February 13, 2009 – FINAL

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Mr. Bob Fletcher
Mr. Dean Simeroth
Ms. Renee Littaua,
California Air Resources Board

From: David Modisette,
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**Re: Comments the California Electric Transportation Coalition on the January, 2009 Revisions to the Draft Low Carbon Fuel Standard Regulation.**


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The California Electric Transportation Coalition (CalETC) appreciates this opportunity to provide comments on the January 2009 Revisions to the Draft California Low Carbon Fuel Standard Regulation (January Draft Regulation). The members of the Board of Directors of CalETC are Southern California Edison, Sacramento Municipal Utility District, San Diego Gas & Electric Company, Pacific Gas & Electric Company, and the Los Angeles Department of Water & Power. In these comments, CalETC addresses eight issues:

1. Designation of Regulated Party for Electricity as Transportation Fuel;
2. Mitigation of the unfair economic burden placed on electric ratepayers due to GHG emissions reductions from the transportation sector;
3. The proposed method of measuring electricity consumption before Advanced Metering Infrastructure (AMI) is deployed;
4. Clarification of eligible non-road electric transportation vehicles and equipment;
5. Accounting for existing non-road electric transportation vehicles and equipment;
6. Eligibility of alternative marine power;
7. Calculation of energy economy ratios; and
8. LCFS Credit Trading Forum.

**Issue #1: CalETC Supports the January Draft Regulation's Designation of the Load Serving Entity as the "Regulated Party" for Electricity Used as a Transportation Fuel (Section 95424 (a) (6), page 18).**

The January Draft Regulation provides that "For electricity used as a transportation fuel, the regulated party is the electricity Load Serving Entity (which includes

investor-owned and publicly-owned utilities) or other entity that supplies electricity to the facility at which the electricity is used to charge vehicles." CalETC supports this language which clarifies that LSEs are the "regulated party" under the LCFS regulation.

The LCFS is intended to diversify California's transportation fuel supplies and facilitate a sustainable market for cleaner-burning fuels.[1] As such, the LCFS is focused on regulating and incentivizing the ***fuel provider***, and should remain so, consistent with Executive Order S-01-07. In the case of electricity used as a transportation fuel, the fuel provider is the load serving entity (LSE), i.e. the electric utility selling electricity generally throughout its service area. Indeed, this is the model that was envisioned by the Office of the Governor in adopting Executive Order S-01-07. In describing how the LCFS will utilize market-based mechanisms to allow providers to choose how they reduce emissions, the Office of the Governor Whitepaper on the LCFS states:

> "In order to realize these GHG reductions at the lowest cost and in the most consumer-responsive manner, the LCFS will utilize market-based mechanisms to allow providers to choose how they reduce emissions while responding to consumer demand. For example, providers may purchase and blend more low-carbon ethanol into gasoline products, ***purchase credits from electric utilities supplying low-carbon electrons to electric passenger vehicles***, diversify into low-carbon hydrogen as a product and more, including new strategies yet to be developed."[2]

A model which focuses on the fuel provider – and in the case of electricity as a transportation fuel, the LSE, as a fuel provider – makes sense because the LSE is in the best position to further the goals of the LCFS. For example, LSEs are best able to develop rate structures and programs that can incentivize electric transportation (ET). Under the supervision of the CPUC or the governing body of a publicly-owned utility, the LSEs do not profit on the sales of electric commodity to their customers, but instead can pass through the value or benefits of any credits relating to those sales to their individual customers, including ET customers.

California utilities plan to use the value of electricity LCFS credits to return value to the individual ET customers in the form of reduced electricity rates, rebates, or other financial incentives. LSEs are in a unique position (in-between electricity generators and customers) to return value back to the customers. To be clear, the investor-owned utilities' (IOUs) use of the LCFS credits will be governed by the CPUC, and publicly owned utilities (POUs) will be monitored by their governing boards. Thus, the CPUC and POU governing boards will be able to scrutinize and determine the California utilities' use of LCFS credits and ensure that LCFS credit value is returned to ET customers, and if appropriate, the utilities' general body of ratepayers.

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[1] Office of Governor White Paper, "The Role of a Low Carbon Fuel Standard in Reducing Greenhouse Gas Emissions and Protecting Our Economy," January 8, 2007.
[2] Ibid pg 1.

