessary service intervals and service requirements that differ from the base vehicle's or engine's original manufacturer's, if applicable;

(4) A statement that the hybrid converted vehicle is subject to all in-use vehicle inspection and maintenance programs applicable to its size, type, and class;

(5) The name, physical address, e-mail address, phone number, and website, if available, of the manufacturer and authorized installer, as well as a list of the names, addresses, and phone numbers of the major dealers who supply parts for, or service the vehicle;

(6) All information necessary for the proper and safe operation of the vehicle, including information on safe handling of the battery or energy storage system, and emergency procedures to follow in the event of battery leakage or other malfunctions that may affect the safety of the vehicle operator, emergency personnel, or laboratory personnel;

(7) The product warranty statement.

8. Dismantler Requirements

(A) If the existing engine or vehicle is replaced or removed, it must be dismantled. This requirement has been established to ensure that emission reductions are real, preventing the engine from continuing to emit high levels of pollutants. Destruction of the existing vehicle chassis and engine permanently removes the old, high emitting vehicle from service. The existing vehicle and engine specified in the application (or engine only for repower and conversion projects) must be dismantled, and may not be substituted with a different vehicle.

(B) To participate in the Program, dismantlers must:

(1) Enter into an agreement with the air district.

(2) Have at least one active employee who received training by the air district on the requirements of the Program. If a dismantler has more than one location, then the dismantler must have at least one active employee trained by the air district at each location that will be accepting engines/vehicles for the Program.

(3) Be licensed by DMV as an auto-dismantler for at least the previous two years.

(4) Have had a valid business license issued in California for a minimum of the last two years.

(5) Possess a current, valid California Environmental Protection Agency Hazardous Materials Generators Permit.

(6) Be in compliance with all local, state and federal laws and regulations.

(C) The dismantler must do the following for each engine/vehicle:

(1) Dismantle the old vehicle in accordance with program guidelines within 60 calendar days of receipt. Upon dismantler request, the air district may approve an extension.

(2) Destroy and render useless the existing vehicle and/or engine. At a minimum, the destruction must include the following:

a. Both frame rails must be completely severed between the front and rear axles.

b. A hole must be put in the engine block with a diameter of at least three inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles). A section of the oil pan flange must be removed as part of the hole or have a line cut through it that connects to the hole.

(3) If the vehicle is to be scrapped, the dismantler must completely sever the frame rails of the old vehicle to ensure that the vehicle will not be used again.

(4) Air district staff or the dismantler must take photographs of the destroyed engine and severed frame rails. Dismantler photographs of the destroyed engine block and severed frame rails must be provided to the air district within ten (10) business days of dismantling the vehicle. The following picture views must be taken:

a. Front, right, and left side of vehicle with hood down including license plate if available (vehicle scrap).

b. VIN tag (vehicle scrap).

c. Engine serial number either stamped on the block or on the tag (engine or vehicle scrap).

d. Left and right side of destroyed engine block either in-frame or out of frame (engine or vehicle scrap).

e. Hole in engine block (engine or vehicle scrap).

f. Completely severed frame rails (vehicle scrap).

g. Odometer Reading (vehicle scrap).

(5) Prepare and submit to DMV either a “Non-Repairable Vehicle Certificate” using an “Application for Salvage Certificate or Non-Repairable Vehicle Certificate” (REG 488C), or a Notice of Acquisition/Report of Vehicle To Be Dismantled (REG 42) ensuring the VIN can never be registered again in California. Within 90 calendar days of the dismantle inspection date, the dismantler must provide verification to the air district that the existing vehicle has been registered with DMV as non-revivable with a type transaction code (TTC) L10or C26on the DMV Reconciliation transaction receipt or other DMV documentation that satisfies this requirement.

(6) Upon request of the air district, ARB may approve an alternative disposition for the old engine/vehicle.

(D) As specified in California Code of Regulations, title 13, section 2706(i)(3)(G), no party shall advertise, sell , lease, or offer for sale or lease, a used verified diesel emission control strategy.

(E) Dismantler Inspection: Once the Air District is notified, a dismantler-inspection will be scheduled and photos documenting the destruction of the engine will be taken in accordance with the Guidelines. The dismantler shall not move the vehicle off of their property or part out a vehicle until a dismantler inspection by the Air District or a designated contractor has been performed and given approval by the Air district.

(F) Use of Engine or Vehicle Pending Destruction: The dismantler may not use or permit the use of, the engines or vehicles, except use necessary to move it for destruction or storage.

CHAPTER 5: OFF-ROAD HEAVY-DUTY EQUIPMENT

This chapter describes the minimum criteria and requirements for Moyer Program mobile, portable and stationary, off-road compression-ignition (CI or diesel), and large spark-ignition (LSI) projects such as construction, agricultural, and industrial equipment. Air districts may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The following off-road equipment projects may be eligible for funding.

1. **Repower of Existing Equipment**. The replacement of the existing engine with a newer emission-certified engine instead of rebuilding the existing engine to its original specifications.

2. **Retrofit Purchase**. The installation of an ARB-verified emission control system on an existing engine. Examples include, but are not limited to particulate filters and diesel oxidation catalysts.

3. **Equipment Replacement**. The purchase of new or used equipment with an engine certified to the current emission standard or Tier to replace an older, fully functional piece of equipment that is to be scrapped.

4. **Infrastructure**. See the infrastructure chapter (Chapter 10) for details regarding applicant eligibility and project types for infrastructure in support of off-road equipment. This includes infrastructure such as alternative fuel and charging stations for construction, cargo handling, and ground support equipment, as well as agricultural pump electrification.

Please see Sections C and D for determining maximum grant amounts and minimum eligibility requirements for all off-road project categories.

B. Engine Emission Standards

ARB and the United States Environmental Protection Agency (U.S. EPA) have adopted regulations for exhaust emission standards for new off-road CI and LSI engines and equipment. For reference, Tables 5-1 and 5-2 below summarize the hydrocarbon (HC), oxides of nitrogen (NOx), and particulate matter (PM) standards in grams per brake-horsepower-hour (g/bhp-hr) for off-road CI Tier 1, 2, 3, and 4 engines. The actual standards, in grams per kilowatt-hour (g/kW-hr), may be found in the California Code of Regulations (CCR), title 13, sections 2449, et seq. Table 5-3 summarizes the exhaust emission standards for LSI engines. The complete emission standards for LSI engines may be found in title 13, CCR, section 2430, et seq.

Table 5-1
ARB and U.S. EPA Tier 1, 2, and 3 Exhaust Emission Standards for New Off-Road Diesel Engines ≥ 25 Horsepower (hp)
(g/bhp-hr)

Maximum Rated Power hp (kW)	Tier	Model Year	NOx	HC	NOx + NMHC	PM
25≤hp<50 (19≤kW<37)	Tier 1	1999-2003[a]	—	—	7.1	0.60
	Tier 2	2004-2007	—	—	5.6	0.45
50≤hp<75 (37≤kW<56)	Tier 1	1998-2003[a]	6.9	—	—	—
	Tier 2	2004-2007	—	—	5.6	0.30
	Tier 3[b]	2008-2011	—	—	3.5	0.30
75≤hp<100 (56≤kW<75)	Tier 1	1998-2003[a]	6.9	—	—	—
	Tier 2	2004-2007	—	—	5.6	0.30
	Tier 3	2008-2011	—	—	3.5	0.30
100≤hp<175 (75≤kW<130)	Tier 1	1997-2002[a]	6.9	—	—	—
	Tier 2	2003-2006	—	—	4.9	0.22
	Tier 3	2007-2011	—	—	3.0	0.22
175≤hp<300 (130≤kW<225)	Tier 1	1996-2002	6.9	1.0	—	0.40
	Tier 2	2003-2005	—	—	4.9	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
300≤hp<600 (225≤kW<450)	Tier 1	1996-2000	6.9	1.0	—	0.40
	Tier 2	2001-2005	—	—	4.8	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
600≤hp≤750 (450≤kW≤560)	Tier 1	1996-2001	6.9	1.0	—	0.40
	Tier 2	2002-2005	—	—	4.8	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
hp>750 (kW>560)	Tier 1	2000-2005	6.9	1.0	—	0.40
	Tier 2	2006-2010	—	—	4.8	0.15

[a] EPA model year. ARB model year for Tier 1 starts at 2000 for 25 hp ≤ to <175 hp.
[b] Engine families in this power category may meet the Tier 3 PM standard instead of the Tier 4 interim PM standard in exchange for introducing the final Tier 4 PM standard in 2012.
[c] Caterpillar, Cummins, Detroit Diesel Corporation, and Volvo Truck Corporation agreed to comply with these standards by 2005.

Table 5-2
ARB and U.S. EPA Tier 4 Exhaust Emission Standards for New Off-Road Diesel Engines ≥ 25 hp (g/bhp-hr)

Maximum Rated Power hp (kW)	Tier	Model Year	NOx	HC	NOx + NMHC	PM
25≤hp<50 (19≤kW<37)	Tier 4 Interim	2008-2012	—	—	5.6	0.22
	Tier 4 Final	2013 and later	—	—	3.5	0.02
50≤hp<75 (37≤kW<56)	Tier 4 Interim[a]	2008-2012	—	—	3.5	0.22
	Tier 4 Final	2013 and later	—	—	3.5	0.02
75≤hp<100 (56≤kW<75)	Tier 4 Phase-In	2012-2014	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.5	0.01
	Tier 4 Alternate NOx[b]		2.5	0.14	—	0.01
	Tier 4 Final	2015 and later	0.30	0.14	—	0.01
100≤hp<175 (75≤kW<130)	Tier 4 Phase-In	2012-2014	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.0	0.01
	Tier 4 Alternate NOx[b]		2.5	0.14	—	0.01
	Tier 4 Final	2015 and later	0.30	0.14	—	0.01
175≤hp<750 (130≤kW<560)	Tier 4 Phase-In	2011-2013	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.0	0.01
	Tier 4 Alternate NOx[b]		1.5	0.14	—	0.01
	Tier 4 Final	2014 and later	0.30	0.14	—	0.01
hp>750 (kW>560)	Tier 4 Interim	2011-2014	2.6	0.30	—	0.07
	Tier 4 Final	2015 and later	2.6	0.14	—	0.03

[a] Engine families in this power category may meet the Tier 3 PM standard instead of the Tier 4 interim PM standard in exchange for introducing the final Tier 4 PM standard in 2012.
[b] The implementation schedule shown is the three-year alternate NOx approach. Other schedules are available.

Table 5-3
Exhaust Emission Standards for
New Off-Road LSI Engines >1.0 liter
grams per brake horsepower-hour (g/bhp-hr)

Model Year	NOx+ Non-Methane Hydrocarbons (NMHC)
2001-2006[1]	3.0
2007-2009	2.0
2010 and later	0.6

[1] Standards phased in from 2001 – 2004

C. Maximum Eligible Funding Amounts (Determining Grant Amounts)

1. Table 5-4 summarizes the maximum eligible funding for each project type as a percentage. All projects are also subject to the cost-effectiveness limits specified in Appendix C.

Table 5-4
Maximum Percentage Eligible for
Moyer Program Off-Road Projects

Project	Maximum Percentage Eligible
Diesel repower, LSI repower, repower to zero-emission	85%
Mobile and portable (excludes stationary) equipment replacement	80% of total equipment purchase costs
Retrofit	100%

The ARB has adopted in-use fleet rules affecting equipment with off-road CI and off-road LSI engines. For equipment subject to these rules, additional limitations may apply according to Sections E through I.

2. Project Life:

(A) Maximum project life

Table 5-5
Maximum Project Life

Type		Project Life
Repower only (no retrofit)		7 years
Farm equipment[1] (all projects)		10 years[1]
Replacement and repower to zero-emission		10 years[2]
Retrofit only		5 years
Replacement	Excavators Skid steer loaders Rough terrain forklifts	3 years
	All other non-farm (existing diesel only)	5 years
	All other non-farm (existing LSI only)	3 years

[1]Air districts are required to offer a 10 year project life for farm equipment; however, applicants may request a project life less than 10 years. Farm equipment is defined in Appendix B and does not include stationary agricultural equipment.
[2]Section C.2.(E) allows a maximum project life of 10 years for zero-emission replacements.

(B) The maximum project life does not consider regulatory requirements that may shorten the eligible project life. Regulatory requirements may reduce actual project lives below these maximum values.

(C) Unless otherwise stated in this chapter (see Sections D.2.(I) and E.2.(H)(1)), the minimum project life allowed is three years.

(D) In accordance with SBx2_3 (H&SC § 44282.5(a)), mobile and portable farm equipment may be eligible for funding up to the compliance date of an applicable in-use regulation and a 10-year project life. In order to be eligible, farm equipment projects must be under a fully executed contract, and must be installed in the equipment and in operation prior to the applicable compliance date.

(E) For zero-emission replacement equipment, Senate Bill 467 (H&SC § 44287.1) allows the replacement of off-road internal combustion equipment with zero-emission off-road equipment to incorporate the maximum life allowed of the equipment being scrapped (three to five years, as applicable per Section C.2.(A)) and the remaining useful life up to 10 years of the equipment the applicant would have bought at the time of normal attrition (five to seven years, as applicable). For zero-emission

replacement of off-road equipment, the emission benefits from two separate transactions may be included in the cost-effectiveness calculations:

(1) Emission reductions from existing older equipment, as applicable, to zero emission equipment.

(2) Emission reductions from a new piece of equipment meeting the emission standards at the time of purchase to zero emission.

2. **Usage**. Cost-effectiveness calculations must be hour-based. Calculation of funding amounts must be based on the average of at least the two most recent years of documented equipment usage. For projects in which the two most recent years of documented usage are not available, the minimum annual usage is required to be specified in the contract (Chapter 3, Section V.6.(B)). Fleet averages cannot be used. All project engines or equipment must have a fully operational hour meter for the project life. If during the project life the hour meter fails for any reason, the hour meter must be repaired or replaced as soon as possible at the owner's expense.

D. Project Criteria

The minimum qualifications for off-road projects are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

1. **General Criteria:**

(A) New and existing CI and LSI engines greater than or equal to 25 horsepower on mobile or portable off-road equipment and stationary agricultural equipment are eligible for funding. LSI engines above 25 horsepower but with a displacement of less than or equal to one liter may be eligible for funding on a case by case basis.

(B) Air districts have discretion to use good engineering judgment to determine project horsepower for an existing or new engine or equipment based on the engine label, manual, engine records, or other verifiable records.

(C) For existing equipment in which the actual engine horsepower cannot be determined based upon the engine label, manual, and engine records, districts may determine existing engine horsepower by the following formula: Engine horsepower = Power Take Off (PTO) x 120 percent.

(D) Future annual hours of equipment operation for determining emission reductions must be based upon readings from an installed and fully operational hour meter.

(E) The certification emission standard and/or Tier designation for the existing engine (if applicable) and the new engine must be determined from the ARB Executive Order or U.S. EPA Certificate of Conformity (for federally preempted engines) issued for that engine. ARB Executive Orders for off-road engines may be found at http://www.arb.ca.gov/msprog/offroad/cert/cert.php.

(F) For existing equipment with engines manufactured under the flexibility provision, detailed in CCR, title 13, section 2423(d), the baseline emission rates shall be determined by using the previous applicable Tier emission standard for the existing engine model year and horsepower rating. Alternatively, the baseline emission rates may be determined based upon the standard or Tier associated with the actual reference family listed on the emission control information label of the existing equipment. The ARB Executive Order for these engines indicates that the engines are certified under the flexibility provision. Air districts must retain this documentation in the project file.

(G) New engines that are participating in the "Tier 4 Early Introduction Incentive for Engine Manufacturers" program, as detailed in CCR, title 13, section 2423(b)(6), are eligible for funding provided that they are certified to the final Tier 4 emission standards. The ARB Executive Order for these engines indicates that the engines are certified under this provision. The emission rates for these engines used to determine cost-effectiveness shall be equivalent to the emission factors associated with Tier 3 engines. Air districts must retain this documentation in the project file.

(H) Notwithstanding Section D.1.(J) below, new engines certified to the interim Tier 4 (interim Tier 4, Tier 4 Phase-Out, Tier 4 Phase-in/Alternate NOx) and Tier 4 Final emission standards participating in the averaging, banking, and trading program that are certified to FEL higher than the applicable emission standards are eligible for funding. The appropriate emission factor for calculating emission reductions and cost-effectiveness shall be equivalent to the emission factors associated with the Tier 3 for engines 50 to 750 horsepower and Tier 2 for engines less than 50 horsepower or greater than 750 horsepower.

(I) Notwithstanding section D.1.(J) below, new engines certified to the interim Tier 4 and Tier 4 emission standards participating in the averaging, banking, and trading program that are certified to a FEL below the applicable emission standards are eligible for funding. The appropriate emission factor for calculating emission reductions and cost-effectiveness shall be the emission factor associated with the applicable interim Tier 4 (interim Tier 4, Tier 4 Phase-Out, Tier 4 Phase-in/Alternate NOx) or Tier 4 Final emission standard.

(J) New engines eligible for off-road projects must meet the current applicable standard or Tier. If repowering or replacing with an engine meeting the current applicable standard is technically infeasible, unsafe, or not available when the air district commits to the proposed project, the new engine must meet the most practicable previously applicable emission standard. For purposes of this section, the air district's commitment (as defined in Appendix B) to a proposed project shall be consistent with that stated in their policies and procedures manual. The air district shall determine eligibility of repower and replacement projects using an engine certified to a previous emission standard using the criteria listed below:

(1) At the applicant's request, confirmation of availability of an engine meeting the most recent emission standards or Tier may be limited to the same manufacturer as the existing engine.

(2) If the air district and the applicant do not execute a contract for the project within six months of project commitment, then the air district must recheck for the availability of engines meeting the current standard.

(3) Documentation that engines meeting the current applicable standards are unavailable must be included in the air district's project file. Acceptable documentation that engines meeting the most recent emission standards are unavailable include:

a. Verifiable information from the engine manufacturer, engine distributor, and/or engine dealer regarding the unavailability of engines meeting the current emission standards or Tier.

b. Confirmation (a written declaration by the air district is acceptable) that engines from a specific manufacturer meeting the current emission standards or Tier are not certified (Executive Order is not available on ARB website). Executive Orders for off-road engines may be found at http://www.arb.ca.gov/msprog/offroad/cert/cert.php.

c. For repower projects, a written statement of reason(s) provided by the engine manufacturer verifying that a particular piece of equipment cannot accommodate an engine meeting current standards without major modifications or safety risks. The letter must include information on the equipment being repowered, the engine being replaced, the reason why an engine meeting the currently applicable standard cannot be used (including applicable supporting documentation), and the proposed replacement engine. Air districts must retain the written statement of reasons in the project files.

d. For repower projects, the engine manufacturer has provided ARB with sufficient information on engine and/or equipment models for which repowers are available, and engine and/or equipment models for which repowers are not available or feasible. Engine manufacturers who are interested in pursuing this option should contact ARB. ARB staff will maintain a list of such engines and/or equipment models and make that list available to air district staff.

(K) Existing zero or low-emission equipment are required for worker safety in the following industries, and therefore these projects are not eligible for funding: food retail stores, cold storage, and confined space operations (such as freezers).

(L) The horsepower rating for the replacement engine must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the existing engine. In limited situations, such as where equipment in the original horsepower range is not available or the higher horsepower equipment will result in equal or lower annual emissions, the air district may approve a greater than 25 percent increase in horsepower.

(M) Notwithstanding D.1.(L), at an air district's discretion, new engines or equipment may be funded with horsepower greater than 125 percent of existing equipment. However, the eligible funding amount must be based upon the cost of an engine or equipment whose horsepower is no higher than 125 percent of the existing engine horsepower. The applicant must pay the additional costs associated with the higher horsepower engine, and the emission reduction calculation must be based upon the funded (higher horsepower) engine. The air district's project file must include documentation of the cost of the funded (higher horsepower) equipment as well as the method used to determine the basis for the project grant amount (e.g. dealership cost estimate of lower horsepower equipment).

(N) New electric motors and equipment that are rated less than 19 kW are eligible for funding provided it can serve the same function and perform the same work as equipment with a 25 horsepower or greater engine that it is replacing.

(O) No funds will be issued for maintenance or repairs related to the operation of the existing or new equipment. The participant takes sole responsibility for ensuring that the engine and/or equipment is/are in operational condition throughout the agreement period.

(P) Existing engines replaced as part of an off-road project must be destroyed and rendered useless. At a minimum, the destruction of an engine must include:

(1) A hole in the engine block with a diameter of at least three inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles) and

(2) A section of the oil pan flange must be removed as part of the hole or have a line cut through it that connects the hole.

(Q) For portable/stationary agricultural projects, state and air district rules impacting agricultural sources must be considered when determining whether projects provide emission reductions surplus to regulatory requirements. Moyer eligibility may be based on the requirements of the local rule if the local rule meets the requirements of Health and Safety Code section 39666(d). An air district requesting to have eligibility based on local rules must have its Air Pollution Control Officer self-certify via email or letter to their ARB Moyer liaison that the local rule is equally as effective as or more stringent than the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (CCR, title 17, section 93115 et. seq.). Note: The self-certification described in this section applies solely to the Moyer Program and does not relieve the district of their responsibilities under Health and Safety Code section 39666 or any other ARB program or requirement.

2. Repower

(A) New engines manufactured under the “Flexibility Provisions for Equipment Manufacturers” as detailed in CCR, title 13, section 2423(d), are ineligible for funding to repower equipment.

(B) New engines manufactured under the “replacement engine” provisions of CCR, title 13, section 2423(j) and/or the provisions of 40 CFR 1068.240 which are used to repower equipment are eligible for funding.

(C) For repower plus retrofit projects, the cost of data logging the replacement engine is not eligible. Please refer to Section D.3. for additional criteria.

(D) For repower projects with new off-road compression-ignition engines equipped with original engine manufacturer after treatment devices, addition of a retrofit is ineligible due to issues with engine warranty and anti-tampering provisions.

(E) Repower to convert to zero-emission technology is eligible for funding. Except for stationary agricultural equipment, zero-emission repower projects must include a three-year or 5,000-hour warranty. The warranty must cover zero-emission system parts and labor.

(F) Variable frequency devices (VFD) may be eligible for funding provided the air district reports VFD cost and serial number information in CARL.

(G) In stationary electric motor projects, the grantee must provide documentation of application or payment to the local utility company for power installation.

(H) An electric motor on an agricultural irrigation pump project that is under contract may be considered for invoice payment once the motor has been delivered to the project site, and the motor has been connected to the electricity grid.

(I) For portable/stationary agricultural projects, except for remotely located or less than 50 hp agricultural engines (as defined in Appendix B), only Tier 3 engines are eligible to be repowered. These must repower to Tier 4 final engines. Districts with a local rule may repower uncontrolled, Tier 1, and Tier 2 engines to Tier 4 final engines as long as there is at least one year of surplus emissions reductions prior to the compliance date of the local rule for the specific tier. The minimum project life in these instances is one year. When repowering a Tier 3 engine, air districts are encouraged to consider the feasibility of repowering with zero-emission technology, such as an electric motor, over a Tier 4 final engine.

3. Retrofit

(A) Existing off-road CI engines equipped with original engine manufacturer aftertreatment devices are ineligible for funding.

(B) The retrofit must be verified by ARB to the highest level available for the engine being retrofitted.

(C) Eligible project costs include:

(1) Retrofit system (including all essential components)

(2) Installation

(3) Maintenance (for duration of project life)

(4) Hour meter (if none existed on existing equipment)

(D) The data logging cost of a retrofit-only project is not eligible.

(E) Additional information on verified diesel retrofit systems may be found on ARB's website at http://www.arb.ca.gov/diesel/verdev/verdev.htm. Information on verified LSI retrofit systems may be found at: http://www.arb.ca.gov/msprog/offroad/orspark/verdev.htm.

4. Equipment Replacement

(A) Equipment replacement projects are limited to mobile and portable equipment.

(B) Equipment manufactured under the "Flexibility Provisions for Equipment Manufacturers" (Flex equipment), as detailed in CCR, title 13, section 2423(d) is eligible for funding as replacement equipment, provided the equipment meets the requirements of section D.1.(J) above.

(1) Eligible Flex equipment whose reference engine family is certified to an FEL is also subject to the provisions of Section D.1.(H) and (I).

(2) Flex equipment with an engine whose reference engine family meets a standard, Tier, or FEL less stringent than Tier 3 standard (or Tier 2 standard for engines less than 50 horsepower or greater than 750 horsepower), is ineligible for funding.

(C) The replacement of two (or more) pieces of existing equipment with one piece of replacement equipment is eligible for funding. Each piece of existing and replacement equipment must comply with all of the appropriate criteria in this section. The replacement equipment must execute the same job as the existing pieces of equipment. For baseline emissions calculation, the annual emissions of the two pieces of existing equipment are summed. For the replacement equipment emissions calculation, the annual usage of the two pieces of existing equipment is summed for the replacement equipment usage. The horsepower rating for the replacement equipment must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the lowest horsepower of the two existing equipment engines (unless the grantee pays for the horsepower upgrade as specified in Section D.1.(M)).

(D) If air districts use equipment dealers in implementing the equipment replacement program, reimbursement cannot be issued until all necessary documentation is received and approved by the air district. Participants may purchase the replacement equipment from a private party, provided all required documentation is submitted and approved by the air district. This includes warranty requirements and all other equipment replacement requirements.

