California Electric Transportation Coalition

David L. Modisette
Executive Director

Julee Malinowski-Ball
Legislative Director

1015 K Street Suite 200
Sacramento CA 95814

916-551-1943
FAX-441-3549
CalETC@ix.netcom.com

March 10, 2006

The Honorable Sunne Wright McPeak
Agency Secretary
Business, Transportation & Housing Agency
980 9th Street, Suite 2450
Sacramento, CA 95814-2719

Agency Secretary
California Environmental Protection Agency
1001 I Street
P.O. Box 2815
Sacramento, CA 95812-2815

Re: Comments on the Goods Movement Action Plan Phase II Progress Report: Draft Framework for Action, dated February 17, 2006

Dear Secretary McPeak:

The California Electric Transportation Coalition (CalETC) is pleased to provide the following comments on the Goods Movement Action Plan Phase II Progress Report: Draft Framework for Action, dated February 17, 2006.

First, we applaud the Draft Report for recognizing the urgent need for public health and environmental mitigation associated with goods movement in California. The Draft report states:

"Goods movement is now the dominant contributor to transportation-related emission in the State. As trade increases, goods movement-related emissions are expected to increase dramatically unless aggressive action is taken."[1]

"If investments are not made to address the serious environmental and community concerns associated with goods movement sources and increases in goods movement sources, already high levels of air pollutions and the associated health effects and other environmental and community impacts will continue to increase and harm public health and quality of life."[2]

"The existing impacts and health risks at and adjacent to existing goods movement facilities (e.g., in close proximity to ports, railroad yards, high truck volume freeways and at distribution centers) must be significantly reduced. While

A non-profit association promoting cleaner, healthier air through the development and use of zero-emission electric vehicles, hybrid electric vehicles, electric mass transit buses and rail

[1] Goods Movement Action Plan Phase II Progress Report: Draft Framework for Action, dated February 17, 2006, Business, Transportation and Housing Agency, and California Environmental Protection Agency, page II-2.

[2] Ibid, page II-1.

community impact mitigation is implemented on a priority basis, the need to ensure environmental justice for all Californians must be kept in mind."[3]

There are several important zero-emission transportation technologies which are directly applicable, and available, in goods movement applications. These include: truck idling reduction with electrification; electric standby for transport refrigeration units; electric cargo handling equipment (lift trucks, tow tractors, industrial tugs, burden and personnel carriers, etc); electric airport ground support equipment; electric rail; and alternative marine power (aka shore power or port electrification).

Electric transportation and goods movement technologies can provide very large public health and environmental benefits particularly at ports, other intermodal facilities, and distribution centers 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.

Our comments on the Draft Report are primarily focused on the Preliminary Candidate Actions for Public Health and Environmental Mitigation – Air Quality, which appears on pages I-5 and IV-4. We have organized these comments using the same technology categories in these Tables:

A. Trucks
B. Cargo handling Equipment
C. Ships
D. Commercial Harbor Craft
E. Locomotives

And we have added one additional category, which is currently not included in the Draft Plan, involving reduction of air emissions from California's airports. Airports were not included in the current Draft Plan, even though there is significant goods movement through our airports, and air emissions from airports is very large. So we are providing information on one near-term strategy to get additional emissions reductions from airports through the electrification of airport ground support equipment.

A. Trucks

One of the "Immediate Actions" listed in the existing Table is "Enforce 5 minute idling limit for trucks". It is important to understand that this idling limit applies to the main engine, but that ARB staff allows and assumes that truck owners will install and use diesel auxiliary power units (APUs) to provide cab comfort including air conditioning, heating and electrical power for appliances. So there will still be diesel emissions from trucks under the ARB 5 minute idling regulation. However,

[3] Ibid, page III-4.

the use of Truck Idling Reduction with Electrification technologies can provide significant additional, surplus, emissions reductions, as explained below. And it provides zero-emissions at the source, so this provides significant local community and environmental justice benefits.

For this reason, we recommend you specifically add Truck Idling Reduction with Electrification to the Preliminary Candidate Actions.

