October 19, 2011

Clerk of the Board
1001 I St.
Sacramento, CA 95814

**RE: Notice of Public Hearing to Consider Proposed Amendments to the Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate.**

We would first like to thank the California Air Resources Board (ARB) for allowing us the opportunity to submit these comments. The California Trucking Association (CTA) is a non-profit trade organization representing 2000+ trucking companies operating inside and out of California including many owners and operators of TRUs.

## Revised Particulate Matter (PM) Emission Inventory Supports Regulatory Relief

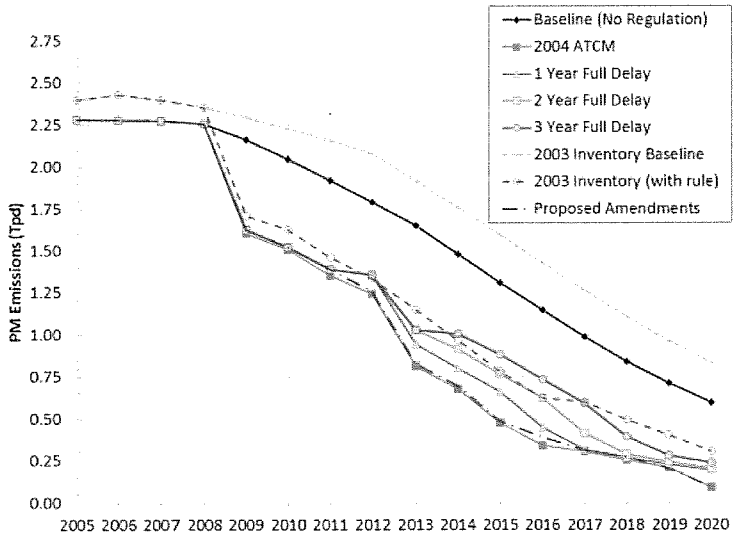


Fig. 1 – PM Emission Inventory, TRU ISOR 2011

As the above diagram demonstrates, the current emission inventory supports regulatory relief of at least a 2 Year Full Delay. In aggregate, a 2 Year Full Delay (9 Year TRU Operational Life) achieves the emission reductions required to meet State Implementation Plan requirements.

## Revised Particulate Matter (PM) Emission Inventory is Inaccurate; Inflated by 25-60%

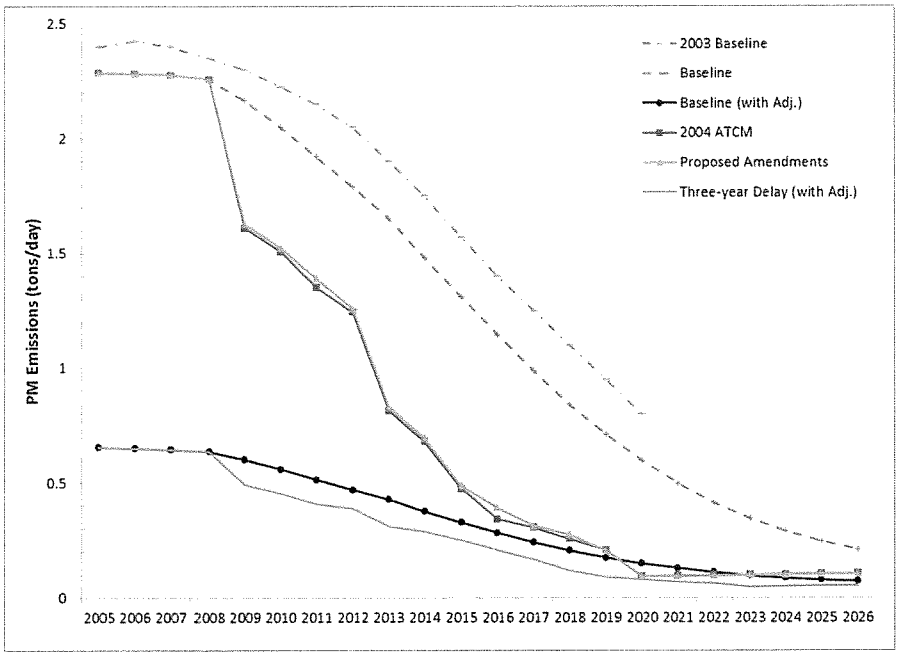


Fig. 2 – PM Emission Inventory, Sierra Research 2011

CTA's Refrigerated Carriers Conference contracted with Sierra Research to model the emission inventory when adjusting for a four mode test cycle instead of the eight mode test cycle staff utilized to model emissions. As you can see, the two resulting inventories are hugely disparate. It should be noted that the four mode test cycle is acknowledged, by staff itself, to be more representative of real-world TRU emissions. Staff argued as such in the 2003 Initial Statement of Reasons for this rule: http://www.arb.ca.gov/regact/trude03/isor.pdf

