

Chapter 9: OFF-ROAD EQUIPMENT REPLACEMENT

The off-road equipment replacement program is intended to obtain emission reductions by replacing old, high polluting equipment with newer, cleaner equipment. This source category can provide real emission benefits by retiring the high polluting equipment earlier than would have been expected through normal attrition. In this source category, Carl Moyer Program funds are used to offset part of the cost of the replacement vehicle as well as diesel retrofits.

The Carl Moyer Program approaches equipment replacement cautiously for two reasons: 1) equipment replacement occurs on its own without incentive funding, and 2) paying for more than just the engine may not result in the best value for state funds. However, for some equipment, replacing the engine only, (i.e., repowering) is not possible and for others, the diminished value of the old equipment may not justify investing significant funds for engine replacement. In the 2005 Carl Moyer Program Guidelines, ARB created the on-road fleet-modernization source category that provides incentive funds to replace old vehicles that were unlikely to be removed from operation with newer cleaner vehicles. Using the on-road fleet modernization program as a starting point, ARB has created a program that will provide a similar option for off-road equipment. ARB's intent in designing this program was to ensure that it does not pay for equipment replacement that would have occurred anyway, but would be accessible for accelerated turnover of old equipment.

In developing the project criteria for this program, there were areas where the available data for off-road equipment was much less robust than for on-road vehicles. One such area was the determination of project lives. For equipment subject to ARB's In-Use Off-Road Diesel Vehicle Regulation (Off-Road Regulation), extensive surveys were completed to update the existing off-road CI inventory which included median useful life for several categories of equipment. Since CI agricultural equipment was not part of that regulation, ARB's inventory has not been updated and staff felt it was necessary to extend project life for CI agricultural equipment based on trends that occurred for other off-road CI equipment. Assessments to the inventory for agricultural equipment will be continually monitored to determine if changes to the project criteria are appropriate.

This chapter describes the minimum criteria and requirements for Carl Moyer Program mobile, self-propelled off-road equipment replacement projects. Local air quality management districts may set more stringent requirements based upon local priorities. Definition of terminology can be found at the end of this chapter.

I. Projects Eligible for Funding

Eligible projects are those in which a new or used piece of equipment with an engine meeting the current Model Year California emission standard replaces an uncontrolled, a Tier 1, or a Tier 2 fully functional off-road compression-ignition or large spark ignition piece of equipment that is to be scrapped.

Please see Section IV of this chapter for detailed minimum eligibility requirements for off-road compression-ignition (CI) and large spark ignited (LSI) equipment replacement. Equipment covered under this source category may be subject to more stringent requirements as described in Section III.

II. Maximum Eligible Funding Amounts

Projects are eligible for reimbursement up to a maximum of 80 percent of total equipment purchase costs. Retrofits for CI equipment are eligible for up to 100 percent of total costs, including all filters and maintenance of the filters needed during the project life.

All projects are also subject to the cost-effectiveness threshold defined in Chapter II – General Criteria. Projects must also meet all other relevant criteria in Section IV of this chapter.

III. Background

Regulatory Background

State law requires that Carl Moyer Program projects provide emission reductions early or beyond what is required by regulation, memorandum of understanding (MOU), or other legally binding document. Carl Moyer Program off-road equipment replacement projects must therefore be surplus to the following regulations to be eligible for funding:

- Compression-ignition:
Off-Road Compression Ignition Engine Regulations
ARB In-Use Off-Road Diesel Vehicle Regulation
ARB's Cargo Handling Equipment at Ports and Intermodal Rail Yards
- Large spark ignited:
Large Spark Ignited Engine Regulations
ARB's Large Spark Ignited Fleet Requirements (LSI Fleet Rule)

A description of these regulations can be found in Chapter 5 and Chapter 6 for CI and LSI equipment, respectively.

Legislative Background

Senate Bill 467 (Lowenthal) requires the ARB to establish grant criteria in the Carl Moyer Program guidelines for the replacement of off-road internal combustion equipment with zero-emission equipment that can perform the same work. The bill requires that equipment being replaced must be owned by the applicant, still have some remaining life, and be scrapped. In addition, the bill specifically requires ARB to address three main issues: project life, emission reduction benefits, and incremental cost. Criteria were developed for the replacement of LSI forklifts with zero emission technology because this equipment represents the majority of equipment that could take advantage of the provisions of this bill; however these criteria may be modified on a case-by-case basis for additional equipment types.

