

April 30, 2018

California Air Resources Board, Members
1001 I Street
Sacramento, CA 95814

RE: Update on Innovative Clean Transit Discussion Document

Chair Nichols and Members of the California Air Resources Board:

On behalf of the California Transit Association, I submit the following comments in response to the "Update on Innovative Clean Transit Discussion Document," (Update) released March 27, 2018.

Our membership, comprised of more than 80 transit agencies, greatly appreciates the various forums ARB has sponsored to-date to allow our industry to voice its concerns with the regulatory concept first proposed in the "Innovative Clean Transit Regulation Discussion Document," (Discussion Document) released December 12, 2017. These forums include: a Regulatory Workshop, held December 15, 2017; and, a Transit Agency Subcommittee meeting, held January 28, 2018. Additionally, we thank ARB staff for their openness to meeting with us separately to discuss the merits and viability of the draft counterproposal we shared electronically on March 5, 2018 (see Attachment A), which would: require each transit agency in the state to develop and submit an individualized zero-emission bus (ZEB) deployment plan to ARB by 2020; and, guarantee that all standard transit buses in active operation in California are zero-emission by 2040.

We appreciate that the Update seeks comment on several provisions of the Innovative Clean Transit regulatory concept that the Association has long-deemed onerous or problematic for our transit agency members. We thank you for recognizing the importance of getting these provisions right for California's transit agencies and the riders who rely on their service; and, we look forward to continuing to work with you to construct a ZEB rule that is workable for all parties.

Regulation Starting Date: The Association and its members continue to believe that a purchase mandate, regardless of its start date, is the wrong approach for facilitating a statewide transition to ZEB technologies. As we have asserted many times before, every transit agency in the state operates under vastly different constraints, with unique operational needs, varied financial positions and different fleet compositions; therefore, necessitating regulatory flexibility and the opportunity to develop an individualized plan for introducing ZEB technology.

In our comments to the Discussion Document, submitted to you on January 22, 2018, we attempted to distill our position and present a workable path forward by stipulating that the transition to ZEBs should be done:

- **“Methodically**, with full consideration of, and clear solutions to, barriers outside the control of transit agencies (e.g. the high upfront capital costs of zero-emission buses and charging infrastructure, the excessive costs of electricity relative to conventional fuels, and the untallied costs of retraining maintenance workers and bus operators);
- **Iteratively**, evaluating cost and operational data as it is collected from real-world ZEB deployments as well as changing funding landscapes, and allowing for adjustments to long-term targets based on budgetary, operational and technology feasibility; and,
- **In a Manner That Retains Local Decision-Making** to allow the public servants who manage and operate our transit agencies to make operational investments and procurement decisions that avoid the operational impacts that could result from an overly-prescriptive and forced transition to ZEB technology.”

At the urging of our members, the Association has developed a counterproposal that fully adheres to the principles outlined above. In developing this counterproposal, the Association very consciously worked to address the calls of ARB and other stakeholders to facilitate early actions, guarantee ZEB deployments, and secure measurable emission reductions.

The Association’s counterproposal would:

- **Require each transit agency in the state to develop and submit an initial zero-emission bus deployment plan to ARB by 2020** outlining how they will transition to a fully zero-emission standard transit bus fleet by 2040;
- **Fund early deployments of ZEBs in disadvantaged communities (DACs), state and federal non-attainment areas of the state, and for transit agencies that demonstrate an expertise in ZEB technologies, beginning in 2020; and,**
- **Commit each transit agency to operating standard transit bus fleets that are 100% zero-emission by 2040, provided barriers to ZEB deployment – such as ZEB cost and performance, high electricity rates, weight, infrastructure availability and funding – have been resolved.**

The plan would authorize ARB to impose an individualized purchase mandate on transit agencies that fail to meet the ZEB deployment targets, beginning in 2025, if those same barriers are resolved.

We believe our counterproposal offers a more appropriate approach to facilitating a statewide transition to ZEB technologies, because unlike an across-the-board purchase mandate, it does not treat all agencies equally. Instead, it recognizes that agencies are operating under different constraints, and allows agencies to contemplate and plan for important considerations that are often lost on organizations that have never overseen the implementation of a bus project. These considerations include an agency’s financial position, its operational and infrastructural needs, its planned procurement schedule, its depot configuration and its ability to develop and secure a workforce capable of operating and maintaining new technology. Additionally, our counterproposal allows agencies to develop ZEB deployment plans that, unlike a purchase mandate, acknowledge and support various other mandates, including the federal asset management requirement, ADA paratransit service and an agency’s emergency response functions.

Taken as a whole, our counterproposal will drive ZEB deployments and measurable emission reductions that are consistent with the ARB’s objectives. To provide assurance that these outcomes will

be met, our counterproposal allows ARB to impose an individualized purchase mandate on a transit agency, beginning in 2025, if it fails to meet its ZEB deployment targets.

Finally, our counterproposal, by proposing preferential incentive funding for early deployments of ZEBs in DACs and/or non-attainment areas, and/or for those agencies that are already experimenting with operating this technology, ensures that the communities most in need of clean air and access to zero-emission transportation are first in line for ZEB deployments.

With our counterproposal, we endeavored to develop a proposal that is workable for transit agencies from the start; instead of one where off-ramps and one-off considerations are essential to making an inherently inflexible ZEB purchase mandate flexible enough to work in *almost* any circumstance.

Recommendation: We urge ARB to adopt the Association's counterproposal in full. The counterproposal would: substitute the proposed ZEB purchase mandate with a mandate that each transit agency in the state develop and submit a ZEB deployment plan to ARB by 2020; and, fund the deployment of ZEBs in disadvantaged communities, state and federal non-attainment areas of the state, and/or at transit agencies with experience in the deployment of ZEBs. These provisions combined would allow for a regulation starting date of 2020.