Similarly, another one of the "Short Term Actions" listed in the existing Table for Trucks is "Enforce CA rule for transport refrigeration units on trucks, trains, ships". This ARB rule is designed to reduce diesel PM from diesel transport refrigeration units. And it does that; but the baseline cleaned-up diesel engine is still a diesel engine, and there are cleaner alternatives, such as Electric Standby for Transport Refrigeration Units. Electric Standby can provide significant additional, surplus, emissions reductions, as explained below. And it provides zero-emissions at the source, such as a refrigerated warehouse distribution center, so it provides significant local community and environmental justice benefits.

For this reason, we recommend you specifically add Electric Standby for Transport Refrigeration Units to the Preliminary Candidate Actions.

These two technologies and their benefits are described in detail below.

1. Truck Idling Reduction with Electrification

(aka truck parking space electrification, truck stop electrification)

Truck Idling Reduction with Electrification 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.

Truck Idling Reduction with Electrification can be used at commercial truck stops, highway rest areas, goods distribution centers, private truck rest areas, border crossings, ports and other intermodal facilities.

One potential application of this technology at intermodal goods movement facilities is 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.

There are approximately 450 commercial truck stop parking spaces that have electrification available today in California. But there are 75,000 sleeper cab trucks in California, so we are just

beginning to scratch the surface with Truck Idling Reduction with Electrification. So the additional benefits in terms of reducing diesel emissions are quite large.

Truck Idling Reduction with Electrification is currently eligible for financial incentives under the existing Carl Moyer Program administered by the ARB. And two bills have been introduced in the Legislature this year to establish low-interest loan programs which include Truck Idling Reduction with Electrification.

Achievable benefits of Truck Idling Reduction with Electrification (all applications) are estimated to be:[4]

	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)

For all of the above reasons, we urge you to specifically include Truck Idling Reduction with Electrification in the list of Preliminary Candidate Actions.

2. Electric Standby for Transport 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.

Ocean-going refrigerated cargo containers use electricity for refrigeration aboard a ship. But when they are put onto a truck trailer, a diesel APU is used to generate electricity to provide refrigeration.

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.

[4] TIAX Update to 2002 Arthur D. Little LEV Electric Vehicle Market Assessment, Draft Final Letter Memo, TIAX, LLC, October 25, 2005, Table 6A, page 8. The benefit numbers in the above Table are over and above those benefits from the ARB's adopted heavy-duty truck idling rule.

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 a a significant near-term 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 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). Electric Standby TRUs are also eligible for financial incentives under the existing Carl Moyer Program administered by the ARB.

Achievable benefits of Electric Standby for TRUs are estimated to be:[5]

	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

For the above reasons, we urge you to specifically include Electric Standby Transport Refrigeration Units in the list of Preliminary Candidate Actions.

B. Cargo Handling Equipment

The category of Cargo Handling Equipment 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; for example, the largest stationary cranes to move containers off ships are primarily electric. Electric lift trucks 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.

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 shown in the ARB's Draft Emission Reduction Plan for Ports and International Goods Movement in California (December 1, 2005) Table III-6 on page III-24.

[5] Ibid.

The existing list of Preliminary Candidate Actions under "Long-Term Actions (more than 10 years)" does say "Increase penetration of zero-emission or near-zero emission cargo handling equipment. However, we feel strongly that this Action is also a workable strategy in the categories of "Short-Term Actions (0-3 years)" and "Intermediate –Term Actions (4-10 years)".

For example, two companies debuted three new battery electric truck applications at the Faster Freight Cleaner Air conference in Long Beach 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 ARB recently adopted new guidelines for the Carl Moyer Air Quality Incentive Program which put new emphasis on both Zero-Emission Technologies AND Goods Movement Technologies.

Additional electric cargo handling equipment and technologies are under development. 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 cargo 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 – is possible.

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

In summary, there are some zero-emission cargo handling technologies and equipment available today, with existing incentive programs to encourage them. And additional technological applications of zero-emission cargo handling equipment can be accelerated if the ARB and other agencies make a concerted effort to encourage the development and commercialization of these technologies through 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.

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:[6]

	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

For the above reasons, we urge you to list "Increase penetration of zero-emission and near-zero emission cargo handling equipment" in the "Short-Term" and "Intermediate Term" Preliminary Candidate Actions, in addition to its existing listing in the "Long-Term Actions" category.