- SB 467 requires that ARB adjust project life so that it is extended to incorporate the remaining life of the equipment being scrapped (3 years) and the median useful life of the equipment the applicant would have bought at the time of normal attrition (7 years) (see Section IV(a)(2)).
- Emission benefits from two separate transactions must be included in the cost effectiveness calculations:
 - Emission reductions from existing uncontrolled, Tier 1, or Tier 2 equipment to zero emission.
 - Emission reductions from a new piece of equipment meeting the emission standards at time of purchase to zero emission. For the purposes of this program, ARB has interpreted this to mean new equipment that would have been purchased through normal attrition.

Further discussion on the calculation of emission benefits and cost-effectiveness may be found in the sample calculations in Appendix E.

- ARB may include salvage value and any additional costs incurred for recharging or infrastructure in the incremental cost. The salvage value of an uncontrolled LSI forklift is likely to be very little or of no appreciable value. ARB does not believe that the addition of salvage value to the incremental cost achieves any additional benefit to the Carl Moyer Program or the applicant and therefore will not be including salvage value as part of the incremental cost. ARB has determined that the cost of the electric charging station and corresponding installation may be an eligible cost as defined in Section IV(a)(2) if this chapter.

IV. Project Criteria

These criteria provide the minimum requirements for Carl Moyer Program off-road equipment replacement projects.

(a) General Criteria

- (1) Projects are eligible for a maximum of 80 percent of total equipment purchase costs up to the weighted cost-effectiveness limit.
- (2) Replacement with an electric forklift is eligible for a maximum of 80 percent of total equipment purchase costs. In addition, the cost of the recharging station

and corresponding installation for the funded electric forklift is an eligible cost but must be included in the cost-effectiveness calculation. The combined cost-effectiveness of the electric forklift, recharging station, and corresponding installation must be below the cost-effectiveness limit as defined in Chapter 2(h).

(3) Project Life

- (A) The maximum project life for all off-road non-farm CI equipment replacement projects is five years with the following exceptions:
 - 1. Three years: excavators, skid steer loaders, and rough terrain forklifts as defined in Section VI of this chapter.
 - 2. Seven years: crawler tractors, off-highway tractors, rubber tired dozers, and workover rigs as defined in Section VI of this chapter.
- (B) The maximum project life for all off-road non-farm LSI equipment replacement projects is three years.
- (C) The maximum project life for replacement of an LSI forklift with a zero emission forklift is ten years.
- (D) The maximum project life for all off-road farm equipment replacement projects is 10 years. Districts must offer a 10 year project life for farm equipment; however, applicants may request a project life less than 10 years.
- (E) A longer project life may be granted case-by-case approval if an applicant provides justifying documentation. The maximum project life does not consider regulatory requirements and may be shorter.

(4) Funding is available for existing equipment utilizing the following engines:

- (A) Large spark ignited engines larger than or equal to 19kW (25 horsepower). 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) Diesel engines larger than or equal to 25 horsepower.

(5) Emission reduction technologies must be certified/verified by the ARB. Federally preempted engines must be certified by the United States Environmental Protection Agency (U.S. EPA) and must comply with durability and warranty requirements. For the purposes of the Carl Moyer Program, a technology granted a conditional certification/verification by ARB is considered certified/verified.

(6) Equipment must be maintained in accordance with manufacturer specifications.

- (7) Equipment may be purchased through an equipment dealer or a private party provided all required documentation is submitted and the equipment meets all the requirements of the program.
- (8) All case-by-case projects must receive approval from ARB prior to funding. These projects must follow the requirements as described in Part III, Section 28.

(b) Existing (Old) Equipment Requirements

All existing equipment must meet the following conditions:

