

APPENDIX G: Truck Stop/Distribution Center Electrification

A. Background

Emissions from the trucks themselves, together with their auxiliary power units for cabin comfort and transport refrigeration units that chill perishable loads, impact nearby communities. ARB already has several regulations in place that are substantially reducing emissions from heavy-duty trucks, truck idling, transport refrigeration units, and auxiliary power units over the next few years.

- On July 22, 2004, ARB adopted a rule limiting unnecessary diesel truck idling to 5 minutes, beginning in February 2005. On October 20, 2005, ARB amended the rule so sleeper berth equipped trucks must comply with the 5-minute idling rule, beginning in January 2008. In addition, auxiliary power systems and fuel fired heaters on 2007 and newer trucks are subject to more stringent emission performance standards.
- On February 26, 2004, ARB adopted a rule for diesel-fueled Transport Refrigeration Units (TRU) and TRU generator sets, and facilities where TRUs operate. This rule requires these sources to reduce diesel PM emissions to meet idling emission performance standards, beginning in January 2009.

ARB is also developing a comprehensive rule to accelerate the cleanup and replacement of commercial diesel trucks operating in California – this rule is scheduled for Board consideration in Fall 2008. Current proposals call for diesel PM filters by the end of 2009, upgrades to a model year 2007 or newer truck by the end of 2013, and subsequent upgrades to a model year 2010 or newer truck.

B. Analysis

To assess the potential benefits, ARB staff looked at internal analyses being done to support a health risk assessment for typical distribution centers of various sizes. To evaluate the optimum scenario, we considered a large distribution center where trucks and TRUs are operating. TRUs could account for over 80 percent of the diesel PM emissions at the facility, since trucks are subject to the 5-minute idling rule, and the TRUs may operate an average of 3 hours while loading/unloading at the dock. The emission reductions per dollar invested in electric infrastructure to replace some of these operations would diminish rapidly over time.

Large Distribution Center Emissions with Adopted ARB Rules

Large distribution center with trucks and transport refrigeration units (TRUs)				
	Diesel PM Emissions	Expected diesel PM reductions from adopted ARB rules (cumulative from 2006 levels)		
Source/Year	2006	2010	2015	2020
Trucks	<1 lb/day	45%	73%	84%
TRUs	9 lbs/day	30%	75%	>90%

Despite the diminishing returns, ARB staff acknowledges that electrification of a truck stop, intermodal facility, distribution center, or other place where trucks congregate may be useful to reduce emissions in the near term at high use facilities with neighborhoods nearby. This Appendix provides a general methodology and standard that an equipment owner shall meet to apply for bond funding.

The equipment owner shall work with the local air district to estimate the baseline emissions from existing operations, after accounting for the benefits of all adopted regulations. The equipment owner shall provide the proposed operating statistics for the project and calculate the resulting change in emissions over a ten year period. Based on the bond funding requested, if the weighted reductions per State dollar invested is better than the average for truck replacement projects, the electrification project shall be eligible to compete against other truck proposals for funding.

C. Equipment Project Specifications

Truck Stop/Distribution Center Electrification

Eligible Equipment	Truck stops, intermodal facilities, distribution centers, and other places where Class 8 heavy diesel trucks (over 33,000 lbs) congregate in a trade corridor.
Option (1) Electrification Infrastructure	Landside electrification infrastructure to reduce diesel engine idling and use of diesel-fueled internal combustion auxiliary power systems may be funded at the lower of 50% of eligible costs or a level commensurate with the weighted reductions per State dollar invested for truck replacement projects. Eligible costs include purchase and installation of electrical infrastructure to: enable heating, cooling, and the use of cab power for parked trucks at truck stops; and enable the use of power for transport refrigeration units and auxiliary power systems at distribution centers, intermodal facilities, and other places where trucks congregate. Reimbursement for the eligible costs shall be based on demonstrated use over the first year of operation.
Requirements	Equipment owner shall: <ul style="list-style-type: none"> • Commit to 10 years of operation. • Agree to equipment inspections. • Comply with record-keeping, reporting, and audit requirements. • Sign a legally binding contract with the local agency including project milestone and completion deadlines. • Properly maintain upgraded equipment in good operating condition and according to manufacturer’s recommendations. • Demonstrate proof of equipment warranty. • Comply with all local permitting requirements.
Project Cost Assumptions	<ul style="list-style-type: none"> • Total cost for distribution centers is \$1,500-\$7,000/plug at dock; \$2,500-\$9,000/plug in parking areas; \$500-\$2,000/adaptor for trailers and TRUs. • Total cost for truck stops is \$6,000-\$18,000/parking space; \$3,000/truck modification.
Excluded Funding Components	On-board auxiliary power units and other equipment installed on trucks are not eligible for funding. Transport refrigeration units are not eligible for funding. Electricity costs are not reimbursable.

