Dave Modisette
06-4-3

California Electric Transportation Coalition

April 19, 2006

The Honorable Robert F. Sawyer, Ph.D.
Chairman,
California air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812-2815

Re: Comments on the Proposed Emission Reduction Plan for Ports and Goods Movement in California, March 21, 2006.

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Legislative Director

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Dear Chairman Sawyer:

The California Electric Transportation Coalition (CalETC) is pleased to provide the following comments on the Proposed Emission Reduction Plan for Ports and Goods Movement in California, dated March 21, 2006.

We made similar comments on the December 1, 2005 version of this Draft Plan. Unfortunately those comments were not incorporated into the most recent version of the Proposed Plan. So with this letter we are appealing to the Board to incorporate the comments below, which are simply that the Plan should acknowledge there are additional emissions reductions available and achievable from: (1) truck idling reduction with electrification technologies, (2) electric standby for truck (and container) refrigeration units, and (3) zero-emission cargo handling equipment. These technologies provide emission reduction benefits beyond existing or proposed ARB regulations. Other electrification technologies are specifically called out in the Plan, such as shore-power for marine vessels, and we believe these additional zero-emission technologies should be mentioned as well.

Electric transportation and goods movement technologies can provide very large public health and environmental benefits, particularly at ports and other intermodal facilities which currently have a high concentration of diesel and gasoline air pollution. Electric technologies provide zero-emissions at the source (as well as very low upstream emissions), so they directly address community environmental justice concerns. Further, electric technologies provide across the board benefits in terms of reducing criteria pollutants, toxic air contaminants, greenhouse gases, and petroleum dependence.

1. Truck Idling Reduction with Electrification

(aka truck parking space electrification, truck stop electrification)

Truck idling reduction with electrification technologies allows a truck to turn off its main diesel engine while stationary (waiting or resting), and to power the heating/air conditioning and appliances with electric power. There are generally two types of Truck Idling Reduction with Electrification: (1) "Off-Board Systems" which provide hearing/air conditioning and electrical power from systems which are all located off the truck (i.e., Idle Aire); and (2) "On-Board/Off-Board Systems" which use of electric heating/air conditioning systems on the truck and literally plug-in to electric power outlets at the truck parking space.

These technologies can be used at virtually all locations where trucks stop or rest, including: commercial truck stops, highway rest centers, goods distribution centers, large warehouses, private truck operations centers, and intermodal facilities.

One application of this technology at intermodal goods movement facilities could be that instead of physically queuing trucks while they wait to pick up loads, they would be directed to a holding area with electric truck idling reduction infrastructure available (for air conditioning/heating, etc), where they would be queued electronically, and notified through the electrification system when their load was ready to be picked up.

Achievable benefits of Truck Idling Reduction with Electrification (all applications) are estimated to be:[1]

	2010	2015	2020
NOx + ROG Avoided (tpd)	4.80	7.45	11.68
PM Avoided (tpd)	0.14	0.20	0.28
GHG Displaced (mtpy)	0.28	0.44	0.69
Petroleum Displaced (mgpy)	24.38	37.60	59.11
Achievable Population	18,000 (spaces)	25,000 (spaces)	35,000 (spaces)

2. Electric Standby for Truck (and Container) Refrigeration Units

(aka electric TRUs, or e-TRUs)

To keep their perishable cargo cold, most trucks use a transport refrigeration unit (TRU), which is powered by a diesel auxiliary engine usually located on the truck trailer or container.

[1] TIAX Update to 2002 Arthur D. Little LEV Electric Vehicle Market Assessment, TIAX, LLC, October 25, 2005.

Electric Standby for Transport Refrigeration Units allows the truck driver to turn off the diesel auxiliary engine, when they are at a loading dock or parked, and use electricity to run the refrigeration unit. Electric Standby requires both electric infrastructure and additional equipment on the TRU to use electricity. Electric Standby TRUs are common in Europe and most other countries the world because of high fuel prices and air pollution.

There are about 40,000 TRUs in California (32,000 semi-trailers, 4,600 delivery vans, 1,900 large bobtail trucks, and 1,850 ocean ship containers) of which 4,000 to 7,000 are electric. This represents an opportunity for California; although the trucks are already equipped with electric TRUs, they do not have an opportunity to plug in frequently or to take advantage of the benefits of electric TRUs since most distribution and delivery locations lack the infrastructure.