- (1) The old equipment must have an uncontrolled, Tier 1, or Tier 2 engine.
- (2) The old equipment must be registered in the Diesel Off-road On-line Reporting System (DOORS) if it is subject to the Regulation for In-Use Off-Road Diesel Vehicles.
- (3) To prove residency in California, the participant must have owned and operated the old equipment in California for the previous two years. The participant must be able to provide documentation of the following:
 - (A) Bill of sale for the old equipment and
 - (B) Two years of documentation for at least one item in the following list. If a bill of sale cannot be provided, two items from the following list may be submitted in substitution:
 - 1. Tax depreciation logs
 - 2. Property tax records
 - 3. Equipment insurance records
 - 4. Bank appraisals for equipment
 - 5. Maintenance/service records
 - 6. General ledgers
 - 7. Fuel records specific to the old equipment (To be used as evidence of California residency the fuel records must also identify the equipment owner.)
 - 8. Other documentation approved by ARB.
- (4) The old equipment must be in operational condition to qualify for funding. The participant must be able to provide documentation for the previous year for at least one of the following:
 - (A) Maintenance/service records
 - (B) Revenue and usage records that identify operational, standby, and down hours for the equipment
 - (C) Routine inspections which document the operating condition of the old equipment (OSHA or workplace required)
 - (D) Other documentation approved by ARB.

In addition, the district must conduct a pre-inspection of the old equipment prior to funding to verify the operational status of the equipment.

- (5) Participants must submit documentation of annual usage of the old equipment for the previous two years. Usage from this documentation will be used to calculate the cost-effectiveness of the project. The participant must be able to provide at least one of the following types of documentation:
- (A) Hour meter reading log collected at minimum of once per year from an installed and fully functioning hour meter or historical fuel usage documentation specific for the old equipment. Documentation must include fuel logs, purchase receipts, or ledger entries. Or
 - (B) At least two items from the following list proving old equipment is being used by the fleet:
 - 1. Revenue and usage records that identify operational, standby, and down hours for the equipment
 - 2. Employee timesheets linked to specific equipment use
 - 3. Preventative maintenance records tied to specific hours of equipment use
 - 4. Repair work orders specific to the equipment
 - 5. Six months of tracking normal equipment usage with a functional, tamper proof hour meter with prior district approval
 - 6. Other documentation approved by ARB.
- (6) The replacement of two (or more) pieces of old, like equipment with one piece of replacement equipment is eligible for funding. Each piece of old and replacement equipment must comply with all of the appropriate criteria. The replacement equipment must execute the same job as the old pieces of equipment. For baseline emissions calculation, the annual emissions of the two pieces of old equipment are summed. For the replacement equipment emissions calculation, the usage of the two pieces of old equipment is summed for the replacement equipment usage.

(c) Replacement Equipment Requirements

All replacement equipment must meet the following conditions:

- (1) Engine Certification - The new or used replacement equipment must have an engine meeting the most recent Model Year California emission standard. If a specific piece of equipment cannot be purchased with an engine meeting the most recent Model Year emission standard at the time districts obligate funds, then equipment with an engine meeting the previous Model Year emission standard may be purchased. Documentation from the equipment manufacturer that equipment with an engine meeting the current Model Year emission standard is unavailable must be provided to the district.
- (A) For CI equipment, engines participating in the averaging, banking, and trading program that are certified to family emission limits higher than the

- applicable emission standards, as designated on the ARB Executive Order, are ineligible to participate in the Carl Moyer Program.
- (B) For CI equipment, engines that are participating in the “Tier 4 Early Introduction Incentive for Engine Manufacturers” program, as detailed in Title 13, CCR, section 2423(b)(6), are ineligible for Carl Moyer Program funding. The ARB executive order for these engines reference that the engines are certified under this citation.
 - (C) The certification emission standard and/or Tier designation for the engine must be determined from the ARB Executive Order issued for that engine. Executive Orders for off-road engines may be found at <http://www.arb.ca.gov/msprog/offroad/cert/cert.php>
 - (D) The engine in the replacement equipment must be certified to a NO_x emission standard that is at least 15 percent lower than the emission standard(s) applicable to the existing engine and be certified to either the current applicable emission standard, except as noted below, or to a FEL NO_x or NO_x+NMHC level that is lower than the required emission standard.
- (2) The replacement equipment must serve the same function and perform the same work equivalent as the old equipment (e.g.. replacement of an agricultural tractor with another agricultural tractor). This requirement may be waived by districts with approval from ARB for instances where general purpose farming equipment changes commodities.
 - (3) Only the minimum attachments normally sold with the original equipment, as determined by the district, are eligible for reimbursement on the replacement equipment.
 - (4) The horsepower rating for the replacement equipment engine must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the old equipment 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 less annual emissions, the district may approve a greater than 25 percent increase in horsepower. Documentation must be provided that the replacement equipment will be executing the same job as the old equipment.
 - (5) Warranty Requirements
 - (A) Purchasers of new CI equipment must purchase a minimum of a three-year or 5000 hours power and drive train warranty for the replacement equipment.
 - (B) Purchasers of new LSI equipment must purchase a minimum of a one-year or 2000 hours power and drive train warranty for the replacement equipment. The warranty must cover parts and labor.

