May 24, 2019

California Air Resources Board
1001 I St.
Sacramento, CA 95814

Submitted via online portal

Re: SUPPORT for Proposed Zero-Emission Airport Shuttle Regulation 15-Day Modifications

The California Electric Transportation Coalition (CalETC) appreciates the opportunity to provide our support for the California Air Resources Board's (CARB's) Proposed Zero-Emission Airport Shuttle Regulation 15-Day Modifications.

CalETC supports and advocates for the transition to a zero-emission transportation future as a means to spur economic growth, fuel diversity and energy independence, ensure clean air, and combat climate change. CalETC is a non-profit association committed to the successful introduction and large-scale deployment of all forms of electric transportation including plug-in electric vehicles of all weight classes, transit buses, port electrification, off-road electric vehicles and equipment, and rail. Our board of directors includes Los Angeles Department of Water and Power, Pacific Gas and Electric, Sacramento Municipal Utility District, San Diego Gas and Electric, Southern California Edison, and the Southern California Public Power Authority. Our membership also includes major automakers, manufacturers of zero-emission trucks and buses, and other industry leaders supporting transportation electrification.

Transitioning the medium- and heavy-duty sectors to zero-emission technologies is and will continue to be a difficult task, requiring appropriate incentives and other policies. Transforming California's airport shuttle bus fleet to a zero-emission fleet will help accelerate the transition to zero-emission technologies in other segments of the medium- and heavy-duty transportation sectors to meet our air-quality, climate, and public-health goals.

CalETC supports the proposed Zero Emission Airport Shuttle Regulation achieving 100 percent zero-emission airport shuttle bus fleets in California by the end of 2035. The proposed regulatory timeline is conservative and allows for about seven years of planning and transition time before the first regulatory requirements kick in at the end of 2027. This schedule should encourage fleets to take advantage of both vehicle and infrastructure incentive opportunities in the interim. We believe that many fleets will be able to transition to zero-emission shuttles much faster than what is required by the regulation, but we also recognize the importance of allowing fleets to take advantage of incentives in the early years. We also support the anti-backsliding provision, requiring fleets to replace existing zero-emission shuttles with only zero-emission shuttles.

The proposed Zero-Emission Airport Shuttle Regulation will help the state reach its clean air and climate change goals. Zero-emission shuttles and buses utilizing electricity from today's grid will

yield a reduction in air-pollutant and greenhouse-gas emissions, as compared to diesel and compressed natural gas, whether conventional or renewable.[i] Electric heavy-duty vehicles are 93 percent cleaner on NOx than the cleanest natural-gas engines.[ii] And, based on recent data, electric trucks and buses emit 40% less GHG than their counterparts using renewable natural gas, using the statewide average carbon intensity (CI) of the grid.[iii] This number is even higher, when accounting for the CI of a particular region's electricity grid. For example, electric vehicles powered by Southern California Edison's grid are 57% less GHG-intensive than renewable natural gas.[iv]

In addition, utilities must derive 33 percent of their electricity from renewable sources by 2020, rising to 50 percent by 2030.[v] In 2016, California's three largest electric utilities collectively obtained 32.3 percent of their electricity from renewable resources, not including large hydropower or nuclear facilities.[vi] And, the three utilities' aggregated forecasts project that they will meet 50 percent by 2020, not including large hydropower or nuclear facilities.[vii] As the transportation sector transitions to zero-emission technologies, the grid is likewise transitioning to renewable energy sources. These combined efforts result in cleaner energy and cleaner transportation, if vehicles are being powered by the grid.

Although the proposed Zero-Emission Airport Shuttle Regulation affects only a portion of the state's fleet, we believe it is a necessary component of the state's clean-transportation plan. Transitioning California's airport shuttle fleets to zero-emission technologies will help the state meet its air-quality, climate, and public-health goals. In addition, the measure will give more Californians the opportunity to ride in a zero-emission vehicle and raise awareness about the benefits of these vehicles.

CalETC thanks CARB staff for their commitment to involve stakeholders throughout the development of the proposed regulatory concept. Thank you for your consideration of our comments. Please do not hesitate to contact me if you have any questions at hannah@caletc.com or (916) 551-1943.

