

TIAX LLC Comments on “Evaluation of Port Trucks and Possible Mitigation Strategies”

Overview / Summary

TIAX staff appreciates the opportunity to comment on CARB staff’s evaluation of port truck mitigation strategies. Our experience with fleet modernization in general, and at all three ports discussed in the report specifically, enables us to offer the following constructive suggestions. We recognize the difficulty of the job CARB staff has been assigned in writing this report, under tight time constraints. Overall, CARB’s approach and overarching concepts represent a good start in the process of developing port emissions solutions. In general, however, we see the need for CARB to incorporate expanded data sources and perform further analyses prior to moving forward with any of the strategies. Specifically, CARB staff needs to solicit greater input from the port trucking sector to verify or correct assumptions. The report lacks significant input from both carrier companies and independent owners-operators, which collectively serve as the backbone of the port drayage business.

Also, the report introduces a number of methodologies that differ significantly from those in established emission reduction programs (e.g., Carl Moyer Program, Gateway Program). As written, it appears that CARB staff who worked on this report did not coordinate with CARB’s Moyer staff who crafted fleet modernization guidelines. The port strategies and Moyer program either need to be better coordinated or the reasoning behind the differences need to be explained and justified by CARB staff. Finally, prior to any further action, CARB staff needs to provide more adequate documentation of sources and assumptions, and needs to avoid over-reliance on anecdotal information.

TIAX has carefully reviewed the report and we provide specific comments below. (Also, on May 23, 2006 CARB staff will be visiting TIAX’s Irvine office to gather additional first-hand information about the Gateway Cities Fleet Modernization Program.)

Port Truck Operations Assumptions and Data Sources

TIAX thinks that CARB staff needs to gain a more detailed understanding of port truck operations. Many statements in the report lack references, clarification, or justification, indicating that staff needs to gather more information from the industry.

1. **Truck Port Trips** – The report states that on average, port trucks that make local deliveries are able to deliver about two containers per day from the port. This discussion requires clarification.
 - a. What is the definition of “local deliveries” and how do such trips relate to the port trucking industry as a whole?
 - b. What is the source for the assumption that two containers are delivered per day? Our experience with Port of Los Angeles drivers has been that intermodal or rail drivers can typically perform at least five round trips per day, while warehouse

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- drivers (generally located in the inland empire) are more likely to make the two to three trips that CARB cites.
- c. Does CARB's assumption on two containers per day include all types of port truckers, such as containers, dry bulk, break bulk, intermodal, warehouse, etc?
2. **Conversion of TEUs to Containers** – The report converts TEU (a standard form of measurement in port throughput) to containers by multiplying TEUs by 0.55 to attempt to quantify the number of containers moved per year. We think direct methods to quantify container movements should be used because a single conversion factor may not be reliable and inclusive.
 - a. Is there a reason that CARB staff did not use the direct value for the number of containers moved in a year through the ports?
 - b. In developing the movement of trucks, were empty or “bobtail” trips taken into consideration? Were chassis moves taken into consideration?
 - c. Since port growth plays a huge role in any analysis performed on the port industry as a whole, did staff determine whether the 0.55 factor is valid for future forecasts?
 3. **Breakdown of Truck vs. Train trips** – The report is unclear about its assumptions regarding movement of containers by trucks and trains.
 - a. CARB staff need to reference data and explain assumptions regarding these operations.
 - b. Also, since growth plays a large role in analysis at the ports, do the percentages quoted remain the same in future years? These assumptions need to be verified.
 4. **Port Truck Population** – The report states that CARB staff used Caltrans traffic data to derive the estimated port truck population for all three ports because actual population data were not available. As noted below, data sources are available that may be more reliable and consistent with related efforts. CARB staff also needs to account for a number of population distribution issues that were not clear in the report.
 - a. Starcrest is reducing and assessing optical character recognition data for POLB and POLA truck population, which CARB should investigate.
 - b. EMFAC should also be cross checked with the estimated port truck population.
 - c. Did CARB staff factor in non-port trucks that operate on the same roads? Did they factor in average weekly, monthly, and/or annual down time for port truck drivers?
 - d. The assumptions regarding Oakland trucks utilizing other freeways needs to be clarified.
 - e. The ports of Los Angeles and Long Beach have intermodal transfer facilities located off dock, 5 miles away. These trips are typically made via surface roads. Were these kinds of truck moves taken into consideration?
 - f. Were out-of-state trucks that operate in the port trucking industry taken into consideration?
 5. **Port Truck Population Growth** – The report assumes that half of future TEU growth expectations will be delivered by the current fleet and half by new port trucks.
 - a. How did CARB arrive at this conclusion?
 - b. Does this factor apply to all three ports?
 - c. Does this factor apply across all future years?