- (C) Purchasers of used, late model year equipment must purchase the remaining manufacturer warranty, if available, on the equipment. Warranty documentation must be provided to the district.
 - (D) Warranty costs are not eligible for funding. The district may waive this requirement if they have provided ARB a satisfactory plan to ensure that funded equipment will be maintained and operated as if under warranty.
- (6) No funds will be issued for maintenance or repairs related to the operation of the equipment. The participant takes sole responsibility for ensuring that the equipment is in operational condition throughout the agreement period.
- (7) The participant may obtain financing to assist in the purchase of replacement equipment. Documentation of financing must be provided to the district.
- (8) Future annual hours of equipment operation for determining emission reductions must be based only on readings from an installed and fully operational hour meter. 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 cost. Future annual fuel usage for determining emission reductions must be based on fuel logs, purchase receipts or ledger entries specific to the funded equipment. LSI equipment may only use the hour based calculation for determining emission reductions.
- (9) For CI equipment, an ARB Verified Diesel Emission Control System (or retrofit) is required on all replacement equipment if available.
- (A) If the additional cost of the retrofit causes the cost-effectiveness to be above the cost-effectiveness limit as defined in Chapter 2(h), then the retrofit is not required.
 - (B) If documentation can be provided to the district or ARB that a retrofit is not technically feasible, available, or safe, then the retrofit is not required. Documentation for a retrofit that impairs the safe operation of a vehicle must follow the process set out in the Off-Road Regulation, Title 13, CCR, section 2449(e)(8).
 - (C) Retrofit projects that control PM must use the highest level ARB-verified technology available at obligation of funds for the equipment being retrofitted.
 - (D) The retrofit must be installed prior to equipment delivery to the participant and must stay in operation on the replacement equipment for the project life.
 - (E) The cost of the retrofit, filters, and maintenance of the retrofit device needed during the project life is eligible for incentive funding, provided its inclusion in the project cost still meets the weighted cost-effectiveness limit.
 - (F) Additional information on retrofit systems is included in Appendix F - Retrofit Emission Control Systems and on ARB's website at <http://www.arb.ca.gov/diesel/verdev/vt/vt.htm>.

- (10) The applicant may opt-out of the default retrofit requirement for equipment not subject to an approved in-use regulation.
 - (A) Applicants must sign a waiver acknowledging that due to future regulations they may be required to install a retrofit on the funded equipment at their own cost.
 - (B) Districts that offer the waiver and rank projects based on cost-effectiveness must evaluate repower plus retrofit projects solely on the repower portion of the project for ranking and selecting purposes. When calculating cost-effectiveness for the sole purpose of ranking projects, if the applicant requested the maximum project life for repower plus retrofit (i.e., five years) then a seven year project life should be used, unless shortened by other regulatory requirements. If the applicant requested anything below five years, then cost-effectiveness shall be based on the requested project life.
 - (C) If two projects, one with repower plus retrofit and one with repower only, have the same cost-effectiveness when ranked and the district only has enough funds to pay for one project, then the district must select the repower plus retrofit project.
 - (D) Districts have the option to not offer this additional flexibility and are encouraged to evaluate individual projects based on the near source health impacts.
- (11) Electric
 - (A) For replacement with electric equipment, projects must provide evidence of a plan to either install battery chargers for each piece of equipment funded or install fast charging units for use with multiple pieces of equipment.
 - (B) For replacement with electric equipment, costs for battery chargers and necessary peripheral equipment may be included in determination of the grant award. These costs are considered infrastructure and can only be paid for with district match funds.
- (12) Replacement with zero-emission equipment other than electric must receive case-by-case approval by ARB (i.e. fuel cell equipment).

(d) Existing Equipment Destruction Requirements

Equipment replacement requires that the existing high-emitting 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. Destruction of the equipment may occur either at a district approved salvage yard or another facility in conjunction with a district salvage

inspection. Equipment salvage yards must enter into an agreement with the district to qualify for participation.