> *U.S. EPA's May 23, 2003 proposal allows the use of a new steady-state test cycle for TRU engines (ref 40 CFR Part 89, Subpart G, section 1039.645).* ***The proposed test cycle is intended to be more representative of the way TRU engines actually operate than the currently used 8-mode test cycle, which includes modes of operation that TRUs never use (e.g. idle at no-load, 10 percent and 100 percent of rated torque at rate speed, and 100 percent of rated torque at intermediate speed). The proposed test cycle has four modes:*** *75 percent and 50 percent torque at maximum test speed, and 75 percent and 50 percent torque at intermediate test speed. The weighting factors for each of these four modes would be split equally at 25 percent. TRU engine manufacturers have told staff that some Tier 1 and many Tier 2 TRU engines may be able to meet the LETRU in-use performance standards, if the engine certification data is evaluated with the steady-state TRU test cycle. Initial staff evaluation of modal engine certification data indicates that emission factors will be less for the proposed test cycle compared to the current test cycle.* ***The amount of PM emission factor reduction ranges from 25 percent to 60 percent, depending on engine model.*** *But, staff found that nitrogen oxide (NOx) emission*

*factors may increase for some engines when using the proposed steady state TRU test cycle.*

***Staff supports the proposed TRU test cycle**, provided manufacturers use the test cycle for all pollutants. Staff also supports this provision of EPA's proposal, as applied to new engine certifications **since it allows an optimized reduction of actual emissions and prevents the costly over-design of the emission control system to cover modes of operation that are not used in practice.***

After 2003, the EPA has since disallowed engines to be certified for use in TRUs if "the engine is sold in a configuration that allows the engine to operate in any mode not covered by the test cycle described in this section. For example, this section does not apply to an engine sold without a governor limiting operation only to those modes covered by the test cycle described in this section."(40 CFR 1039.645(f)(3))

Therefore, you cannot accurately model the emissions from TRU fleets without using the updated EPA four mode test cycle. ARB staff has had eight years since the last revision to remedy this problem and has taken no reasonable steps to do so as no such efforts are documented in the ISOR.

**Table 1 of §1039.645—Discrete-Mode Cycle for TRU Engines**

| Mode number | Engine speed[1] | Torque (percent)[2] | Weighting factors |
|---|---|---|---|
| 1 | Maximum test speed | 75 | 0.25 |
| 2 | Maximum test speed | 50 | 0.25 |
| 3 | Intermediate test speed | 75 | 0.25 |
| 4 | Intermediate test speed | 50 | 0.25 |

[1]Speed terms are defined in 40 CFR part 1065.

[2]The percent torque is relative to the maximum torque at the given engine speed.

Fig 3. EPA required TRU four mode test cycle – 40 CFR 1039.645

## CTA Suggests ARB Take Appropriate Action to Comply with Health and Safety Code 39665(b)(1)

Health and Safety Code 39665(b)(1) requires that reports on regulations adopted as Air Toxic Control Measures, such as the one currently in question, address "to the extent data can be reasonably be made available":

*"The rate and extent of present and anticipated future emissions, the estimated levels of human exposure, and the risks associated with those levels."*

As noted above, since 2003, ARB staff has known it was incorrectly modeling particulate matter emissions by 25-60% above real world emission factors by using an eight mode test cycle which is inconsistent with the EPA's required four mode test for TRU engines.

Government Code 11349(d) requires that regulations be consistent and "in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions or other provisions of law."

Continuing to model TRUs emission factors using an eight mode cycle is not consistent with 40 CFR 1039.645 which states that an engine may not be certified for sale in a TRU unless it is tested and governed to operate on a four mode test cycle. Furthermore, it is impossible to satisfy the requirements of Health and Safety Code 39665(b)(1) to estimate levels of human exposure and the risks associated with those levels without forecasting the rate and extent of present and anticipated future emissions on the best, statutorily required tests available.

## TRU Regulation Among Least Cost-Effective

| Regulation or ATCM | Diesel PM Cost-Effectiveness (dollars/pound PM) |
|---|---|
| TRU ATCM 2011(Sierra Research/4-mode) | $118-$222 |
| Ocean Going Vessels at Berth | $173 |
| Public Fleets Rule | $159 |
| TRU ATCM 2011 (Staff/8-Mode) | $83 |
| TRU ATCM 2011 1-Year Delay | $52 |
| Truck and Bus Rule | $46 |
| In-Use Off Road Diesel Rule | $40 |
| Solid Waste Collection Vehicle | $32 |
| TRU ATCM 2011 2-Year Delay | $27 |
| Cargo Handling ATCM | $21 |
| TRU ATCM 2003 | $10-20 |
| TRU ATCM 2011 3-Year Delay | $9 |

If properly adjusting for four mode test data (25-60% reduction in PM), thereby accounting for a truer cost per pound reduction estimate, the TRU regulation becomes among the most expensive regulations in the ARB portfolio. When using overstated eight mode test data the TRU regulation nearly doubles the per pound reduction cost of the Statewide Truck and Bus Rule when using 2011 dollars (rule staff uses 2003 dollars to reach $83 per pound reduced; $88 in 2011 dollars).

Extending operating life by two to three years more closely aligns the rule with original cost-effectiveness estimates.

## Flawed Economic Impact Analysis Does Not Comply With Government Code 11346.3

Staff incorrectly reports a net cost savings to businesses in the section titled "Estimated Costs to Businesses" (page V-11). Because their cost-effectiveness assumptions have been revised

upwards by a factor of 4-8 times since their original rulemaking, it would be appropriate for staff to revisit the potential for significant adverse economic impact on California business enterprise associated with these grossly inflated costs, not simply the modest savings associated with their amendments.

Thank you for the opportunity to comment on this regulation. If you have any questions, please contact Chris Shimoda at (916)373-3504.

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