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**CalETC Comments on AB 1007 Electric Drive Technologies Storyline document, dated May 29, 2007.**

The California Electric Transportation Coalition (CalETC) commends the CEC staff and TIAX for the very detailed and thorough analysis of five important electric drive technologies. We are pleased to provide the following comments.

**Technical Issues and Recommendations:**

A. On the “Projected Fuel Costs, Table 5-4” we note that the “High Price” for gasoline (RFG) in 2010 is \$3.02. Every Californian is paying well over this price for gasoline today. So we believe this projected “High Price” does not provide meaningful analysis or evaluation as a bounding case, and that the analysis should be revised to reflect a significantly higher price in the future than what consumers are paying today.

B. On the “Cost Effective Growth Scenario” described in Section 3 and elsewhere, we believe this name for this scenario should be changed to “Moderate Growth Scenario”. Use of the term “Cost Effective Growth Scenario” for the mid-case scenario implies that the higher “Aggressive Growth Scenario” is not cost-effective. But this is not the case; the “Aggressive Growth Scenario” is cost-effective as can be seen in Table ES-1. The Table shows that consumers actually SAVE money over the life of these technologies. So these electric transportation technologies provide large reductions in petroleum, in GHG emissions, and in air pollution, while also saving consumers money.

C. The scenarios appear to be reasonable for the 5 technologies evaluated, but we would recommend that the results of the Performance Metrics be extended beyond the target dates of 2012, 2017, and 2022. We would recommend that the results be evaluated and shown in the “Vision” years of 2030 and 2050.

D. We would like to see greater explanation of the gasoline “baseline” that alternative fuel technologies are being compared to. The benefits of these electric drive technologies look a bit low to us, and we suspect that this is because of the “baseline” being employed in the analysis.

E. On page 1-3, the storyline references that some electric utilities have offered incentives for purchase of e-forklifts. Actually, we are only aware of one utility in the US which does this and still does this – Alabama Power. California utilities have not or do not offer this.

**Policy Issues and Recommendations:**

1. The Storyline focuses on 5 electric drive technologies, which is appropriate because these provide have the greatest benefits in the near- to mid-term. But we believe the Storyline should at least acknowledge and list the many other electric drive technologies that are providing, and

will continue to provide, significant reductions in petroleum, GHG, and air pollution. These other technologies include: electric airport ground support equipment; industrial tow tractors; burden and personnel carriers; turf trucks; sweepers, scrubbers, and burnishers; battery-electric vehicles; city cars; neighborhood electric vehicles; electric lawn and garden equipment; electric buses; and electric commuter rail.

2. As we have said before, there is no single “silver bullet” which can solve our inter-related problems of petroleum dependence, air pollution, and climate change. But the Storyline analysis verifies and quantifies that electric drive technologies can be an important part of a comprehensive solution or Plan. Electric drive technologies provide simultaneous reduction in petroleum, GHG emissions, and in criteria air pollutants. And in most cases, consumers and businesses that purchase electric drive technologies save money over the life of the technologies, due to reduced fuel and other operating costs.

3. Although consumers will save money with most electric drive technologies on a lifecycle cost basis, most of these technologies have a higher initial cost than their gasoline and diesel counterparts. And this higher initial cost is a significant barrier to increased market penetration of these technologies. (Note: this is similar to more efficient electric technologies, like compact fluorescent lamps.) The Storyline recognizes this barrier and suggests grants and fee-bates for some electric drive technologies as one solution. But there is another, less-costly solution that we would recommend be added to the final Report, and that is a no-interest or low-interest loan program, or a loan-guarantee program with interest rate buy-down. The CEC previously recommended just such a program in the 2005 Integrated Energy Policy Report (page 35), and we would recommend that this be carried forward into the AB 1007 Alternative Fuels Plan.

We note that there is an existing loan guarantee program within the California Pollution Control Financing Authority, the Capital Access program (<http://www.treasurer.ca.gov/CPCFA/calcap.asp>) which uses existing private lending institutions. And the South Coast Air Quality Management District will buy-down some of the interest rate that the borrower would otherwise pay, if the loan is for equipment that reduces air pollution. We believe that if this program were extended to electric transportation and goods movement technologies, with additional interest-rate buy-down from the CEC or other agencies, it could have a significant impact in terms of increasing the market penetration of these technologies, and the societal benefits which they provide. We ask that this recommendation be included in the final AB 1007 Alternative Fuels Plan

4. For Plug-In Hybrid Vehicles (PHEVs), we recommend that the final AB 1007 Alternative Fuels Plan include the recommendation from the 2005 Integrated Energy Policy Report (page 35) that the state should establish a combined state/industry working group (aka Coordinating Council) to foster coordination and collaboration among the many public and private organizations working on this promising technology. The PHEV Coordinating Council would also identify barriers to the development and commercial introduction of PHEVs, and work to resolve those barriers.

5. We note that the Air Resources Board on May 25, 2007 directed the ARB staff to provide additional incentives under the Zero-Emissions Vehicle regulations, for automobile

manufacturers to produce PHEVs. We recommend that this be both noted and supported in the final AB 1007 Alternative Fuels Plan. We also note that the proposed Low-Carbon Fuel Standard, if correctly designed, could provide additional incentives for electric drive transportation technologies.