- Funding is not available for the salvage of any existing equipment.
 - The existing equipment salvage value will be negotiated between the participant, the dealership and the salvage yard.
- (1) The old equipment must be destroyed within 60 days of being replaced. The old equipment needs to be destroyed or rendered useless by destroying the engine block as described in Part III, Section 31 and by compromising the structural integrity of the equipment. This may be achieved by cutting the structural components of the equipment or some other manner approved by the district. Documentation of the equipment's destruction must be provided to the district within ten days of destruction.
 - (2) Districts must conduct a salvage inspection of the old equipment. Districts may use a district approved salvage yard in lieu of this requirement.
 - (A) Salvage inspection must include clear photographs of the destroyed engine block and cut frame rails. In addition, the following picture views must be taken:
 1. Equipment serial number
 2. Engine side view.
 3. Engine serial number either stamped on the block or on the tag.
 4. Destroyed engine block either in-frame or out of frame as specified in Part III: Program Administration.
 5. Cut structural components
 6. Destroyed attachments, if scrapped
 7. Other views dependent on the method of equipment destruction
 - (3) If districts use a district approved salvage yard, these additional conditions must be met:
 - (A) Destroy the old equipment and engine within 60 days of receipt of the replacement equipment in accordance with the program guidelines.
 - (B) Provide the district with all photographs required under the district's salvage inspections requirements within ten business days of salvaging the existing equipment.
 - (C) The contract must include the make, model, year, serial number, engine make, engine serial number, and the date the equipment is expected to be delivered.
 - (D) It is the district's responsibility to ensure that the salvage actually occurs and to obtain a completed certificate of equipment destruction or other similar documentation as defined in the district's plan.
 - (4) Upon request of the district, ARB may approve an alternative disposition for the existing equipment.

- (5) Upon request of the district, ARB may approve an extension to the required timeframe for existing equipment destruction.

(e) District Administrative Requirements

Districts must establish an off-road equipment replacement plan before they can fund off-road equipment replacement projects. This includes pre- and post-inspections, monitoring and enforcement considerations, reimbursement procedures, the development of contracts, etc.

- (1) Districts may work with dealers and/or salvage yards to streamline the program.
- (2) Any potential partnerships between districts and dealers must be identified in the off-road equipment replacement plan.
- (3) The plan must identify the district's process for oversight and review of dealer identified tasks.
- (4) Calculation of funding amounts must be based on the average of two most recent years of documented equipment usage. Fleet averages cannot be used.
- (5) Incentive funding can only be used to pay for items essential to the operation of the equipment.
- (6) Post-inspection of the replacement equipment and salvage inspection of the old equipment must be completed prior to disbursement of funds.
- (7) 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) District must complete the pre-inspection of the old equipment and post-inspection of the replacement equipment to make sure that those equipment comply with program requirements;
 - (b) District must sign separate MOU with the dealer and the salvage yard that contains, at a minimum, the program requirements (including, but not limited to, the requirement that the dealer delivers the old equipment to a qualified salvage yard within 30 days of the date that the old equipment 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 MOU for each entity;
 - (c) 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 Carl Moyer equipment replacement program requirements; and

- (d) Failure on the district's part to follow up with such salvage inspection would constitute a finding in future ARB's audit of the district's Carl Moyer Program.
- (8) Districts are responsible for completing a pre-inspection on the old equipment, a post-inspection on the replacement equipment, and a salvage inspection on the old equipment if equipment destruction is not conducted by a district approved salvage yard. Pre-inspections may be done by a district approved dealer.
- (A) Pre-inspection must verify the operational condition of the old equipment. The pre-inspection must verify, at a minimum, the following items:
1. Tires in usable condition (able to hold air, sufficient tread or tracks, etc.)
 2. Steering wheel operational
 3. Equipment able to start up and move backwards and forwards
 4. Buckets, blades, rollers, etc. are working
 5. Undercarriage structurally sound
 6. Fuel tank in usable condition
 7. No parts stripped
 8. Equipment not vandalized.
- (B) In addition, clear photographs of the old equipment must include the following views:
1. Right Side - hood down.
 2. Front - hood down.
 3. Left Side - hood down.
 4. Equipment serial number
 5. Engine - left side.
 6. Engine - right side.
 7. Engine Serial Number - either tag or stamp on block.
 8. Equipment ID, if available.
 9. Rear.
- (C) The post-inspection must include clear photographs of the following views:
1. Right Side - hood down.
 2. Front - hood down.
 3. Left Side - hood down.
 4. Equipment serial number
 5. Engine - left side.
 6. Engine - right side.
 7. Engine Serial Number and Engine Information – tag.
 8. Equipment ID, if available
 9. Rear.
 10. Diesel Emission Control Device (if available).
 11. Hour meter reading.
- (D) Salvage inspection must include clear photographs of the destroyed engine block and cut frame rails. In addition, the following picture views must be taken:
1. Equipment serial number
 2. Engine side view.

