California
Electric
Transportation
Coalition

January 10, 2006

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

**The Honorable Alan C. Lloyd, Ph.D.**
Agency Secretary
California Environmental Protection Agency
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Dear Secretaries McPeak and Lloyd:

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 December, 2005.

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

Electric transportation and goods movement technologies can provide very large public health and environmental benefits, particularly at 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.

Although there is some mention of a couple of electric goods movement technologies (primarily alternative marine power) in the Draft Framework for Action, a recent technical evaluation by the independent consulting firm of TAIX, LLC, demonstrates that there are far greater opportunities and benefits that are achievable through greater use of electric technologies. I'm attaching two documents. The first is a summary of the TIAX report in a Power Point presentation format. The second is the detailed technology-by-

technology evaluation and results in a Letter Memo format, entitled TIAX Update to 2002 ADL (Arthur D. Little) LEV EV Market Assessment, Dated October 25, 2005.

The TIAX evaluation forecasted both the "expected" and additional "achievable" market penetration of electric transportation and goods movement technologies in the years, 2010, 2015 and 2020. For purposes of the Draft Framework for Action, look at the "achievable" numbers, which illustrate what is possible if there were aggressive incentives or requirements (or a combination of the two) to encourage these technologies. TIAX then estimated the benefits of these scenarios in terms of reduced NOx, ROG, PM, CO2, and diesel/gasoline usage (see Table 6A on page 8 of the Letter Memo).

I want to briefly highlight some of these electric goods movement technologies, below:

## Alternative Marine Power

(aka shore power, port electrification, cold ironing)

One ship produces 4 tons of pollutants at the dock. 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. Cargo shipment growth is projected to increase 100% in the next 10 years.

Alternative Marine Power (AMP) allows a ship to literally "plug-in" to electrical power at the dock rather than operating high polluting diesel auxiliary engines.

Achievable benefits of AMP are estimated to be:

| | 2010 | 2015 | 2020 |
|---|---|---|---|
| NOx + ROG Avoided (tpd) | 2.35 | 5.83 | 10.41 |
| PM Avoided (tpd) | 0.24 | 0.58 | 1.05 |
| GHG Displaced (mtpy) | 7.65 | 19.35 | 34.50 |
| Petroleum Displaced (mgpy) | 0.07 | 0.17 | 0.30 |
| Achievable Population | 23 (ships) | 57 (ships) | 102 (ships) |

## 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.

The 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.

This technology could also be employed at product distribution centers, commercial truck stops, highway rest stops, etc.

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

| | 2010 | 2015 | 2020 |
|---|---|---|---|
| NOx + ROG Avoided (tpd) | 49.45 | 76.83 | 120.40 |
| PM Avoided (tpd) | 0.61 | 0.54 | 0.19 |
| GHG Displaced (mtpy) | 106.00 | 163.50 | 257.00 |
| Petroleum Displaced (mgpy) | 1.24 | 1.92 | 3.02 |
| Achievable Population | 18,000 (spaces) | 25,000 (spaces) | 35,000 (spaces) |

## Electric Standby for Truck 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.

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.

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

| | 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) | 9.90 | 24.70 | 36.70 |
| Petroleum Displaced (mgpy) | 0.08 | 0.19 | 0.28 |
| Achievable Population | 13500 | 25500 | 34900 |

## Electric Airport Ground Support Equipment

Most airport ground support equipment today are powered by diesel 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:

| | 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) | 5.70 | 5.80 | 5.90 |
| Petroleum Displaced (mgpy) | 0.07 | 0.07 | 0.07 |
| Achievable Population | 3500 | 4000 | 4500 |

## Electric Cargo Handling Equipment

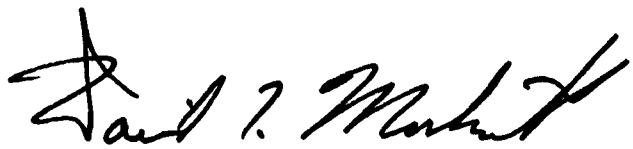
The TIAX Report considered some types of cargo/material handling equipment, specifically: some forklifts and other lift trucks (classes 1, 2, 3); tow tractors/industrial tugs; personnel and burden carriers; and sweepers/scrubbers. However the Report does not distinguish between this equipment used at intermodal goods movement facilities versus industrial and commercial facilities. These electric technologies are available today. See the estimates for the achievable market projections and benefits for these individual technologies on Table 1 and Table 6A of the TIAX Letter memo.

We believe there are opportunities for additional application of electric technologies into other types of cargo handling equipment traditionally powered by diesel fuel, but at there moment there are no incentives for the manufacturers of this equipment to offer electric counterparts. With appropriate incentives we believe that manufacturers would be willing to do this.

In conclusion, we would urge you to consider an expanded role for electric transportation and goods movement technologies in the Draft Framework for Action, so that California can achieve the public health and environmental benefits documented by the recent independent analysis by TIAX, LLC.

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

Sincerely,



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