(E) Existing Equipment Requirements:

(1) Equipment Ownership: the applicant must have owned the existing equipment in California for the previous two years. The applicant must provide documentation of the following specific to the existing equipment (select one):

a. Bill of sale for the old existing equipment (preferred)

b. Tax depreciation logs

c. Property tax records

d. Equipment insurance records

e. Bank appraisals for equipment

f. Maintenance/service records

g. General ledgers

h. Fuel records specific to the existing equipment that identify the equipment owner

i. Other documentation approved by ARB

(2) Operational Requirements: the existing equipment must be in operational condition to qualify for funding. A pre-inspection of the existing equipment must be performed prior to funding to verify the operational status of the equipment. In addition, the applicant must provide documentation to demonstrate that the equipment was operational for the previous year. The following types of documents are acceptable:

a. Revenue and usage records that identify operational, standby, and down hours for the equipment

b. Routine inspections which document the operating condition of the existing equipment (Occupational Safety and Health Administration or workplace required)

c. Employee timesheets linked to specific equipment use

d. Preventative maintenance/service records tied to specific hours of equipment use

e. Repair work orders specific to the equipment

f. Other documents approved by ARB

(3) Pre-Inspection Requirements: Pre-inspection must verify the operational condition of the existing equipment. The pre-inspection must verify, at a minimum, the following items:

a. Tires in usable condition (able to hold air, sufficient tread or tracks, etc.)

b. Steering wheel operational

c. Equipment able to start up and move backwards and forwards

d. Buckets, blades, rollers, etc. are working

e. Undercarriage structurally sound

f. Fuel tank in usable condition

g. No parts stripped

h. Equipment not vandalized

i. Clear photographs of the existing equipment must include the following views listed below. The air district will specify the required digital format.

i. Right side - hood down

ii. Front - hood down

iii. Left side - hood down

iv. Equipment serial number

v. Engine serial number - either tag or stamp on block

vi. Diesel Off-Road Online Reporting System (DOORS) Equipment Identification Number (EIN), if applicable

vii. Rear

(4) Destruction and Salvage Requirements: Equipment replacement requires that the existing equipment be scrapped to permanently remove it from service. This ensures that emission reductions are real and prevents the existing equipment from being moved into another locale to continue emitting high levels of pollutants.

a. Destruction of the equipment may occur either at an air district approved salvage yard or another facility in conjunction with an air district salvage inspection.

b. Both the existing engine and equipment must be destroyed. Refer to Section D.1.(Q) for the engine destruction method. The destruction method of the equipment will vary depending on the structure of the equipment:

i. Equipment with permanent frame rails running the length of the equipment: complete cuts of both frame rails between the front and rear axles.

ii. Equipment with removable/bolt-on frame rails: structural damage, with cuts or otherwise, that renders the main body of the equipment inoperable and unrepairable.

iii. Equipment without frame rails: structural damage, with cuts or otherwise, that renders the main body of the equipment inoperable and unrepairable.

iv. Articulated equipment: damage, cuts or otherwise, to the articulation joints of front and rear halves of the equipment so that neither half can be joined.

v. Other equivalent methods of destruction are acceptable if approved by the air district.

c. The existing engine and equipment must be destroyed within 60 days of being replaced. Documentation of the destruction must be provided to the air district within 10 days of destruction.

d. Funding is not available for the salvage of any existing equipment.

e. The existing equipment salvage value will be negotiated between either the applicant, the dealership, and/or the salvage yard.

f. A salvage inspection of the existing equipment must be performed by either the air district or a contracted salvage yard.

g. Air districts which perform their own salvage inspections must be notified within 10 days of destruction so that a salvage inspection can occur.

h. Salvage inspection must include clear photographs of the following views:

i. DOORS EIN (if applicable)

ii. Equipment serial number

iii. Engine serial number either stamped on the block or on the tag

iv. Destroyed engine block as described in Section D.1.(Q).

v. Cut structural components as described in Section D.4.(E)(4)b.

vi. Other views dependent on the method of equipment destruction

i. Salvage inspection of the existing equipment must be completed prior to disbursement of funds.

(F) Replacement Equipment Requirements

(1) The replacement equipment must serve the same function and perform the same work equivalent as the existing equipment (e.g., replacement of an agricultural tractor with another agricultural tractor).

(2) Only items essential to the operation of the equipment and the minimum attachments normally sold with the original equipment, as determined by the air district, are eligible for reimbursement on the replacement equipment. Equipment owners may remove non-emission related body components and place them on the replacement equipment as long as the components do not exist on the replacement equipment and are not part of the paid components for the replacement equipment.

(3) Applicants may purchase the replacement equipment from a private party, provided all required documentation is submitted and approved. This includes warranty requirements and all other equipment replacement requirements.

(4) If an applicant elects to install a retrofit with the replacement equipment, then the retrofit must be installed prior to equipment delivery to the grantee and must stay in operation on the replacement equipment for the project life. The retrofit must meet all the requirements per Section D.3.

(5) Warranty Requirements

a. All new or used replacement equipment must have a minimum one-year or 1600 hour power and drivetrain warranty. The warranty must cover parts and labor. A separate supplemental minimum one-year or 1600 hour power and drivetrain warranty must be purchased if the equipment does not have one. The supplemental warranty costs are not eligible for funding.

b. It is recommended that the highest grade warranty be purchased in order to avoid expensive repairs in the future.

c. Warranty documentation must be provided to the air district.

(6) Post-Inspection Requirements

a. Post-inspection of the replacement equipment must be completed prior to disbursement of funds.

b. The post-inspection must include clear photographs of the following views:

i. Pictures(s) of full equipment

ii. Equipment serial number

iii. Engine serial number and engine information

iv. Retrofit (if available)

v. Hour meter reading

(G) Air District Requirements

(1) Air districts must establish an off-road equipment replacement plan before funding projects. The plan must include criteria for the following:

a. Development of grantee contracts which must include a generic statement of work

b. Inspections (pre-, post-, salvage). The required digital format for the inspections photographs must be specified.

c. Reimbursement procedures

d. Monitoring and enforcement considerations

e. If applicable, for air districts that contract with dealers and salvage yards, the off-road equipment replacement plan must identify the air district's requirements for dealer and/or salvage yard contracts, and the process for oversight and review of program requirements that are expected of each entity, and the repercussions for non-compliance with the terms of the contract for each entity. For air districts that contract with dealer(s), liaison training must be provided to the dealership staff.

(2) Air districts may fund equipment replacement projects through a regional program administered by a designated air district. The designated air district could be either an air district located within the regional program or a large air district located outside of the

regional program. A regional equipment replacement implementation plan must be established, containing all the required components as required in an individual air district's equipment replacement implementation plan. A regional equipment replacement plan must also contain a detailed description of the funding mechanism among the participating air districts. All air districts participating in the regional program must sign the regional equipment replacement implementation plan and must adhere to all the requirements specified in such regional implementation plan.

(3) Air districts are encouraged, but are not required to establish contracts with dealers and salvage yards for participation in the program.

(4) Air districts must ensure the following are performed:

a. Pre-inspection of the existing equipment. This may be performed by an air district approved dealer.

b. Verification that the replacement equipment proof of sale and if applicable, proof of financing have been received from the dealer or participant.

c. Post-inspection of the replacement equipment. This may be performed by an air district approved dealer.

d. Salvage inspection of the existing equipment. This may be performed by an approved salvage yard.

e. Verification that all post-inspection of replacement equipment and salvage inspection of existing equipment were completed and all documentation is submitted and approved prior to disbursement of funds.

(5) The air district is allowed to make full payment to the dealer at the time the dealer delivers the replacement equipment to the applicant under the following framework:

a. The air district must complete the pre-inspection of the existing equipment and post-inspection of the replacement equipment to make sure that all equipment complies with program requirements.

b. The air district must sign a contract with the dealer and the salvage yard that contains, at a minimum, the program requirements that are expected of each entity and the repercussions for non-compliance with the terms of the contract for each entity. This shall include, but is not limited to, the

requirement that the dealer delivers the existing equipment to a qualified salvage yard within 30 days of the date that the existing equipment was turned in to the dealer by the applicant.

c. The air district must ensure the equipment is scrapped within 60 days of the salvage yard's receipt of the equipment through salvage inspection with the salvage yard to properly document the destruction of the existing equipment in accordance with the Moyer Program equipment replacement program requirements.

(H) Dealer Requirements

(1) Equipment dealers that enter into a contract with an air district must:

a. Provide basic information to potential applicants about the equipment replacement category. Air districts must also provide liaison training to dealership staff.

b. Inform potential applicants of rights and responsibilities as outlined in the air district and ARB guidelines.

c. Help the potential applicants correctly complete the application. It is important that the participant understands the meaning of the program and the subsequent air district contract if approved for funding. The air district will provide all forms and certificates as appendices to the application.

d. Ensure that an application package is complete. The dealer must verify that all the following items are included in the application package:

i. A signed and complete application.

ii. All documentation as required in Sections D.4.(E)(1) and (2).

iii. The following information must also be included in the documentation:

(a) Make

(b) Model

(c) Model year

(d) Equipment serial number

(e) Engine make

(f) Engine serial number

(g) Expected delivery date of existing equipment

iv. Documentation of replacement equipment warranty.

e. Submit the completed application package to the air district.

(2) After the application and all required documentation have been approved by the air district, the dealer must provide the air district with proof of sale and if applicable, proof of financing of the replacement equipment. The financing package will enable the air district to determine the reimbursement costs that may be accrued in case the participant defaults on the contracted performance requirements. Proof of project financing can be a document showing the lender and the amount loaned, which at a minimum is a copy of the check given to the dealer equal to the portion of the project that was not Moyer Program funded. Proof of project financing is always required unless the grantee paid cash for the portion of the project that was not Moyer Program funded.

(3) Prior to releasing the replacement equipment to the participant, the dealer must have documentation of an air district pre-inspection of the existing equipment and the post-inspection of the replacement equipment. Alternatively, if approved by the air district to do pre- and post-inspections, the dealer must verify that photographs of the existing equipment and the replacement equipment, as defined in Sections D.4.(E)(3) and (F)(7), are clear prior to submitting them to the air district.

(4) Provide documentation certifying that the existing equipment will be received by a contracted salvage yard within 30 days.

(I) Salvage Yard Requirements

(1) Equipment salvage yards must enter into an agreement with the air district to qualify for participation.

(2) Contracted salvage yard(s) must:

a. Destroy the existing equipment and engine within 60 days of receipt of the existing equipment in accordance with the program guidelines.

b. Provide the air district with all photographs required under the air district's salvage inspections requirements per Section D.4.(E)(4)h. below within 10 business days of salvaging the existing equipment.

c. For each project, provide the following information:

i. Make

ii. Model

iii. Model year

iv. Serial number

v. Engine make

vi. Engine serial number

vii. Delivery date of the existing equipment

d. Submit a completed certificate of equipment destruction or other similarly approved documentation to the air district.

E. Projects subject to the In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation) (CCR, title 13, section 2449 et. seq.)

1. The existing equipment must be registered in DOORS.

2. Fleets must be in compliance with the regulation in order to be eligible for and receive funding. Fleets subject to the Off-Road Regulation that meet the final compliance requirements of the Off-Road Regulation are eligible for funding, and are exempt from the requirements of Section E.2.(E) through (I).

(A) Applicants must submit information regarding fleet size and compliance status. All documentation submitted must be signed and dated by the applicant and include language certifying that the fleet list provided is accurate and complete. Air districts are not required to validate submitted information and will not be held liable if fleet owners falsify fleet information. The following information shall be submitted at the time of application:

(1) DOORS ID of the fleet.

(2) DOORS EIN of the existing equipment.

(3) Fleet size information (total horsepower) as reported to DOORS

(4) Information to determine compliance with the Off-Road Regulation

a. Large fleets and medium fleets are required to show compliance with the Off-Road Regulation.

b. Prior to 1/1/2019, small fleets are not required to show compliance with the Off-Road Regulation.

(5) For those fleets that have previously received Moyer Program funding, a list of funded equipment with the DOORS EIN of the funded equipment.

(6) Large fleets must certify that they have not applied for Moyer Program funding for their off-road diesel fleet in another fiscal year (July 1-June 30) after January 1, 2017, excluding applications for which no funding was ultimately received.

(B) Applicants must submit to the district the DOORS EIN of the replacement equipment no later than at post-inspection of replacement equipment.

(C) Applicants are not required to submit information on exempted equipment. Information on exempted off-road equipment can be found in the Off-Road Regulation.

(D) No emission reductions achieved from a funded project can count towards a fleet's regulatory requirements for the duration of the contract term.

(E) Eligibility for a project is based upon BACT requirements of the Off-Road Regulation.

(1) Any equipment funded through the Moyer program, and that is still under contract, must be deducted from the amount of equipment eligible for funding. For instance, a fleet that is eligible for funding to reduce emissions for 50 percent of its horsepower, but which has already received funding in previous years to reduce emissions from 20 percent of its horsepower, is only eligible for funding to reduce emissions from 30 percent of its horsepower.

(2) Equipment funded through the Moyer program must be included in the fleet's total horsepower from which the BACT requirements of the regulation are calculated.

(F) Large Fleets

(1) Eligible projects for large fleets, as defined in the Off-Road Regulation must provide at least three years emission reductions surplus to the regulation with a corresponding minimum project life of at least three years.

(2) Projects must be installed and in operation at least three years before the BACT requirements become effective for the funded equipment.

a. The first compliance date for large fleets, as defined in the Off Road Regulation, is January 1, 2014. The final compliance date is January 1, 2023. Funding for these fleets is available through December 31, 2019.

b. Large fleets are eligible for funding once after January 1, 2017. After January 1, 2017, for those large fleets eligible for funding a second or subsequent time, only zero-emission projects are eligible.

c. Large fleets may have alternative requirements per Section E.2.(I) below.

(G) Medium Fleets

(1) Eligible projects for medium fleets, as defined in the Off-Road Regulation must provide at least three years emission reductions surplus to the regulation with a corresponding minimum project life of at least three years.

(2) Projects must be installed and in operation at least three years before the BACT requirements become effective for the funded equipment.

(3) The first compliance date for medium fleets, as defined in the Off-Road Regulation is January 1, 2017. The final compliance date is January 1, 2023. Funding for these fleets is available through December 31, 2019.

(H) Small Fleets (includes Captive Attainment Area Fleets)

(1) Eligible projects for small fleets, as defined in the Off-Road Regulation must provide at least two years emission reductions surplus to the regulation, with a corresponding minimum project life of at least two years.

(2) Projects must be installed and in operation at least two years before the BACT requirements become effective for the funded equipment.

(3) The first compliance date for small fleets, as defined in the Off-Road Regulation is January 1, 2019. The final compliance date is January 1, 2028. Funding for these fleets is available through December 31, 2025.

(I) Surplus Off-Road Opt-In for NOx (SOON) Program

(1) Fleets located in air districts that have opted into the SOON program and that are subject to the SOON provisions are eligible for funding in accordance with the Off-Road Regulation (CCR, title 13, section 2449.2) and must meet the applicable criteria in Sections A. through D. in this chapter.

(2) Projects funded under SOON, are not subject to Section E above, except for the requirements of Sections E.1., E.2.(A) through (C), and E.2.(I).

3. For more information on eligibility of off-road diesel equipment, please see the Regulation for In Use Off-Road Diesel-Fueled Fleets Carl Moyer Program Implementation Chart available at http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

F. Projects subject to the Regulation for Cargo Handling Equipment at Ports and Intermodal Rail Yards (CHE Regulation) (CCR, title 13, section 2479)

1. Eligible Engines

(A) For repower or replacement projects in which the equipment is subject to the CHE regulation, only Tier 4 final engines or cleaner are eligible for funding.

(B) Replacement engines participating in the averaging, banking and trading program that are certified to FEL higher than the applicable emission standards, as designated on the Executive Order, are not eligible for funding.

2. Eligible projects must provide at least three years of emission reductions surplus to the regulation, with a corresponding minimum project life of at least three years. Cargo handling fleets that have met the final compliance requirements of the CHE Regulation are eligible for funding.

3. For more information on eligibility of cargo handling equipment, please see the Regulation for Cargo Handling Equipment at Ports and Intermodal Rail Yards Carl Moyer Program Implementation Chart available at http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

G. Projects subject to the Large Spark Ignition Engine Fleet Requirements (LSI Fleet Regulation) (CCR, title 13, section 2775 et. seq.)

1. Eligible funding must provide at least three years of emission reductions surplus to the LSI Fleet Regulation, with a corresponding minimum project life of at least three years.

2. Large and Medium Forklift Fleets and Fleets of Four or More Sweeper/Scrubbers, Ground Support Equipment, and/or Industrial Tow Tractors:

In order to be eligible for funding, large and medium forklift fleets and fleets of four or more non-forklift LSI equipment must meet the final fleet average emission level applicable on January 1, 2013.

3. Agricultural Crop Preparation Forklift Fleets Model Year 1990 and Newer: These fleets are required to either retrofit, repower, or replace 100 percent of their fleet by January 1, 2012, or currently meet a 3.0 g/bhp hr fleet average HC + NOx level. Fleets that have met the 3.0 g/bhp-hr fleet average can apply for funding. Additionally, in accordance with SBx2_3 (H&SC § 44282.5(a)), fleets that have retrofitted/repowered 20 percent of their fleet in compliance with the regulation are eligible for funding up to the final compliance date. In order to be eligible, these projects must be under executed contract and must be installed and in operation prior to the applicable compliance date.

4. LSI fleets that have met the final compliance requirements of the LSI Fleet Regulation are eligible for funding. Due to the regulatory requirements for rental and lease equipment subject to the LSI Fleet Regulation, projects that include rented or leased equipment are not eligible.

5. Fleets with equipment not subject to the LSI Fleet Regulation are eligible for funding, including:

(A) Agricultural crop preparation non-forklift equipment and pre-1990 forklifts.

(B) Forklifts used exclusively in fields to harvest and maintain crops.

(C) Non-forklift LSI equipment such as aerial lifts, lawn and garden tractors, commercial turf equipment, mining and construction equipment, and industrial equipment.

(D) Small fleets (one to three forklifts and/or one to three sweepers/scrubbers, industrial tow tractors, or pieces of airport ground support equipment (airport GSE)).

6. Required Off-Road LSI Fleet Information: For forklifts, sweeper/scrubbers, airport GSE, and/or industrial tow tractors, an applicant's fleet size impacts project eligibility. Applicants must submit information regarding fleet size and compliance status. All documentation submitted must be signed and dated by the applicant and include language certifying that the fleet list provided is accurate and complete. Air districts are not required to validate submitted information and will not be held liable if fleet owners falsify fleet information.

(A) Large/Medium/Non-Forklift Fleets: For large, medium, and non-forklift fleets subject to the LSI Fleet Regulation, applicants are required to report compliance records for the entire statewide fleet as described in the regulatory language (CCR, title 13, section 2775.2).

(1) DOORS ID of the fleet.

(2) DOORS EIN of the existing equipment.

(3) Fleet size information (total number of forklifts; total number of non-forklift LSI equipment).

(4) Information to determine compliance with the LSI fleet Regulation. Large and medium fleets are required to show compliance with the applicable final fleet average emission level.

(B) Small Fleets: Small fleets are not required to maintain compliance records, but for the purposes of determining project eligibility, air districts must obtain the following information for the entire statewide fleet:

(1) Equipment identification number (equipment identification number, fleet assigned identification, etc.)

(2) Equipment type (e.g., forklift, GSE, etc.)

7. If applicable, applicants must submit to the district the DOORS EIN of the replacement equipment not later than at post-inspection of the replacement equipment.

8. Applicants are not required to submit information on exempted equipment (except as noted above for small fleets). Information on exempted LSI equipment can be found in CCR, title 13, sections 2775(b), 2775.1(c) (4), and 2775.1(d-f) of the Final Regulation Order (http://www.arb.ca.gov/regact/lore2006/oalapprovedfro.pdf).

H. Projects subject to the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater (Portable Engine ATCM) (CCR, title 17, section 93116 et. seq.)

1. In order to be eligible for repower projects, diesel engines regulated under the Portable Engine ATCM must be permitted or registered in an air district or registered in the Portable Equipment Registration Program (PERP). If the portable engine is not required to be permitted or registered, documentation must be included in the project file from the air district stating that a permit or registration is not required to operate in the air district.

2. In order to be eligible for funding, fleets must be fully compliant with the regulatory requirements in effect in 2020.

For more information on eligibility of engines used in portable equipment, please see the Portable Engine Airborne Toxic Control Measure Implementation Chart available at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

I. Projects subject to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles (Statewide Truck and Bus Regulation) (CCR, title 13, section 2025)

This regulation impacts the eligibility of all on-road heavy-duty diesel-fueled and alternative diesel-fueled vehicles operated in California with a manufacturer's GVWR greater than 14,000 pounds. Although this regulation primarily affects vehicles with on-road engines, some vehicles with off-road engines are also covered. Any application for Moyer Program funding to replace a vehicle with an off-road engine that is subject to an on-road regulation must comply with the applicable surplus requirements described in Chapter 4. For example, a yard truck with an off-road engine that is subject to the Statewide Truck and Bus Regulation (including yard trucks used primarily in agricultural operations) must meet the applicable on-road surplus requirements described in Chapter 4, Section C.2., and must also comply with all off-road project criteria described in this chapter.

CHAPTER 6: LOCOMOTIVES

This chapter describes the minimum criteria and requirements for Carl Moyer Program locomotive projects. Air districts may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The Carl Moyer Program provides incentive to upgrade old high-polluting locomotives to new Tier 4 units. Rail equipment, designed for use on tracks, such as on-rail vehicles, railcar movers, sweepers, and wheel cranes which have tires or mounted tracks, that replace switcher locomotives, are also considered locomotives for the purposes of the Carl Moyer Program. Funding opportunities may be limited due to the availability of Goods Movement Emission Reduction Bond Program (Proposition 1B Goods Movement Program) funding, and the South Coast and Statewide Memoranda of Understanding (MOU) with these railroads (See Table 6-1).

Table 6-1
Summary of Locomotive Funding Opportunities

Railroad Class	Subject to ARB Rule or MOU	Moyer Funding Opportunities
Class 1 Freight Railroads (Burlington Northern Santa Fe Railroad and Union Pacific Railroad)	*2005 Statewide Railyard Agreement* and *1998 South Coast MOU*[1]	Projects in California's goods movement trade corridors are generally ineligible for Carl Moyer Program funding if Proposition1B funds are available.[2] These projects are only eligible for Carl Moyer Program funding on a case-by-case basis.
Class 2 and 3 Freight Railroads and Passenger Railroads	No	Class 2 and 3 and passenger railroad projects are not limited.

[1] The South Coast MOU limits funding eligibility for Class 1 freight railroad new purchase or engine remanufacture/repower projects in the South Coast. See: http://www.arb.ca.gov/msprog/offroad/loco_flt.pdf
[2] For a map of the trade corridors, see: http://www.arb.ca.gov/bonds/gmbond/docs/gmtradecorridors.jpg

Project Types: Three types of locomotive projects are eligible for Carl Moyer Program funding:

1. Locomotive Replacement
2. Locomotive Engine Repower
3. Head End Power Unit (HEP)

B. Maximum Eligible Funding Amounts

Table 6-2 summarizes the maximum eligible funding for each project type. All projects are also subject to the cost-effectiveness threshold defined in Appendix C.

Table 6-2
Maximum Grant Amount for Carl Moyer Program Locomotive Projects

Railroad Class/Type	All Project Types
Class 1/Class 2	75 percent
Class 3 and Passenger	85 percent

C. Emission Standards

The U.S. EPA has adopted regulations for exhaust emission standards for new and remanufactured locomotives. For reference, Tables 6-3 and 6-4 below summarize the hydrocarbon (HC), oxides of nitrogen (NOx) and particulate matter (PM) standards in grams per brake horsepower-hour (g/bhp-hr) for the 1998 Federal Standards and the 2008 Federal Standards.

Table 6-3
U.S. EPA Locomotive Emission Standards (g/bhp-hr)
Based on 1998 Federal Standards

Tier and Engine Model Year	Type	NOx	HC	PM10
Uncontrolled Pre-1973	Line-haul and Passenger	13.5	1.00	0.60
	Switcher	17.4	2.10	0.72
Tier 0 1973 - 2001	Line-haul and Passenger	9.5	1.00	0.60
	Switcher	14.0	2.10	0.72
Tier 1 2002-2004	Line-haul and Passenger	7.4	0.55	0.45
	Switcher	11.0	1.20	0.54
Tier 2 2005 - 2011	Line-haul and Passenger	5.5	0.30	0.2
	Switcher	8.1	0.60	0.24

Table 6-4
U.S. EPA Locomotive Emission Standards (g/bhp-hr)
Based on 2008 Federal Standards

Tier and Engine Model Year	Type	NOx	HC	PM10
Tier 0+ 1973-2001	Line-haul and Passenger	7.4	0.55	0.22
	Switcher	11.8	2.10	0.26
Tier 1+ 2002-2004	Line-haul and Passenger	7.4	0.55	0.22
	Switcher	11.0	1.20	0.26
Tier 2+ 2005-2011	Line-haul and Passenger	5.5	0.30	0.10
	Switcher	8.1	0.60	0.13
Tier 3 2011-2014	Line-haul and Passenger	5.5	0.30	0.10
	Switcher	5.0	0.60	0.10
Tier 4 2015	Line-haul and Passenger	1.3	0.14	0.03
	Switcher	1.3	0.14	0.03

D. Project Criteria

The minimum qualifications for locomotives are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns. Note that railroad classes are defined in Appendix B.

1. General Locomotive Project Criteria

(A) Baseline emission factors must reflect the tier level required by federal locomotive remanufacture standards (i.e., the baseline emission factors are the required remanufacture standards, which may not be the certification standard of the baseline locomotive).

(B) Class 1 freight locomotive projects meeting the eligibility requirements for the Proposition 1B Goods Movement Program are only eligible for Carl Moyer Program funding on a case-by-case basis. Carl Moyer Program

funds cannot be co-funded with Proposition 1B Goods Movement Program funds.

(C) Class 1 freight locomotives subject to the South Coast Memorandum of Understanding (MOU) are only eligible for Carl Moyer Program funding on a case-by-case basis. These locomotive projects must be excluded from the fleet average emission rate calculations which demonstrate compliance with the MOU provisions. The baseline emission rates used to determine emission reductions and cost-effectiveness for these locomotive projects reflect the U.S. EPA Locomotive Tier 2 emission rates for line-haul and switch locomotives.

(D) Military and industrial railroads are considered Class 3 railroads for the purposes of the Carl Moyer Program.

(E) Locomotive project activity must be based upon fuel consumption. If fuel consumption is not available, megawatt hours from the electronically logged data may be used.

(F) Carl Moyer Program funds cannot be used to pay for labor or parts used during routine maintenance.

(G) Air districts may enter into contract and work may begin on a locomotive project prior to U.S. EPA certification and/or ARB verification. In this instance, the air district contract with the grantee must specify that any work performed is done grantee's own risk. Districts cannot make payment until certification and verification have been received.

(H) Participant must have owned the baseline locomotive for at least one year prior to application submittal, and the locomotive must be operational.

(I) At a minimum the destruction of a locomotive engine must include a hole in the engine block with a diameter of at least eighteen inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles).

(J) Unless otherwise stated in this chapter, the minimum project life allowed is three years.

2. Locomotive Replacement

(K) New locomotives with an aggregate engine power rating greater than or equal to 1,006 horsepower (750 kW) must be certified by U.S. EPA and verified by ARB to achieve Tier 4 locomotive emission standards (or cleaner).

(L) New locomotives with an aggregate engine power rating less than 1,006 horsepower are not required to be certified by U.S. EPA to

locomotive standards, but are required to be certified U.S EPA off-road (non-road) emission standards. This lower horsepower equipment must also be verified by ARB to meet or exceed the Tier 4 locomotive standards.

(M) Zero emission locomotives must have ARB verification.

(N) Due to the design of alternative technology switchers, fuel consumption for the new locomotive may differ from baseline fuel consumption. For contractual purposes only, when specifying the annual usage requirement in the contract the air district may assume a fuel savings of 20 percent from that used in the cost-effectiveness calculation. This fuel savings is already embedded into the cost-effectiveness calculation, and therefore it should not be applied when determining cost-effectiveness for the project.