**CARB Should Reject Proposals Which Award LCFS Credits for Electricity Fuel to Third Party Non-LSEs Which Are Not Direct Electricity Providers and Which Are Not Subject to Regulatory Supervision by the CPUC or the Governing Bodies of POUs.**

The LSEs understand that some unregulated third parties who are not direct sellers of electricity continue to pursue the LCFS credits that should be retained by electricity fuel providers in support of ET customers. CARB should reject these arguments and confirm that LSEs, as the direct providers of electricity, retain the LCFS credits that are generated when they provide electricity for transportation.

The LSEs do not oppose private entrepreneurs who are customers of the LSEs and who seek to develop new products and services to grow the ET market. In fact, the California utilities hope to work directly with such entrepreneurs – as our customers – to structure rates and programs that will provide benefits to ET customers. However, the LSEs are opposed to modifying the fundamental structure of the LCFS as it applies to direct providers of electricity, solely for the purpose of providing a ratepayer subsidy to those developers. Few details concerning the subsidies and set-asides proposed by third party non-LSEs have been provided; however, it is already clear that these proposed subsidies to private developers are fundamentally in conflict with the public purposes and design of the LCFS and the rules governing sale of electricity in California. For example:

- Generally, only public utilities and other regulated entities can sell electricity to retail customers. There is no indication that private developers of ET-related services intend to become public utilities and serve all ET customers on a non-discriminatory basis as part of their subsidized programs. Nor have any details been provided concerning how these private developers could structure their consumer services to comply with utility tariff rules prohibiting the unregulated resale of electricity.

- It is unclear how ET customers will benefit from the subsidies proposed by the private developers. CARB should not lock itself in to a subsidy program which provides LCFS credits to third-party private developers on such a piecemeal, unregulated, and undefined basis.

- The developers are private companies that are not regulated by the CPUC, the CEC, or municipal utility governing bodies. The provision of LCFS credits to such private companies is akin to an investment of public funds in a private entity. In contrast, the regulatory oversight already provided to regulated direct providers of electricity is worthwhile to ensure ET customer benefits. The LSEs understand that at least one third-party private developer has stated its present intent that it would "retire" LCFS credits rather than convert their value to private use and profit. Even if such a commitment could be legally enforced (which is doubtful), it does not return to customers the value of the credit, nor does it reduce the cost of electrification or incentivize the ET customer in any way. In contrast, if the LSE earns the credit through its own reduced emissions, the benefits are realized and passed on directly to the ET customer. As provided above, the LCFS is – and should remain – focused on the entities which provide fuel and thus can effectuate the goals of the LCFS.

The LCFS is but one vehicle to achieving carbon reductions in the transportation sector. There are other incentives, programs, and structures available to contribute to the development of the State's alternative fuel infrastructure. Indeed, as customers of the LSE, the third party developers themselves will directly benefit from the pass through of the value of the LSEs' credits.

**CARB should retain the language in the January Draft Regulation which provides that LSEs are the "regulated party" under the LCFS regulation.**

**Issue #2: Electricity ratepayers should not have to bear the unfair costs of the shift in GHG emissions from the transportation sector to the electric sector that occurs when electricity is used as a transportation fuel.**

The increased use of electricity in the transportation sector results in a large net reduction in GHG emissions. Indeed, according to the CEC's AB 1007 Full Fuel Cycle Analysis, electrification will result in a 70+% reduction in GHG emissions. However, electric transportation also causes an increase in GHG emissions in the electric sector, and thus a shift in GHG emissions from the transportation sector to the electricity sector. The proposed "cap and trade" structure for the electricity sector would require that any increase in GHG emissions be fully mitigated or offset, at an additional cost to utility ratepayers. Further, the increase in electricity usage for transportation purposes will also require additional purchases of renewable power, under California's Renewables Portfolio Standard, at an additional cost to ratepayers.

The table below illustrates this cross sector shift using an analysis by TIAX for CalETC in 2007, and is based on a high penetration case for plug-in hybrid EV and battery EVs in 2020. The transportation sectors GHG emissions are reduced by 14.2 million metric tons per year, while the electric sector's GHG emissions are increased by 2.7 million metric tons per year in 2020. The net reduction is 11.5 million metric tons per year.

