



Headquarters
730 Peachtree Street, Suite 760
Atlanta, GA 30308
P :: 678-244-4150 • F :: 678-244-4151

California Office
1960A University Avenue
Berkeley, CA 94704-1238
P :: 510-851-0625 • F :: 510-525-2231

September 17, 2018

Mary D. Nichols, Chair
California Air Resource Board
1001 I Street
Sacramento, CA 95814

RE: Proposed Innovative Clean Transit Rule

Dear Chair Nichols:

On behalf of the Center for Transportation and the Environment (CTE), we are writing to express CTE's overall support for the proposed Innovative Clean Transit Rule. In addition, CTE would like to express our appreciation to you and CARB staff for the significant time and attention on producing a plan that attempts to address the hurdles that transit operators will face in transitioning to a zero-emission fleet. However, there remain a few critical areas that the Board should consider amending in order to level the playing field for vehicle technology and to bridge the critical gap for infrastructure funding.

CTE is a member-based non-profit organization that fosters a collaborative process to advance clean, sustainable transportation and energy technologies. Our members include a coalition of industry leaders working toward the commercialization of zero-emission transit buses and trucks. We represent vehicle manufacturers, technology companies, fuel cell manufacturers, energy suppliers, research centers, universities, transit agencies, and non-profit organizations.

CTE has partnered with transit operators in developing zero emission transition plans, which the proposed ICT rule recognizes as a critical element in the transition process. In developing these plans, CTE builds a model using real-world route data and simulates bus performance in order to aid operational decisions, and vehicle technology decisions. In addition, CTE works with the transit agency and local utility providers to determine utility rate schedules that would be the most appropriate for the type of charging that the transit agency will use in their deployment, as well as the feasibility of using hydrogen as the energy source. We are presently under contract with the Alameda-Contra Costa Transit District, the San Diego Metropolitan Transit System, and the Shasta Regional Transportation Agency to assist these agencies in developing their plans. We were recently selected by LA Metro to partner with WSP consulting to develop a zero-emission roadmap for Metro and expect to be under contract within the next 30 to 60 days.

The development of these transition plans has highlighted a few areas that CTE urges CARB to address in the ICT rulemaking process.

- While the reliance on the Hybrid and Zero-Emission Truck & Bus Voucher (HVIP) as incentive funding for vehicle purchases is a viable option, CTE's experience in developing rollout plans has highlighted the need for infrastructure funding. Developing scalable infrastructure to charge/fuel a large fleet of zero-emission buses is a daunting technological challenge, but an even bigger fiscal challenge. This is particularly the case as it relates to building hydrogen fueling stations, which typically are more expensive for small-scale deployments, but prove to be very scalable and cost effective in support of 25 or more buses. Regardless of the technology, funding to address fueling and maintenance facility needs will grow as operators

transition to zero-emission technologies. The lack of a funding source will impede transit operators' ability to adhere to the purchase mandate timelines.

- Scalability of zero-emission bus technology is also a concern. The ICT Rule proposes a fairly aggressive transition based on mandating the purchase of zero-emission vehicles. CTE strongly believes that the transition process should incorporate large-scale pilot projects. Pilot projects would not only drive down vehicle costs, particularly for hydrogen fuel cell buses, but provide valuable data on the scalability of battery-electric and fuel cell electric fleets.
- There is a steep learning curve for transit agency staff, who may be unfamiliar with high-voltage and high-pressure systems and advanced electric-drive propulsion systems. Integrating new and complex technologies seamlessly and successfully in order to ensure the compatibility of buses, fueling stations, and where necessary, safety upgrades to maintenance facilities, is critically important. Funding for Project Management and training activities associated with pilot projects is essential.
- While there continues to be a need for pilot projects in order to accelerate the transition to zero-emission buses, the use of the HVIP voucher program includes restrictions that should be addressed. CTE urges CARB to allow multiple operators to submit a single application for vehicle vouchers. These consortium purchases would provide greater volumes and certainty to bus manufacturers that would result in lower vehicle prices.
- The HVIP program as presently configured, also needs to maintain additional incentives associated with fuel cell electric and hydrogen fueling technologies until sufficient volumes of production enable price parity with battery-electric buses. We will need **both** electric-drive technologies to meet the state's emission and carbon reduction goals, while also ensuring that transit agencies will be able to fulfill their operating and service requirements.

CTE supports the goal of transitioning to zero-emission bus fleets. The advancements made in zero-emission bus technology have demonstrated that this goal is possible, but we must proceed with caution since questions remain on scalability, funding, and technology readiness. In addition, the regulation should not result in a transit operator having to decide between service to the public and compliance with a regulation. On behalf of CTE members, thank you for your favorable consideration of our comments.

Sincerely,



Dan Raudebaugh
Executive Director



Jaimie Levin
Director of West Coast Office