(O) The baseline locomotive engine(s) must be destroyed. The grantee may choose to retain the baseline locomotive chassis since locomotive components have a long lifespan, ARB recognizes the benefits of reusing and/or recycling baseline locomotives. To prevent the baseline locomotive body from being fitted with a similar high-polluting engine, the grantee must sign an agreement with the air district which will ensure, with due diligence, that the baseline locomotive, if brought back into service, will be repowered to a Tier 4 or cleaner locomotive engine standard.

(P) Project life:

(1) Class 1 locomotive replacement projects in air districts other than the South Coast must have a minimum project life of 10 years.

(2) All other locomotive replacement projects have a minimum project life of three years.

(3) The maximum project life for a locomotive replacement project is 15 years.

3. Locomotive Engine Repower

(A) Purchase and installation of an engine meeting Tier 4 locomotive emission standards or cleaner. The engine must be certified by U.S. EPA and verified by ARB to be eligible for Carl Moyer Program funding.

(B) The maximum project life for a locomotive engine repower project is 15 years.

4. Head End Power Unit (HEP)

(A) HEP repower is eligible on a case-by-case basis.

(B) The baseline engine must be certified to the applicable off-road standard at the time of manufacture.

(C) The new engine must be certified to the U.S. EPA Tier 4 final or cleaner off-road (non-road) emission standards.

CHAPTER 7: MARINE VESSELS

This chapter describes the minimum criteria and requirements for Carl Moyer Program marine vessel projects. Air districts may set more stringent requirements based upon local priorities.

J. Projects Eligible for Funding

Air Resources Board (ARB or the Board) has adopted two regulations that impact funding opportunities for marine vessel projects: 1) Amendments to the Regulations to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated Within California Waters and 24 Nautical Miles of the California Baseline (Commercial Harbor Craft regulation or CHC) and 2) Regulations to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels While At-Berth at a California Port (Shore Power Regulation). There are limited funding opportunities for marine vessels subject to this regulations.

Table 7-1
Summary of Funding Opportunities

Project Type	Subject to ARB Rule	Moyer Funding Opportunities[1]
Vessels subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: barge, crew & supply, dredge, excursion, ferry, towboat, tugboat) - engine repower, remanufacture, retrofit or new purchase	Commercial Harbor Craft Regulation[2]	Opportunities depend on compliance status
Vessels *not* subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: fishing vessel or pilot/work boat) - engine repower, remanufacture, retrofit or new purchase	No	Not limited by regulation
Shore power - vessel retrofit	Shore Power Regulation[3]	Limited opportunity

[1] A fleet's compliance status with the ARB regulations must be determined. Contact air district Moyer Program staff or consult CHC regulation Carl Moyer Implementation Charts at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm in addition to these guidelines.
[2] Harbor Craft Regulation: http://www.arb.ca.gov/ports/marinevess/harborcraft.htm
[3] Shore Power Regulation: http://www.arb.ca.gov/ports/shorepower/shorepower.htm

Project Types:

1. **Engine Repower.** Replacing an old vessel engine with a newer, lower emission engine. Limited opportunities remain for those vessel engines subject to the in-use compliance requirements of the CHC regulation. Repower must be completed at least three years prior to the vessel's in-use compliance date. Based on the vessel's operation, the newer engine's emissions must be surplus to the currently required United States Environmental Protection Agency (U.S. EPA) marine engine emission standard (i.e., Tier 3 or cleaner).

2. **Remanufacture Kit.** Kits are comprised of engine component parts that, when installed, reduce the engine's emissions. Limited Moyer funding opportunities remain for those vessel engines subject to the in-use compliance requirements of the CHC. Remanufacture must be completed at least three years prior to the vessel's in-use compliance date.

3. **Retrofit Device.** The installation of an ARB verified diesel emission control strategy (VDECS). This project type will be considered for funding on a case-by-case basis.

4. **Hybrid System.** The installation of an EPA verified hybrid system. A hybrid system implements various strategies (e.g. engine switching, electric power) to reduce emissions of NOx, ROG, and PM.

5. **Ship-Side Shore Power Projects.** The retrofit of a marine vessel to enable shore power connection. Ship-side shore power projects are not eligible unless the applicant can demonstrate that it will be surplus to the implementation requirements of ARB's Shore Power Regulation. For marine infrastructure projects, including Shore-Side Shore power, see Chapter 10: Infrastructure.

6. **Marine Vessel Exhaust Capture and Control System.** The purchase of an EPA verified marine vessel exhaust capture and control system. EPA verifications of exhaust capture systems include specific percentage reductions of NOx and PM.

Please see Section C (Project Criteria) for detailed minimum eligibility requirements.

K. Maximum Eligible Funding Amounts

Table 7-2 summarizes the maximum funding for each project type as a percentage of eligible costs. All projects are also subject to the cost-effectiveness threshold defined in Appendix C.

Table 7-2
Maximum Percentage of Eligible Costs for
Moyer Program Marine Projects

	Baseline Technology	Project Type	Maximum Percentage
Vessels subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: barge, crew & supply, dredge, excursion, ferry, towboat, tugboat)	Tier 0,1[(1)]	Engine repower or remanufacture kit compliant to EPA marine Tier 3	50 percent
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(2,3)]	85 percent
	Tier 2	Engine repower or remanufacture kit compliant to EPA marine Tier 3	80 percent
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(2,3)]	85 percent
Vessels ***not*** subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: fishing, pilot, work boat)	Tier 0,1,2	Engine repower or remanufacture kit compliant to EPA marine Tier 3	80 percent
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(2,3)]	85 percent
Any vessel propulsion engine repower with an off-road Tier 3 or cleaner certified engine			Case-by-Case Basis
EPA Verified Marine Retrofit Device			Case-by-Case Basis
Installation of an EPA verified Hybrid System			85 percent
Shore Power- ship side			100 percent of the retrofit cost and 50 percent of the transformer cost
Purchase of an EPA verified marine vessel exhaust capture and control system			Case-by-Case basis

(1) Chapter 1, Section A, Part 2 requires projects to provide three years of surplus reductions prior to any applicable regulatory compliance deadline
(2) Due to the absence of emission factors, 2016 and newer model year Tier 4 emission standards (Table D-16) will be used for funding calculations.
(3) Engines using a Family Emission Limit (FEL) or Averaging, Banking, and Trading (ABT) to meet the Tier 4 emission standards will be funded at Tier 3 engine levels. Tier 3 emission factors will be used for funding calculations.

L. Project Criteria

The minimum qualifications for marine vessels are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

1. General Marine Project Criteria

(A) To be eligible for Carl Moyer Program funding, an applicant for harbor craft funding must have a United States Coast Guard Documentation Number, except in cases where such documentation is not required (such as fishing boats constructed outside the United States, vessels of less than five net ton displacement, or vessels owned by non-United States citizens). In such cases, the applicant must include with the application documentation at least one of the following:

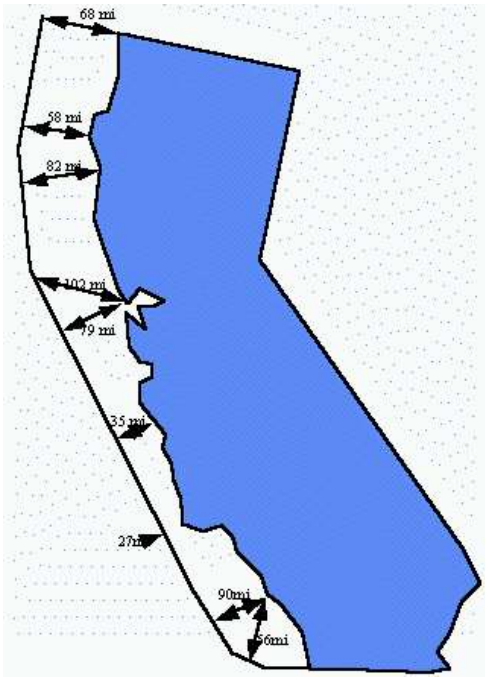
(1) A valid California vessel registration (CF) number and a copy of the California Department of Fish and Game license can be provided instead of a Coast Guard Documentation Number.

(2) The vessel's Lloyd's/International Maritime Organization (IMO) number for an oceangoing vessel that does not have any of the above documentation.

(B) Both propulsion and auxiliary engines may be eligible for Carl Moyer Program funding.

(C) Only marine vessel activity in California coastal waters and internal waters may be used to determine project emission reductions. Figure 7-1 depicts the boundary of California coastal waters (defined as that area between the California Coastline and a line starting at the California-Oregon border at the Pacific Ocean, thence to 42.0°N 125.5°W, thence to 41.0°N 125.5°W, thence to 40.0°N 125.5°W, thence to 39.0°N 125.0°W, thence to 38.0°N 124.5°W, thence to 37.0°N 123.5°W, thence to 36.0°N 122.5°W, thence to 35.0°N

Figure 7-1
California Coastal Water Boundaries



121.5°W, thence to 34.0°N 120.5°W, thence to 33.0°N 119.5°W, thence to 32.5°N 118.5°W, and ending at the California-Mexico border at the Pacific Ocean).

(D) Marine projects are not required to meet the minimum California usage requirement in Chapter 2, Section S. Air Districts may impose more stringent operational requirements.

(E) Non-captive California fleets and vessels may be considered for funding on a case-by-case basis if their operation in California coastal waters can be properly documented.

(F) Funding is not available for projects where spark-ignition engines are replaced with diesel engines. Repowering a diesel engine to a spark-ignited engine may be considered on a case-by-case basis.

(G) Only marine engines equal to or greater than 25 horsepower are eligible for Carl Moyer Program funding.

(H) Harbor craft engines less than 50 horsepower are exempt from the in-use compliance requirements of the Harbor Craft Regulation. Emission reductions from projects involving these engines are surplus.

(I) Engines on marine vessels with wet exhaust systems are eligible for Carl Moyer Program funding if the project vessel meets all other applicable program requirements. The wet exhaust systems themselves are not eligible for Carl Moyer Program funding. A wet exhaust factor of 0.80 must be applied to the baseline and reduced emission propulsion and auxiliary engine emission calculations for all projects on vessels with wet exhaust systems.

(J) New engines must be installed and operational at least three years prior to the compliance deadline specified by the CHC regulation. Project life for an engine cannot extend beyond that engine's compliance deadline. For compliance deadlines, see implementation charts at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

(K) Air districts have the option of calculating the project cost-effectiveness on a per vessel basis.

(L) All harbor craft vessels are required to install and maintain a functioning hour meter as required by the CHC Regulation.

(M) Carl Moyer Program funding can be based on engine hours or fuel use. Hours of operation are the preferred basis for project cost-effectiveness calculations and eligibility. Applicants must submit historical usage data as part of the application process. This data must be based on the previous two years of historical usage documentation specific to the

vessel being funded. Acceptable forms of documentation may include hour meter readings, maintenance records, fuel logs, purchase receipts or ledger entries. Grant funding that is based on historical fuel usage may not exceed the grant funding amount that would be based on hours of operation; the more conservative calculation must be used.

(N) Owners and operators of engines subject to the CHC Regulation must include a copy of the most recent Initial Report in their project application. The reporting requirements are outlined under California Code of Regulations, title 17, section 93118.5(h)(1).

2. Repower. Repower projects involving the replacement of an older harbor craft engine with a newer, cleaner engine must meet the following criteria:

(A) All new engines and replacement engines purchased for Carl Moyer Program marine vessel repower projects must meet the requirements of the CHC Regulation set forth under California Code of Regulations, title 17, sections 93118.5(e). The regulation includes requirements for newly acquired engines and requirements for replacement engines in vessels subject to the schedules to meet Tier 2 and Tier 3 standards. Use of an off-road certified engine must adhere to the requirements set forth under California Code of Regulations, title 17, sections 93118.5(e)(3) and (e)(4), especially the marinization requirements set forth in Code of Federal Regulations, title 40, part 1042.605. Project proposals for repower of propulsion engines with off-road engines will be considered on a case-by-case basis.

(B) For all marine engine repower projects, the replacement engine must provide at least a 15 percent NOx reduction relative to the baseline engine. The replacement engine cannot be significantly modified or reconfigured in any way during the project life.

(C) Funding of Tier 4 marine repower projects:

(1) Due to the absence of emission factors, 2016 and newer model year Tier 4 emission standards (Table D-16) will be used for emission reduction calculations.

(2) Tier 4 Engines using a Family Emission Limit (FEL) or Averaging, Banking, and Trading (ABT) to meet the Tier 4 emission standards will be funded at Tier 3 engine levels. Tier 3 emission factors will be used for emission reduction calculations.

(D) The maximum project life for a marine vessel repower project is 16 years. A longer project may receive case-by-case approval if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements and may be shorter.

(E) The total project repower cost may include charges for the following:

(1) The capital cost of the new engine.

(2) Purchase of or modifications to the cooling system; fuel and exhaust system; wiring, panel, and harness system; power take-offs; propulsion control system; gauges and alarms; and radiator and ventilation, if attached to or integral to the functioning of funded engine.

(3) Costs related to the purchase and/or installation of a new transmission may be eligible when it is a necessary part of the engine repower; and an ineligible expense when it is required for maintenance or repair purposes. Ordinarily, a statement from the vendor or applicant that the new reduced emissions engine is not compatible with the existing baseline transmission is sufficient justification for eligibility; please retain a copy of the vendor or applicant's statement(s) or other documentation in the project file.

(4) Frames needed to be extended or other parts needed to be cut or modified in order to accommodate the new engine, as well as paint or coating needed to protect those specific areas that were cut or modified.

(5) Tax and transport for eligible parts or costs.

(6) Labor for installation of or modification to parts eligible for funding.

(F) The total project repower cost may not include charges for the following:

(1) Rudders or propellers.

(2) Steering system.

(3) Sea trials and dry docking.

(4) Paint, coatings, or hull work not directly related to the engine repower.

(5) Tax and transport for ineligible parts or costs.

(6) Labor for installation of or modification to parts ineligible for funding.

(7) Any parts or labor typically included as part of the vessel or engine overhaul, maintenance, repair, or upkeep.

(8) These and other items may be eligible for funding on a case-by-case basis if it can be proven that they are not part of the typical

vessel overhaul, repair, upkeep or maintenance and are a necessary part of the engine repower.

(G) All engines replaced as part of a marine vessel repower project must be scrapped, consistent with the requirements of Chapter 3: Section BB.

3. **Engine Remanufacture Kit**. Engine remanufacture kit projects must meet the following criteria:

(A) A remanufacture kit for a specific vessel type may be certified by the U.S. EPA, IMO, or approved by ARB to meet the requirements of the CHC Regulation, but must be surplus to the current in-use requirements of CHC Regulation.

(1) Engine remanufacture kits specific to vessels not subject to the in-use requirements of the CHC Regulation must meet U.S. EPA Tier 3 marine or Tier 3 non-road engine emission standards or cleaner (e.g., Tier 3 or higher).

(2) Engine remanufacture kits specific to vessels subject to the in-use requirements of the CHC Regulation must be surplus to the current requirements of the regulation.

(B) The applicant must provide a copy of the regulatory compliance letter from ARB (similar to an Executive Order) to the air district demonstrating that the remanufacture kit is compliant with the CHC Regulation. Remanufacture kits which reduce NOx only are not eligible for Carl Moyer Program funding.

(C) Remanufacture kit projects have a maximum project life of six years.

(D) If the U.S. EPA Emissions Warranty for the project kit requires fuel injectors to be replaced before the end of the project life, the applicant must replace the injectors with equivalent low-emission injectors. The Carl Moyer Program project cost may include the replacement injectors. The project annual report must include documentation that all required maintenance identified in the U.S. EPA Emissions Warranty (if applicable) is completed on schedule. Maintenance other than replacement of low-emission fuel injectors is not eligible for Carl Moyer Program funding.

4. **Retrofits**. Retrofits include selective catalytic reduction, diesel oxidation catalysts or diesel particulate filters. A retrofit device must be verified by ARB to reduce emissions from the project engine in order to be eligible for funding. This project type will be considered for funding on a case-by-case basis.

5. **Hybrid System**. A Hybrid System project must meet the following criteria:

(A) The hybrid system must be verified by the United States EPA to reduce the total vessel emissions of NOx, ROG, and PM by specific percentages compared to the baseline vessel.

(B) The hybrid system must be verified to reduce NOx by at least 15 percent compared to the baseline vessel.

(C) The vessel must meet the EPA verification parameters (i.e. vocation, duty cycle, horsepower range) for the proposed hybrid system.

(D) The vessel must be compliance with the CHC Regulation engine replacement schedule for meeting Tier 2 or Tier 3 standards.

(E) The vessel must have Tier 3 or cleaner propulsion engines and Tier 2 or cleaner auxiliary engines.

(F) The applicant must be able to provided individual usage history for each engine on the baseline vessel.

(G) Hybrid system installation projects have a maximum project life of 5 years.

(H) The hybrid system must include a manufacturer's warranty for the duration of the project life.

(I) Eligible costs for a Hybrid System project include the components and labor costs directly related to the purchase and installation of a hybrid system.

(J) Ineligible costs for a hybrid system include the following:

(1) Paint, coatings, or hull work not directly related to the hybrid system installation.

(2) Tax and transport for ineligible parts or costs.

(3) Sea trials and dry docking.

(4) Labor for installation of or modification to parts ineligible for funding.

(5) Any parts or labor typically included as part of the vessel or engine overhaul, maintenance, repair, or upkeep.

(6) Other items may be eligible for funding on a case-by-case basis if it can be proven that they are not part of the typical vessel overhaul, repair, upkeep or maintenance and are a necessary part of the hybrid system.

(K) All engines replaced as part of Hybrid System project must be scrapped, consistent with the requirements of Chapter 3: Section BB.

6. **Ship-Side Shore Power Projects**. The retrofit of a marine vessel to enable shore power connection. For shore-side projects see Chapter 10: Infrastructure.

(A) Only a marine vessel owner may apply to receive Carl Moyer Program funding for a ship-side power project.

(B) Vessels subject to the Shore Power Regulation:

(1) Applications for Carl Moyer Program funding of shore power projects must include a copy of the most recent Vessel Plan, Annual Statement of Compliance as identified in Section (g) of the Shore Power Regulation. All subsequent project reports to air districts must include any new or updated Vessel Plans in order to evaluate compliance with the project contract.

(2) The commitment of visits and hours made by the applicant, above those required by the Shore Power Regulation, must be used in the project cost-effectiveness calculation and is required in the contract between the applicant and the air district.

(3) The entire fleet roster and all the California ports of harbor the fleet will be visiting. From the locales submitted, the fleet must indicate per location, the number of vessel visits and hours per year the fleet will be utilizing shore-side power.

(C) Up to 100 percent of necessary vessel (non-transformer) retrofit costs, specifically required to allow the vessel to plug into shore-side power, are eligible for Carl Moyer Program funding. Up to 50 percent of any necessary transformer costs on board the vessel are eligible for Carl Moyer Program funding.

(D) Docking at ports or terminals funded by the Proposition 1B Goods Movement Program is not prohibited; however, vessel retrofits funded with Carl Moyer Program funds cannot claim emission reductions resulting from ship visits to ports or terminals during the active Proposition 1B Goods Movement Program contract period.

(E) The Carl Moyer Program shall not pay for energy costs (fuel or electricity), shore power routine maintenance, or labor costs for connection and disconnection of the vessel to shore-side power.

(F) All contracts for Carl Moyer Program funding of shore power projects must include a stipulation that receipt of program funding is contingent on the project being post-inspected and operational. The project contract must include a provision that if the shore power is not used for the total hours committed to in the contract, the project participant shall return the pro-rated contract amount (commensurate with the shortfall in usage) to the air district. If the contract activity is not met, air districts may refer to

Chapter 3 Section FF.4. to address this underutilization. However, the contract must include language prohibiting the grantee from obtaining a waiver from the contracted usage, specifically Section FF.4.(D).

(G) Shore power projects have a maximum project life of 20 years. A longer project may receive case-by-case approval if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements and may be shorter.

(H) The emissions from vessels using grid power in lieu of auxiliary engines when the vessel is at berth are assumed to be reduced by 90 percent. The emission reductions from a shore-side transformer project are calculated as the total emission reductions from each participating ship. Each ship's emission reductions calculated as: (Ship emission rate * berthing time * power requirements * number of visits * 0.9).

(I) Estimated berthing time shall include the time needed to connect and disconnect the vessel to shore power. Ship emission rates and power requirements are included in Appendix D.

7. **Marine Vessel Exhaust Capture and Control System**. Funding for the purchase of exhaust capture and control systems may be approved on a case-by-case basis.

CHAPTER 8: LIGHT-DUTY VEHICLES

This chapter describes the minimum criteria and requirements for Moyer Program light-duty vehicle projects.

A. Projects Eligible for Funding

Voluntary Accelerated Vehicle Retirement (VAVR) projects are eligible for Moyer Program funding. VAVR projects scrap older, more-polluting vehicles earlier than their expected lifetime that are still operational and have useful remaining life. Two types of VAVR projects are allowed: conventional and high emitting. Retirement of a high emitting vehicle results in emission reductions greater than those generated by conventional projects. To be eligible for a high emitting VAVR project, a vehicle's Smog Check results must exceed the pass/fail emission standards for the vehicle's model year and class.

The Bureau of Automotive Repair (BAR) concurrently administers two different vehicle retirement programs similar to the Moyer Program, the Enhanced Fleet Modernization Program's (EFMP) Retirement-Only component and their own Consumer Assistance Program (CAP). Although the Moyer, EFMP Retirement-Only, and CAP programs are administered and operated in a consistent manner, each program has different eligibility requirements, funding sources, and accepts vehicles at different times within the Smog Check cycle. The Moyer Program accepts vehicles that have passed their most recent Smog Check inspection, while CAP accepts vehicles that have failed their most recent Smog Check. EFMP Retirement-Only however, accepts vehicles that have either passed or failed their most recent Smog Check, but is limited to income eligible applicants only.

B. Maximum Eligible Funding Amounts

VAVR projects are subject to the Moyer Program cost-effectiveness limit and must meet all other relevant criteria in Section D of this chapter. Incentives paid for eligible VAVR projects are limited to a maximum of $1,500 per vehicle. Air districts have the authority to set more stringent project requirements.

C. Regulatory Background

Moyer Program VAVR projects are subject to the requirements of the VAVR Regulation, California Code of Regulations (CCR), title 13, section 2601 et seq. Air districts may choose to act as the enterprise operator in lieu of contracting out this work to a third party. However, costs incurred by the air district to perform the duties of an enterprise operator shall be considered administrative costs.

VAVR projects funded through AB 923 are authorized by Health and Safety Code (H&SC), section 44229(b)(4) which states that these projects must be in compliance with guidelines adopted by ARB. This chapter constitutes ARB's adopted guidelines for VAVR projects.

D. Project Criteria

The following criteria provide the minimum requirements for Moyer Program VAVR projects. All projects must also conform to Chapter 2: General Criteria, as well as the project application, contract, reporting, and other requirements as described in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional or more restrictive requirements to address local concerns.

Vehicle Eligibility Requirements:

1. Participation shall be entirely voluntary for vehicle owners.

2. A vehicle volunteered for retirement must be a diesel or gasoline-powered passenger car or light-duty truck up to 10,000 pounds gross vehicle weight.

3. A vehicle volunteered for retirement must be currently registered with the Department of Motor Vehicles (DMV) as an operating vehicle and must have been registered for at least 24 consecutive months, to an address within the air district in which the VAVR enterprise is operated, prior to the date of the sale to a VAVR enterprise. Smog Checks must be performed as required by DMV in order for the vehicle to be considered registered.

(A) A vehicle may also be eligible if the owner of the vehicle placed the vehicle in planned non-operational status, per Vehicle Code section 4604 et seq., for up to 60 days during the previous 24 month registration period and occurring at least 90 days immediately prior to its sale to the VAVR enterprise.

(B) A vehicle may also be eligible if the registration has lapsed for a period not to exceed 181 days during the previous 24 months and all appropriate registration fees and late penalties have been paid to DMV, provided that the vehicle is registered for at least 90 days immediately prior to its sale to a VAVR enterprise.

4. A vehicle volunteered for retirement shall be driven to the VAVR enterprise purchase site to be retired under its own power.

5. A vehicle volunteered for retirement whose emission control systems have been tampered with as defined in CCR, title 16, section 3340.41.5 is not eligible until such tampering has been completely corrected.

6. A vehicle volunteered for retirement shall not be operating under a Smog Check repair cost waiver or economic hardship extension.

7. If a vehicle volunteered for retirement is within 60 days of its next required Smog Check inspection, the vehicle shall pass a Smog Check without receiving a repair cost waiver or economic hardship extension prior to acceptance by a VAVR enterprise.

8. If a vehicle volunteered for retirement is within 61-90 days of its next required Smog Check, the air district shall verify that the vehicle has not failed a Smog Check during this time frame.

9. A vehicle volunteered for retirement shall pass functional and equipment eligibility inspections as specified in the VAVR Regulation, CCR, title 13, section 2603(b).

10. For high emitting VAVR projects, a vehicle volunteered for retirement must receive a confirmatory Smog Check to establish its baseline emissions, and the emissions must exceed the pass/fail emission standards for the model year and vehicle class as defined in CCR, title 16, section 3340.

    (A) Only vehicles identified as potential high emitters through a technology operated in accordance with the VAVR Regulation, CCR, title 13, section 2610 and approved by ARB are eligible to receive extra emission reductions credit for VAVR projects.

    (B) If a vehicle's emissions are within the pass/fail standards, the vehicle is not a high-emitter and does not quality for high emitter projects but may be retired for default emission reductions through a conventional VAVR project.

    (C) For pre-1974 model years, the pass/fail emission standards for the 1974 model year may be used to qualify vehicles for the project.

    (D) Smog Checks must be full tests and not "fast pass" tests. The test must be conducted only by BAR-licensed technicians according to BAR protocols and completed as close to the retirement date as reasonably possible.

    (E) Diesel-powered vehicles are not eligible for high emitting VAVR projects.

E. Emissions Measurement Methods

1. Smog Checks for model year 1999 and older gasoline powered vehicles are performed via a conventional Acceleration Simulation Mode (ASM) test. For certain vehicles, such as four-wheel and all-wheel drive vehicles, the Smog Check cannot be performed via an ASM test for safety or other mechanical reasons. In those limited cases, the Two Speed Idle (TSI) test may be used. The TSI test must be performed in strict compliance with BAR protocols. .

    (A) Consistent with the model's limitations, TSI test results and the BAR protocol may only be used to predict ROG emissions, as the TSI test does not directly measure either NOx or PM. For high emitting vehicles that are retired, default evaporative ROG, NOx, and PM emission reductions may be claimed.

2. Smog Checks for model year 2000 and newer gasoline powered vehicles and 1998 and newer diesel powered vehicles are performed via an On-Board Diagnostic Inspection (OIS) test. The OIS test must be performed in strict compliance with BAR protocols.

(A) Consistent with the model's limitations, OIS test results and the BAR protocol may only be used to predict ROG, NOx, and PM emissions, as the OIS test does not directly measure tailpipe emissions.