D. Major Milestones for Project Completion

The equipment project schedule shall include, but is not limited to, the following milestones:

- Contract execution between local agency and equipment owner
- Facility pre-inspection
- Completion and certification of any required CEQA documents

- Bid solicitation, evaluation and award, and construction contract
- Acquisition of any local permits, or other requirements
- Electrification system design, unit acquisition and delivery
- 50% project completion
- 80% project completion
- 100% project completion
- Post-inspection by the local agency
- 1st year of operation and collection of use data
- Reporting to local agency of electrical use by trucks during 1st year of operation
- Reimbursement and project close out
- Next reporting milestone

E. Recordkeeping Requirements

Equipment owners shall retain, at minimum, all documents, invoices, and correspondence associated with the application, award, contract, monitoring, enforcement, and reporting requirements at least two years after equipment project contact term or three years after final payment, whichever is later. Records shall be readily available and accessible to the local agency, ARB, or designee upon request for the purposes of ongoing evaluations or auditing.

F. Reporting Requirements

Equipment owners shall be responsible for annual reporting to the local agency that includes, but is not limited to:

- Contact information (owner name, company, address, phone).
- Facility location.
- Project completion date.
- Monthly truck and TRU connections to electrical power and electricity usage for each month in the reporting year.
- Summary of maintenance and inspections conducted.
- Signed Certification statement that the bond-funded project was installed and is operating as it was approved in the post-inspection and that all information submitted to the local agency is true and accurate.
- Other information as requested by the local agency.

G. Ongoing Evaluations and Audits

Equipment owners shall agree to ongoing equipment project evaluations and equipment project audits by the local agency, ARB, or authorized designees. ARB and local agency audit requirements and provisions are found in Chapter II.E.5.

H. Application Information

Equipment owners shall provide the following information and documentation in addition to the requirements described in Chapter IV and other information ARB or local agencies may request on the equipment project applications.

1. General contact information

Equipment project applicant shall identify all parties with the legal authority to sign contracts concerning equipment acquisition, land improvements, equipment operation and maintenance. The following information shall be provided for each party:

- Organization/agency/company name
- Mailing address
- Primary contact name and phone number
- Person with equipment contract signing authority (Owner)
- Small business information
 - Number of employees
 - Annual gross income

2. Option (1): electrification infrastructure

a) Current equipment and activity information

- Location and description of facility where electrification infrastructure is proposed for installation
- Quantification of current annual truck operations and TRU operations at the facility
- Baseline emissions (without the project) for first 10 years of operation of proposed electrical infrastructure (developed with the concurrence of the local air district) – this emission estimate shall fully reflect the benefits of all adopted regulations including ARB rules for trucks, idling, auxiliary power systems, TRUs, and TRUs with generators sets

b) Proposed equipment project information

- Electrification infrastructure information
 - Project description and design, including number and location of electrification units to be installed, with individual and total power requirements
 - Equipment vendor(s)
 - Itemized cost information by phase (e.g. design, environmental, construction)
- Predicted activity data with new equipment
 - Estimated annual truck connections to electric power and average connection time
 - Estimated annual TRU connections to electrical power and average connection time
 - Expected power usage for trucks and TRUs (separately), each year for the first ten years of operation
- Projected emissions and benefits of the project
 - Emissions with the project over a ten-year period
 - Emission reductions attributable to the project (beyond those required by law or regulation) for a ten-year period beginning in the 1st year of operation
 - Demonstration that the weighted emission reductions per State dollar invested is equal or better than the average for truck replacement projects
- Equipment project funding demonstration
 - Total project cost
 - Program dollars requested
 - Funding sources and amounts of other funding (private, local, other State, federal)
 - Documentation of match funding availability