Sincerely,

Hannah Goldsmith
Deputy Executive Director
California Electric Transportation Coalition

[i] Union of Concerned Scientists. *The Promises and Limits of Biomethane*. May 2017. Online at: https://www.ucsusa.org/biomethane-transportation#.WlUWG3lG2po. P. 4 ("…battery electric vehicles powered by today's grid provide 30 percent lower global warming emissions and 20 percent lower NOX emissions than low-NOX CNG vehicles fueled with biomethane from landfills."). See also: Union of Concerned Scientists and the Greenlining Institute. *Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California*. Updated 2017. Online at: https://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf.

[ii] 0.02 grams per brake horsepower-hour (g/bhp-hr) Low-NOx engine compared to in-basin upstream power emissions at 0.001343 g/bhp-hr. Specifics: Production simulation modeling for in and out-of-basin emissions by SCE resulted in 0.001801 grams per kilowatt hour (g/kWh) of NOx from electric generation in the South Coast Air Basin. At 1.341 horsepower per kWh, emissions from power plants resulting from EV charging would emit an equivalent of 0.001343 g/bhp-hr. The NOx value for electric vehicles in the rest of the state is likely to be even less than the number cited here for South Coast based on prior studies, and probably is conservative given the rest of the state has a lower percentage of in-basin NOx emitting power plants. From Southern California Edison's filing with the CPUC in support of 2017 Transportation Electrification Proposals, pg.59 (August 1, 2017). Online at: http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/649E8D79409814778825816F0081AB46/$FILE/A1701021-SCE-01A-%20Amended%20TE%20Testimony-Full%20Copy.pdf.

[iii] The final regulation order of the LCFS (https://www.arb.ca.gov/regact/2018/lcfs18/frolcfs.pdf?_ga=2.48961634.591313094.1548526138-1823936443.1523905092) has updated the energy efficiency ratio (EER) for heavy-duty battery-electric vehicles from 4.2 to 5.0 based on new data for battery electric trucks and buses. The carbon intensity of an electric truck or bus would be valued at 18.75 gCO2e/MJ. California average grid electricity supplied to electric vehicles: 93.75 gCO2e/MJ and Energy Economy Ratios (EER) for heavy-duty battery-electric vehicles: 5.0, 93.75/5.0 = 18.75 gCO2e/MJ. The claims of a preferable emissions profile of renewable natural gas to battery electric vehicles rely on sources other than landfill (wastewater, food/green waste, and dairy). Landfill sources have the highest emissions profile. See pg. 44, in study prepared for Clean Energy Fuels Corp. Online at: http://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1701020/690/192869841.pdf. Clean Energy Fuels Corp, the largest provider of natural gas fuel for transportation, recently stated that 100% of the gas sourced in their operations was from landfills with a carbon intensity of 31g CO2e/MJ. See pgs. 5 and 6. Online at: http://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1701021/929/196527036.pdf. SoCalGas's testimony at the CPUC proceeding to approve utility Transportation Electrification projects cited a study that showed that electric buses in fact have lower emissions than CNG buses. Additionally, SoCalGas could not determine where the biomethane injected onto its system was sourced. See pg. 8. Online at: http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/C16F7C9A602AEDF9882581FE00079997/$FILE/A1701020%20et%20al-SCE%20Reply%20Brief%20on%20the%20Standard%20Review%20TE%20Proposals.pdf. Emissions values cited are likely to be even higher as served fuels are mixed between fossil and biomethane sources.

[iv] Based on SCE's CO2e emissions from delivered electricity in 2016, 66.65 gCO2e/MJ, pg. A-31, http://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1806015/1620/219474631.pdf.

[v] Senate Bill 350: Clean Energy and Pollution Reduction Act (de León, Chapter 547, Statutes of 2015).

[vi] Dominic Fracassa, SF Gate. *California grid sets record, with 67% of power from renewables*. May 18, 2017. Online at: http://www.sfgate.com/business/article/State-breaks-another-renewable-energy-record-11156443.php.

[vii] California Public Utilities Commission. Renewables Portfolio Standard Annual Report. November 2017. Online at: http://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Utilities_and_Industries/Energy/Reports_and_White_Papers/Nov%202017%20-%20RPS%20Annual%20Report.pdf.