From: Edward Marek
To: ARB Clerk of the Board
Subject: Comment, Policy Recommendations to Increase the Use of Zero-Emission Vehicles per Senate Bill 498
Date: Tuesday, January 21, 2020 3:51:03 PM

Your docket system is not working. Please confirm receipt of the following comment:

I believe the draft assessment displays a fundamental lack of understanding of the future utility of BEVs, and the planning required for supportive infrastructure. In the assessment BEVs are regarded only as replacements for ICEVs, when in fact, their potential utility goes far beyond that provided by fossil fueled vehicles. The ability of BEVs to move electric energy over distances and time will, with proper planning and management, transform California's energy infrastructure. What is required are reliable BEV grid access sites available to both charge and discharge vehicle battery packs, which will allow BEVs superior capabilities to be fully utilized for grid stabilization, energy transmission (by road) and micro-grid applications, and in the process accelerate the retirement of ICEVs.

Unfortunately, California has created barriers to this objective by subsidizing and making regulatory demands to install discharge-incapable infrastructure, so-called L2 (AC) charge sites, and the relatively few DC charge sites installed in California have been uniformly unreliable by design. Public L2 sites are attractive nuisances in the sense that they can only be utilized by vehicles with on-board chargers. This has placed an entirely unnecessary added cost on all BEV buyers of one to two thousand dollars per BEV, costs which falls most heavily on low-priced BEVs, and the large proportion of potential BEV buyers lacking grid access where they park overnight, leaving the on-board charger essentially useless.

The superior alternative is to detach the chargers from the BEVs, and use the appropriate charger/discharger with the appropriate kW, to move those kW in the appropriate direction, at the appropriate location. Bi-directional DC energy transfer devices (both stationary and mobile) used at the locations of energy supply or demand, can service the BEV fleet far more efficiently than one-way on-board chargers with minuscule utilization rates, carried as useless dead weight and cost passengers for the vast majority of the time. Both private (home-based) and public DC charge/discharge sites (at commuter daily parking sites) will be of great benefit to stabilize California's peak daytime demand.

Of course, along long distance travel routes, BEVs will always require fast charge capability. For this purpose, L2 stations and on-board chargers are obviously inadequate. Unfortunately, common design errors have rendered public DC charging sites deficient as well. The primary Charge site design failure is in aping the operation of fossil-fuel pumps, completely ignoring the queuing requirements of BEV charge site customers. All public chargers in California today are designed to have their kW output limited by the charge rate of the single BEV plugged into them. This design error mandates that a BEV charging at a low kW rate effectively barricades all the additional kW available at the charger for all subsequent customers. The likely solution is to have each DC charger equipped with multiple access, metering and charge cables reaching multiple parking spaces. this will allow customers to plug in and enter the queue as they arrive, and use the remainder of a given charger's kW capacity, whenever the first-in-line and subsequent BEVs cannot accept the charger's maximum kW.

Thank you for your consideration of my comments.