**Fuel switching from gasoline to electricity has the potential to reduce GHG emissions in California by 11.5 million metric tons of $CO_2e$.**

**2020 Transfer of Emissions Between Sectors With Fuel Switching**

| | CA Transportation Sector GHG Emissions[1] *MMT/year* | CA Electric Sector GHG Emissions[1] *MMT/year* |
|---|---|---|
| Before[2] | 17.6 | 0 |
| After[2] | 4.8 | 2.7 |

- The switch from the transportation sector to the electric sector creates a net reduction of 11.5 MMT in 2020
- The transportation sector should be responsible for the transferred emissions (2.7 MMT /year)
- Electric ratepayers should not have to pay to make the transportation sector less carbon intensive
- The transferred emissions to the electric sector in 2030 can exceed 10 MMT per year.

1) Does not represent the entire transportation sector, only the portion that switches to electric fuel.
2) Source – TIAX 2007 for battery EVs and PHEVs. Assumes 2.5 million PHEVs in 2050 and 400,000 full size EVs and city car EVs in 2020. The transportation sector does not go to zero because PHEV still use gasoline.

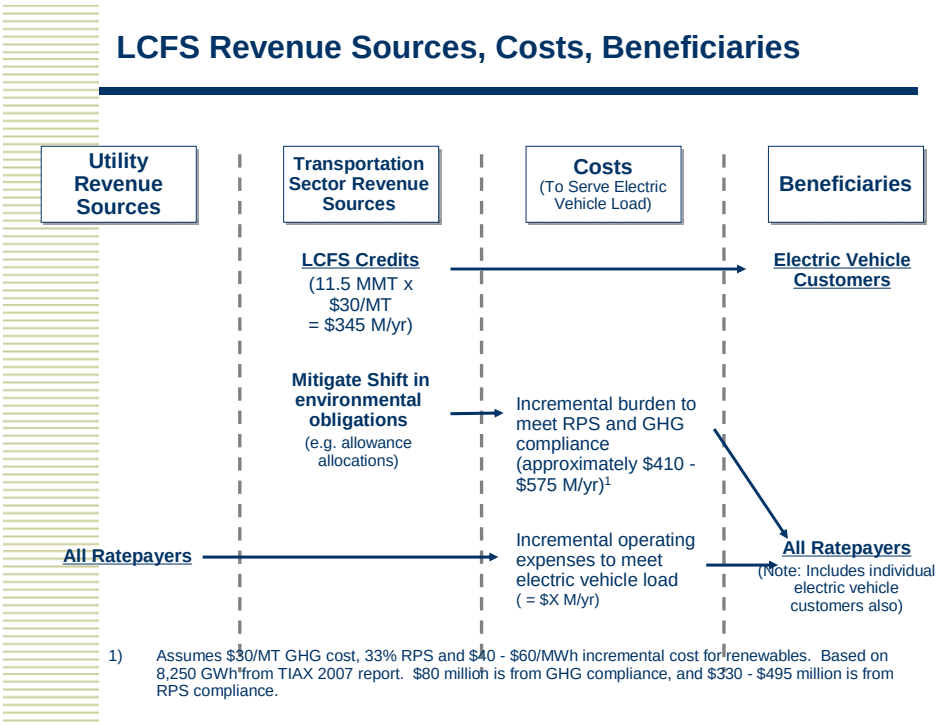
The next chart builds on the data in the first chart. It is meant to illustrate one possible scenario based on carbon prices of $30 per ton, and incremental RPS compliance costs of $0.04 to 0.06 per kWh.[3] Based on these assumptions and the data from the TIAX study (cross sector shift of 2.7 million metric tons of GHG per year in 2020), the total cost for these incremental compliance burdens is approximately $410 to $575 million per year. This equals about $80 million per year for GHG compliance and $330 - $500 million per year for RPS compliance.

These incremental compliance costs should be borne by the transportation sector, because the incremental GHG compliance costs are being incurred in order to reduce emissions in the transportation sector, not the electric sector. The electric sector should not be burdened with the cost of reducing emissions in the transportation sector. Electric ratepayers should not have to pay to make the transportation sector less carbon intense.