3. Engine serial number either stamped on the block or on the tag.
 4. Destroyed engine block either in-frame or out of frame as specified in Part III: Program Administration.
 5. Cut structural components
 6. Destroyed attachments, if scrapped
 7. Other views dependent on the method of equipment destruction
- (9) Small air districts are allowed to fund equipment replacement projects through a regional program and administered by a designated air district. The designated air district could be either an air district within the regional program or a large district outside of the regional program. A regional equipment replacement implementation plan that contains all the required components as required in an individual district's equipment replacement implementation plan, in addition to detailed description of the funding mechanism among the participating districts, must be submitted by the designated administering air district to the ARB for approval. All districts participating in the regional program must sign the regional implementation plan and must adhere to all the requirements specified in such regional implementation plan.

(f) Dealer Requirements

Districts are encouraged to establish contracts with dealers that are selling replacement equipment to participants of this program. If districts use equipment dealers in implementing the equipment replacement program, reimbursement cannot be issued until all forms are submitted and approved by the district.

Equipment dealers are expected to do the following:

- (1) Provide basic information about the equipment replacement category. Districts will provide liaison training to dealership staff.
- (2) Inform participants of rights and responsibilities as outlined in the district and ARB guidelines.
- (3) Help the participants complete the application. The equipment dealers will ensure that the participant correctly completes the application. 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. The district will provide all forms and certificates as appendices to the application. Once complete, the dealer will submit the application package to the district.
- (4) Dealer must provide the district with proof of sale of the replacement equipment. Dealers for the purpose of this program are anyone who sells equipment including private parties.

- (5) To ensure that an application package is complete, the dealer will make sure that all the following items are complete and included in the participant's submission to the district. The following must be completed before reimbursement can be made:
- (A) Submit a signed and complete application.
 - (B) Provide all documentation as required in Section IV(b) of these criteria.
 - (C) Provide certification that the existing equipment will be delivered to a qualified salvage yard. The certification must state that the equipment will be picked up by the salvage yard within 30 days of receipt of the old equipment. The certification must include the make, model, year, equipment serial number, engine make, engine serial number, and the date the equipment is expected to be delivered.
 - (D) If equipment destruction will take place at a site other than an approved salvage yard, the application must include a description and timeline on how the equipment will be destroyed.
 - (E) Provide documentation of replacement equipment warranty.
 - (F) Provide proof of replacement equipment financing. The financing package will enable the district to determine the reimbursement costs that may be accrued in case the participant defaults on the contracted performance requirements.
- (6) Prior to releasing the replacement equipment to the participant, the dealer must have documentation of a district pre-inspection of the old vehicle and the post-inspection of the replacement equipment. Upon request of the district, ARB may waive inspection requirements. If the dealer is district approved to do pre- and post-inspections, the dealer must submit digital photographs of the old equipment vehicle and the replacement equipment to the district as defined in the pre- and post-inspection requirements in Section IV(e) of these criteria. The district will specify the required digital format. Reimbursement will not be processed until all photographs are received and verified by the district. Before submitting photographs to the district, dealers must verify that photographs are clear.
- (7) After the application and all required documentation have been approved by the district, the dealer must provide the district with proof of sale of the replacement equipment.
- (g) Projects subject to the In-Use Off-Road Diesel Vehicle Regulation**
- (1) Projects are subject to the general program criteria listed above.