F. Air District Project Plan Requirements

1. An air district shall submit a detailed VAVR program project plan to ARB for approval and must receive written approval from ARB's Executive Officer (EO) prior to implementing a VAVR program. The program must follow the plan, and any substantive changes must be pre-approved by ARB in writing.

2. The air district project plan shall include, at a minimum, the following:

(A) The name, title, and telephone number of the air district program contact.

(B) An evaluation of environmental justice considerations including, but not limited to, outreach addressing community needs.

(C) An estimate of the number of vehicles to be retired and an estimate of the cost-effectiveness with all assumptions and calculations used.

(D) Copies of contracts with enterprise operators, consultants, and any other third party contractor(s) participating in the project.

(E) A description of and timetable for monitoring and auditing enterprise operators, consultants, and other third party contractor(s).

(F) A copy of the statement of certification that an enterprise operator(s) has demonstrated compliance with all applicable provisions of the VAVR Regulation.

(G) The protocol for verifying vehicle eligibility including confirmation of compliance with any Smog Check requirements and for informing the public of the availability of vehicles eligible for retirement.

(H) A sample of the records that will be required of the enterprise operator(s).

(I) A description of any project criteria elements stricter than the ARB minimum requirements.

3. For high-emitter projects, the air district project plan shall also include, at a minimum, the following:

(A) A detailed operating description of the technology and software used to identify high emitting vehicles including, but not limited to, set up, typical operation, location and location criteria, calibration, and maintenance.

(B) A copy of the standard operating procedures for that technology including software maintenance and the criteria to be used to identify a high emitting vehicle with documentation that operating personnel are trained and qualified.

(C) A detailed description of the methodology used to calculate extra emission reductions, including changes to any ARB-recommended method.

(D) If an air district intends to include an evaporative emissions testing element, the plan must specify the test equipment and include a copy of the test protocol.

(E) If an air district intends to include a PM measuring element, the plan must specify the test equipment and include verification that the methodology for measuring PM is scientifically valid, documentation that the results are reproducible, and a complete copy of the methodology.

(F) An itemized breakdown of estimated project costs including, but not limited to, funds allocated to identifying high emitters, the number of vehicles to be retired, data analysis, outreach to and solicitation of vehicle owners.

G. Recordkeeping and Reporting

1. For each VAVR project, the air district shall retain the following records for inclusion in the annual report to ARB.

(A) Vehicle Identification Number and license plate digits

(B) Vehicle odometer reading

(C) Vehicle make and model

(D) Name, address, and phone number of legal vehicle owner(s)

(E) Name and business address of the enterprise operator

(F) Emission reductions claimed

(G) Total air district cost to retire each vehicle

(H) Date of vehicle purchase and retirement by the enterprise operator

(I) Data identifying vehicles as potential high emitters along with confirmatory Smog Check date and results (High Emitter VAVR)

2. For each VAVR project, the enterprise operator shall maintain the following records. These records are not required for the annual report but must be made available to ARB for review.

   (A) Reproduction of California Certificate of Title and registration, as signed-off by the seller at time of final sale to the enterprise operator.

   (B) Reproduction of the applicable certificate of functional and equipment eligibility.

   (C) Reproduction of the applicable Notice to Dismantler (DMV Registration 42 form).

   (D) Reproduction of written documentation from DMV verifying that a vehicle meets the vehicle registration requirements of ARB's VAVR Regulation.

   (E) Copies of documentation demonstrating that the retired vehicle did not fail a Smog Check within 90 days prior to its sale to the enterprise operator.

3. Air districts and enterprise operators shall retain these records for the three year life of the project plus an additional two years.

H. Minimum Project Application Requirements

Air districts must ensure project applications include the specific information needed to determine program eligibility and populate the Clean Air Reporting Log (CARL), including the information needed to track the project and calculate project cost-effectiveness.

I. Offering Vehicles/Parts to the Public

1. Enterprise operators must inform the air district of the vehicles ready for dismantling, and the air district must provide an easily accessible and detailed description of the vehicles to interested parties including collectors and enthusiasts as defined in CCR, title 13, section 2605(a)(1).

2. The enterprise operator must wait a minimum of ten days after informing the air district of vehicles ready for dismantling before submitting a Notice to Dismantle to DMV, and if interested parties contact the enterprise operator, the enterprise operator must hold the vehicle for a minimum of seven additional days as defined in CCR, title 13, section 2605(a).

3. Upon completion of the ten day waiting period (and additional seven day extension as applicable), the emission-related and drive train parts must be removed from the retired vehicle and destroyed prior to offering the remaining non-emission-related and non-drive train parts for resale, as defined in CCR, title 13, section 2606(b).

4. If a vehicle, or a vehicles emission-related or drive train parts, are resold instead of retired, no emission reductions will be generated; and no Moyer Program funds may be used for retiring the vehicle. However, non-emission-related and non-drive train parts from the vehicle may be sold at the discretion of the enterprise operator.

J. Emission Benefits

Emission reductions from conventional VAVR projects are calculated using the VAVR Regulation methodology as described in CCR, title 13, section 2608(g). They are equal to the retired vehicle's emission rates minus those of the replacement vehicle with the difference multiplied by the average vehicle miles traveled by light-duty vehicles in the year of vehicle retirement and then multiplied by the three year project life. The retired vehicle's emission rates are equal to those for gasoline-powered, light-duty vehicles for the model year of the retired vehicle in the year of vehicle retirement. Replacement vehicle emissions are the fleet average emissions for all gasoline-powered light-duty vehicles for model years 1990 through the year of vehicle retirement. Emission rates and average vehicle miles traveled are generated by ARB's motor vehicle emissions model. ROG, NOx, and PM emission reductions over the three year project life by vehicle model year are located in Tables 13-1 through 13-5 below. These tables will be updated on an as needed basis through a mail-out to reflect revisions to the motor vehicle emissions model and/or to include additional years.

Table 8-1
Retired Vehicle Emission Reductions, CY 2016 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1973	376.3	141.8	2.21
1973	382.2	146.1	2.28
1974	340.8	147.3	2.35
1975	288.9	146.3	2.37
1976	271.2	182.9	2.43
1977	254.4	194.7	2.40
1978	166.9	107.5	2.41
1979	161.5	102.8	2.44
1980	150.9	106.1	2.38
1981	136.3	83.7	0.94
1982	149.1	84.3	0.95
1983	165.1	85.0	0.92
1984	164.9	90.5	0.94
1985	155.3	88.5	0.96
1986	166.4	89.4	0.98
1987	153.9	86.9	1.01
1988	146.8	85.0	1.04
1989	133.6	76.3	1.05
1990	123.1	66.0	1.04
1991	100.4	68.2	0.55
1992	99.2	71.7	0.57
1993	92.2	69.6	0.59
1994	84.0	63.9	0.60
1995	71.6	51.4	0.60
1996	56.6	38.4	0.13
1997	46.3	36.5	0.14
1998	23.5	30.5	0.14
1999	19.6	27.8	0.14
2000	14.5	21.5	0.14
2001	12.4	19.9	0.14
2002	10.9	19.8	0.14
2003	8.3	19.1	0.15

Source: EMFAC2014 V1.0.7

Table 8-2
Retired Vehicle Emission Reductions, CY 2017 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1974	377.5	143.3	2.24
1974	338.2	144.9	2.30
1975	286.6	144.6	2.32
1976	269.5	182.1	2.38
1977	252.3	192.2	2.36
1978	165.3	105.4	2.36
1979	160.3	101.2	2.39
1980	149.6	103.9	2.34
1981	135.1	82.0	0.92
1982	148.3	82.6	0.93
1983	165.8	83.5	0.90
1984	165.3	88.9	0.92
1985	155.8	87.1	0.93
1986	167.6	88.1	0.96
1987	154.8	85.0	0.99
1988	149.0	84.3	1.02
1989	137.0	75.7	1.02
1990	127.4	66.4	1.02
1991	103.1	68.7	0.54
1992	102.3	72.3	0.56
1993	95.9	70.4	0.57
1994	88.2	64.8	0.59
1995	75.7	52.7	0.59
1996	60.4	39.7	0.13
1997	49.7	37.8	0.13
1998	25.6	31.7	0.13
1999	21.7	29.0	0.13
2000	16.7	22.8	0.13
2001	14.7	21.4	0.14
2002	13.1	21.1	0.14
2003	10.6	20.5	0.14

Source: EMFAC2014 V1.0.7

Table 8-3
Retired Vehicle Emission Reductions, CY 2018 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1975	333.7	140.9	2.24
1975	283.0	141.3	2.25
1976	265.2	177.2	2.31
1977	250.7	189.7	2.30
1978	163.6	102.4	2.30
1979	158.7	98.3	2.33
1980	148.3	101.1	2.28
1981	133.9	79.5	0.89
1982	147.4	80.3	0.90
1983	166.0	81.1	0.87
1984	166.2	86.7	0.90
1985	156.6	84.8	0.91
1986	169.2	86.1	0.93
1987	156.0	83.2	0.95
1988	150.4	82.0	0.98
1989	139.8	74.6	0.99
1990	130.6	65.5	0.98
1991	105.3	68.6	0.52
1992	105.2	72.3	0.54
1993	99.3	70.5	0.55
1994	92.4	65.5	0.57
1995	80.0	53.3	0.57
1996	64.3	40.5	0.12
1997	53.2	39.0	0.13
1998	28.0	32.8	0.13
1999	24.1	30.2	0.13
2000	19.0	24.0	0.13
2001	17.1	22.6	0.13
2002	15.6	22.5	0.13
2003	13.0	21.8	0.14

Source: EMFAC2014 V1.0.7

Table 8-4
Retired Vehicle Emission Reductions, CY 2019 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1976	279.3	137.8	2.19
1976	262.3	174.9	2.24
1977	246.6	184.8	2.23
1978	161.5	99.6	2.23
1979	157.1	95.7	2.26
1980	146.5	98.1	2.21
1981	132.8	77.4	0.86
1982	146.5	78.0	0.88
1983	166.0	78.7	0.84
1984	166.5	84.2	0.87
1985	157.8	82.6	0.88
1986	171.1	83.9	0.90
1987	157.3	81.3	0.92
1988	152.0	80.2	0.95
1989	141.4	72.4	0.96
1990	133.1	64.6	0.95
1991	106.6	67.6	0.50
1992	107.4	72.1	0.52
1993	102.3	70.5	0.53
1994	96.1	65.8	0.55
1995	84.1	54.0	0.55
1996	68.1	40.7	0.12
1997	56.6	39.7	0.12
1998	30.2	34.0	0.12
1999	26.5	31.4	0.12
2000	21.3	25.1	0.12
2001	19.3	23.6	0.12
2002	17.9	23.5	0.13
2003	15.4	23.0	0.13

Source: EMFAC2014 V1.0.7

Table 8-5
Retired Vehicle Emission Reductions, CY 2020 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1977	257.3	169.2	2.18
1977	244.9	182.3	2.17
1978	159.5	96.4	2.17
1979	155.3	93.1	2.20
1980	145.0	95.2	2.15
1981	131.3	74.8	0.84
1982	145.6	75.9	0.85
1983	165.7	76.2	0.82
1984	166.6	81.8	0.84
1985	158.6	80.2	0.85
1986	173.7	81.7	0.87
1987	158.9	79.2	0.89
1988	153.7	78.5	0.92
1989	143.3	70.9	0.93
1990	134.3	62.5	0.92
1991	107.5	66.5	0.49
1992	108.7	71.0	0.50
1993	104.7	70.3	0.52
1994	99.4	66.1	0.53
1995	87.6	54.4	0.53
1996	71.6	41.0	0.12
1997	59.8	40.0	0.12
1998	32.1	34.6	0.12
1999	28.7	32.6	0.12
2000	23.6	26.3	0.12
2001	21.5	24.6	0.12
2002	20.0	24.3	0.12
2003	17.5	24.0	0.13

Source: EMFAC2014 V1.0.7

1. Emission reductions from retired diesel-powered vehicles are also calculated using the VAVR Regulation methodology. Because of limited data and minor differences in emission rates from one year to another, average emission reductions are shown for only two model year ranges in the four calendar year intervals shown. Replacement vehicle emission rates are the same as those used for gasoline-powered vehicles. Average ROG, NOx, and PM emission reductions over the three year project life by model year range are located in Tables 13-6 and 13-7. There are no evaporative emission reductions for the retirement of a diesel-powered vehicle.

Table 8-6
Retired Diesel-Powered Vehicle Emission Reductions

Model Year Range	Pollutant	CY 2014-2017 (lb/3yr)
Pre 1984	ROG	11.6
	NOx	53.4
	PM	11.5
1984-1992	ROG	10.8
	NOx	42.8
	PM	8.4

Source: EMFAC2014 V1.0.7

Table 8-7
Retired Diesel-Powered Vehicle Emission Reductions

Model Year Range	Pollutant	CY 2018-2021 (lb/3yr)
Pre 1984	ROG	10.8
	NOx	48.9
	PM	10.1
1984-1992	ROG	10.3
	NOx	39.6
	PM	7.4

Source: EMFAC2014 V1.0.7

2. Please refer to Appendix C for a discussion of the methodology for estimating emission reductions and how to calculate cost-effectiveness.

3. Currently, none of the air district VAVR programs have components for high emitter. ARB will provide the methodology for any new plans which include special cases, such as high emitter projects, through a mail-out as needed.

CHAPTER 9: LAWN AND GARDEN EQUIPMENT REPLACEMENT

This chapter describes the minimum criteria and requirements for the Moyer Program Lawn and Garden Equipment (L&GE) replacement projects. L&GE replacement provides a streamlined approach to reduce emissions by replacing existing gasoline lawn mowers with cordless, zero-emission electric lawn mowers. Zero-emission lawn mowers are not required by regulation, so the emission benefits are surplus. The Moyer Program provides funding for vouchers to offset part of the cost of the replacement electric lawn mower.

A. Projects Eligible for Funding

New Replacement Cordless, Zero-Emission Electric Lawn Mower Purchase: The purchase of a new cordless, zero-emission electric lawn mower to replace the existing gasoline lawn mower that is to be scrapped is eligible for funding under this program.

No emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, an electric lawn mower model that generates credits by participating in ARB's zero-emission equipment credit averaging, banking and trading program is not eligible for funding.

B. Maximum Eligible Funding Amounts

The maximum total project funding amount associated with reducing the eligible costs of a L&GE replacement project has been predetermined as $145 per lawn mower.

C. Project Criteria

The criteria listed below are the minimum requirements for L&GE replacement project participants: air districts; cordless zero-emission electric lawn mower manufacturers and merchants; hazardous waste material disposal companies and recycling companies. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration, except for the following Sections: S. Project Application Requirements, W. Project Pre-Inspection, X. Project Post-Inspection, Y. Project Invoice and Payment, Z. Grantee Annual Reporting, AA. Air District Audit of Projects, BB. Nonperforming Projects; and as noted elsewhere below.

1. **General Lawn and Garden Equipment Replacement Criteria**. As allowed under Chapter 2, Sections I, N, O, P and Q, an air district may contribute additional non-Moyer Program incentive funds towards the purchase of the individual lawn mower. However, Moyer Program and AB 923 funds combined cannot exceed $145. Bulk-purchasing discounts from the electric lawn mower manufacturer or merchant are also allowed.

2. **Participant Requirements.** All participants must meet the following requirements to be eligible for funding**:**

   (A) *Application Form*: To be approved for L&GE replacement funds, the applicant must meet L&GE replacement program requirements and submit an application. Once an application is approved by the air district, the air district will return the application form to the applicant. The applicant must turn in the approved application form with applicant's signature at the location designated by the air district.

   (B) *Applicant must certify in the application*:

      (1) California Residence: Participants must reside in California. Air districts may add the requirement that participants reside within the air district.

      (2) Own and Operate: The participant must currently own and operate the existing gasoline lawn mower in California.

      (3) Replacement Cordless, Zero-Emission Electric Lawn Mower Operation in California: The participant must intend to own and operate the new replacement cordless, zero-emission electric lawn mower in California for a minimum of thirty-six (36) months from the date of purchase.

3. **Existing Lawn Mower Requirements.** Each existing lawn mower must meet the following conditions before the L&GE replacement application can be approved and awarded a voucher.

   (A) *Operational Gasoline Lawn Mowers*: The existing lawn mower must be in operational condition. The lawn mower must operate on gasoline, be able to start, move, and have all operational parts. Applicant certifies operability on the application form.

   (B) *Delivery of the Existing Lawn Mower to the Air District or Air District-specified Facility*: The participant must deliver the existing lawn mower to the air district or air district-specified facility. The air district or air district-specified facility must reject the existing lawn mower if it is deemed inoperative.

4. **Replacement Lawn Mower Requirements.** All replacement lawn mowers must meet the following requirements before a voucher is awarded to the participant:

   (A) *New, Cordless, Zero-Emission Electric Lawn Mower*: The replacement lawn mower must be a new, cordless, zero-emission electric lawn mower.

(B) *Not Used for Credit Generation*: Only an electric lawn mower model that does not generate credit or participate in ARB's zero-emission equipment credit averaging, banking and trading program is eligible for funding.

(C) *Purchase*: The replacement lawn mowers must be purchased from a participating air district, or a third party, participating manufacturer or participating merchant, as chosen by the implementing air district.

5. Air District Requirements. An air district implementing the program must meet the following requirements:

(A) *Add an addendum to the air district's Moyer Program Policies and Procedures*: An air district must create an addendum to its current Moyer Program Policies and Procedures (P&P's) describing their program within two (2) months after they begin implementation of the L&GE replacement program. Air districts are not required to submit this addendum to ARB but it must be available to ARB upon request.

(B) *Agreements*:

(1) An air district must have written agreements with both of the following parties:

a. A hazardous waste materials disposal company.

b. A recycling company.

The agreements can be included as part of the air district's agreements with the same entities for other Moyer Programs. The recycling company and the hazardous waste material company can be the same company.

(2) If an air district is working with either or both of the following parties,

a. A cordless, zero-emission electric lawn mower manufacturer, or

b. A cordless, zero-emission electric lawn mower merchant,

the air district must have a written agreement with that party. The agreement must include the requirements of subsection 6 (Participating Manufacturer Requirements) or 7 (Participating Merchant Requirements) of this chapter, as applicable, and Chapter 3: Program Administration, Section V. Minimum Contract Requirements, except for the following subsections: 6. Project Specifications, 7. Maintenance, 9. Reporting, and 11. Repercussions of Nonperformance - equipment operation requirement.

(C) *Third Party*: An air district may enter into an agreement with a third party to manage some of the air district's program requirements. The third party

must agree to comply with all L&GE replacement program requirements. The air district must train the third party on L&GE replacement program requirements and include an example of the agreement in its P&P's.

(D) *Application*: Applications, at a minimum, must have the following information:

(1) Information about the Applicant:

a. Name.

b. Mailing Address (including city, state, zip code).

c. Physical Address (if different from mailing address).

d. Phone Number.

e. Date of Application.

(2) Information about the Applicant's Existing Gasoline Lawn Mower:

a. Manufacturer (if known).

b. Model Year (if known).

c. Engine family (if known).

(3) Section for the applicant to certify the following information is accurate and true:

a. Existing gasoline lawn mower is operational.

b. Applicant resides in California.

c. Applicant currently owns and operates the gasoline lawn mower in California.

d. From the date of purchase, applicant intends to own and operate the new, cordless zero-emission electric lawn mower in California for a minimum of thirty-six (36) months.

e. The information provided in the application is true and correct and meets the minimum requirements of the L&GE replacement program.

f. "I understand that an incomplete or illegible application may be immediately rejected, and I will be notified."

g. “I understand as an applicant that incentive programs have limited funds and shall terminate upon depletion of program funding.”

(4) A box for the applicant to check to certify the information included in (3) is correct and signify the applicant’s agreement with the above statements.

(E) *Application Approval*: The application approval process consists of the following steps:

(1) Applicant submits application to the air district.

(2) Air district or designated third party reviews and approves application (if appropriate), and returns it to applicant. Application review and approval may be conducted on-site at a lawnmower exchange event.

(3) Applicant turns in approved application with applicant’s signature per subsection C. 2.(A).

(F) *Rejected Application*: If a submitted application is incomplete, ineligible, or illegible, the air district must reject the application immediately and notify the applicant within five days of receipt. Air districts may follow up with an applicant in order to complete an incomplete or illegible application.

(G) *Disbursement Request Requirements*: An air district may request Moyer Program funds as these funds become available. In order for an air district to be approved for a disbursement request, the air district must follow Chapter 3: Program Administration, Section E requirements, and also provide the following to ARB:

(1) Verification of board approval to implement the L&GE replacement program for the requested disbursement amount or more; and

(2) If applicable per Section 5(B)(2) a copy of at least one cordless zero-emission electric lawn mower manufacturer or merchant agreement; and

(3) A copy of at least one active hazardous waste materials disposal company agreement; and

(4) A copy of at least one active recycling company agreement; and

(5) A history (up to five years, if applicable) of previous years of the air district’s lawn and garden equipment exchange programs, including the following information:

a. Yearly amount funded.

b. Yearly number of mowers funded.

c. Yearly program administration costs.

d. Cordless, zero-emission electric lawn mower cost breakdown:

i. Amount air district paid to manufacturer.

ii. Amount air district pays from air district's local funds.

iii. Amount of any additional funds.

iv. Amount participant pays.

(H) *Operational Condition of Existing Lawn Mower*: Air district or air district-specified facility must ensure that each existing lawn mower is in apparently operational condition. The air district or air district-specified facility must reject the existing lawn mower if it is deemed inoperative.

(I) *Project Payment*: Air districts must include in their P&P's a detailed description of the process through which the air district provides payment to the cordless, zero-emission electric lawn mower manufacturer, merchant and/or applicant.

(J) *Merchant Reimbursement Package*: Prior to receiving reimbursement, an air district-specified third party, participating manufacturer or participating merchant must submit a reimbursement package to the air district. The following documents should be included in the reimbursement package:

(1) Invoice signed by the applicant that shows the final purchase price less the voucher award. In the case of an online merchant, the invoice does not have to be signed by the applicant.

(2) If a recycling code is used in addition to a voucher in order to purchase the lawn mower, the recycling code.

(3) The name and address of the participant.

(K) *Lawn Mower Destruction Documentation*: All existing gasoline lawn mowers must be destroyed. Air districts must collect from their participating Recycling Companies signed receipts that show the number of lawn mowers destroyed.

(L) *Audit and Monitoring*: Air districts must allow ARB to monitor their L&GE replacement program which may include audits of the air district's implementation of the program.

(M) *Meeting Environmental Justice (EJ) Requirements*: Air districts with environmental justice requirements shall not apply these requirements to the L&GE replacement application review until after each year of implementation. The air district must then review each project to determine if it helps to meet the air district's EJ requirements. If EJ requirements have not been met, then other Moyer Program funded projects will need to be used to fulfill this EJ requirement.

(N) Reporting in CARL: For liquidation reporting requirements the following information must be entered into the CARL database:

(1) Total number of lawn mowers exchanged.

(2) Date of the exchange of the final lawn mower.

(3) Total amount of Moyer Program funds liquidated.

(4) Date of liquidation of the final project.

(5) The Moyer Program Funding year.

(O) *Records Retention*: Air districts must retain all records of approved projects for a minimum of three (3) years from the date of issuing the voucher. For rejected projects, air districts must maintain a copy of the application, the rejection letter, and method of notification for three (3) years from the date the application was received.

6. Participating Manufacturer Requirements. Participating manufacturers' agreements must include the following information:

(A) *Covered Lawn Mowers*: Information about the cordless zero-emission electric lawn mowers covered by the agreement:

(1) Lawn Mower Model Name.

(2) Lawn Mower Year of Production.

(3) Lawn Mower Cutting Radius.

(4) Lawn Mower Battery Description (Voltage).

(5) Total number of cordless, electric lawn mowers covered by the agreement.

(6) The cost of each cordless, electric lawn mower.

(7) The total contract amount, or total contract amount not to exceed.

(8) The date by which the work shall be completed.

(9) Lawn Mower Warranty Description.

(B) *Manufacturer Qualifications*: A statement that the manufacturer meets the following minimum qualifications for participation in the L&GE replacement program, and shall continue to meet these qualifications throughout its participation in the L&GE replacement program.

(1) Manufacturer has had a valid business license for a minimum of the last two years.

(2) Manufacturer agrees to allow the air district or ARB to inspect cordless, zero-emission electric lawn mowers or audit program records covered under this Agreement during normal business hours.

(C) Aftermarket Service: A statement that the manufacturer shall provide aftermarket service to customers for defects in materials or workmanship as defined by the Terms and Conditions listed in the product warranty.

(D) *Recalls*: A statement that as soon as reasonably possible, manufacturer shall notify the air district and individually notify any and all purchasers of equipment through this program of any recall of the lawn mower or any of its constituent parts ordered by manufacturer or by a government agency.

(E) *Air District Does Not Warrant or Endorse Lawn Mowers*: A statement that the air district does not warrant or endorse the manufacturer's lawn mowers for any purpose, including materials, workmanship, merchantability or fitness for use. Nothing in the air district/manufacturer contract shall be construed as a warranty or endorsement.

(F) *Averaging, Banking and Trading Program Exclusion*: A statement that no emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, electric lawn mower models included in the agreement are not generating credits by participating in ARB's zero-emission equipment credit averaging, banking and trading program or any similar program.

(G) *Return of Funds*: A statement that, should the manufacturer fail to show that they are implementing the program consistent with the L&GE replacement program requirements, the manufacturer or merchant shall return to the air district funds in proportion to any loss of emission reductions compared with the projected reductions of the agreement.

7. **Participating Merchant Requirements**. Participating merchants' agreements must include the following:

(A) *Covered Lawn Mowers*: Information about the cordless, zero-emission electric lawn mowers covered by the agreement:

(1) Lawn Mower Model Name.

(2) Lawn Mower Year of Production.

(3) Lawn Mower Cutting Radius.

(4) Lawn Mower Battery Description (Voltage).

(5) Estimate of total number of cordless electric lawn mower units covered by the agreement.

(6) The cost of each cordless, electric lawn mower.

(7) The total contract amount, or total contract amount not to exceed.

(8) The date by which the agreement ends.

(9) Lawn Mower Warranty Description.

(B) *Merchant Qualifications*: A statement that the merchant meets the following minimum qualifications for participation in the L&GE replacement program, and shall continue to meet these qualifications throughout its participation in the L&GE replacement program.

(1) Merchant has had a valid business license issued in California for a minimum of the last two years.

(2) Merchant agrees to allow the air district or ARB to inspect cordless, zero-emission electric lawn mowers or audit program records covered under this Agreement during normal business hours.

(C) *Invoice*: A statement that the merchant shall show on the replacement lawn mower invoice the voucher amount. The receipt of voucher funds does not lower the base price of the lawn mower nor does it reduce the tax basis of the lawn mower, but is an incentive to the lawn mower owner that will result in a lower price paid by the participant.

(D) *Average, Banking and Trading Program Exclusion*: A statement that no emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, electric lawn mower models included in the agreement are not generating credits by participating in ARB's zero-emission equipment credit averaging, banking and trading program or any similar program.