The chart below also shows the preferred solution which is seeking a revenue source from the transportation sector to pay for the RPS and GHG compliance costs associated with this cross-sector shift of GHG emissions. It is appropriate for traditional fuel prices to rise to pay for the costs of reducing transportation sector emissions, as this sends the correct price signal and increases the cost difference between traditional and alternative, cleaner burning fuels.

If the utility sector (all ratepayers) pays for these costs, it will diminish the utilities' ability to encourage fuel switching through rates and incentives. We believe it critical to avoid this unfair cost shift to electricity ratepayers.

[3] Source: LBNL report "Renewables Portfolio Standards in the United States" April 2008, Figure 14, pg. 27




There are several possible solutions where the transportation sector is the revenue source to pay for these RPS and GHG compliance costs from this cross-sector shift of GHG emissions. Whichever solution is chosen by CARB to remove this disincentive for electric transportation, it is very important for CARB to indicate early in the LCFS regulatory record and related documents that it intends to achieve this objective at the appropriate time (for example, when the electric sector "cap and trade" is adopted). If CARB is silent on this issue in the LCFS regulatory record and related documents, this will create uncertainty about what CARB may do in the future and will not resolve the potential disincentive facing electricity providers in the LCFS.

CARB should avoid an unfair cost shift for emissions reductions in the transportation sector.

**Issue #3. CARB Should Temporarily Allow Other Less Costly Techniques to Measure Electricity Consumption Until New Digital "Advanced Metering Initiative" (AMI) Meters Are Deployed.**

CalETC understands and supports the ARB's goal to have direct metering of electric transportation usage. We are asking for some flexibility in the early years of the LCFS, because utilities need some time to develop the hardware and software to necessary to submeter this usage which will be compatible with the new digital meters now being deployed as part of the statewide Advanced Metering Initiative.

Section 95424, Compliance, subsection (c)(3)(C) specifically requires direct metering of electricity for vehicles for residential charging "at each residence based on direct metering, which distinguishes electricity delivered for transportation use." We understand from ARB staff that is it

also their intention to require direct metering for all charging applications, including fleet and workplace charging, and public charging.

This requirement means that electricity customers who choose to purchase electric transportation technologies will be required to have two electricity meters, one to measure their electricity consumption going to their transportation use, and another to measure all other electricity consumption in their home or business or public location. Under today's "cost of service" regulation by the CPUC and the governing boards of municipal utilities, the cost of the second meter for transportation purposes will be borne solely by the electric transportation customer. These additional metering costs will also be on top of any costs that electric transportation customers may bear from the need to install new electrical wiring, new circuits, or service panel upgrades, all of which are the responsibility of the customer rather than the utility, because they are on the "customer side" of the meter.

The staff's proposal will add additional cost on to consumers that are making investments in low-carbon technologies and fuels. This result is contrary to the State's LCFS goals.

The January Draft Regulation exacerbates these concerns because the January Draft Regulation makes no accommodation for the planned replacement of all the existing (mostly analog) electric meters in California with new digital meters under the statewide Advanced Metering Initiative (AMI). The new AMI meters will not be able to separately meter the electric transportation electricity, and new submeter hardware and software will need to be developed that will work in tandem with the AMI meters. Under AMI, utilities are replacing old meters with new, more sophisticated digital meters from 2009 through 2011-13 (depending upon the individual utility).

Utilities are now working with AMI meter manufacturers and vendors to incorporate the capability to separately sub-meter and record the electricity consumption from electric transportation. However, when AMI was originally conceived and planned, the need and benefits of sub-metering capability for transportation purposes (i.e. for LCFS or other GHG reduction efforts) was unknown. It will take some time to develop the specifications, standardization, hardware, and software to allow sub-metering of electric transportation loads which must be compatible with the utility AMI systems being developed and deployed. We estimate that it will take 2-3 years for the development, testing, and verification of sub-metering capability for transportation purposes to be incorporated into utility AMI meters and systems. Based upon this estimate, AMI meters with transportation sub-metering capability should be available in the 2011-2012 timeframe.

CalETC clearly understands the desire of CARB staff to have the most accurate measurement available for electricity used in transportation. CalETC agrees that direct metering will most accurately measure how much electricity is used as a transportation fuel, and believes that AMI meters can deliver this functionality in a timely and less costly manner. For this reason, CalETC urges CARB to adopt regulations which allow alternative, less costly methods for estimating ET load until AMI meters are deployed. The additional accuracy gained in the short interim period before AMI meters are rolled out is small and does not justify the additional expense to the customer.