- (2) Funding is available for achieving reductions required by the regulation at least three years prior to regulatory compliance deadlines and for reductions not required by the regulation.
- (3) Large Fleets
The first compliance date for large fleets is March 1, 2010 so very limited funding opportunities exist. Since fleets must be in compliance with the regulations three years early in order to receive funding, a high initial investment will be required by fleets to take advantage of Carl Moyer Program funding. Additionally, to ensure that projects are surplus to regulatory requirements fleets are only eligible to receive funding once after July 26, 2007. Large fleets may have additional requirements, see Section IV(g)(7).
- (4) Medium Fleets
The first compliance date for medium fleets is March 1, 2013 so very limited funding opportunities exist. Since fleets must be in compliance with the regulations three years early in order to receive funding, a high initial investment will be required by fleets to take advantage of Carl Moyer Program funding. Additionally, to ensure that projects are surplus to regulatory requirements fleets are only eligible to receive funding once after July 26, 2007.
- (5) Small Fleets
The first compliance date for small fleets is March 1, 2015 so greater opportunities for funding exist. Small fleets qualify for incentive funds in two ways:
 - (A) PM reductions - Compliance with the PM requirement begins on March 1, 2015. Small fleets are eligible for incentive funds to pay for the full cost of retrofits that are installed and in operation by February 28, 2012. After March 1, 2012, funding opportunities are limited.
 - (B) NOx reductions - Small fleets have no NOx requirements in the regulation and are therefore not required to turnover their equipment. As such, funding for NOx and ROG reductions are eligible for incentive funds. Fleet owners can apply for Carl Moyer Program funds to repower their equipment and will be eligible for grants based only on NOx and ROG reductions. Since the Carl Moyer Program requires a PM retrofit on all repower projects, if verified and available, up until February 28, 2012, both the repower and the retrofit are eligible for funding. After February 28, 2012, the retrofit will still be required but must be paid for by the fleet owner.
- (6) Captive attainment area fleets are only subject to the PM requirements of the regulation regardless of fleet size and are therefore only required to retrofit their equipment. As such, funding for NOx and ROG reductions will always be eligible for incentive funds. This means that fleet owners can apply for Carl Moyer Program funds to repower their equipment and are eligible for grants based only on NOx and ROG reductions. The retrofit would still be required but must be

paid for by the fleet owner. Funding opportunities for PM reductions would be limited based on the size of the fleet as discussed previously.

- (7) Certain fleets operating in Districts that are participating in the SOON program may be required to apply for incentive funds to achieve the 2014 and 2017 fleet average targets early. Participating fleets will be required to submit compliance plans for the Off-Road Regulation to ensure projects are surplus to regulatory requirements. Fleets receiving SOON funds may be eligible to receive funds more than once. Fleets should contact their local air district to determine if this program is available.
- (8) For more information on eligibility of off-road diesel equipment, please see the In-Use Off-Road Diesel Vehicle Regulation Carl Moyer Program Implementation Chart available through your local district or at <http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm>.
- (h) Projects Subject to the Regulation for Cargo Handling Equipment at Ports and Intermodal Rail Yards**

Much of the cargo handling equipment must already be in compliance with the CHE regulation. Thus, the high initial investment that will be required by fleets to participate, and the lack of current technology that is cleaner than what is required by the regulation, makes it unlikely that fleets will be able to take advantage of Carl Moyer Program funds. Funding may be available for retrofits in certain circumstances.

- 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>.

(i) Projects Subject to the Off-Road Large Spark-Ignition Equipment Regulation

The regulation impacts owners of fleets of four or more LSI forklifts and/or four or more LSI sweepers/scrubbers, airport ground support equipment, and/or industrial tow tractors. The fleet size is determined by aggregating an operator's equipment in the state of California.

- (1) Funding is available for achieving reductions required by the regulation at least three years prior to regulatory compliance deadlines and for reductions not required by the regulation.
- (2) Large and Medium Forklift Fleets and Fleets of 4 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% 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, fleets that have retrofitted / repowered 20% 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 fully executed contract, and must be installed and in operation prior to the applicable compliance date.
- (4) Fleets with equipment not subject to the off-road LSI in-use fleet regulations are eligible for funding, including.
 - (A) Agricultural crop preparation non-forklift equipment and pre-1990 forklift
 - (B) Forklifts used exclusively in field to harvest and maintain crops
 - (C) Non-forklift LSI equipment such as aerial lifts, lawn & garden tractors, commercial turf equipment, mining and construction equipment, crushing and processing equipment.
 - (D) Small fleets (1-3 forklifts and/or 1-3 sweepers/scrubbers, airport ground support equipment, and/or industrial tow tractors).
- (5) Parties interested in applying for funding for this equipment should contact the Carl Moyer Program staff at the local air district for more detailed information.

V. Minimum Project Application Requirements

Districts must ensure project applications include the specific information needed to determine project eligibility and populate the Carl Moyer Reporting Log, including the information needed to track the project and calculate project cost-effectiveness.