(E) *Return of Funds*: A statement that, should the merchant fail to show that they are implementing the program consistent with L&GE replacement program requirements, the manufacturer or merchant shall return to the air district funds in proportion to any loss of emission reductions compared with the projected reductions of the agreement.

8. **Participating Recycling Company Requirements**. Participating recycling companies' agreements must include the following:

(A) *Destruction of Lawn Mowers*: A statement that the recycling company shall destroy the lawn mower and engine within 60 days of receipt such that the lawn mower is no longer operable or repairable.

(B) *Receipt of Lawn Mower Destruction*: A statement that the recycling company shall notify the air district that a lawn mower is destroyed by sending the air district a signed receipt indicating the number of lawn mowers destroyed.

D. Emission Benefits

L&GE replacement provides emission benefits by providing lawn mower owners the incentivized option of purchasing a zero-emission lawn mower instead of a higher polluting gasoline lawn mower. Zero-emission lawn mowers are not required by regulation, so the emission benefits are surplus. Emission reductions are the difference in emissions from a new gasoline lawn mower engine and the emissions of a zero-emission lawn mower for the operational lifetime of the zero-emission lawn mower. The average operational lifetime of a replacement zero-emission lawn mower is estimated to be approximately 10 years. L&GE replacement project emission reductions are shown in Table 9-1.

Table 9-1
Gasoline Lawn Mower Emission Reductions (lbs/yr)

Model Year	ROG			NOx	PM10
	Exhaust	Evap	Total	Exhaust	Exhaust
2010	0.290	0.847	1.137	0.071	0.048

CHAPTER 10: INFRASTRUCTURE

Senate Bill 513 (Beall, Chapter 610, Statutes of 2015) provides the California Air Resources Board's (ARB) Carl Moyer Program the ability to incorporate infrastructure projects into its program. It authorizes the funding of projects that enable the deployment of alternative, advanced, and cleaner technologies to support the state's air quality goals. Specifically, Health and Safety Code 44281(c) gives ARB the ability to provide funding toward the installation of fueling or energy infrastructure to fuel or power covered sources. Statute does not require infrastructure projects to meet a cost-effectiveness threshold.

This chapter provides project criteria for selecting and funding infrastructure projects that enable emission reductions in meeting state and local air quality goals. All infrastructure projects must be used to fuel or power a covered source as defined by Health and Safety Code section 44275(a)(7). These covered sources include but are not limited to on-road, off-road, agricultural and marine vessel emission sources.

A. Funding

California air districts determine project priority and select projects funded within their region.

Table 10-1. Maximum Percentage of Eligible Cost for Moyer Program Infrastructure Projects

Maximum Percentage of Eligible Cost	Infrastructure Projects
50%	All Projects
60%	Publicly Accessible Projects
65%	Projects with Solar/Wind Power Systems[1]
75%	Publicly Accessible Projects with Solar/Wind Power Systems[1]
100%	Public School Buses - Battery Charging and Alternative Fueling

[1]At least 50 percent of the energy provided to covered sources by the project must be generated from solar or wind.

B. Eligible Projects

Eligible projects are those that provide fuel or power to a covered source, and include, but are not limited to, the following:

1. **Battery Charging Station**. New, conversion of existing, and expansion to existing non-residential battery charging stations. (e.g. workplace charging, DC fast chargers along freeway roadway corridors, long-term charging at destination

areas such as airports and shopping centers, and charging at distribution centers and warehouses).

2. **Alternative Fueling Station**. New, conversion of existing, and expansion to existing hydrogen and natural gas fueling stations.

3. **Stationary Agricultural Pump**. Pump electrification.

4. **Shore Power**. Shore-side electrification.

5. Additional projects may be considered on a case-by-case basis, such as residential battery charging stations for low-income and multi-unit dwellings, as well as infrastructure for transport refrigeration units and truckstop electrification.

C. Eligible Applicants

Public and private entities are eligible to apply unless otherwise stated. Public entities include but are not limited to state, metropolitan, county, city, multi-county special district (e.g. water district), school district, university, and federal agencies and organizations. Private entities include but are not limited to private organizations and corporations. Out of state applicants are eligible to apply provided that the infrastructure is situated in California.

D. Eligible Costs

Eligible costs are limited to the purchase and installation of the equipment for power delivery or fueling directly related to the infrastructure project. The eligible costs listed below must utilize commercially available technologies.

1. **Eligible project costs include:**

   (A) Cost of design and engineering, (i.e., labor, site preparation, Americans with Disabilities Act accessibility, signage).

   (B) Cost of equipment (e.g., charging/fueling units, parts for electrical upgrade, energy storage equipment, materials).

   (C) Cost of installation directly related to the construction of the station.

   (D) Meter/data loggers.

   (E) On-site power generation system that fuels or powers covered sources (i.e., solar and wind power generation equipment).

2. **Air districts have the option to fund the following discretionary costs:**

   (A) Federal, sales, and other taxes.

   (B) Shipping and delivery costs.

(C) Fees incurred pre-contract execution (i.e., permits, design, engineering, site preparation), license fees, environmental fees, commissioning fees (safety testing), and onsite required safety equipment.

(D) Consulting fees associated with the preparation of Environmental Assessment, Environmental Impact Statement, Environmental Impact Report, or other California Environmental Quality Act (CEQA) documents, etc.

E. Ineligible Costs

Ineligible costs include but are not limited to:

1. Existing station upgrade.

2. Fuel and energy costs.

3. Non-essential equipment hardware.

4. Operation cost (e.g., operational fees, maintenance, repairs, improvements, spare parts).

5. Extended warranty.

6. Insurance.

7. Data collection and reporting.

8. Grantee administrative costs.

9. Travel/lodging.

10. Employee training and salaries.

11. Legal fees.

12. Real estate property purchases/leases.

13. Performance bond costs.

14. Construction management.

15. Storm water plan costs.

16. Security costs.

17. Testing and soil sampling.

18. Hazardous materials, including permitting, handling and disposal.

F. Project Eligibility Criteria

The minimum qualifications for infrastructure projects are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements to address local concerns.

1. General Criteria

(A) The project must be installed and located in California.

(B) The project must comply with all applicable federal, state, local laws and requirements including environmental laws, and state building, environmental and fire codes. For instance, air districts may need to perform CEQA review and obtain approval prior to funding a project.

(C) A publicly accessible infrastructure project must be solicited and selected through a competitive bidding process that has been approved by the air district board.

(D) Work must be performed by a licensed contractor.

(E) For projects that contain Moyer Program funding for both infrastructure and engine replacement or repower within the same contract, only the cost of the engine replacement or repower will be considered when performing a cost-effectiveness calculation.

(F) Publicly accessible station must at a minimum be accessible to the public daily during regular business hours.

(G) Equipment and parts must be new. Remanufactured or refurbished equipment and parts are not eligible.

(H) Except for stationary agricultural pump projects, a completed Uniform Commercial Code-1 Financing Statement Form must be submitted by the air district to the California Secretary of State for infrastructure projects with a grant funding amount of $50K or greater. The financing statement must list the air district as the secured party.

2. Battery Charging Station

(A) Chargers must be a level 2 and higher to support commercial stations.

(B) Publicly accessible light-duty Charging stations must use a valid and universally accepted charge connector protocol (e.g. Society of Automotive Engineers (SAE), CHAdeMO).

(C) Charger must be certified by a Nationally Recognized Testing Laboratory (e.g., Underwriter's Laboratories, Intertek) located at https://www.osha.gov/dts/otpca/nrtl/nrtllist.html).

(D) Equipment must have at least a one year warranty.

3. **Stationary Agricultural Pump**. To be eligible for funding, infrastructure must directly power a zero-emission stationary agricultural pump funded by the air district with Moyer Program funds, including match (see Chapter 5 for specific criteria related to funding agricultural pumps).

4. **Shore Power**

(A) Funding is available to install shore-side electrical grid-based power at a berth that receives visits solely by vessels not subject to the control requirements of ARB's Shore Power Regulation (Title 17, California Code Regs., section 93118.3.).

(B) Shore-side projects meeting the eligibility criteria of the Goods Movement Program are eligible for Carl Moyer Program funding only on a case-by-case basis. Carl Moyer Program project funds cannot be co-funded with Proposition 1B Goods Movement Program funds.

5. **Alternative Fueling Station**. Equipment must have at least a three year warranty.

G. Applicant Requirements

1. General Criteria

(A) The applicant must be able to demonstrate to the District that the applicant can obtain all required land use permits from agencies needed to install and operate the station.

(B) For a publicly accessible station, the applicant must provide a description of the geographic location, including an aerial map (i.e. satellite view from an internet based map or city/county map) and specific street address of the proposed station.

(C) Applicants must demonstrate that they either own the land on which the project will be located, or control it through a long-term lease, easement or other legal arrangement, for the duration of the project life. For a proposed project where the land is not owned by the applicant, an executed lease agreement or letters of commitment lasting for the duration of the project life must be signed by property owners/authorized representatives and must be submitted with the application.

(D) Applicants must be able to provide documentation that power or fuel is being provided to the site (e.g. application, payment to the local utility company for power installation, or contract).

2. Shore Power

(A) Applicants who own/operate at a terminal must submit a copy of the Initial Terminal Plan per Section (g) of ARB's Shore Power Regulation (Title 17, California Code Regs, section 93118.3). All subsequent project reports to air districts must include a copy of the terminal plan in order to evaluate compliance with the project contract.

(B) Only a port authority, terminal operator, or marine vessel owner may apply to receive Carl Moyer Program funding for a shore power project.

H. Project Life

1. All projects must have a minimum project life of 3 years.

2. Maximum project life is 15 years, except stationary agricultural pump electrification projects which have a maximum project life of 10 years.

I. Contract Requirements

1. General Criteria

(A) Contracts must include anticipated usage in terms of projected throughput and/or number of vehicles that will be using the station for the term of the contract.

(B) Contracts must require that the equipment be in operating condition throughout the contract term.

(C) Contracts must specify that publicly accessible infrastructure projects must maintain a 95 percent successful charging rate with 24/7 customer service available on site, via toll free telephone number. Contracts must also specify that if equipment is not functional, the grantee is responsible for ensuring that repairs are made and station is up and running within 48 hours. The grantee must notify Districts of any downtime beyond the 48 hours and work with Districts to ensure publicly accessible stations are operational.

(D) For non-publicly accessible infrastructure projects, contracts must specify that if equipment is not functional, the grantee has 15 business days to report the problem to the air district and begin working with District promptly to ensure infrastructure equipment is operational.

(E) Contracts must specify that, if during the project life the fuel/energy meter fails for any reason, the fuel/energy meter must be repaired or replaced as soon as possible and is considered a maintenance expense, therefore not an eligible cost.

(F) Contracts must specify the maximum grant amount.

(G) Contracts must identify milestone dates including project completion, invoice, and annual reporting dates.

2. Battery Charging Station

(A) Contracts must include the number of ports and charging units.

(B) Grantee must report all battery charging station installations to the Department of Energy Alternative Fuel Data Center located at http://www.afdc.energy.gov/locator/stations/.

3. Alternative Fueling Station. For hydrogen fueling stations, grantee must register and report to the Station Online Status System (SOSS) maintained by the California Fuel Cell Partnership (www.cafcp.org). In addition, grantee must abide by the requirements of the reporting system.

J. Post-Inspection

1. General Criteria

(A) Air districts must verify and document that each infrastructure project is operational. Inspections must include verification of operation by connecting a vehicle or equipment to the charging or fueling station, or in the case of an agricultural pump or shore power project, by connecting to the electrical grid. For projects that incorporate solar or wind power, the inspection must verify that infrastructure has been installed and connected to the power generation equipment (i.e. solar panels or wind turbines). Air districts may be exempted from this requirement if the grantee does not own a vehicle/equipment, and no vehicle/equipment can reasonably be obtained for the inspection. Air districts must document such instances and obtain other types of verification that the infrastructure is capable of dispensing fuel/electricity, or in the case of an agricultural pump or shore power project, capable of being powered by the electrical grid.

(B) Air district must take photos of the equipment and keep photos in the project file. At the minimum, the photos must include equipment manufacturers, model number, and serial number.

2. Battery Charging Station. Air district must document the following: Name of manufacturer, serial number and date of manufacture, amperage/voltage, and equipment recharge rate.

K. Invoice and Payment

A project may be considered for final payment once the necessary infrastructure has been installed and connected to the power generation equipment (i.e., solar panels, wind turbine) and/or electricity grid and has been demonstrated to the air district that it is fully operational during a post-inspection.

L. Data Collection and Annual Reporting

For infrastructure projects that incorporate solar or wind power generating equipment, the grantee must annually provide to the air district the amount of electricity generated (e.g. kilowatt-hour) from the solar or wind power generating equipment for the duration of the project life.

1. **Battery Charging Station**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Qualitative description of public and private uses.

   (B) Annual usage per charger (e.g., kilowatt-hour) and the number of plug-in events.

   (C) Any unscheduled downtime, including duration of downtime and causes of downtime.

2. **Stationary Agricultural Pump**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Annual usage (e.g., kilowatt-hour) using an energy meter.

   (B) Episodes of electrical service interruption by the local utility company.

3. **Shore Power**. Grantee must annually provide to the air district the following data per berth for the entire project life:

   (A) Total ship visits utilizing berth and ship visits utilizing program funded equipment.

   (B) Annual usage (e.g., kilowatt-hour).

   (C) Episodes of electrical service interruption by the local utility company.

4. **Alternative Fueling Station**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Annual usage (e.g., kilograms, standard cubic feet).

   (B) Any unscheduled downtime, including duration of downtime and causes of downtime.

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APPENDICES

Appendix A: Acronyms

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APPENDIX A

ACRONYMS

APPENDIX A: ACRONYMS

AAP	Agricultural Assistance Program
AB	Assembly Bill
ABT	Average Banking and Trading
AC	Alternating Current
ACS	Applicant Cost Share
ADA	Americans With Disabilities
Ah	Amp-hour
APCD	Air Pollution Control District
APCO	Air Pollution Control Officer
APU	Auxiliary Power Unit
AQMD	Air Quality Management District
ARB	Air Resources Board
ASM	Acceleration Simulation Mode
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
BAR	Bureau of Automotive Repair
bhp	Brake Horsepower
bhp-hr/gal	Brake horsepower-hour per gallon
bhp-hr/yr	Brake horsepower-hour per year
BIT	Biennial Inspection of Terminals
C/E	Cost-Effectiveness
Cal/EPA	California Environmental Protection Agency
CAP	Consumer Assistance Program
CAPCOA	California Air Pollution Control Officers Association
CARL	Clean Air Reporting Log
CCR	California Code of Regulations
CBC	Case-By-Case
CEQA	California Environmental Quality Act
CF	Vessel Registration Number
CFO	Chief Financial Officer
CHC	Commercial Harbor Craft
CHE	Cargo Handling Equipment
CHP	California Highway Patrol
CI	Compression Ignition
CMP	Carl Moyer Memorial Air Quality Standards Attainment Program
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CRF	Capital Recovery Factor
DBA	Doing Business As
DC	Direct Current

DMV	Department of Motor Vehicles
DOE	Department of Energy
DOF	Department of Finance
DOORS	Diesel Off-Road Online Reporting System
DOT	Department of Transportation
DPF	Diesel Particulate Filter
E/S	Electric Standby
EF	Emission Factor
EFMP	Enhanced Fleet Modernization Program
EGR	Exhaust Gas Recirculation
EJ	Environmental Justice
EMFAC	ARB's On-Road Motor Vehicle Emission Inventory Model
EMY	Engine Model Year
EO	Executive Order
EQIP	Environmental Quality Incentives Program
ERCs	Emission Reduction Credits
ES	Emission Standards
ESN	Engine Serial Number
EIN	Equipment Identification Number
EVSE	Electric Vehicle Supply Equipment
FEL	Family Emission Limit
FTA	Federal Transit Administration
FTF	Flow-Through Filter
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principles
g	Gram
g/bhp-hr	Gram per brake horsepower-hour
gal	Gallon
gal/yr	Gallons per year
GHG	Greenhouse Gas
GMERP	Goods Movement Emission Reduction Program
GPS	Geographic Positioning System
GSE	Ground Support Equipment
GVW	Declared Gross Vehicle Weight
GVWR	Gross Vehicle Weight Rating
HC	Hydrocarbons
HD	Heavy-Duty
HDDE	Heavy-Duty Diesel Engine
HDT	Heavy-Duty Truck
HDV	Heavy-Duty Vehicle

HEP	Head End Power Unit
HHD	Heavy Heavy-Duty
HHDV	Heavy Heavy-Duty Vehicle
hp	Horsepower
hr	Hour
H&SC	Health and Safety Code
HVAC	Heating, Ventilation and Air Conditioning
ICE	Internal Combustion Engine
ILD	Idle Limiting Device
IMO	International Maritime Organization
IOU	Investor Owned Utility
IPI	Incentive Program Implementation Team
IRP	International Registration Plan
IRS	Internal Revenue Service
ITR	Innovative Technology Regulation
JPA	Joint Power Authority
kW	Kilowatt
lbs.	Pounds
lbs/bhp-hr	Pounds per brake horsepower-hour
lb/gal	Pound per gallon
lb/hp-hr	Pound per horsepower-hour
L&GE	Lawn and Garden Equipment
LDV	Light-Duty Vehicle
LESBP	Lower-Emission School Bus Program
LETRU	Low Emission Transport Refrigeration Unit
LEV	Low Emission Vehicle
LHD	Light Heavy-Duty
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas – commonly called Propane
LSI	Large Spark Ignition
MEC	Moyer Eligible Cost
MGO	Marine Gas Oil
MHD	Medium Heavy-Duty
MHDV	Medium Heavy-Duty Vehicle
mi	Mile
MIC	Moyer Ineligible Cost
MOU	Memorandum of Understanding
MPC	Moyer Paid Cost
MV Fee	Motor Vehicle Registration Fee
MY	Model Year

NMHC	Non-Methane Hydrocarbons
NFPA	National Fire Protection Association
NOx	Oxides of Nitrogen
OBD II	On-Road Diagnostics, Phase II
OEM	Original Equipment Manufacturer
OIS	On-Board Diagnostic Inspection System
ORVIP	Off-Road Voucher Incentive Program
PG&E	Pacific Gas and Electric
P&P	Policies and Procedures
PM	Particulate Matter
PM10	Particulate Matter less than 10 microns in diameter
PSIP	Periodic Smoke Inspection Program
PTO	Power Take-Off
RAP	Rural District Assistance Program
REC	Remaining Eligible Cost
RFP	Request for Proposals
ROG	Reactive Organic Gas
SAE	Society of Automotive Engineers
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCR	Selective Catalytic Reduction
SI	Spark Ignition
SRF	Special Revenue Fund
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SOON	Surplus Off-Road Opt-in for NOx Program
STD	Standard
SWCV	Solid Waste Collection Vehicle
TPC	Total Project Cost
TRU	Transport Refrigeration Unit
TRUCRS	Truck Regulations Upload and Compliance Reporting System
TSI	Two Speed Idle
ULETRU	Ultra Low Emission Transport Refrigeration Unit
ULEV	Ultra Low Emission Vehicle
U.S. EPA	United States Environmental Protection Agency
V	Volt
VAVR	Voluntary Accelerated Vehicle Retirement

VDECS	Verified Diesel Emission Control Strategy
VFD	Variable Frequency Device
VIN	Vehicle Identification Number
VIP	Voucher Incentive Program
VOC	Volatile Organic Compound
YR	Year

APPENDIX B

DEFINITIONS

APPENDIX B: DEFINITIONS

Acceleration Simulation Mode: A type of vehicle emissions test conducted with the test vehicle on a chassis dynamometer to simulate on-road acceleration operating conditions.

Administrative Funds: State funds allocated to program support and outreach costs directly associated with implementing the Moyer Program.

Agricultural Assistance Program: A program established by section 39011.5 of the Health and Safety Code providing funds for new purchase, retrofit, repower, or add-on for previously unregulated agricultural equipment.

Air district or District: An air pollution control district or an air quality management district.

Air Pollution Control Officer: The air pollution control officer, executive director, executive officer or designee as determined by each air district.

Airport Ground Support Equipment: Any engine- or motor-powered equipment used for service and support of aircraft operations. Airport ground support equipment (GSE) performs a variety of functions, including but not limited to: aircraft maintenance, pushing or towing aircraft, transporting cargo to and from aircraft, loading cargo, and baggage handling. GSE vehicles include equipment types such as baggage tugs, belt loaders, and cargo loaders.

Applicant Cost Share (ACS): The 15 percent or more of Moyer Eligible Cost (MEC) that is paid by the applicant, except when waived for public entity applicants.

Auxiliary Engine: An engine that is not the propulsion engine but for which the fuel, cooling, and/or exhaust systems are an integral part of the equipment or vehicle.

Auxiliary Power Unit: Any device that provides electrical, mechanical, or thermal energy to the primary diesel engine, truck cab, or sleeper berth as an alternative to idling the primary diesel engine.

Barge: A vessel having a flat-bottomed rectangular hull with sloping ends and built with or without a propulsion engine.

Baseline Technology: Engine technology applied under normal business practices, such as the existing engine in a vehicle or equipment for replacements, repowers, and retrofits.

California's Goods Movement Trade Corridor: The entirety of the South Coast Air Basin, San Joaquin Valley Air Basin, Sacramento Federal Ozone Nonattainment Area, San Francisco Bay Area Air Basin, San Diego County Air District, Imperial County Air District, and Port Hueneme.

Captive Attainment Area Fleet: A fleet or an identified subpart of the fleet (fleet portion, consistent with, California Code of Regulations, title 13, section 2449(d)) in which all of the vehicles in the fleet or fleet portion operate exclusively within the following counties: Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba. A fleet or identified fleet portion that operates one or more vehicles outside the counties listed above is not a captive attainment area fleet.

Case-by-Case Determination (CBC): A process in which local air districts may request Carl Moyer Program staff to review and approve a project that varies from the specific requirements of these Guidelines only if such approval will not adversely affect the achievement of real, surplus, quantifiable, enforceable and cost-effective emission reductions. See Chapter 3: Program Administration, Section U for additional information.

Certification: A finding by ARB or the U.S. EPA that a mobile source or emissions control device has satisfied applicable criteria for specified air contaminants.

Charter Fishing Vessel: A vessel for hire by the general public, dedicated to the search for and collection of fish for the purpose of general consumption.

Class 1 Freight Railroad**:** As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). As of January 2017, Union Pacific Railroad (UP), Burlington Northern and Santa Fe Railroad (BNSF), and their subsidiaries are the only Class 1 freight railroads operating in California.

Class 2 Freight Railroad**:** As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). As of January 2017, Arizona and California Railroad, Central Oregon and Pacific Railroad are the only Class 2 freight railroads operating in California.

Class 3 Freight Railroad: As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). Short-line railroads and military and industrial railroads are generally considered Class 3 freight railroads for the purposes of eligibility.

Clean Air Reporting Log (CARL): An on-line database tool maintained by ARB and used by air districts to track and report projects and funds under the Moyer Program.

Commercial Fishing Vessel: A vessel dedicated to the search for and collection of fish to be sold at market or directly to a purchaser.

Commitment: Under Chapter 5, a program milestone in which Moyer Program funds have been designated or applied towards an eligible project approved by the air district board, district air pollution control officer, or other delegated authority.

Competitive Bidding Process: For Moyer Program purposes, the process by which an air district competitively selects publicly accessible infrastructure projects. The process, including selection criteria, must be outlined in the district solicitation and approved by the district board.

Conversion of Existing Station: Infrastructure projects in which an existing non-alternative fueling station (i.e. diesel) is converted to an alternative fueling station for hydrogen or natural gas.

Cost-effectiveness: A measure of the dollars provided to a project for each ton of covered emission reduction (H&SC § 44275(a)(4)).

Cost-effectiveness Limit: The maximum amount of funds the Moyer Program will pay per weighted ton of emission reductions, using the methodology in Appendix C.

Covered Emissions: Emissions of oxides of nitrogen, particular matter, and reactive organic gases from any covered source.

Covered Source: On-road vehicles, off-road non-recreational equipment and vehicles, locomotives, marine vessels, agricultural sources of air pollution as defined in Section 39011.5, and, as determined by the state board, other categories necessary for the state and districts to meet air quality goals (H&SC § 44275(a)(7)).

Crawler Tractor: A tracked off-road tractor equipped with a substantial metal plate, or blade, as opposed to a bucket on a loader. This equipment is commonly referred to as a track mounted bulldozer and is used to push large quantities of soil, sand, rubble, etc., during construction and mining work. The dozing power of the crawler tractor exceeds that of the rubber tired dozer. A ripper, which is a claw-like device, may be attached to the back of a larger dozer.

Crew and Supply Vessel: A self-propelled vessel used for carrying personnel and/or supplies to and from off-shore and in-harbor locations (including, but not limited to, off-shore work platforms, construction sites, and other vessels).

DC fast charger: A unit for 200 - 480V Direct-Current (DC) charging up to 200 amps, using an off-board charger that connects directly to the vehicle's battery. Also called DC Level 1 and DC Level 2.

Dredge: A vessel designed to remove debris or earth from the bottom of waterways. Dredges may be built with or without a propulsion engine.

Electric Vehicle Supply Equipment (EVSE): An electrical energy transfer device that conducts and regulates power from the electrical portal connection to the electrical vehicle inlet.

Emission Control System: Any device, system, or element of design that controls or reduces the emissions of regulated pollutants from a vehicle.

Enterprise Operator: A person who conducts a voluntary accelerated vehicle retirement enterprise according to the Voluntary Accelerated Vehicle Retirement Regulation (California Code of Regulations, title 13, § 2601 et seq.), purchases vehicles, arranges for a vehicle's permanent removal from operation, and receives any emission reduction credit generated.

Excavator: An engineering vehicle consisting of an upper carriage with hydraulically rotating upper deck (revolving 360º) and attachment, directly mounted to either a wheeled or crawler undercarriage. The front end of the excavator attachment consists either of a bucket, grapple, scrap shear, or another implement.

Excursion Vessel: A self-propelled vessel that transports passengers for purposes including, but not limited to: dinner cruises; harbor, lake, or river tours; scuba diving expeditions; and whale watching tours. Excursion vessels do not include crew and supply vessels, ferries, and recreational vessels.

Executed Contract: A legally binding contract signed by the local air district Air Pollution Control Officer, or other air district designated representative, and the grantee to fund an eligible engine, equipment, or vehicle project that will reduce covered emissions. An executed contract is a program milestone in which parties agree to meet the obligations within the contract by a specified date.

Existing Lawn Mower: A gasoline-fueled, operational lawn mower owned and operated in California by the applicant.

Existing Station Upgrade: Improvements to a battery charging or alternative fueling station without increasing the output capacity.

Expansion to Existing Station: Infrastructure projects that increase the amount of fuel/energy throughput or capacity to fuel/charge equipment/vehicles at current alternative fueling and battery charging stations.