Therefore, CalETC recommends that the requirement for direct metering of electric transportation (used to generate LCFS credits) apply only when customers receive AMI meters with submetering capability, or by 2015, whichever is earlier. In the interim, electricity providers should be allowed to use one of the four estimation techniques previously proposed by CalETC,[4] such as before and after monthly billing comparison, as approved by CARB Executive Officer.[5]

**Issue #4: The LCFS Regulation Should Define Eligible Non-Road Electric Transportation Vehicles and Equipment.**

It appears that non-road electric transportation vehicles and equipment are eligible to generate LCFS credits (see Section 95420, Definitions and Acronyms, subsection (a)(26)), but the existing references are vague and non-specific. Regulated parties need more certainty that the specific technologies they are supporting will be eligible. CalETC requests that a list of eligible non-road electric technologies be added to the regulations as follows:

> "Eligible off-road or non-road electric transportation and off-road equipment includes: truck-stop and truck parking space electrification; electric transport refrigeration units; certain alternative marine power (aka cold ironing or marine port electrification consistent with Section 95420(B)); electric gantry cranes at ports; electric rail; electric industrial vehicles, including lift trucks, tow tractors and tugs, burden and personnel carriers, airport ground support equipment, cargo handling equipment, turf trucks, sweepers, scrubbers, and burnishers."

**Issue #5. How to Account for Existing Non-Road Electric Transportation Vehicles and Equipment.**

As mentioned in our November 14, 2008 comments, one issue that has been raised by CARB staff and others is how to handle categories of off-road electric transportation equipment that have significant existing population and market penetration, such as some classes of lift trucks.

CalETC recommends that the best way to address this is to put the existing off-road electric transportation equipment into the 2010 baseline GHG standard for diesel. The impact on the 2010 baseline standard will be very small: a reduction of less than 3 tenths of one percent according to our quick calculations. This will reduce the amount of LCFS credits that will accrue to electric transportation. However, the real benefit of benefit of this addition to the baseline is that it resolves

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[4] IBID

[5] CalETC proposed four estimation techniques in its comments submitted to CARB on May 1, 2008, pages 7-9. Those proposed techniques are: (1) Comparing electricity consumption before and after vehicle or equipment purchase; (2) Estimate consumption based upon direct metering sampling of ET; (3) Estimate consumption based upon consumption comparison sampling; (4) Estimate consumption based upon engineering estimates. Eligible techniques would have to be approved by CARB's Executive Officer prior to their use. As part of this proposal, CalETC also offered to discount the amount of LCFS credits to reflect the greater uncertainty of some estimation methods.

the problem of how to handle the existing market penetration of electric equipment, and it simplifies LCFS implementation. With this revision, there is no need for a business owner to artificially separate the electric lift trucks (and/or other electric transportation equipment) they have into "existing" and "new" categories, and track electricity separately for these categories. Under this approach, all electric lift trucks can be metered and credited without distinction, because the correction for the existing equipment has already been included in the baseline standard.

According to the consulting firm TIAX, LLC, the 2002 population of non-road electric transportation equipment using 630 million kWh per year.[6] We recommend incorporating this figure into the diesel baseline.

**Issue #6. Eligibility of Alternative Marine Power (aka Port Electrification, or Cold Ironing).**

CalETC recommends that Alternative Marine Power (aka Port Electrification or Cold Ironing) be eligible to generate GHG reductions under the LCFS, for the reasons stated below.

Section 95420, Definitions and Acronyms, subsection (a)(26) appears to make Alternative Marine Power ineligible to generate GHG reductions under the LCFS. However, California's marine ports are a large source of GHG emissions, as well as related criteria air pollutants and air toxics. Further, emissions from Port operations are a major concern and focus of environmental justice advocates due to their severe impacts on surrounding communities.