6. We recommend that the final AB 1007 Alternative Fuels Plan include an action item from the Joint Energy Action Plan II, September 21, 2005 (page 11), which could assist in the market development for electric transportation technologies:

“The CPUC, in conjunction with the CEC, Cal EPA, and local air districts, will continue to evaluate and implement policies to promote the development of equipment and infrastructure needed to facilitate the use of electric power and natural gas to fuel low-emission vehicles as required by Public Utilities Code sections 740.3, 740.8, and 451.”

7. We recommend that the final AB 1007 Alternative Fuels Plan include a recommendation that the State of California use the large state vehicle fleet, and the fleet vehicle procurement process for state and local government vehicles, to demonstrate its leadership and commitment to alternative fuel and low-carbon vehicles. The fleet procurement process should be revised such that the vehicles purchased are the “best in class” in terms of reducing the use of petroleum fuels, reducing greenhouse gas emissions, and reducing air pollution.

8. We recommend that the final AB 1007 Alternative Fuels Plan recommend for as a future work task or action item the development of a comprehensive evaluation methodology for vehicles and fuels which would allow for the comparative analysis based upon the following performance criteria on a full fuel-cycle basis:

- a. Greenhouse gas emissions.
- b. Reduction in petroleum use/dependency in the transportation sector.
- c. Criteria pollutant emissions.
- d. Air toxics and other multi-media impacts.
- e. Infrastructure cost and availability.
- f. Lifecycle cost.

The CEC’s contractor, TIAX, has already done some of this methodology development as part of the AB 2076 report, California Strategy to Reduce Petroleum Dependence, in 2003. They further refined this work, and applied it to the five electric transportation technologies evaluated in the AB 1007 Electric Transportation Storyline. This methodology and results was presented to the CEC’s Transportation and IEPR Committees at the March 31, 2007 workshop on the AB 1007 Alternative Fuels Plan development.

9. In the Hydrogen Fuel Cell Vehicle Implementation Storyline (May 29, 2007) we do not understand the extensive comparison of FCVs to Plug-In Hybrid Vehicles (PHEVs). The language on page 1-6 appears to be attempting to justify this comparison by referring to PHEVs as a “prime competitor” to FCVs. But later on, on page 5-1 the document acknowledges that under the ARB’s regulations that require automakers to produce Zero-Emission Vehicles, there are only two options: FCVs and battery electric vehicles. “At this point in time, only two types

of vehicles have fulfilled the requirements set forth for ZEVs: full performance battery electric vehicles and fuel cell vehicles that consume on-board hydrogen.”

PHEVs are in a regulatory category under the ZEV regulations with other advanced technology vehicles that do have some tailpipe emissions, including: hybrid electric vehicles, CNG vehicles, hydrogen ICE vehicles. It would be more appropriate, in our opinion, to compare vehicles in the same classes, rather than choose one vehicle from one class and compare it to vehicles from another class. So, in this case it would be more appropriate to compare FCVs to BEVs, since they are both pure ZEV vehicles.

This inappropriate comparison of FCVs to vehicles in another class (PHEVs in this case) is evident in the very first comparison on page 1-6. Figure 1-4 on this page compares a vehicle that uses no petroleum (FCV) to one that is extremely energy efficient, but nonetheless does use some petroleum (in this case PHEV). And of course the conclusion is that FCV displaces more petroleum (what a revelation). Had this comparison been done with a vehicle in the same class as FCV, in other words a BEV, the result would have been much different: they would both have displaced an equal amount of petroleum. So in this case, the comparison of FCV to vehicles in another class seems to have been done with the sole purpose of making the FCV look better, and making PHEVs look negative. This is an unfair comparison.

And the same can be said for the other comparisons in the document: had the comparison been done within the same class of vehicles, the results would be very different than what is portrayed now.

One other aspect of the comparison to PHEV in the Hydrogen Storyline that we found surprising was that both technologies were modeled as having the same vehicle projections (market growth) over time. But this is contrary to the findings of the ARB Independent Expert Review Panel that concluded that commercialization of PHEVs will occur much earlier than FCVs. For example, the Panel concluded that commercial volumes (10,000's per year) of PHEVs could begin in 2012, and mass commercialization (100,000's per year) in 2015. But for FCVs commercial volumes don't begin until 2020, and mass commercialization doesn't begin until 2025. One of the real benefits of PHEVs is that they can be commercially available sooner; they have less technological development and other barriers to overcome than FCVs.

If the staff had compared the two technologies in a way that reflected the vehicle projections of the ARB Independent Expert Review Panel, the results would look much different. In fact, it would not surprise us at all if the results using this approach showed that the petroleum reduction of PHEVs to be greater than that of FCVs. To ignore the large differences in vehicle technology status, and the Storyline does, and model them both as having the much slower development curve of FCVs, injects a bias in the analysis which appears intended to achieve a desired result.

We recommend that the inappropriate comparison to PHEVs in the Hydrogen Storyline be removed. If comparison with another vehicle is desired, it should be with vehicles in the same ZEV classification under the ARB regulations. Lastly, differences in vehicle technology status and their impact on vehicle market projections (per the ARB Independent Expert Review Panel) should be reflected in the analysis.