Expend: To make a full or partial payment of Carl Moyer Program funds toward a project invoice for an eligible Carl Moyer Program project.

Farm Equipment: As applied to off-road engines, includes equipment used in agricultural operations as defined in the Regulation for In-Use Off-Road Diesel-Fueled Fleets (California Code of Regulations, title 13, § 2449(c)(1)). As applied to portable and stationary engines, includes the agricultural sources defined in Health and Safety Code section 39011.5.

Federal Funds: Awards of financial assistance to an individual or organization from the U.S. government to carry out a government-authorized purpose, and not provided as personal benefits or assistance from the government.

Family Emission Limit (FEL): An emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under a federal or State averaging, banking, and trading program.

Ferry: Any self-propelled vessel or boat or owned, controlled, operated, or managed for public use in transportation of carrying passengers, property or vehicles on scheduled services.

Fleet Average Emission Level: The arithmetic mean of the combined hydrocarbon plus oxides of nitrogen emissions for each piece of applicable large spark-ignition engine powered equipment comprising an operator's fleet. For full definition, see California Code of Regulations, title 13, section 2775.

Forklift: Electric Class 1 or 2 rider trucks or large spark-ignition engine powered Class 4, 5 or 6 rider trucks as defined by the Industrial Truck Association. Electric Class 3 trucks are not forklifts for the purposes of these Guidelines. More information can be found at http://www.osha.gov/dcsp/products/etools/pit/forklift/types/classes.html and http://www.indtrk.org.

Freight Locomotive: A locomotive that hauls freight as its primary function.

Funding Amount: The amount of funds dedicated to a contracted project for reporting purposes in CARL; this value may never exceed the grant amount.

Funding Cap: The maximum dollar amount or maximum percentage of Moyer or State funds that may be expended on a project, as specified by source category and limited by variables that include the contribution of other incentive programs, rules, regulations, and incremental cost.

Funding Target: The total funds required to meet a program milestone such as funds executed or liquidated during a funding cycle, for purposes of cumulative tracking and reporting. Funding targets consider regular Carl Moyer Program funds, State Reserve funds, Rural District Assistance Program funds, Carl Moyer voucher program funds, required match funds, interest funds, reallocated funds, recaptured funds, interest and salvage revenues, and other funds associated with the Carl Moyer Program.

Funding Year: The designation given to each year that air districts are awarded Carl Moyer Program funds. Carl Moyer Program grant awards were first made in fiscal year 1998 to 1999; therefore, that year is designated as Year 1; fiscal year 1999 to 2000 is Year 2, etc. Each funding year is associated with set times for achieving program milestones such as contract execution, fund expenditure, and fund liquidation.

Funding Year Adjustment: An addition or subtraction to an air district's project and/or administrative fund amounts in one funding year to account for changes (e.g., recaptured funds, errors) in liquidated funds in an earlier funding year.

Grant Amount: Contracted amount of Moyer funds for a project, which may not exceed the maximum dollar amount or maximum percentage of eligible cost specified by source category and project type.

Glider Kit: A replacement chassis and cab for on-road heavy-duty vehicles. Glider kits are identified with a vehicle identification number starting with the letters "GL".

Gross Vehicle Weight Rating (GVWR): A value specified by the vehicle manufacturer as the maximum design loaded weight of a single vehicle. Examples are shown in Table B-1.

Harbor Craft: (also called "Commercial Harbor Craft") 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, work boats, pilot vessels, supply boats, fishing vessels, research vessels, United States Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.

Head End Power Unit**:** Most passenger locomotives are equipped with head end power (HEP) or hotel power, an onboard generator typically about a 500 horsepower that provides power to the passenger cars of the train for such functions as heating, lighting and air conditioning.

Heavy-Duty Vehicles (HDV): Trucks and buses in the weight classes shown in Table B-1.

Table B-1
Heavy-Duty Vehicle Classification for Moyer Program On-Road Projects

Vehicle Classification	GVWR
Light Heavy-Duty (LHD)	14,001 to 19,500 pounds
Medium Heavy-Duty (MHD)	19,501 to 33,000 pounds
Heavy Heavy-Duty (HHD)	Over 33,000 pounds

Home Port: The port in which a vessel is registered or permanently based.

Incremental Cost: The cost of the project less a baseline cost that would otherwise be incurred by the applicant in the normal course of business. Incremental costs may include added lease, energy, or fuel costs pursuant to Health and Safety Code section 44283 as well as incremental capital costs.

Interest Revenue: Interest generated from Moyer Program funds held by an air district in interest-bearing accounts. Interest earned on Moyer Program funds becomes Moyer Program funds.

Industrial Tow Tractor: An electric or large spark-ignition engine-powered Class 6 truck as defined by the Industrial Truck Association. They are designed primarily to push or pull non-powered trucks, trailers, or other mobile loads.

Investor Owned Utility: A business providing utility services such as electricity, natural gas, telephone and water services, that is managed privately rather than as a function of a government or public cooperative. Examples are Pacific Gas and Electric, Southern California Edison, and Sempra Energy.

Large Fleet: Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with a total maximum power greater than 5,000 horsepower. A fleet must meet large fleet requirements of this regulation if the total vehicles under common ownership or control would be defined as a large fleet. All fleets owned by the United States, the State of California, or agencies thereof (i.e., an agency in the judicial, legislative, or executive branch of the federal or state government) are considered as a unit whole and must meet the large fleet requirements of the In-Use Off-Road Diesel-Fueled Fleets Regulation (California Code of Regulations, title 13, § 2449). Under the Large Spark Ignition Engine Fleet Requirements Regulation, a large fleet is an operator's aggregated operations in California of 26 or more pieces of large spark-ignition equipment.

Lawn and Garden Equipment: Equipment used to maintain lawns and gardens. This equipment is generally, but not exclusively, powered by spark-ignition engines. This equipment is traditionally used in applications such as lawn mowers, edger's, trimmers, leaf blowers, and chainsaws. Equipment that does not fall into this category includes golf carts, specialty vehicles, generators, pumps, and other small utility equipment.

Lawn Mower Exchange Event: An occasion where participants' existing gasoline lawn mowers are exchanged for new cordless, zero-emission electric lawn mowers or vouchers for new, cordless, zero-emission electric lawn mowers.

Level 2: Electric vehicle supply equipment for connection to an on-board vehicle charging system, with 208V–240V alternating-current (AC) charging up to 80 amps.

Line-Haul Locomotive**:** A locomotive powered by an engine or engines typically totaling 4,000 or more horsepower that transports goods between major urban centers.

Liquidate: To spend all moneys for a specified fiscal year to reimburse grantees for valid and eligible project invoices and district administrative costs. Payments withheld from the grantee by a district until all contractual reporting requirements are met may be excluded from these amounts for the purposes of liquidation.(H&SC § 44275(a)(12)). For a specific project, liquidation refers to all funded equipment as paid in full and operational.

Local Funds: Monies provided by any unit of local government including a publicly owned utility and Joint Powers Authority (JPA).

Match Funds: Funds under an air district's budget authority that will be applied towards eligible Carl Moyer Program projects in accordance with the matching requirements of the program. See Health and Safety Code section 44287(e) and 44287.2(c).

Maximum Dollar Amount: The maximum amount of funds that may be expended on a project as specified by source category and project type, often to reflect incremental cost.

Maximum Grant Amount: The maximum amount of money a grantee is eligible to receive for a cost-effective Carl Moyer Program project. The maximum grant amount for

a project is the lowest of the three following values: (a) the grant amount at the cost-effectiveness limit; (b) the maximum percentage of eligible cost; or (c) any maximum dollar amount specified in the relevant source category chapter.

Maximum Percentage: The maximum percentage of eligible cost that may be expended on a project as specified by source category and project type, often to reflect incremental cost.

Medium Fleet. Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with total minimum power of greater than 2,500 horsepower and with a total maximum power less than or equal to 5,000 horsepower. Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of 4 to 25 pieces of large spark-ignition equipment.

Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU): A document recording the basic terms of a proposed transaction or setting forth the principles and guidelines under which parties will work together.

Mitigation Funds: Monies received for the compensation for the impacts to the environment from a proposed activity.

Mobile Cargo Handling Equipment: Any motorized vehicle used to handle cargo delivered by ship, train, or truck such as yard trucks, rubber tired gantry cranes, top picks, dozers, and excavators.

Moyer Eligible Cost: Costs associated with projects that are eligible for reimbursement under the Carl Moyer Program, prior to considering the cost-effectiveness limit or any project funding cap restrictions. This includes the sum of Moyer Paid Cost and Remaining Eligible Cost.

Moyer Ineligible Cost: Costs associated with a project that are not eligible under the Carl Moyer Program guidelines, but are eligible project costs under other funding sources.

Moyer Paid Cost: Project costs eligible under the Carl Moyer Program, and are to be paid by the Moyer Program. These costs are used to determine project cost-effectiveness, except in the case of infrastructure projects.

Moyer Program Funds: State funds awarded by ARB to local air districts to implement the Carl Moyer Program, including project and administrative, and interest revenue from the awarded funds, and revenues from salvage of equipment scrapped under the program. Local funds that are under the air district's budget authority may also qualify as Carl Moyer Program funds or match funds (see H&SC § 44287(e)); however, certain limitations apply (see H&SC § 44287(j)).

Nationally Recognized Testing Laboratory: Is a private-sector organization that OSHA has recognized as meeting the legal requirements in 29 CFR 1910.7 to perform testing and certification of products using consensus based test standards.

New Station: Construction of a new battery charging or alternative fueling station where there is currently no station.

Non-forklift fleet: Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of four or more sweeper/scrubbers, industrial tow tractors, or pieces of airport ground support equipment, alone or in combination.

Non-Moyer Funds: Project funds from sources other than the Carl Moyer Program, Moyer match funds, and AB 923 $2 DMV fees.

Off-Highway Tractors: Equipment that feature yoke hitches that oscillate four ways to reduce frame stresses. Rugged turn stops prevent excessive wagon rotation in either direction. The rear platform functions as a power train guard providing a safe, stable work area. (These are not off-highway trucks (e.g. articulated trucks or rigid haul trucks) which are bulk-handling machines, such as earthmovers or dump trucks, designed to operate on steep or rough terrain and not designed to drive on-highway.)

Off-Road Compression-Ignition Equipment: A piece of equipment that is powered by an off-road compression-ignition engine which is any internal combustion engine: in or on a piece of equipment that is self-propelled or serves as a dual purpose by both propelling itself and performing another function and is primarily used off the highways (such as garden tractors, off-highway mobile cranes and bulldozers); or in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to wheels, skids, carrying handles, dolly, trailer, or platform that is consistent with California Code of Regulations, title 13 section 2421.

Off-Road Large Spark Ignition Engine: any engine that produces a gross horsepower of 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years) or is designed (e.g., through fueling, engine calibrations, valve timing, engine speed modifications, etc.) to produce 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years) used to propel an off-road piece of equipment. The engine may be designed to use gasoline fuel, liquid petroleum gas, compressed natural gas, methanol fuel, or a combination of these.

Off-Road Large Spark-Ignition Equipment: Equipment that cannot be registered and driven safely on-road or was not designed to be driven on-road. Newer equipment uses engines certified to the off-road spark ignition engine standards. These engines may be designed to use gasoline fuel, liquid petroleum gas (LPG), compressed natural gas, methanol fuel or a combination of these and are most commonly found in forklifts.

Other Applied Funds: Funds that are not local, state, or federal that are used to co-fund a Moyer eligible project.

Operator: A person, corporation, public agency, or other entity that owns, operates or maintains a vehicle, equipment, or installation.

Passenger Locomotive: A locomotive that hauls passengers as its primary function.

Penalty Funds: Funds paid to an enforcing entity as a result of enforcement action brought against a violator of a local, state or federal law, ordinance, regulation or rule.

Pilot Vessel: A vessel designed for, but not limited to, the transfer and transport of maritime pilots to and from oceangoing vessels while such vessels are underway.

Policies and Procedures: An air district manual for local implementation of the Moyer Program. For more information see Chapter 3, Section C.

Power Take-Off (PTO): A secondary engine shaft (or equivalent) that provides substantial auxiliary power for purposes unrelated to vehicle propulsion or normal vehicle accessories such as air conditioning, power steering, and basic electrical accessories. A typical PTO uses a secondary shaft on the engine to transmit power to a hydraulic pump that powers auxiliary equipment.

Program Milestone: A measure of progress toward meeting Carl Moyer Program grant terms or statutory requirements. Examples are contract execution, liquidation and (in Chapter 5) commitment.

Project Funds: Moyer Program funds designated for eligible project costs to reduce covered emissions from covered sources.

Propulsion Engine: A marine engine that generates the power to propel a vessel through the water.

Publicly Accessible: An infrastructure project that is available to provide fuel or energy to all members of the general public with no physical access restrictions and no necessity to enter into a contract or sign release of liability.

Public Entity: The State of California, a public university or college, a county, city, district, public authority, public agency, public corporation, another state government, the federal government, or any other subdivision or agency of a state government or the federal government.

Public Fleets: Heavy-duty on-road diesel-fueled vehicles operated by a municipality. A municipality is a city, county, city and county, special district, or a public agency of the State of California, and any department, division, public corporation, or public agency of this State, or two or more entities acting jointly, or the duly constituted body of an Indian reservation or Rancheria.

Public Funds: Funds provided toward project costs by local, state or federal public entities, including grants, rebates and vouchers.

Rail equipment: Non-locomotive equipment designed for use on tracks, such as on-rail vehicles, railcar movers, sweepers, and wheel cranes that have tires or mounted tracks. Equipment that replaces switcher locomotives are considered locomotives for the purposes of the Carl Moyer Program.

Reallocation: A process for allocating mitigation funds and/or returned funds to eligible air districts. See Chapter 3, Section P for additional information.

Rebuilt or Remanufactured: Engines offered by the original engine manufacturer (OEM) or by a non-OEM rebuilder who demonstrates to ARB that the rebuilt engine and parts are functionally equivalent from an emissions and durability standpoint to the OEM engine and components being replaced.

Recaptured Funds: Project funds that are returned by a grantee to an air district or ARB because that grantee did not meet all of its contractual obligations. Air districts must spend these funds on another project in a later funding year.

Reduced Technology: Newer technology that is used by the applicant to obtain surplus emission reductions.

Remaining Eligible Cost: Project costs that are eligible under the Carl Moyer Program but are to be paid by other sources of funding. Remaining eligible costs exist when the Moyer Paid Cost and Applicant Cost Share provide less than 100 percent of the Moyer Eligible Cost.

Remotely Located: Agricultural engines located in a federal ambient air quality area that is designated as unclassifiable or attainment for all PM and ozone national ambient air quality standards and that are located more than one-half mile from any residential area, school, or hospital.

Replacement Lawn Mower: A cordless, zero-emission electric lawn mower.

Repower: A repower is the replacement of the existing engine with an electric motor or a newer emission-certified engine instead of rebuilding the existing engine to its original specifications.

Retrofit: Modifications to the engine and fuel system so that the retrofitted engine does not have the same emissions specifications as the original engine, or the process of installing an ARB-verified emissions control system on an existing engine.

Returned Funds: Funds returned by a district to ARB for reallocation because they are either not liquidated by the required funding year liquidation deadline, or are associated with an ARB Incentive Program Review mitigation measure.

Rough Terrain Forklift: Class 7 forklifts powered by compression ignition engines and having pneumatic tires that handle uneven surfaces. This includes both straight-mast forklifts and extended-reach forklifts, also called telescopic forklifts or tele-handlers.

Rubber Tired Dozer: A wheeled off-road tractor equipped with a substantial metal plate, or blade as opposed to a bucket on a loader. This equipment is commonly referred to as a rubber tired bulldozer and is used to push large quantities of soil, sand, rubble or other materials during construction and mining work where the traction of a crawler tractor is not required. A ripper, which is a claw-like device, may be attached to the back of a larger dozer.

Rural District Assistance Program: An element of the Carl Moyer Program in which air districts pool their project funds to streamline project outreach, solicitation, and review.

School Bus: Vehicles used for the express purpose of transporting students, kindergarten through grade 12, from home to school, school to home, and to any school sponsored activities.

Shore Power: Electrical power being provided to the ship at berth by either the local utility or by distributed generation.

Skid Steer Loader: A very compact and maneuverable off-road tractor that uses a bucket on the end of movable arms to lift materials and move material such as dirt, debris, building materials, bulk goods, heavy objects, or snow removal. Unlike conventional loaders, the lift arms are alongside the driver with the pivot points behind the driver's shoulders. Skid steer loaders are used in tight spaces and can be equipped with a variety of attachments, such as a hammer, augur, trencher, forklift and other attachments (never greater than 120 horsepower (hp), predominantly 40-75 hp. Skid Steer loaders are often utilized to excavate swimming pools and in landscaping residential backyards.

Small Fleet: In the on-road sector, a fleet size of three or fewer vehicles as defined in the California Code of Regulations, title 13, section 2025(d)(31)(G). Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with a total maximum power of less than or equal to 2,500 horsepower that is owned by a business, non-profit organization, or local municipality; or a local municipality fleet in a low population county irrespective of total maximum power; or a non-profit training center irrespective of total maximum power. Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator’s aggregated operations in California of 1 to 3 forklifts and/or 1 to 3 pieces of non-forklift equipment.

Smog Check: the motor vehicle inspection and maintenance program established by California Health and Safety Code Section 44000, et seq.

Solid Waste Collection Vehicle (SWCV): Diesel-fueled vehicles greater than 14,000 pounds GVWR with model year 1960 through 2006 engines used to collect residential and commercial solid waste.

Spark Ignition: A gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to a combustion cycle.

State Funds: Funds provided by a state agency for the purpose of co-funding projects under the Moyer Program. State agencies include every state office, department, division, bureau, board, commission, the University of California, and the California State University.

State Implementation Plan: Under the Clean Air Act, the plan submitted by a state that demonstrates attainment or maintenance of an air quality standard through implementation of specified control measures.

Supplemental Environmental Project: An environmentally beneficial project that a violator subject to an enforcement action voluntarily agrees to undertake in a settlement action to offset a portion of an administrative or civil penalty.

Sweeper/scrubber: A large spark-ignition engine-powered piece of industrial floor cleaning equipment designed to brush and vacuum up small debris and litter and then scrub and squeegee the floor.

Switch Locomotive: A locomotive powered by an engine or engines typically totaling less than 2,300 total horsepower, and used to separate and move railcars from track to track or transfer cars to and from regional carriers. All Class 3 railroad locomotives -- including all short-line and military and industrial locomotives -- are considered switch locomotives for the purposes of the Carl Moyer Program eligibility.

Total Project Cost: The Moyer Eligible Cost and the Moyer Ineligible Cost for vehicles, equipment, engines, accessories, installation and infrastructure within a single Carl Moyer Program project. An applicant may not accept grant funds from all sources that exceed 100 percent of total project cost excluding the Applicant Cost-Share.

Tow Boat: Any self-propelled vessel engaged in or intending to engage in the service of pulling, pushing, or hauling alongside barges or other vessels, or any combination of pulling, pushing, or hauling alongside barges or other vessels.

Transit Fleet Vehicle: On-road vehicles operated by a public transit agency, less than 35 feet in length and 33,000 GVWR, but greater than 8,500 GVWR, powered by heavy-duty engines fueled by diesel or alternative fuel; including service vehicles, tow trucks, dial-a-ride buses, paratransit buses, charter buses, and commuter service buses operated during peak commute hours with ten or fewer stops per day.

Transport Refrigeration Unit (TRU): A refrigeration system powered by an internal combustion engine designed to control the environment of temperature sensitive products transported in trucks and refrigerated trailers. TRUs may be capable of both cooling and heating.

Truck Stop Electrification: The installation at a truck stop of electric power infrastructure and/or external systems that provide heating, cooling, and other energy needs for trucks.

Tug Boat: Any self-propelled vessel engaged in, or intending to engage in, the service of pulling, pushing, maneuvering, berthing, or hauling alongside other vessels, or any combination of pulling, pushing, maneuvering, berthing or hauling alongside such vessels in harbors, over the open seas, or through rivers and canals. Tug boats generally can be divided into three groups: harbor or short-haul tugboats, ocean-going or long-haul tugboats, and barge tugboats. “Tug boat” is interchangeable with “tow boat” and “push boat” when the vessel is used in conjunction with barges.

Tier 1, 2, and 3 Engines: Engines that are subject to California Code of Regulations, title 13, section 2423(b)(1)(A) and/or Code of Federal Regulations, title 40,part 89.112(a). This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 1, 2, and 3 Family Emission Limits (FEL) listed in California Code of Regulations, title 13, section 2423(b)(2)(A) and/or Code of Federal Regulations, title 40, part 89.112(d).

Tier 4 Engine: Engines that are subject to interim or final after-treatment based Tier 4 emission standards in California Code of Regulations, title 13, section 2423(b)(1)(B) and/or Code of Federal Regulations, title 40, part 1039.101. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in California Code of Regulations, title 13, section 2423(b)(2)(B) and/or Code of Federal Regulations, title 40, part 1039.101. For locomotives, the term refers to the Tier 4 (2015 engine model year) emission standards in the Code of Federal Regulations, title 40, Part 1033.

Uncontrolled Large Spark-Ignition Engines: Means pre-2001 uncertified engines and 2001-2003 certified “non-compliant’ large spark-ignition engines.

Urban Bus: A passenger carrying vehicle owned or operated by a public transit agency, powered by a heavy heavy-duty engine, or of a type normally powered by a heavy heavy-duty engine, intended primarily for intra-city operation. The buses are generally greater than 35 feet, and or greater than 33,000 pounds gross vehicle weight rating.

Utility: A privately-owned company that provides the same or similar service for water, natural gas, and electricity as a public utility operated by a municipality.

Voluntary Accelerated Vehicle Retirement Enterprise (VAVR): a privately owned and/or operated business by an enterprise operator.

Verification: A determination by ARB or the U.S. EPA that a diesel emission control strategy meets specified requirements, based on both data submitted and engineering judgement.

Violator: An individual, company, or entity responsible for a violation of an environmental law, regulation or rule.

Voucher Incentive Program (VIP): A district incentive program using Carl Moyer Program funds to provide a streamlined approach to replace or retrofit older, high-polluting heavy-duty vehicles or equipment with cleaner-than -required vehicles or

equipment providing early or extra emission reductions. Funds for VIP projects are used to reduce some of the costs associated with replacing or retrofitting a vehicle.

Workover Rig: Mobile self-propelled rigs used to perform one or more remedial operations on an existing well. The primary function of a workover rig is to act as a hoist so that pipe, sucker rods and down-hole equipment can be run into and out of a well. Operations include deepening, plugging back, or pulling and resetting liners, usually on a producing oil or gas well to try to restore or increase the well's production.

APPENDIX C

COST-EFFECTIVENESS CALCULATION METHODOLOGY

APPENDIX C: COST-EFFECTIVENESS CALCULATION METHODOLOGY

A. Introduction

Cost-effectiveness is the measure of dollars provided to a project for each ton of covered emissions reduced. Statute requires that the ARB update the cost-effectiveness limit and capital recovery factors (CRF) annually. In addition, changes in statute per SB 513 now allow ARB, in consultation with air districts, to establish new cost-effectiveness limits that reflect the cost of regulations and technology.

To determine a project's cost-effectiveness, all Moyer Program funds, air district match funds, and local AB 923 funds must be included. Non-Moyer funds used to co-fund a Moyer eligible project do not need to be included in the cost-effectiveness calculation. Projects that include such funds must meet all Moyer requirements and the other funding source requirements.

Projects are subject to the cost-effectiveness limits in Table C-1, which shows the changes in the cost-effectiveness limit over time based on changes in the Consumer Price Index. Historically, one limit has been applied to all Moyer Program projects. Per SB 513, a second limit for school buses was added in 2016 as shown in the table.

Table C-1
Cost-Effectiveness Limit Criteria 1998-2016

Year	Annual CA CPI	Percentage change (inflation rate)	Annual Change	Revised C/E Limit
1998	163.7	NA	NA	$12,000
1999	168.5	2.93%	$352	$12,352
2000	174.8	3.74%	$462	$12,814
2001	181.7	3.95%	$506	$13,319
2002	186.1	2.42%	$323	$13,642
2003	190.4	2.31%	$315	$13,957
2004	195.4	2.63%	$367	$14,324
2005	202.6	3.68%	$528	$14,852
2006	210.5	3.90%	$579	$15,431
2007	217.4	3.28%	$506	$15,938
2008	224.8	3.40%	$541	$16,479
2009	224.1	-0.31%	-$51	$16,428
2010	227.0	1.29%	$212	$16,640
2011	233.0	2.66%	$443	$17,084
2012	238.3	2.25%	$385	$17,469
2013	241.8	1.46%	$255	$17,724
2014	246.1	1.77%	$313	$18,037
2015	249.1	1.25%	$225	$18,262
2016 Base	No C/E update pending 2017 guideline update			$18,262
2016 School Bus	New C/E Limit under SB 513			$276,230

Table C-2 shows the cost-effectiveness limits proposed under the 2017 Guidelines. As shown, two cost-effectiveness limits are now available: one to support conventional projects and a second higher limit that air districts may choose to apply to the additional reductions provided by the cleanest engines, including those needed for long-term SIP commitments.

Base Limit: The base cost-effectiveness limit is $30,000 per weighted ton of emissions reductions. This level allows full funding for a wide range of currently typical projects, such as diesel replacement projects for early compliance with the Truck and Bus Regulation. The level is consistent with the cost of compliance with regulations and will enable grants of sufficient size to encourage off-road engines to be replaced or repowered sooner to a Tier 4 standard.

Optional Advanced Technology Limit: For advanced technology projects that are zero-emission, or alternatively meet the cleanest optional standard level certified, districts have the option to apply a cost-effectiveness limit of up to $100,000 per weighted ton for the emissions reductions beyond those achieved by the required standard. The higher

limit is not technology or vocation specific, but available for technologies like the 0.02 g/bhp-hr optional low-NOx engine. To be eligible, the engine must be:

- Zero-emission or meet the cleanest optional emission standard where applicable (0.02 g/bhp-hr in the case of on-road);
- Commercially available and offered for sale; and
- Certified or verified by the ARB or United States Environmental Protection Agency

The higher limit is applied only to the incremental emission reductions beyond what the conventional project would achieve. Thus, a district would apply the base limit for costs associated with getting engines to the cleanest required standard, and then apply the advanced technology limit to the additional costs of getting emissions down to or below the cleanest optional standard.

Table C-2
Cost-Effectiveness Limit Criteria 2017

Year	Project	Proposed Change or Status	Revised C/E Limit
2017	Base Limit	New C/E Limit	$30,000
	Optional Advanced. Technology Limit	New C/E Limit for incremental reductions from specified advanced technologies	$100,000
	School Bus	2016 C/E Limit retained in 2017 Guidelines	$276,230

For projects in source categories without optional standards, only vehicles certified as zero emission would be eligible for the higher limit. In these cases, the higher limit would apply to the incremental reductions below the most stringent standard for that category. General calculations for determining cost-effectiveness and other calculations needed to administer the Moyer Program are described in the following pages.