Although ARB has adopted future regulatory requirements to limit the use of auxiliary diesel engines for some categories of ships (container ships, passenger ships, and refrigerated cargo ships) while they are at the dock, there are still significant opportunities for additional surplus emissions reductions. These opportunities include emissions reductions from those ships not currently covered by CARB adopted regulations, including tankers, bulk shipping vessels, and vehicle carriers. Additionally there are surplus GHG reductions available earlier than the implementation dates of the adopted ARB regulations, which could be up to 0.09 MMT.[7] Lastly, there are surplus GHG reductions available from fleets that are exempt from CARB-adopted regulations because they do not meet the minimum number of annual visits to California ports.

CalETC recommends that Section 95420, Definitions and Acronyms, subsection (a)(26) be modified to allow surplus alternative marine power eligibility, as follows:

"… In addition, "transportation fuel" includes diesel fuel used or intended for use in nonvehicular sources other than the following:
(A) …

[6] Electric Transportation and Goods Movement Technologies in California: Technical Brief, prepared by TIAX, LLC, Revised December, 2007.
[7] See Appendix A, GHG Emissions Reduction Potential of Cold Ironing and CARB Shore Power Rule, Memo to CalETC, by TIAX, LLC, December 15, 2008.

(B) Marine vessels (excluding harborcraft as defined in title 17, California Code of Regulations, section 93117, and engines on marine vessels used when the vessels are at a dock). Emission reductions from eligible marine vessels and engines must be surplus to any regulatory requirements.

**Issue #7: EERs for BEV, PHEV, and FCVs (Section 95425, page 22).**

The January Revisions delete the earlier Appendix A, "Calculation of Energy Economy Ratios", and substitute new results with no explanation about how they were derived. The EER for Battery Electric Vehicles (BEVs) decreases by 25% from 4.0 to 3.0.

The impact of this revision, of course, is to decrease the amount of LCFS credits for electric transportation by one-fourth, and therefore to significantly decrease incentives for electric transportation to be used as a low-carbon fuel. We believe CARB staff needs to carefully weigh the policy implications of this proposal, particularly in light of both technical information and historical precedent supporting a higher EER for BEVs.

The general explanation for the change in EERs in the January Revision, mentioned at the January 31 Workshop, was that the energy efficiency of the reference gasoline vehicle was increased by 30% to account for efficiency improvements resulting from CARB's AB 1493 "Pavley" regulations.

CalETC has the following comments on the January EER Revisions for BEVs:

A. CARB should focus on establishing EER ratios for the 2010-2011 timeframe in the LCFS regulations, and then update them in the future as new data becomes available. In the public workshops CARB staff have made the point that it is difficult to establish EER ratios for electric-drive vehicles because, although there were several thousand such vehicles produced by OEMs and offered for commercial lease or sale in the early 2000's, there are none available today. We agree that it is very difficult to estimate EERs of electric drive vehicles over the full time period of the LCFS, 2010-2020. This is because we don't have a good method to forecast the technological improvements that will result in the increased energy efficiency of these vehicles.

For this reason, we recommend that CARB focus on establishing EERs in this first version of the LCFS regulations for the first two years of the LCFS, 2010-2011, and then update them for future years as new data becomes available. This approach would allow usage of the existing and available data for electric-drive vehicles, such as that presented in the October, 2008 Draft LCFS Regulations.

This approach should also take into consideration the expected efficiency improvements of gasoline vehicles pursuant to the CARB "Pavley" regulations for this time period, 2010-2011. The CARB Pavley regulations require an improvement of 4.6% in 2010, and 14.2% in 2011.[8] The

[8] CARB Technical Assessment, January 2, 2008, Comparison of GHG Reductions Under CAFÉ Standards and ARB Regulations Adopted Pursuant to AB 1493, page 6, Table 5.

gasoline reference vehicles should reflect these efficiency improvements over this time period, rather than the efficiency improvements over the full Pavley timeframe (2016).

For this analysis, CARB staff should not assume an efficiency improvement of 30%, because that is the goal for a much later date (2016).

CalETC recommends that CARB initially establish in the LCFS regulations the EERs for vehicles during the first two years of the program (2001-2011) and then update the EERs for both the low-carbon fuel vehicles and the gasoline reference vehicles as additional information on new vehicles becomes available. This will allow use of existing data for electric-drive vehicles and for the gasoline reference vehicles.