VI. Definitions

For the purposes of the Carl Moyer Program, off-road compression-ignition project definitions are as follows:

Agricultural Crop Preparation Services: Packinghouses, cotton gins, nut hullers and processors, dehydrators, feed and grain mills, and other related activities that fall within the United States Census Bureau NAICs (North American Industry Classification System) definition for Industry 115114 – “Postharvest Crop Activities,” as published in the North American Industry Classification System – United States, 2002.

BACT: Best Available Control Technology.

Crawler Tractor: a tracked off-road tractor equipped with a substantial metal plate, or blade, as opposed to a bucket on a loaders. 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.

Excavator: an engineering vehicle consisting of an articulated arm (boom, stick), bucket and cab mounted on a pivot (a rotating platform, like a lazy susan) atop an undercarriage with track or wheel.



Farm Equipment: Off-road equipment used in agricultural operations as defined in the Regulation for In-Use Off-Road Diesel Vehicles, Cal. Code Regs., tit. 13, § 2449(c)(1).

Federally Preempted Engines: Engines that fall under the Clean Air Act, Section 209(e), that do not have ARB certification.

LSI Regulation Fleet Size:

Large Fleet: An operator's aggregated operations in California of 26 or more pieces of LSI equipment.

Medium Fleet: An operator's aggregated operations in California of 4 to 25 pieces of LSI equipment.

Small Fleet: An operator's aggregated operations in California of 1 to 3 LSI forklifts and/or 1 to 3 pieces of non-forklift LSI equipment.

Non-forklift fleet: An operator's aggregated operations in California of four (4) or more sweeper/scrubbers, industrial tow tractors, or pieces of airport ground support equipment, alone or in combination.

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.

Off-Highway Tractors: equipment that feature yoke hitches that oscillate four ways to reduce frame stresses. Rugged turn stops prevent excessive wagon rotation either direction. The rear platform functions as a power train guard providing a safe, stable work area. [These are **not** off-highway trucks (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 CI 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 compression-ignition, or diesel, engine standards. This equipment is most commonly used in construction, mining, agriculture, and cargo handling equipment. This does not include stationary agricultural pumps, marine vessels, or locomotives.

Off-Road LSI 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 engine 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.

Off-Road CI Regulation Captive Attainment Area Fleet: a fleet or an identified subpart of the fleet (fleet portion, consistent with Title 13, CCR, 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.

Off-Road CI Regulation Fleet Size:

Large Fleet: A fleet with a total maximum power greater than 5,000 horsepower. A fleet must meet large fleet requirements of the Off-Road Regulations 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 Off-Road Regulation.

Medium Fleet: A fleet that is not a small or large fleet.

Small Fleet: A fleet with a total maximum power of less than or equal to 2,500 hp 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.

Skid Steer Loader: very compact and maneuverable off-road tractors that use 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 in these machines are alongside the driver with the pivot points behind the driver's shoulders. Skid steers are used in tight spaces and are quite versatile and can be equipped with a variety of



attachments, such as a hammer, augur, trencher, forklift and other attachments (never greater than 120 hp, predominantly 40-75 hp). They are often utilized to excavate swimming pools and in landscaping residential backyards.

Retrofit: Any ARB verified device, system, or strategy employed with an in-use diesel vehicle or piece of equipment that is intended to reduce emissions.

Rough Terrain Forklift: Class VII forklifts powered by compression ignition engines and have pneumatic tires that handle uneven surfaces. This includes both straight-mast forklifts and extended-reach forklift, also called telescopic or telehandlers.



Rubber Tired Dozer: a wheeled off-road tractor equipped with a substantial metal plate, or blade as opposed to a bucket on a loaders. This equipment is commonly referred to as a rubber tired bulldozer and is used to push large quantities of soil, sand, rubble, etc, 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.



Verified: A determination by the ARB Executive Officer that a retrofit meets the requirements of the Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines.

Workover Rig: mobile self-propelled rigs used to perform one more remedial operations on an existing well. The primary function workover rig is to act as a hoist so pipe, sucker rods and down-hole equipment can be run into and out well. Operations include deepening, plugging back, or pulling and resetting liners, usually a producing oil or gas well to try to restore or increase the well's



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VII. References

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<http://www.arb.ca.gov/regact/lore2006/lore2006.htm>

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