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6. **Age Distribution** – The report sites Starcrest data taken in 2002 to derive age distributions assumed to be representative of the current port truck fleet. CARB should work with POLA and POLB to obtain the most recent Starcrest OCR data, which involves a much expanded sampling and should be more representative of the entire fleet serving the ports.
7. **Average Annual Mileage** – The report assumes that all port trucks, regardless of age, accrue similar mileage. TIAX thinks these assumptions need to be assessed and potentially newer data be incorporated.
 - a. It is common practice in the trucking industry to keep older trucks on local delivery routes, so that in the event of a breakdown the container can be picked up by another truck and be back on its way fairly quickly. Furthermore, carrier companies put the newer trucks on the longer routes because they are more reliable. Therefore, trucks later in their lifetimes may have different mileage accrual rates than trucks earlier in their lifetimes. Did staff identify whether this issue was relevant to its VMT estimates?
 - b. TIAX wonders if the “container balancing method” accounts for variability among the ports. Our fleet modernization experience indicates that the VMT at POLB and POLA is higher than at the Port of Oakland. Did staff investigate these differences? Also, the calculated VMT is not consistent with the fuel consumption estimates in the report when industry average fuel economy is applied. CARB staff needs to make sure the VMT and fuel consumption figures are in an appropriate range for fuel economy.
 - c. Did staff include VMT associated with port hauler commuting miles and other driving not directly linked to port container traffic?
8. **Port Truck Driver Economic Profile** – The report defines the income and economic state of the port trucking industry. The anecdotal information needs to be corroborated or revised by carrier companies, CTA, the ports, PMSA, or independent owner operators. Also, it lacks credibility in a report like this for CARB staff to cite TIAX (and others) as information sources without referencing specific discussions, people, and dates.

Emissions, Cost, and Cost Effectiveness

1. **Estimated Emissions** – TIAX would like to see more explanation regarding the differences in emission factors in the report and those recommended in the Moyer Program. We would also like to see more justification of the assumptions.
 - a. Has staff discussed the emission factors quoted in the report with the Moyer program staff?
 - b. ARB staff used linear regression to calculate weighted fleet emission rates for the years 2010-2020. This approach assumes that fleet-wide emissions continue to decrease at a constant rate during this time period. TIAX would like to see verification that these assumptions are appropriate.
2. **Cost** – TIAX is concerned about the costs and cost methodologies described in the report.
 - a. The costs are based on an assumption about the proportion of trucks with sleeper cabs. Our experience in the Gateway Cities Program suggests that most port drivers prefer trucks with sleepers. Can CARB staff obtain quantitative information regarding the percentage of port haulers that operate and purchase

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trucks with and without sleepers? Used truck dealers should be contacted about this information.