B. The two BEVs used in the January Revision are not appropriate examples of future OEM products, and therefore should not be used to establish EERs. First, the two BEVs used in the January Revision (Toyota RAV4 and AC Propulsion eBox) are gasoline vehicles which were later converted to electric propulsion. These vehicles were not originally designed as BEVs; they are not "purpose-built" vehicles, and therefore do not take advantage of the unique attributes, components, and packaging of purpose built BEVs. Second, the Toyota RAV4 uses technologies and components from the 1990's, including Nickel Metal Hydride (NiMH) batteries. New OEM BEV products will use new battery chemistries, lithium in particular, which is more efficient than NiMH. New OEM BEVs will also use newer, updated electric drive trains and other components which are more efficient than technologies from the 1990s. Third, both the Toyota RAV4 and the AC Propulsion eBox are boxy, upright vehicles which do not take advantage of the aerodynamics that we see today in even gasoline sedans. New OEM BEVs are expected to be even more aerodynamic than the gasoline sedans that we have today.

CalETC believes that EERs can and should be derived from BEVs that use lithium batteries, including: the General Motors EV-1 (LiON), the Tesla Roadster, and the Nissan Altra EV. These vehicles have mpg equivalents of 155, 160, and 123, respectively, and EERs of 6.2, 6.4, and 4.9, respectively.[9] Averaging these EERs together provides an EER of 5.83. Now we increase the efficiency of the gasoline reference vehicles by 30% (to reflect the Pavley regulations) using CARB staff technique of dividing the EER by 1.3, which results in an EER of 4.5.

CalETC believes this calculated EER of 4.5, is much more representative of the future purpose-built, LiON battery, BEVs that major automakers have announced and will soon bring to market. If ARB staff believes they need a margin of error until such time that we have data from the future OEM BEVs, CalETC would feel comfortable with an EER of 4.0 for BEVs.

C. Even if you were to use the data from the eight models of BEVs listed in CARB staff's October, 2008 Draft of the California Low-Carbon Fuel Standard Regulation (page 40), some of which used old, inefficient, and now out-of-date technologies and batteries – and you assume some modest improvements in the efficiency of BEVs in the future, along with 30% efficiency

[9] Mpg data from California Air Resources Board, Draft California Low Carbon Fuel Standard Regulation, October 2008, page 40. Gasoline reference vehicle to compute these EERs is 25 mpg, also taken from this document. If the gasoline reference vehicle mpg were increased to 30 mpg, the EERs for these vehicles would be 5.2, 5.3, and 4.1, respectively.

improvement in the gasoline reference vehicles (per Pavley) – you still get an EER for BEVs of 4.0 or higher.

In our November 14, 2008 written comments on the October Draft we noted that the mpg for the Gasoline Reference vehicles for the FCVs (30 mpg) was inadvertently used as the denominator for the BEVs; and that the mpg for the Gasoline Reference vehicles for the BEVs (25 mpg) was inadvertently used as the denominator the FCVs.

When you take the EV data from page 40 of the October Draft LCFS regs, which averages 122mpg, and then you correct the denominator (gasoline reference) from the 30 mpg which is for the FCVs (not the BEVs), and substitute the 25mpg gasoline reference for the BEVs, then you get an EER of 4.9.

Now, if we increase the mpg of the 25mpg car by 30%, it becomes 32.5mpg. So the EER is now 122/32.5 = 3.75 (not the 3.0 EER in the January Revision).

CalETC also argues that ARB should assume SOME increase in energy efficiency for the EVs during this time period. Many of the EVs on page 40 are not using lithium batteries, and many are just gasoline vehicles that have been converted to EVs, so they are not taking advantage of the benefits of a purpose-built EV that we expect from the OEMs in the future. The low mpg EVs included in the calculation on page 40 will never be seen or heard from again; they are outdated relics. And of course, there is much greater need and benefit from increasing the efficiency of EVs (vs. gasoline vehicles) because it directly increases vehicle range.

If the efficiency of the EV increased by only 10% during this period, the mpg would increase to 134mpg, which would result in an EER of 134/32.5 = 4.1. If the efficiency of the EV increased by 20% the EER would be 146/32.5 = 4.5. And if the efficiency increased by 30% the EER would be 158.6/32.5 = 4.88.

So again, CalETC believes this analysis supports a BEV EER of 4.0 or higher.