We also note that the the Draft Climate Action Team Report to the Governor and the Legislature, dated December 8, 2005 specifically calls for reduction in climate change gases through the accelerated deployment of Electric Standby for TRUs (page 56).

Achievable benefits of Electric Standby for TRUs are estimated to be:[2]

	2010	2015	2020
Nox + Rog Avoided (tpd)	3.28	8.53	12.80
PM Avoided (tpd)	0.27	0.69	1.02
GHG Displaced (mtpy)	0.08	0.19	0.28
Petroleum Displaced (mgpy)	9.90	24.70	36.70
Achievable Population	13500	25500	34900

3. Cargo Handling Equipment

As the Proposed Plan notes, this category encompasses a very wide variety of equipment to move cargo between transportation modes. Some types of this equipment have been powered by electricity for many years; as the Plan notes, the largest stationary cranes to move containers off ships are primarily electric. Electric forklifts also enjoy significant market share; although these have historically been used mostly in indoor (warehousing) applications, technological advances have allowed them to achieve greater use in outdoor operation.

[2] Ibid.

Other types of cargo handling equipment are currently dominated by diesel or gasoline operation, including: gantry cranes; yard trucks; top handlers; side handlers; reach stackers; sweepers; tow tractors; and other burden and personnel carriers. Emissions of diesel PM and other criteria pollutants from this equipment are very large, as the Report shows.

We believe there is a significant opportunity for the ARB and others to encourage the development of zero-emission electric technology in the cargo handling arena. For decades electric powered vehicles and equipment have operated in underground mines, moving heavy loads of ore, equipment, and personnel. This mining technology could be transferred to the above ground material handling environment, if there were sufficient incentives to do so. For example, diesel powered gantry cranes are on land and move containers from one spot to another. In addition, they use rubber tires so they can be moved around the yard. Electric gantry cranes, so far, have used rail tracks, appears to have limited their applications to a few ports in the world. But rubber tire electric gantries – with long, giant electric cords similar to mining trucks – are possible.

There are also significant technological advances being made with medium- and heavy-duty hybrid technologies, including plug-in hybrids.

It is worth mentioning that two companies debuted three new battery electric truck applications at the Faster Freight Cleaner Air conference in February 2006. These companies (Rosch and Boshert) modified street-legal pick-ups that are made in Brazil and Korea to battery electric trucks for use in US ports, railyards and similar "campus" type applications. These vehicles are larger and more capable than burden and personnel carriers that are sometimes used to more small amounts of goods and people in factories, warehouses and similar applications.

The Proposed Plan mentions "Zero or Near-Zero Emission Equipment" but only in the category of "Implementation Possible by 2020". We believe that earlier implementation is possible if the ARB and other agencies make a concerted effort to encourage the development and commercialization of zero-emission cargo handling equipment, through the following existing programs: technology RD&D funding available through the ARB's ICAT program; technology RD&D funding through the California Energy Commissions Public Interest Energy Research (PIER) program; the Carl Moyer Air Quality Incentive program administered by the ARB and air districts; and through eligibility as a voluntary compliance option under state and local air quality rules.

For some existing zero-emission cargo handling equipment, implementation is possible by 2010, with the incentives described above. And new zero-emission cargo handling technologies will be available for implementation by 2015, if the ARB and other agencies encourage then through the existing programs described above.

We note that the Draft Climate Action Team Report to the Governor and the Legislature, dated December 8, 2005 specifically calls for reduction in climate change gases through the introduction of electric off-road transportation and goods movement technologies (page 56).

Estimated "achievable" emissions reductions from electric cargo handling and goods movement equipment are:[3]

	2010	2015	2020
NOx + ROG Avoided (tpd)	9.60	10.80	12.20
PM Avoided (tpd)	0.26	0.23	0.32
GHG Displaced (mtpy)	2.00	2.20	2.40
Petroleum Displaced (mgpy)	170.00	188.00	205.00
Achievable Population	327,000	356,000	384,000

Sincerely,

DAVID L. MODISETTE
Executive Director

cc: Members of the Board
Catherine Witherspoon

[3] TIAX Update to 2002 Arthur D. Little LEV Electric Vehicle Market Assessment, TIAX, LLC, October 25, 2005. These are statewide figures and include goods movement technologies at all facilities, not just ports. For example, containers from ports travel to inland distribution centers, warehouses and factories and thus are "inland ports" with significant emissions impacts. The numbers in this table do not reflect use of electric gantry cranes or development of large cargo handling equipment such as plug-in hybrid yard hostlers and side pickers.