C. Ships

One ship produces 4 tons of pollutants at the dock from its auxiliary diesel engines. On a typical day, 16 container ships arrive at the LA/Long Beach port complex, producing emissions equal to 1 million cars. The Port of LA is the single largest source of pollution in the air basin – emitting twice the pollution of all power plants combined. And cargo shipment growth is projected to increase 100% in the next 10 years.

So CalETC applauds the BT&H Agency and CalEPA for recognizing the vary large emission reduction benefits of Shore Based Electrical Power (aka, Alternative Marine Power, cold ironing, or port electrification) and including it in the Preliminary Candidate Actions.

We note the aggressive schedule proposed for implementation of Shore Based Electrical Power in the ARB's Draft Emission Reduction Plan for Ports and International Goods Movement: 20 percent of ship calls at California ports by 2010 will be made by vessels that use shore power; 60 percent by 2015; and 80 percent by 2020. It will take sustained effort and funding to achieve these goals, and so we are pleased that the Governor has included funding for this purpose in his proposed Infrastructure Bond proposals that are part of his Strategic Growth Plan.

[6] 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.

D. Commercial Harbor Craft

The Preliminary Candidate Actions also includes Shore Based Electrical Power for commercial harbor craft. This is appropriate, and we applaud its inclusion. However the implementation goals for this application in the ARB Draft Emission Reductions Plan for Ports are less clear than for Ships above. We urge the next version of the ARB Draft Plan to be more specific in this regard.

E. Locomotives

We were somewhat surprised that the list of Preliminary Candidate Actions did not include consideration of rail electrification as a possible future implementation strategy. The air quality benefits of rail electrification are significant, and also provide localized reductions which are the concern of environmental justice communities. We would urge that, at a minimum, rail electrification be evaluated so that its benefits and costs can be weighed by policy makers as a possible future implementation strategy. . For example, rail implementation might be implemented on an incremental basis using a 100-year old technology called dual-mode freight rail electrification, where the locomotive is propelled via overhead wires (catenaries) in sensitive areas or when traveling up or down mountains, yet uses the diesel engine on relatively flat areas of the Western US.

F. Electric Airport Ground Support Equipment

Most airport ground support equipment today are powered by diesel or gasoline engines, but they also have electric counterparts including baggage tugs, pushback tractors, belt loaders, and preconditioned air units, which are powered from the Jet-way instead from a diesel auxiliary power unit. Airports around the nation are turning to electric ground support equipment and Jet-way power to reduce their overall emissions inventory. Major electrification projects are underway in Denver, Chicago, Dallas, and throughout Europe.

Electric GSE is operating in small numbers at many of the state's airports. Preconditioned air units are being demonstrated at John Wayne, Ontario and Palm Springs airports. Southwest Airlines is converting is ground support equipment to electric at several airports in California.

In order to use electric ground support equipment, airports have to upgrade their electric infrastructure.

Achievable benefits of Airport Ground Support Equipment Electrification are estimated to be:[7]

	2010	2015	2020
NOx + ROG Avoided (tpd)	0.78	0.58	0.59
PM Avoided (tpd)	0.03	0.02	0.02
GHG Displaced (mtpy)	0.07	0.07	0.07
Petroleum Displaced (mgpy)	5.70	5.80	5.90
Achievable Population	3500	4000	4500

For the above reasons, we urge you to include Electric Airport Ground Support Equipment in the List of Preliminary Candidate Actions when the scope of the Goods Movement Action Plan is expanded to include airports.

Lastly, we see that the Draft Plan has a section and workgroup on "Innovative Technologies" (pages VII-1 to VII-6). All of the electric goods movement technologies described above are "Innovative Technologies" designed to reduce environmental impact and mitigate public health impacts in adjacent communities, as well as provide other benefits. With this in mind it may be beneficial to list these technologies in the Tables (VII-1 to VII-4) and identify their specific Criteria/Metrics as you have done with the other Technology Enhancement Measures.

The California Electric Transportation Coalition appreciates this opportunity to provide comments on the Goods Movement Action Plan Phase II Progress Report: Draft Framework for Action. We hope that you will incorporate our comments in the next version.

Please do not hesitate to contact us for additional information or assistance.

Sincerely,

DAVID L. MODISETTE
Executive Director

cc: Cindy Tuck

[7] Ibid.