- b. For Strategy 1, the cost of a 10 year-old replacement truck is estimated at \$16,000. This is based on a used truck price distribution profile compiled by surveying the market. The value of a 10 year-old truck appears low, especially if it is a post MY1998 truck, since MY1998+ trucks have more "modern" features (electronic engines, greater prevalence of sleeper cabs, additional safety features, etc) than earlier model year trucks. Therefore 1998+ model year trucks may maintain their value better than earlier model years. Our experience has been that MY 1998 trucks typically retail for \$23,000-\$27,000. We think CARB staff should further assess the used-truck prices, and query the truck dealers.
3. **Cost-Effectiveness** – The report describes a method for determining cost effectiveness that is not considered in other fleet modernization or retrofit programs.
- a. Was there a particular reason that CARB staff developed a novel approach for determining cost-effectiveness rather than applying approaches used in the Carl Moyer Program or other existing truck replacement programs?
 - b. The capital recovery period referenced in the report is twice as long as the 5-year capital recovery period used for the Carl Moyer fleet modernization element and the Gateway Cities Program. Is it realistic to assume that all truckers will stay in the same vocation for 10 years, given the fact that they are driving newer vehicles that can be used in vocations in which they can increase their income? TIAX is concerned that a 10-year period may be unrealistic for capturing emission reductions.
 - c. The CARB analysis uses a discount rate of 5%, whereas the most recent Carl Moyer Program guidelines base cost effectiveness calculations on a 4% discount rate. Why is a discount rate of 5% used?
 - d. Greater explanation is needed about how and why some costs and benefits were split between NOx and PM reductions.

General comments regarding Strategy 1 and 2 approaches

TIAX has some questions and comments regarding specific aspects of the potential strategies. We think CARB staff needs to challenge its assumptions and beliefs about implementation to ensure that the strategies are feasible and beneficial.

- a. TIAX is surprised that MY1998 replacement trucks are included as options. CARB's Moyer staff have been very firm and adamant in their advice (via the Gateway Steering Committee) that replacement engines must be 1999 and newer, due to concerns about consent decree engines. And, if CARB does intend to allow 1994-1998 replacement trucks, why is there no mention about the need to perform low-NOx ECM upgrades (reflashes)?
- a. The report needs to clarify what action is taken if replacing a particular truck is determined to not be cost effective. Would CARB still require the transaction to take place?
- b. There are a finite number of new and used trucks available in the market. Has this been taken into account? CARB staff needs to discuss supply issues with used truck dealerships.

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- c. For a fleet modernization program to be successful it must be able to take credit for the emission reductions it sets out to achieve. Taking credit requires substantial enforcement of the rule requirements. CARB needs to address how it plans to enforce this rule.
- d. There are many out-of-state trucks that operate in the port trucking industry. CARB staff needs to determine how to capture these trucks in the rule, or acknowledge the impacts if these trucks are not included in the strategies.
- e. Many retrofit technologies have not been verified yet for certain model years or makes. Will DPF's be required only on vehicle engines for which they are verified? What will be required if a verified DPF is not available? Staff should address its assumptions regarding application of DPFs to the port fleet.
- f. There are some logistical challenges related to use of DPFs. It would be helpful for CARB staff to address how a typical port truck driver will maintain a retrofit device such as a DPF from both financial and logistical perspectives. This includes how maintenance costs will be funded and whether maintenance will be enforced under the strategies.
- g. Retrofit technologies have significant production lag times associated with them. Did CARB staff talk with vendors to determine that three years is enough time for retrofit device manufacturers to produce and install enough product?

Economic Assessment of Recommended Strategies

Reimbursement of funds – TIAX acknowledges that this subject is one of the most challenging parts of crafting a fleet modernization program. We applaud CARB staff's preliminary thinking, but we are concerned about solutions that require truckers to pay up front for their newer trucks or upgrades. The "metering" approach for reimbursement has been suggested many times throughout the development of fleet modernization programs. The concept may be workable with larger fleets in different vocations; however, by the nature of port trucking this "solution" is not likely to be feasible. The sole reason port truck drivers are in older trucks is because they cannot afford to purchase newer vehicles. Most truckers under the Gateway Cities program have to finance their share of the replacement truck's costs. They generally don't have enough money up front to fund large truck payments, maintenance costs, or any other major expenses. Also, if they are forced to repay incentive funds as loans, it's very possible that the costs of "policing" such a program could be too high to justify. For these reasons, TIAX has significant reservations about strategies based on "metered" reimbursements.