B. General Cost-Effectiveness Calculations

1. Determining the Maximum Grant Amount

The calculation methodology below must be applied in order to ensure final grant amounts meet the cost-effectiveness limit requirement, and do not exceed incremental cost based on the maximum percentage or any other funding caps. For advanced technology projects that include a baseline vehicle dirtier than the cleanest required standard, the calculations in (A), (B), and (C) below must be applied twice. The first series of calculations is made using the base cost-effectiveness limit and the emission reductions going up to the cleanest required standard, and the second series of calculations is made using the advanced technology cost-effectiveness limit and the emission reductions beyond the cleanest required standard. The final maximum grant amount is equal to the combined total of the lowest value from each series. Note that school bus projects are subject to funding caps and a separate cost-effectiveness limit as listed above in Table C-2.

The maximum grant amount for any given project is the lowest of the three following values:

- The grant amount at the cost-effectiveness limit;
- The incremental cost based on the maximum percentage of eligible cost; or
- Any maximum dollar amount or other funding cap specified in the relevant source category chapter.

Each of the above values is calculated as follows:

(A) The grant amount at the cost-effectiveness limit is determined by multiplying the cost-effectiveness limit by the estimated annual emission reductions and dividing by the capital recovery factor (CRF) in formula C-1 below.

Formula C-1: Grant Amount for Projects at the Cost-Effectiveness Limit ($)

Grant Amount ($) =
*Cost-effectiveness limit ($/ton) * estimated annual emission reductions (weighted tons/yr) / CRF*

The CRF is based on a discount rate. The CRF uses an interest rate and project life to determine the rate at which earnings could reasonably be expected if the same funds were invested over a length of time. The CRF may be calculated using Formula C-2 below, or you may refer to Tables D-24 and D-25 in Appendix D for CRFs for various project lives. Each source category chapter will specify which project lives are acceptable to determine which CRF value to use.

Formula C-2: Capital Recovery Factor

Capital Recovery Factor =
*(1 + Discount Rate[1]) ^ Project Life * Discount Rate /((1 + Discount Rate) ^ Project Life - 1)*

(1) Calculating the Annual Weighted Surplus Emission Reductions

Annual weighted emission reductions are estimated by taking the sum of the project's annual surplus pollutant reductions following Formula C-3

[1] *Discount Rate varies from year to year. See Tables D-24 and D-25 in Appendix D for CRF values at a one percent and two percent Discount Rate, respectively.*

below. This will allow projects that reduce one, two, or all three of the covered pollutants to be evaluated for eligibility to receive Moyer Program funding. While oxides of nitrogen (NOx) and reactive organic gases (ROG) emissions are given equal weight, emissions of particulate matter (PM) carry a greater weight in the calculation.

Formula C-3: Annual Weighted Surplus Emission Reductions (weighted tons/yr)

Weighted Emission Reductions (weighted tons/yr) =
*NOx reductions (tons/yr) + ROG reductions (tons/yr) + (20 * (PM reductions (tons/yr))*

The result of Formula C-3 is used to complete Formula C-1 to determine the grant amount at the cost-effectiveness limit, as well for Formula C-14 to determine the cost-effectiveness of the grant amount.

In order to determine the annual surplus emission reductions by pollutant, Formula C-4 below must be completed for each pollutant (NOx, ROG, and PM), for the baseline technology and the reduced technology, totaling up to six calculations:

These calculations are completed for each pollutant by multiplying the engine emission factor (found in Appendix D) by the annual activity level and by other adjustment factors as specified for the calculation methodologies presented. Emission factors are also adjusted to account for in-use deterioration where appropriate.

In general the annual emissions are calculated as shown in Formula C-4. The annual emissions by pollutant would be used in Formula C-3 to calculate the annual surplus emission reductions.

Formula C-4: Estimated Annual Emissions by Pollutant (tons/yr)

Annual Emission (tons/yr) =
*(Emission Factor + Deterioration Rate (if applicable)) * Annual Activity * Adjustment Factor(s) * Percentage Operation in CA * ton/907,200g*

Deterioration Rate =
*Deterioration Rate Factor * Activity * Deterioration Life*

Deterioration Life[2] (Baseline Equipment) (yrs) =
Project Starting Year – Baseline Vehicle Model Year + Project Life /2

Deterioration Life (Reduced Equipment) (yrs) =
Project Life /2

(2) Calculating Annual Emissions Based on Usage

Usage: The Moyer Program allows the emission reductions from a project to be calculated using the following activity factors on an annual basis:

- Miles traveled, or
- Hours of operation.

Specific activity factors allowed for each project category may differ and are identified in the source category chapters.

a. Calculating Annual Emissions Based on Annual Miles Traveled

Calculations based on annual miles traveled are used for on-road projects only. Mileage records must be maintained by the engine owner as described in Chapter 4: On-Road Heavy-Duty Vehicles.

Calculations Using Emission Factors: Formula C-5 describes the method for calculating pollutant emissions based on emission

[2] Round Deterioration Life down to the nearest whole number. For example, a calculated Deterioration Life of 2.5 years will round down to 2 years.

factors and miles traveled, including the method for calculating mile-based deterioration rates.

Formula C-5: Estimated Annual Emissions based on Mileage using Emission Factors (tons/yr)

Annual Emissions by Pollutant (tons/yr) =
*(Emission Factor (g/mile) + Deterioration Rate (g/mile) (if applicable)) * Activity (miles/yr) * Percentage Operation in CA * ton/907,200g*

Mile-Based Deterioration Rate (g/mile) =
*Deterioration Rate Factor (g/mile) /10,000 miles * Activity (miles/yr) * Deterioration Life[3] (yrs)*

Deterioration Life[4] (Baseline Equipment) (yrs) =
Project Starting Year – Baseline Vehicle Model Year + Project Life /2

Deterioration Life (Reduced Equipment) (yrs) =
Project Life /2

b. Calculating Annual Emissions Based on Hours of Operation

When actual annual hours of equipment operation are the basis for determining emissions, the horsepower rating of the engine and an engine load factor found in Appendix D must be used. The method for calculating emissions based on hours of operation is described in Formula C-6 below, and includes the method for calculating hour-based deterioration rates.

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[3] For the Mile-Based Deterioration Rate calculation, the Activity * Deterioration Life is limited to a maximum of 800,000 miles, or 400,000 miles in the case of school buses.

[4] Round Deterioration Life down to the nearest whole number. For example, a calculated Deterioration Life of 2.5 years will round down to 2 years.

Formula C-6: Estimated Annual Emissions based on hours of Operation (tons/yr)

Annual Emissions by Pollutant (tons/yr) =
*(Emission Factor (g/bhp-hr) + Deterioration Rate (g/bhp-hr) (if applicable)) * Horsepower (hp) * Load Factor * Activity (hrs/yr) * Percentage Operation in California * ton/907,200g*

Hour-Based Deterioration Rate[4] *(g/bhp-hr) =*
*Deterioration Rate Factor (g/bhp-hr-hr) * Activity (hrs/yr) * Deterioration Life*[5] *(yrs)*

Deterioration Life[6] *(Baseline Equipment) (yrs) =*
Project Starting Year – Baseline Vehicle Model Year + Project Life /2

Deterioration Life (Reduced Equipment) (yrs) =
Project Life /2

The engine load factor is an indicator of the nominal amount of work done by the engine for a particular application. It is given as a fraction of the rated horsepower of the engine and varies with engine application.

(3) Calculating Annual Surplus Emission Reductions by Pollutant

The final step in this portion of the calculations is to determine the annual surplus emission reductions by pollutant. Subtract the annual emissions for the reduced technology from the annual emissions for the baseline technology following Formula C-7 below. Calculations must be done for each pollutant, NO_x, ROG and PM, for a total of three calculations.

[5] For the Hour-Based Deterioration Rate calculation, the Activity * Deterioration Life is limited to a maximum of 12,000 hours for off-road diesel engines, 3,500 hours for large-spark ignition (LSI) engines with a model year of 2006 or older, and 5,000 hours for LSI engines with a model year of 2007 or newer.

[6] Round Deterioration Life down to the nearest whole number. For example, a calculated Deterioration Life of 2.5 years will round down to 2 years.

Formula C-7: Annual Surplus Emission Reductions by Pollutant (tons/yr)

Annual Surplus Emission Reductions (by pollutant) =
Annual Emissions for the Baseline Technology – Annual Emissions for the Reduced Technology

For retrofits, multiply the baseline technology pollutant emissions by the percentage of emission reductions that the ARB-verified reduced technology is verified to following Formula C-8 below.

Formula C-8: Annual Surplus Emission Reductions by Pollutant (tons/yr) for Retrofits

Annual Surplus Emission Reductions (by pollutant) =
*Annual Emissions for the Baseline Technology * Reduced Technology Verification Percentage*

For on-road heavy-duty projects the baseline will be the newer vehicle emissions.

For marine vessel hybrid systems, calculate the annual surplus emission reductions as shown in Formula C-9.

Formula C-9: Annual Surplus Emission Reductions by Pollutant (tons/yr) for Marine Vessel Hybrid Systems

Annual Surplus Emission Reductions (by pollutant) =
*Total Annual Emissions (all engines on vessel) for the Baseline Technology – (Total Annual Emissions (all engines on vessel) for the Baseline Technology * Reduced Technology Verification Percentage)*

(B) The incremental cost based on the maximum percentage of eligible cost is determined by multiplying the cost of the reduced technology by the maximum percentage eligible funding (from the applicable chapter), as described in Formula C-10 below.

Formula C-10: Incremental Cost Based on Maximum Percentage of Eligible Cost ($)

Incremental Cost ($) =
*Cost of Reduced Technology ($) * Maximum Percentage of Eligible Cost*

(C) The funding cap, if applicable, is specified in the relevant source category chapter

2. Calculating Two for One Projects

In Two for One equipment replacement projects, two baseline technology equipment are replaced with one reduced technology equipment. First, calculate the emission reduction benefits based on activity for each baseline engine separately using Formulas C-5 or C-6. These emission reductions will then be summed together before deducting the emission reduction benefits of the reduced technology using Formula C-7. See the sample calculations supplemental document for an example on this calculation methodology.

3. Calculating Split Project Life Projects

Split Project Life: Split Project Life Projects must use a separate project life for the two baseline technology scenarios. First, Formulas C-5, or C-6 must be used to calculate emission reduction by pollutant for the two baseline scenarios:

(A) Baseline technology to phase 1 reduced technology
(B) Phase 1 reduced technology to phase 2 reduced technology

Formula C-3 is used to calculate the annual emission reductions for each baseline technology. Next, a fraction of the project life must be applied to the annual emission reductions for each of the baseline scenarios, as outlined below in Formula C-11.

<u>Formula C-11</u>: Split Project Life

Total Annual Weighted Surplus Emission Reductions =
*(Fraction project life / Total project life * Annual weighted surplus emissions from transaction 1)*
*+ Fraction project life / Total project life * Annual weighted surplus emissions from transaction 2)*

Total Annual Weighted Surplus Emission Reductions =

$$n_1 * a_1 / t + n_2 * a_2 / t$$

Where:
n_1 = *fraction project life from transaction 1*
n_2 = *fraction project life from transaction 2*
a_1 = *Annual weighted surplus emissions from transaction 1*
a_2 = *Annual weighted surplus emissions from transaction 2*
t = *total project life*

4. Calculating the Applicant Cost Share

Moyer eligible costs are costs associated with a project that are eligible for reimbursement under program prior to considering the cost-effectiveness limit or any project cap restrictions. Guidance on these costs is contained in Chapters 2, 3, and the applicable chapter for the Moyer project. The applicant cost share is determined

by multiplying the Moyer eligible cost by 15 percent, as described in Formula C-12 below. Although the applicant cost share is determined from the Moyer eligible costs the value, applicant cost share, is an ineligible Moyer cost. A public entity applicant may use public funds toward meeting this requirement.

Formula C-12: Applicant Cost Share ($)

Applicant Cost Share ($) ≥
*15 percent * Moyer Eligible Costs ($)*

5. Calculation for Co-funding Moyer Funds with Other Sources

Air districts must request information from grantee to determine what other funds will be used toward the project. This information will be utilized to ensure that the applicant is not over paid for the project by adding the Applicant Cost Share contribution and the grants paid toward the project, as shown in Formula C-13 below and comparing against the total project cost value. The total project cost includes both Moyer eligible and Moyer ineligible costs. Refer to Chapters 2 and 3 for additional criteria and guidance related to co-funding projects.

Formula C-13: Project Overpayment Check ($)

Total Project Cost ≥
Applicant Cost Share ($) + ∑Grants Paid ($)

If the total project cost is exceeded then adjustments must be made to ensure the project applicant is not overpaid for the project.

6. Calculating the Cost-Effectiveness of a Grant Amount

The cost-effectiveness of a grant amount is determined by multiplying the CRF as calculated in Formula C-14 by the grant amount, and dividing that by the annual weighted surplus emission reductions that will be achieved by the project as calculated in Formula C-4.

Formula C-14: Cost-Effectiveness of Weighted Surplus Emission Reductions ($/tons)

Cost-Effectiveness ($/tons) =
*Grant Amount ($) * CRF /Annual Weighted Surplus Emission Reductions (weighted tons/yr)*

C. List of Formulas

For an easy reference, the necessary formulas to calculate the cost-effectiveness of surplus emission reductions for a project funded through the Moyer Program are provided below.

Formula C-1: Grant Amount for Projects at the Cost-Effectiveness Limit ($)

Grant Amount ($) =
*Cost-effectiveness limit ($/ton) * estimated annual emission reductions (weighted tons/yr) /CRF*

Formula C-2: Capital Recovery Factor

Capital Recovery Factor =
*(1 + Discount Rate[7]) ^ Project Life * Discount Rate* /((1 + Discount Rate*) ^ Project Life - 1)*

Formula C-3: Annual Weighted Surplus Emission Reductions (weighted tons/yr)

Weighted Emission Reductions (weighted tons/yr) =
*NO_x reductions (tons/yr) + ROG reductions (tons/yr) + (20 * PM reductions (tons/yr))*

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[5] *Discount Rate varies from year to year. See Tables D-24 and D-25 in Appendix D for CRF values at a 1 percent and 2 percent Discount Rate, respectively.*

Formula C-4: Estimated Annual Emissions by Pollutant (tons/yr)

Annual Emission (tons/yr) =
*(Emission Factor + Deterioration Rate (if applicable)) * Annual Activity * Adjustment Factor(s) * Percentage Operation in CA * ton/907,200g*

Deterioration Rate =
*Deterioration Rate Factor * Activity * Deterioration Life*

Deterioration Life[8] (Baseline) (yrs) =
Project Starting Year – Baseline Vehicle Model Year + project life /2

Deterioration Life (Reduced) (yrs) =
Project Life /2

Formula C-5: Estimated Annual Emissions based on Mileage using Emission Factors (tons/yr)

Annual Emissions by Pollutant (tons/yr) =
*(Emission Factor (g/mile) + Deterioration Rate (g/mile) (if applicable)) * Activity (miles/yr) * Percentage Operation in CA * ton/907,200g*

Mile-Based Deterioration Rate (g/mile) =
*Deterioration Rate Factor (g/mile) /10,000 (miles) * Activity (miles/yr) * Deterioration Life[9] (yrs)*

Deterioration Life (Baseline) (yrs) =
Project Starting Year – Baseline Vehicle Model Year + project life /2

Deterioration Life (Reduced) (yrs) =
Project Life /2

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[8] Round Deterioration Life down to the nearest whole number. For example, a calculated Deterioration Life of 2.5 years will round down to 2 years.

[9] For the Mile-Based Deterioration Rate calculation, the Activity * Deterioration Life is limited to a maximum of 800,000 miles, or 400,000 miles in the case of school buses.

Formula C-6: Estimated Annual Emissions based on hours of Operation (tons/yr)

Annual Emissions by Pollutant (tons/yr) =
*(Emission Factor (g/bhp-hr) + Deterioration Rate (g/bhp-hr) (if applicable)) * Horsepower (hp) * Load Factor * Activity (hrs/yr) * Percentage Operation in CA * ton/907,200g*

Hour-Based Deterioration Rate (g/bhp-hr) =
*Deterioration Rate Factor (g/bhp-hr-hr) * Activity (hrs/yr) * Deterioration Life[10] (yrs)*

Deterioration Life[11] (Baseline) (yrs) =
Project Starting Year – Baseline Vehicle Model Year + project life /2

Deterioration Life (Reduced) (yrs) =
Project Life /2

Formula C-7: Annual Surplus Emission Reductions by Pollutant (tons/yr)

Annual Surplus Emission Reductions (by pollutant) =
Annual Emissions for the Baseline Technology – Annual Emissions for the Reduced Technology

Formula C-8: Annual Surplus Emission Reductions by Pollutant (tons/yr) for Retrofits

Annual Surplus Emission Reductions (by pollutant) =
*Annual Emissions for the Baseline Technology * Reduced Technology Verification Percentage*

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[10] For the Hour-Based Deterioration Rate calculation, the Activity * Deterioration Life is limited to a maximum of 12,000 hours for off-road diesel engines, 3,500 hours for large-spark ignition (LSI) engines with a model year of 2006 or older, and 5,000 hours for LSI engines with a model year of 2007 or newer.

[11] Round Deterioration Life down to the nearest whole number. For example, a calculated Deterioration Life of 2.5 years will round down to 2 years.

Formula C-9: Annual Surplus Emission Reductions by Pollutant (tons/yr) for Marine Vessel Hybrid Systems

Annual Surplus Emission Reductions (by pollutant) =
*Total Annual Emissions (all engines on vessel) for the Baseline Technology – (Total Annual Emissions (all engines on vessel) for the Baseline Technology * Reduced Technology Verification Percentage)*

Formula C-10: Incremental Cost Based on Maximum Percentage of Eligible Cost ($)

Incremental Cost ($) =
*Cost of Reduced Technology ($) * Maximum Percentage of Eligible Cost*

Formula C-11: Split Project Life

Total Annual Weighted Surplus Emission Reductions =
*(Fraction project life / Total project life * Annual weighted surplus emissions from transaction 1)*
*+ Fraction project life / Total project life * Annual weighted surplus emissions from transaction 2)*

Total Annual Weighted Surplus Emission Reductions =
$(n_1 / t * a_1) + (n_2 / t * a_2)$
Where:
n_1 = *fraction project life from transaction 1*
n_2 = *fraction project life from transaction 2*
a_1 = *Annual weighted surplus emissions from transaction 1*
a_2 = *Annual weighted surplus emissions from transaction 2*
t = *total project life*

Formula C-12: Applicant Cost Share ($)

Applicant Cost Share ($) ≥
*15 percent * Moyer Eligible Costs ($)*

Formula C-13: Project Overpayment Check ($)

Total Project Cost ≥
Applicant Cost Share ($) + ∑Grants Paid ($)

Formula C-14: Cost-Effectiveness of Weighted Surplus Emission Reductions ($/ton)

Cost-Effectiveness ($/ton) =
*Grant Amount ($) * CRF /Annual Weighted Surplus Emission Reductions (weighted tons/yr)*

APPENDIX D

TABLES FOR EMISSION REDUCTION AND COST-EFFECTIVENESS CALCULATIONS

APPENDIX D:

TABLES FOR EMISSION REDUCTION AND COST-EFFECTIVENESS CALCULATIONS

This appendix presents tables summarizing the data needed to calculate the emission reductions and cost-effectiveness of potential projects. Included are data such as engine emission factors, load factors, and other conversion factors used in the calculations discussed in Appendix C: Cost-Effectiveness Calculation Methodology.

	Table Number
Heavy-Duty On-Road Projects	D-1 to D-6
Off-Road Diesel and Non-Mobile Agricultural (Ag) Projects	D-7 to D-9
Large Spark-Ignition (LSI) Projects	D-10 to D-13
Locomotive Projects	D-14a to D-14b
Marine Projects	D-15a to D-20
All Engines – Fuel Consumption	D-21
Reference Tables	D-22 to D-25

Table D-1
Heavy-Duty Vehicles
14,001-33,000 pounds (lbs) Gross Vehicle Weight Rating (GVWR)
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]		ROG[b],[c]		PM[b]	
	ZMR[d]	DR[e]	ZMR[d]	DR[e]	ZMR[d]	DR[e]
Pre-1987	14.52	0.031	0.89	0.051	0.713	0.0283
1987-90	14.31	0.041	0.70	0.060	0.774	0.0252
1991-93	10.70	0.054	0.37	0.031	0.425	0.0193
1994-97	10.51	0.063	0.27	0.036	0.241	0.0129
1998-02	10.33	0.072	0.28	0.036	0.266	0.0116
2003-06	6.84	0.071	0.23	0.021	0.175	0.0067
2007-09	3.99	0.090	0.18	0.007	0.014	0.0008
2007+[f] (0.21-0.50 g/bhp-hr NOx FEL)	1.27	0.079	0.06	0.002	0.002	0.0001
2010-12	1.03	0.079	0.06	0.002	0.002	0.0001
2013+[g]	1.03	0.045	0.06	0.001	0.002	0.0001
2016+[h] (0.1 g/bhp-hr NOx std)	0.52	0.023	0.06	0.001	0.002	0.0001
2016+[h] (0.05 g/bhp-hr NOx std)	0.26	0.011	0.06	0.001	0.002	0.0001
2016+[h] (0.02 g/bhp-hr NOx std)	0.10	0.005	0.06	0.001	0.002	0.0001

a - EMFAC 2014 Zero-Mile Based Emission Factors. Factors are based on diesel engines. Same factors used for alternative fuel engines due to limited alternative fuel data in EMFAC.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22. NOx – Oxides of nitrogen, ROG – Reactive Organic Gases, PM – Particulate Matter.
c – EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
d – ZMR – Zero Mile Rate.
e – DR – Deterioration Rate per 10,000 Miles.
f – All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.5 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.2 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.2 g/bhp-hr NOx standards based on sales.
g – Deterioration factors for 2013+ engines incorporate use of on-board diagnostic system.
h – Factors for 2016+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.1 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards.

Table D-2
Heavy-Duty Vehicles
Over 33,000 pounds (lbs) GVWR
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]		ROG[b],[c]		PM[b]	
	ZMR[d]	DR[e]	ZMR[d]	DR[e]	ZMR[d]	DR[e]
Pre-1987	21.37	0.018	1.38	0.031	1.260	0.0200
1987-90	21.07	0.024	1.08	0.037	1.369	0.0178
1991-93	18.24	0.037	0.78	0.027	0.574	0.0104
1994-97	17.92	0.043	0.58	0.031	0.377	0.0080
1998-02	17.61	0.049	0.60	0.031	0.415	0.0073
2003-06	11.66	0.049	0.49	0.018	0.267	0.0041
2007-09	6.80	0.077	0.39	0.007	0.022	0.0006
2007+[f] (0.21-0.50 g/bhp-hr NOx FEL)	2.17	0.068	0.13	0.002	0.000	0.0001
2010-12	1.76	0.068	0.13	0.002	0.000	0.0001
2013+[g]	1.76	0.039	0.13	0.001	0.000	0.0001
2016+[h] (0.1 g/bhp-hr NOx std)	0.88	0.019	0.13	0.001	0.000	0.0001
2016+[h] (0.05 g/bhp-hr NOx std)	0.44	0.010	0.13	0.001	0.000	0.0001
2016+[h] (0.02 g/bhp-hr NOx std)	0.18	0.004	0.13	0.001	0.000	0.0001

a - EMFAC 2014 Zero-Mile Based Emission Factors. Factors are based on diesel engines. Same factors used for alternative fuel engines due to limited alternative fuel data in EMFAC.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
c – EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
d - ZMR – Zero Mile Rate (g/mi).
e - DR – Deterioration Rate (g/mi/10,000 mi).
f - All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.5 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.2 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.2 g/bhp-hr NOx standards based on sales.
g - Deterioration factors for 2013+ engines incorporate use of on-board diagnostic system.
h - Factors for 2016+ engines are reduced values of 2013 factors by 50 percent 75 percent and 90 to correspond with 0.1 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.

Table D-3
Diesel Urban Buses
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]	ROG[b],[c]	PM[b]
Pre-1987	42.97	1.88	0.929
1987-1990	37.39	1.87	0.878
1991-1993	23.72	1.84	0.835
1994-1995	27.71	1.81	1.015
1996-1998	36.46	1.81	1.217
1999-2002	18.97	1.81	0.417
2003	13.02	0.77	0.084
2004-2006	3.56	0.08	0.084
2007+	1.90	0.03	0.011
2016+[d] (0.10 g/bhp-hr NOx std)	0.95	0.03	0.011
2016+[d] (0.05 g/bhp-hr NOx std)	0.47	0.03	0.011
2016+[d] (0.02 g/bhp-hr NOx std)	0.19	0.03	0.011

a - EMFAC 2014 Zero-Mile Based Emission Factors.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
c - EMFAC provides HC emission factors which are converted into ROG.
ROG = HC * 1.26639.
d - Factors for 2016+ engines are reduced values of 2007 factors by 50 percent 75 percent and 90 percent to correspond with 0.1 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.

Table D-4
Alternative Fuel Urban Buses
Emission Factors (g/mile)[a]

Engine Model Year	NOx	ROG[b]	PM
Pre-2003	21.60	2.68	0.043
2003-06	15.40	3.87	0.023
2007+	0.65	0.04	0.001
2016+[c] (0.1 g/bhp-hr NOx std)	0.33	0.04	0.001
2016+[c] (0.05 g/bhp-hr NOx std)	0.16	0.04	0.001
2016+[c] (0.02 g/bhp-hr NOx std)	0.07	0.04	0.001

a - EMFAC 2014 Zero-Mile Based Emission Factors.
b - EMFAC provides HC emission factors which are converted into ROG.
ROG (Pre-2007 engines) = HC * 0.16137.
ROG (2007+ engines) = HC * 0.013972.
c - Factors for 2016+ engines are reduced values of 2007 factors by 50 percent 75 percent and 90 percent to correspond with 0.1 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.

Table D-5
Diesel Refuse Trucks
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]	ROG[b],[c]	PM[b]
pre-1994	34.69	0.01	0.346
1994-97	31.53	0.01	0.137
1998-02	31.25	0.01	0.144
2003-06	21.39	0.01	0.086
2007-09	11.25	0.14	0.008
2007+[d] (0.21-0.50 g/bhp-hr NOx FEL)	1.23	0.26	0.008
2010+[e]	1.09	0.04	0.008
2016+[f] (0.1 g/bhp-hr NOx)	0.54	0.04	0.008
2016+[f] (0.05 g/bhp-hr NOx)	0.27	0.04	0.008
2016+[f] (0.02 g/bhp-hr NOx)	0.11	0.04	0.008

Note: These emission factors are not applicable to transfer trucks. Transfer trucks must use the zero mile rates from Table D-1 or D-2. Per EMFAC 2014, solid waste collection vehicles are considered to be well-maintained and have negligible deterioration which is why only zero-mile emission factors are to be used in calculations for solid waste collection vehicle projects.

a - EMFAC 2014 Zero-Mile Based Emission Factors.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
c - EMFAC provides HC emission factors which are converted into ROG.
ROG = HC * 1.26639.
d - All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.5 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.2 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.2 g/bhp-hr NOx standards based on sales.
e - These 2010+ emission factors are based only on engines certified to the 0.2 g/bhp-hr NOx standard.
f - Factors for 2016+ engines are reduced values of 2013 factors by 50 percent 75 percent and 90 percent to correspond with 0.1 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.