D. CalETC wants to note that the CEC used an EER for EVs of 4.1 in its Full Fuel Cycle Analysis for the AB 1007 Alt Fuels Plan (Jointly adopted by the CEC and ARB). This EER was fully vetted in public workshops and hearings. Further, the recent EPRI/NRDC study on the environmental impacts of PHEVs and EVs used an EER of 4.4. Lastly, the UC LCFS Team in its Technical Analysis used an EER of 5.0 to reflect their belief that EV vehicle efficiency would be significantly higher than from vehicles in the 1990's and early 2000's.

E. CalETC also commented on the December Draft Revisions to the EERs from the October Draft version.

The December Draft chose very different example vehicles, and different gasoline reference vehicles, as examples for the new EER calculations, which dramatically changed the results from the October Draft. The October Draft used three FCVs (2005 Ford Focus, 2005 F-Cell, 2005 Honda FCX) with a combined mpg of 56mpg. The December Draft did not use these earlier vehicle examples, and instead used only a Honda 2008 FCX Clarity with a combined mpg of 73.6

mpg. And the comparable Gasoline Reference vehicle in the December Draft is listed as a Honda Accord 2.4L with a combined mpg of only 24.8 mpg, instead of the three Gasoline Reference vehicles in the October Draft which had a combined mpg of 30 mpg. The impact of increasing the mpg of the example FCV and decreasing the mpg of the Gasoline Reference vehicle is to significantly increase the EER from the October Draft.

We do not know the rationale that ARB staff used in discarding the earlier example vehicles, and selecting just one vehicle (the best one) for the December Draft calculation. The rationale may be that FCV technology is improving, so it may make more sense to use the newer, more improved technologies as the reference example. If that is the rationale for the FCVs, then the same rationale should have been applied to the BEVs and PHEVs.

For the BEVs, in the December Draft, ARB staff did not choose the newer, more improved technologies, which use LiON batteries. Had staff used these vehicles, the EER calculation would have been that described in A above.

We also note that in the December Draft the BEVs get compared to gasoline vehicles (Toyota RAV4[10], Scion xB, and Chevy Malibu) that get 30mpg, but the FCVs get compared to a vehicle (Honda Accord) that only gets 24.8mpg. Again, this is the opposite of the October Draft Revision which was supposed to use 25mpg as the reference gasoline vehicle for BEVs, and 30mpg as the reference gasoline vehicle for the FCVs.

**In conclusion,** based upon the analysis explained above, CalETC recommends an EER of 4.0 for BEVs. We recommend that CARB establish this value for the 2010-2011 timeframe and update these values as additional information becomes available.

**Issue #8: CARB Should Establish an LCFS Credit Trading Forum.**

As a way to facilitate the development of ultra-low carbon transportation fuels, such as electricity and hydrogen, CARB should facilitate the trading of LCFS credits from these fuels by establishing an LCFS Credit Trading Forum. Such a forum would have several key functions, all either administered or overseen by CARB. First, it would maintain a posted list of LCFS credits for sale, with the asking price, but the identity of the seller would not be disclosed until after a sale was completed. At any time CARB could ask for verification of credits offered for sale. Second, CARB (or an independent 3rd party overseen by CARB) would act as an escrow agent between buyers and sellers of LCFS credits. Credit buyers would indicate to the escrow agent that they want to purchase a certain number of credits, and then transfer funds for the purchase to the escrow agent. The escrow agent would then pay the seller for the credits, and receive the title for the credits. Then the escrow agent would transfer the title for the credits to the buyer. Once the sale was complete, there would be complete disclosure of the transactions, including the identities of the

[10] We also note that the December Draft is using much higher mpg numbers for the gasoline RAV4 (31.3mpg) than the October Draft (23 mpg). A quick search on the internet confirms that the correct mpg for a 2003 RAV4 is 23mpg combined, see http://www.mpgfacts.com/?did=885&year=2003.

buyer and seller, the quantity of credits sold, and the price. CalETC believes a LCFS Credit Trading Forum such as the one described here will facilitate the growth of the LCFS market as envisioned in the Governor's executive order establishing the LCFS.

Thank you again for the opportunity to provide these comments. If CalETC or its members can provide any additional information or assistance please do not hesitate to contact me.