Table D-6
Alternative Fuel Refuse Trucks
Emission Factors (g/mile)[a]

Engine Model Year	NOx	ROG[b]	PM
Pre-2007	53.20	9.86	0.091
2007-09	18.80	3.68	0.004
2010+	0.88	0.14	0.004
2016+[c] (0.1 g/bhp-hr NOx)	0.44	0.14	0.004
2016+[c] (0.05 g/bhp-hr NOx)	0.22	0.14	0.004
2016+[c] (0.02 g/bhp-hr NOx)	0.09	0.14	0.004

Note: These emission factors are not applicable to transfer trucks. Transfer trucks must use the zero mile rates from Table D-1 or D-2. Per EMFAC 2014, solid waste collection vehicles are considered to be well-maintained and have negligible deterioration which is why only zero-mile emission factors are to be used in calculations for solid waste collection vehicle projects.

a - EMFAC 2014 Zero-Mile Based Emission Factors.
b - EMFAC provides HC emission factors which are converted into ROG.
ROG (Pre-2007 engines) = HC * 0.16137.
ROG (2007+ engines) = HC * 0.013972.
c - Factors for 2016+ engines are reduced values of 2010 factors by 50 percent 75 percent and 90 percent to correspond with 0.1 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.

Table D-7
Off-Road Diesel Engines Default Load Factors

Category	Equipment Type	Load Factor
Airport Ground Support	Aircraft Tug	0.54
	Air Conditioner	0.75
	Air Start Unit	0.90
	Baggage Tug	0.37
	Belt Loader	0.34
	Bobtail	0.37
	Cargo Loader	0.34
	Cargo Tractor	0.36
	Forklift	0.20
	Ground Power Unit	0.75
	Lift	0.34
	Passenger Stand	0.40
	Service Truck	0.20
	Other Ground Support Equipment	0.34
Agricultural (Mobile, Portable or Stationary)	Agricultural Mowers	0.43
	Agricultural Tractors	0.70
	Balers	0.58
	Combines/Choppers	0.70
	Chippers/Stump Grinders	0.73
	Generator Sets	0.74
	Hydro Power Units	0.48
	Irrigation Pump	0.65
	Shredders	0.40
	Sprayers	0.50
	Swathers	0.55
	Tillers	0.78
	Other Agricultural	0.51
Construction	Air Compressors	0.48
	Bore/Drill Rigs	0.50
	Cement & Mortar Mixers	0.56
	Concrete/Industrial Saws	0.73
	Concrete/Trash Pump	0.74
	Cranes	0.29
	Crawler Tractors	0.43
	Crushing/Process Equipment	0.78
	Excavators	0.38
	Graders	0.41

Table D-7
Off-Road Diesel Engines Default Load Factors
(Continued)

Category	Equipment Type	Load Factor
Construction	Off-Highway Tractors	0.44
	Off-Highway Trucks	0.38
	Pavers	0.42
	Other Paving	0.36
	Pressure Washer	0.30
	Rollers	0.38
	Rough Terrain Forklifts	0.40
	Rubber Tired Dozers	0.40
	Rubber Tired Loaders	0.36
	Scrapers	0.48
	Signal Boards	0.78
	Skid Steer Loaders	0.37
	Surfacing Equipment	0.30
	Tractors/Loaders/Backhoes	0.37
	Trenchers	0.50
	Welders	0.45
	Other Construction Equipment	0.42
Industrial	Aerial Lifts	0.31
	Forklifts	0.20
	Sweepers/Scrubbers	0.46
	Other General Industrial	0.34
	Other Material Handling	0.40
Logging	Fellers/Bunchers	0.71
	Skidders	0.74
Oil Drilling	Drill Rig	0.50
	Lift (Drilling)	0.60
	Swivel	0.60
	Workover Rig (Mobile)	0.50
	Other Workover Equipment	0.60
Cargo Handling	Container Handling Equipment	0.59
	Cranes	0.20
	Excavators	0.55
	Forklifts	0.30
	Other Cargo Handling Equipment	0.51
	Sweeper/Scrubber	0.68
	Tractors/Loaders/Backhoes	0.55
	Yard Trucks	0.39
Other	All	0.43

Table D-8
Uncontrolled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-49	Pre-1988	6.51	0.000098	1.68	0.00021	0.547	0.0000424
	1988+	6.42	0.000097	1.64	0.00021	0.547	0.0000424
20-119	Pre-1988	12.09	0.00028	1.31	0.000061	0.605	0.0000440
	1988+	8.14	0.00019	0.9	0.000042	0.497	0.0000361
120+	Pre-1970	13.02	0.00030	1.2	0.000056	0.554	0.0000403
	1970-1979	11.16	0.00026	0.91	0.000042	0.396	0.0000288
	1980-1987	10.23	0.00024	0.8	0.000037	0.396	0.0000288
	1988+	7.6	0.00018	0.62	0.000029	0.274	0.0000199

Table D-9
Controlled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR) [a]

Horsepower	Tier	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-49	1	5.26	0.000098	1.32	0.00017	0.48	0.0000372
	2	4.63	0.000093	0.22	0.000050	0.28	0.0000218
	4 (Interim)	4.55	0.000095	0.09	0.000036	0.128	0.0000096
	4 (Final)	2.75	0.000057	0.09	0.000036	0.009	0.0000010
50-74	1	6.54	0.00015	0.9	0.000042	0.552	0.0000402
	2	4.75	0.000071	0.17	0.000025	0.192	0.0000141
	3[b]	2.74	0.000036	0.09	0.000023	0.192	0.0000141
	4 (Interim)	2.74	0.000036	0.09	0.000023	0.112	0.0000080
	4 (Final)	2.74	0.000036	0.09	0.000023	0.009	0.0000009
75-99	1	6.54	0.00015	0.9	0.000042	0.552	0.0000402
	2	4.75	0.000071	0.17	0.000025	0.192	0.0000141
	3	2.74	0.000036	0.09	0.000023	0.112	0.0000080
	4 (Phase-Out)	2.74	0.000036	0.09	0.000030	0.009	0.0000009
	4 (Phase-In or Alt. NOx)	2.15	0.000027	0.08	0.000021	0.009	0.0000009
	4 (Final)	0.26	0.0000035	0.05	0.000015	0.009	0.0000009
100-174	1	6.54	0.00015	0.62	0.000029	0.304	0.0000221
	2	4.15	0.000060	0.15	0.000023	0.128	0.0000094
	3	2.32	0.000030	0.09	0.000030	0.112	0.0000080
	4 (Phase-Out)	2.32	0.000030	0.09	0.000030	0.009	0.0000004
	4 (Phase-In or Alt. NOx)	2.15	0.000027	0.08	0.000020	0.009	0.0000004
	4 (Final)	0.26	0.000004	0.05	0.000011	0.009	0.0000004

Table D-9
Controlled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR) [(a)]
(Continued)

Horsepower	Tier	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
175-299	1	5.93	0.00014	0.29	0.000013	0.12	0.0000064
	2	4.15	0.000060	0.11	0.000022	0.088	0.0000046
	3	2.32	0.000030	0.09	0.000023	0.088	0.0000046
	4 (Phase-Out)	2.32	0.000030	0.09	0.000023	0.009	0.0000003
	4 (Phase-In or Alt. NOx)	1.29	0.000017	0.06	0.000017	0.009	0.0000003
	4 (Final)	0.26	0.0000036	0.05	0.000011	0.009	0.0000003
300-750	1	5.93	0.000099	0.29	0.00001	0.12	0.0000064
	2	3.79	0.000050	0.09	0.000023	0.088	0.0000044
	3	2.32	0.000030	0.09	0.000023	0.088	0.0000044
	4 (Phase-Out)	2.32	0.000030	0.09	0.000023	0.009	0.0000003
	4 (Phase-In or Alt. NOx)	1.29	0.000017	0.06	0.000017	0.009	0.0000003
	4 (Final)	0.26	0.0000036	0.05	0.000011	0.009	0.0000003
751+	1	5.93	0.000099	0.29	0.00001	0.12	0.0000064
	2	3.79	0.000050	0.09	0.000023	0.088	0.0000044
	4 (Interim)	2.24	0.000028	0.06	0.000017	0.051	0.0000021
	4 (Final)	2.24	0.000028	0.05	0.000011	0.017	0.0000009

a - Emission factors were converted using the ultra low-sulfur diesel fuel correction factors listed in Table D-23.
b - Alternate compliance option.

Note: Engines that are participating in the "Tier 4 Early Introduction Incentive for Engine Manufacturers" program per California Code of Regulations, Title 13, section 2423(b)(6) are eligible for funding provided the engines are certified to the final Tier 4 emission standards. The ARB Executive Order indicates engines certified under this provision. The emission rates for these engines used to determine cost-effectiveness shall be equivalent to the emission factors associated with Tier 3 engines.

For equipment with baseline engines certified under the flexibility provisions per California Code of Regulations, Titles 13, section 2423(d), baseline emission rates shall be determined by using the previous applicable emission standard or Tier for that engine model year and horsepower rating. The ARB Executive Order indicates engines certified under this provision.

Table D-10
Off-Road LSI Equipment Default Load Factors

Category	Equipment Type	Load Factor
Agriculture (Mobile, Portable or Stationary)	Agricultural Tractors	0.62
	Balers	0.55
	Combines/Choppers	0.74
	Chipper/Stump Grinder	0.78
	Generator Sets	0.68
	Sprayers	0.50
	Swathers	0.52
	Pumps	0.65
	Other Agricultural Equipment	0.55
Airport Ground Support	A/C Tug	0.80
	Baggage Tug	0.55
	Belt Loader	0.50
	Bobtail	0.55
	Cargo Loader	0.50
	Forklift	0.30
	Ground Power Unit	0.75
	Lift	0.50
	Passenger Stand	0.59
	Other Ground Support Equipment	0.50
Construction	Air Compressors	0.56
	Asphalt Pavers	0.66
	Bore/Drill Rigs	0.79
	Concrete/Industrial Saws	0.78
	Concrete/Trash Pump	0.69
	Cranes	0.47
	Gas Compressor	0.85
	Paving Equipment	0.59
	Pressure Washer	0.85
	Rollers	0.62
	Rough Terrain Forklifts	0.63
	Rubber Tired Loaders	0.54
	Skid Steer Loaders	0.58
	Tractors/Loaders/Backhoes	0.48

Table D-10
Off-Road LSI Equipment Default Load Factors
(Continued)

Category	Equipment Type	Load Factor
Construction	Trenchers	0.66
	Welders	0.51
	Other Construction	0.48
Industrial	Aerial Lifts	0.46
	Forklifts	0.30
	Sweepers/Scrubbers	0.71
	Other Industrial	0.54

Table D-11a
Off-Road LSI Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Gasoline

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	Uncontrolled pre-2004	8.01	0.0000406	3.76	0.000412	0.060	0.000
	Controlled 2001 - 2006	1.33	0.0004710	0.71	0.000169	0.060	0.000
	Controlled 2007 - 2009	0.89	0.0001192	0.473	0.000064	0.060	0.000
	Controlled 2010+	0.27	0.0000250	0.142	0.000013	0.060	0.000
51-120	Uncontrolled Pre-2004	11.84	0.0000601	2.63	0.000287	0.060	0.000
	Controlled 2001 – 2006	1.78	0.0002070	0.26	0.000081	0.060	0.000
	Controlled 2007 - 2009	1.17	0.0000660	0.13	0.000074	0.060	0.000
	Controlled 2010+	0.35	0.0000300	0.03	0.000014	0.060	0.000
>120	Uncontrolled pre-2004	12.94	0.0001270	1.61	0.000042	0.060	0.000
	Controlled 2001 – 2006	1.94	0.0002780	0.16	0.000102	0.060	0.000
	Controlled 2007 - 2009	1.17	0.0000660	0.13	0.000074	0.060	0.000
	Controlled 2010+	0.35	0.0000300	0.03	0.000014	0.060	0.000

Table D-11b
Off-Road LSI Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Alternative Fuels

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	Uncontrolled pre-2004	13.00	0.0000662	1.38	0.000151	0.060	0.000
	Controlled 2001 - 2006	1.95	0.0002760	0.14	0.000106	0.060	0.000
	Controlled 2007 - 2009	1.30	0.0000011	0.093	0.000172	0.060	0.000
	Controlled 2010+	0.39	0.0000002	0.028	0.000036	0.060	0.000
51-120	Uncontrolled pre-2004	10.53	0.0000533	1.55	0.000169	0.060	0.000
	Controlled 2001 – 2006	1.58	0.0003500	0.16	0.000103	0.060	0.000
	Controlled 2007 - 2009	1.04	0.0000125	0.10	0.000047	0.060	0.000
	Controlled 2010+	0.31	0.0000380	0.03	0.000014	0.060	0.000
>120	Uncontrolled pre-2004	10.51	0.0001040	1.38	0.000035	0.060	0.000
	Controlled 2001 – 2006	1.58	0.0002640	0.14	0.000106	0.060	0.000
	Controlled 2007 - 2009	1.04	0.0000125	0.10	0.000047	0.060	0.000
	Controlled 2010+	0.31	0.0000380	0.03	0.000014	0.060	0.000

Table D-12
Emission Factors for Off-Road LSI Engine Retrofits
Verified to Absolute Emission Number (g/bhp-hr)

Manufacturers of LSI retrofit systems may verify to a percentage emission reduction or absolute emissions. If a retrofit system is verified to a percentage reduction, the emission factors will be that verified percentage of the appropriate emissions factors in Table D-11a or D-11b. If a retrofit system is verified to an absolute emission number, when calculating emission reductions use the following table for the emission factors and the deterioration rate for the baseline engine.

Fuel	Verified Value	NOx	ROG	PM10
Gasoline	3.0 g/bhp-hr	1.78	0.26	0.060
	2.5 g/bhp-hr	1.48	0.22	0.060
	2.0 g/bhp-hr	1.19	0.18	0.060
	1.5 g/bhp-hr	0.89	0.13	0.060
	1.0 g/bhp-hr	0.59	0.09	0.060
	0.6 g/bhp-hr	0.35	0.03	0.060
	0.5 g/bhp-hr	0.29	0.03	0.060
Alt Fuel	3.0 g/bhp-hr	1.58	0.16	0.060
	2.5 g/bhp-hr	1.32	0.14	0.060
	2.0 g/bhp-hr	1.05	0.11	0.060
	1.5 g/bhp-hr	0.79	0.08	0.060
	1.0 g/bhp-hr	0.53	0.05	0.060
	0.6 g/bhp-hr	0.31	0.03	0.060
	0.5 g/bhp-hr	0.26	0.03	0.060

Table D-13a
Off-Road LSI Engines Certified to Optional Standards
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Gasoline

Horsepower	Optional Standard	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	0.4	0.18	0.000017	0.09	0.0000087	0.060	0.000
	0.2	0.09	0.000008	0.05	0.0000043	0.060	0.000
	0.1	0.04	0.000005	0.02	0.0000027	0.060	0.000
51-120	0.4	0.24	0.000021	0.04	0.0000034	0.060	0.000
	0.2	0.12	0.000010	0.02	0.0000017	0.060	0.000
	0.1	0.06	0.000005	0.01	0.0000009	0.060	0.000
>120	0.4	0.26	0.000022	0.02	0.0000017	0.060	0.000
	0.2	0.13	0.000011	0.01	0.0000009	0.060	0.000
	0.1	0.06	0.000005	0.01	0.0000009	0.060	0.000

Table D-13b
Off-Road LSI Engines Certified to Optional Standards
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Alternative Fuels

Horsepower	Optional Standard	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	0.4	0.26	0.000022	0.02	0.0000017	0.060	0.000
	0.2	0.13	0.000011	0.01	0.0000009	0.060	0.000
	0.1	0.07	0.000006	0.00	0.0000000	0.060	0.000
51-120	0.4	0.21	0.000031	0.02	0.0000030	0.060	0.000
	0.2	0.11	0.000015	0.01	0.0000013	0.060	0.000
	0.1	0.05	0.000007	0.01	0.0000013	0.060	0.000
>120	0.4	0.21	0.000034	0.01	0.0000016	0.060	0.000
	0.2	0.11	0.000015	0.01	0.0000013	0.060	0.000
	0.1	0.05	0.000010	0.00	0.0000000	0.060	0.000

LOCOMOTIVES

Table D-14a
Locomotive Emission Factors (g/bhp-hr)
Based on 1998 Federal Standards

Engine Model Year	Type	NOx[(a)]	ROG[(b)]	PM10[(a)]
Pre-1973	Line-haul and Passenger	12.22	0.51	0.275
	Switcher	16.36	1.06	0.378
1973-2001 Tier 0	Line-haul and Passenger	8.93	1.05	0.516
	Switcher	13.16	2.21	0.619
2002-2004 Tier 1	Line-haul and Passenger	6.96	0.58	0.387
	Switcher	10.34	1.26	0.464
2005-2011 Tier 2	Line-haul and Passenger	5.17	0.32	0.172
	Switcher	7.61	0.63	0.206

These factors are to be used for the project baseline emissions if the baseline locomotive is certified or required to be certified to the 1998 federal locomotive remanufacture standards, and for the reduced emission locomotive if the project locomotive is remanufactured to these 1998 standards. Factors are based upon Regulatory Impact Analysis: Final United States Environmental Protection Agency (U.S. EPA) Locomotive Regulation (2008).

a - NOx and PM10 emission factors have been adjusted by a factor of 0.94 and 0.86, respectively, to account for use of California ultra-low sulfur diesel fuel.

b - ROG = HC * 1.053

Table D-14b
Locomotive Emission Factors (g/bhp-hr)
Based on 2008 Federal Standards

Engine Model Year	Type	NOx[(a)]	ROG[(b)]	PM10[(a)]
1973-2001 Tier 0+	Line-haul and Passenger	6.96	0.58	0.189
	Switcher	11.09	2.21	0.224
2002-2004 Tier 1+	Line-haul and Passenger	6.96	0.58	0.189
	Switcher	10.34	1.26	0.224
2005-2011 Tier 2+	Line-haul and Passenger	5.17	0.32	0.086
	Switcher	7.61	0.63	0.112
2011-2014 Tier 3	Line-haul and Passenger	5.17	0.32	0.086
	Switcher	4.70	0.63	0.086
2015 Tier 4	Line-haul and Passenger	1.22	0.15	0.026
	Switcher	1.22	0.15	0.026

These factors are to be used for the project baseline emissions if the baseline locomotive is certified or required to be certified to the new (2008) federal locomotive remanufacture standards, and for the reduced emission locomotive if the project locomotive is remanufactured to the new standards or meets Tier 3 standards. Factors are based upon Regulatory Impact Analysis: Final U.S. EPA Locomotive Regulation (2008).

a - NOx and PM10 emission factors have been adjusted by a factor of 0.94 and 0.86, respectively, to account for use of California ultra-low sulfur diesel fuel.

b - ROG = HC * 1.053

Table D-15a
Uncontrolled Harbor Craft Propulsion Engine
Emission Factors (g/bhp-hr)

Horsepower	Model Year	NOx	ROG	PM10
25-50	All	7.57	1.32	0.520
51-120	pre-1997	14.27	1.04	0.575
	1997+	9.70	0.71	0.524
121-250	pre-1971	15.36	0.95	0.527
	1971-1978	14.27	0.79	0.451
	1979-1983	13.17	0.72	0.376
	1984+	12.07	0.68	0.376
251+	pre-1971	15.36	0.91	0.506
	1971-1978	14.27	0.76	0.431
	1979-1983	13.17	0.68	0.363
	1984-1994	12.07	0.65	0.363
251-750	1995+	8.97	0.49	0.260
751+	1995+	12.07	0.60	0.363

Table D-15b
Controlled Harbor Craft Propulsion Engine
Emission Factors (g/bhp-hr)

Horsepower	Tier	NOx	ROG	PM10
25-50	1	6.93	1.30	0.580
	2	5.04	1.30	0.240
	3	5.04	1.30	0.176
51-120	1	6.93	0.71	0.524
	2	5.04	0.71	0.240
	3	5.04	0.71	0.176
121-175	1	8.97	0.49	0.290
	2	4.84	0.49	0.176
	3	3.60	0.49	0.077
176-750	1	8.97	0.49	0.290
	2	4.84	0.49	0.120
	3	3.87	0.49	0.068
751-1900	1	8.97	0.49	0.290
	2	5.24	0.49	0.160
	3	3.87	0.49	0.068
1901 +	1	8.97	0.49	0.290
	2	5.24	0.49	0.160
	3	4.14	0.49	0.085

Table D-16
Tier 4 Harbor Craft Propulsion Engine
Emission Standards (g/bhp-hr)
(Not applicable for engines using FEL or ABT for compliance)

Model Year	Horsepower	Tier	NOx	ROG	PM10
2016+	805-4960	4	1.34	0.142	0.030

Table D-17a
Uncontrolled Harbor Craft Auxiliary Engine
Emission Factors (g/bhp-hr)

Horsepower	Model Year	NOx	ROG	PM10
25-50	all	6.42	1.58	0.460
51-120	pre-1997	12.09	1.23	0.508
	1997+	8.14	0.85	0.417
121-250	pre-1971	13.02	1.13	0.466
	1971-1978	12.09	0.94	0.399
	1979-1983	11.16	0.86	0.333
	1984-1995	10.23	0.82	0.333
	1996+	7.75	0.59	0.255
251-750	pre-1971	13.02	1.08	0.448
	1971-1978	12.09	0.90	0.381
	1979-1983	11.16	0.81	0.321
	1984-1994	10.23	0.77	0.321
	1995+	7.60	0.58	0.230
751 +	pre-1971	13.02	1.08	0.448
	1971-1978	12.09	0.90	0.381
	1979-1986	11.16	0.81	0.321
	1987-1998	10.23	0.72	0.321
	1999+	7.75	0.58	0.255

Table D-17b
Controlled Harbor Craft Auxiliary Engine
Emission Factors (g/bhp-hr)

Horsepower	Tier	NOx	ROG	PM10
25-50	1	6.54	1.54	0.511
	2	5.04	1.54	0.240
	3	5.04	1.54	0.176
51-120	1	6.93	0.85	0.464
	2	5.04	0.85	0.240
	3	5.04	0.85	0.176
121-175	1	6.93	0.58	0.255
	2	4.84	0.58	0.176
	3	3.60	0.58	0.077
176-750	1	6.93	0.58	0.255
	2	4.84	0.58	0.120
	3	3.78	0.58	0.068
751-1900	1	6.93	0.58	0.255
	2	5.24	0.58	0.160
	3	3.87	0.58	0.068
1901 +	1	6.93	0.58	0.255
	2	5.24	0.58	0.160
	3	4.14	0.58	0.085

Table D-18
Harbor Craft Load Factors

Vessel Type	Propulsion Engine	Auxiliary Engine
Charter Fishing	0.52	0.43
Commercial Fishing	0.27	
Ferry/Excursion	0.42	
Pilot	0.51	
Tow	0.68	
Work	0.45	
Other	0.52	
Barge/Dredge	0.45	0.65
Crew & Supply	0.38	0.32
Tug	0.50	0.31

Table D-19
Shore Power
Default Emission Rates (Grams per kilowatt-hour (g/kW-hr))

Pollutant	Emission Rate
NOx	13.9
ROG	0.49
PM10 (marine gas oil fuel with 0.11- 0.5 % sulfur content)	0.38
PM10 (marine gas oil fuel with <= 0.10 % sulfur content)	0.25

Table D-20
Shore Power
Default Power Requirements

Ship Category	Ship Size / Type Default (Twenty-foot Equivalent Unit (TEU))	Power Requirement (kW)
Container Vessel	<1,000	1,000
	1,000 – 1,999	1,300
	2,000 – 2,999	1,600
	3,000 – 3,999	1,900
	4,000 – 4,999	2,200
	5,000 – 5,999	2,300
	6,000 – 6,999	2,500
	7,000 – 7,999	2,900
	8,000 – 9,999	3,300
	10,000 – 12,000	3,700
Passenger Vessel	No Default Value – Use Actual Power Requirement[(a)]	
Reefer	Break Bulk	1,300
	Fully containerized	3,300

a - The average power requirement for passenger vessels is 7,400 kW (ARB Oceangoing Vessel Survey, 2005).

ALL ENGINES

Table D-21
Fuel Consumption Rate Factors (bhp-hr/gal)

Category	Horsepower/Application	Fuel Consumption Rate
Non-Mobile Agricultural Engines	ALL	17.5
Locomotive	Line Haul and Passenger (Class I/II)	20.8
	Line Haul and Passenger (Class III)	18.2
	Switcher	15.2
Other	< 750 hp	18.5
	≥ 750 hp	20.8

REFERENCES

The information in these tables has already been incorporated into the preceding emission factor tables. These tables are included for informational purposes.

Table D-22
Fuel Correction Factors
On-Road Diesel Engines

Model Year	NOx	PM10	HC
Pre- 2007	0.93	0.72	0.72
2007+	0.93	0.80	0.72

Table D-23
Fuel Correction Factors
Off-Road Diesel Engines

Model Year	NOx	PM10	HC
Pre-Tier 1	0.930	0.720	0.720
Tier 1 – Tier 3	0.948	0.800	0.720
Tier 4	0.948	0.852	0.720

Table D-24
Capital Recovery Factor (CRF) for Various Project Lives
At a 1% Discount Rate[(a)]

Project Life	CRF
1	1.01
2	0.508
3	0.34
4	0.256
5	0.206
6	0.173
7	0.149
8	0.131
9	0.117
10	0.106
11	0.096
12	0.089
13	0.082
14	0.077
15	0.072
16	0.068
17	0.064
18	0.061
19	0.058
20	0.055

Table D-25
Capital Recovery Factor (CRF) for Various Project Lives
At a 2% Discount Rate[(a)]

Project Life	CRF
1	1.02
2	0.515
3	0.347
4	0.263
5	0.212
6	0.179
7	0.155
8	0.137
9	0.123
10	0.111
11	0.102
12	0.095
13	0.088
14	0.083
15	0.078
16	0.074
17	0.07
18	0.067
19	0.064
20	0.061

a – Upon ARB approval of the 2017 Moyer Program Guidelines, the discount rate is one percent. Per statute ARB reviews and may update discount rates annually, using the average rates of return for U.S. Treasury securities and the California Consumer Price Index data available at the time of publication.

APPENDIX E

CHAPTER REFERENCES

APPENDIX E: CHAPTER REFERENCES

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