Please see Attachment A for more details on the Association's counterproposal.

Role of Incentives: Several transit agencies in the state, representing approximately 25% of California's entire transit bus fleet, have committed to operating 100% ZEB fleets by 2040 or sooner. These same agencies are now procuring and deploying ZEBs, consistent with these long-term targets, *as funding, infrastructure buildout, and technology allow*; many more agencies are seeking and securing state and/or federal funding to launch their own ZEB pilot projects that will inform their long-range fleet planning.

Some stakeholders have observed this progress and have concluded that the time is right to institute a ZEB purchase mandate that would, by design, limit access to incentive funding. The purported logic behind this position is that, only by compelling the purchase of ZEBs and reserving incentive funding for the most able ZEB adopters – i.e. those agencies that can go above and beyond the regulatory requirements ARB sets – will the state guarantee its ZEB deployment targets are met. Additionally, we know of at least one prominent environmental organization that has told members of the Legislature that limiting access to incentive funding, as described, is a non-matter for transit agencies, because they could simply rush to make procurements the month, week or day before a purchase mandate goes into effect to secure incentive funding. We disagree on the logic and question what environmental benefit is provided by this approach.

Instead, we maintain that the progress seen to-date is illustrative of the significant uptake of ZEB technology that is possible when agencies develop thoughtful plans for ZEB deployment; can identify and address agency-specific barriers to electrification and/or hydrogen access, without regard to centrally-mandated ZEB deployment schedules; and, have access to **reliable funding streams – free of arbitrary limits or barriers** – that offset the upfront cost of ZEBs relative to conventional technologies.

We assert that the state's experience with ZEB deployments – i.e. 450 ZEBs now operating, or on order, all purchased with the help of state and/or federal incentives – and the role that robust transit service **must** play in reducing emissions from the transportation sector suggests that the state should

remove all barriers to transit agencies accessing incentive funding for the foreseeable future and fully fund the transition to ZEBs, even if that requires directly funding regulatory compliance.

As you evaluate this request, which breaks from board policy that establishes a principle of “polluter pays [for regulatory compliance]”, we remind you that transit agencies are unique as regulated entities in that they are not private sector companies that produce pollution to create profit. Rather, transit agencies are public entities that rely almost exclusively on public funding – i.e. state and federal formula funding and competitive grants, and fares – to provide essential mobility options to millions of Californians, including those who are transit dependent. We believe strongly that to extend the principle of “polluter pays” to resource-constrained transit agencies is to cosign on a ZEB deployment strategy that deliberately okays the diversion of funding from transit service, state of good repair, other capital projects or from transit riders via higher fares, when the Legislature has already provided ARB with funding to support the purchase of cleaner buses.

Our counterproposal would: require transit agencies to develop ZEB deployment plans detailing their individualized strategy for introducing ZEBs and attaining a 100% ZEB fleet; and, charge ARB with converting incentive funding into dedicated funding to offset the upfront cost of ZEBs relative to conventional technologies, to be made available to transit agencies as they are ready to deploy ZEBs.

Recommendation: We urge ARB to adopt the Association’s counterproposal in full. The counterproposal would charge ARB with identifying dedicated funding to offset the upfront cost of ZEBs relative to conventional technologies, to be made available to transit agencies as they are ready to deploy ZEBs, regardless of the final framework of the ZEB rule.

Please see Attachment A for more details on the Association’s counterproposal.

Overall Cost: The Association has long-contested the findings of ARB’s Total-Cost-of-Ownership model, which we believe understates the cost of a statewide transition to a 100% ZEB fleet. We would argue that, even if you dismiss the findings of the ARB-convened Lifecycle Cost Modeling Subgroup, it should be compelling that the transit agencies across the state are reporting to us – and to ARB staff – that the cost of operating ZEBs is currently significantly higher than operating conventionally-fueled buses. This feedback includes observations from several transit agencies operating some of the most battery-electric transit bus miles anywhere in the country that the cost of electricity as a fuel can be 40% to 2x higher than compressed natural gas and diesel, respectively. Reports from King County METRO in Seattle, Washington suggest that the experience of these California agencies is not an anomaly.

After close to three years of in-depth debate about this issue, we acknowledge that our members, ARB and the various other stakeholder involved may never be at full agreement on the total cost of the ZEB rule. Rather than allow this divide to continue to thwart the rulemaking process, we have developed a counterproposal, which attempts to manage the risks inherent in any modeling effort that guides capital expenditures – including this costing exercise – by committing transit agencies to carrying out ambitious ZEB deployment plans, provided mutually agreed to cost, performance, and funding benchmarks are met. These benchmarks, which would be informed by ARB’s cost model assumptions and findings would roughly establish that: ZEB cost will continue to fall, reaching parity with conventionally-fueled technologies; ZEB performance and reliability will continue to improve, bringing ZEBs in alignment with conventionally-fueled technologies; funding and offset programs will remain robust; and, that ZEBs will prove cheaper to operate than conventionally-fueled technologies.

While you review our counterproposal, we urge ARB to release an addendum to its existing cost model that more directly acknowledges and communicates the uncertainty inherent in any modeling exercise by presenting a cost range for the regulation. As currently presented and often discussed, the model assumes favorable inputs across several important cost drivers, which result in a total cost of the regulation that is lower than the business-as-usual case. While ARB's model is manipulatable, allowing a user to conduct their own assessment of the cost range of the regulation, we believe this level of transparency should be central to ARB's discussion of the ZEB rule, not a buried feature of its cost model. Additionally, we urge ARB to better highlight how changes in key inputs drive changes in the cost projections, particularly for the early years of the regulation when the cost of transitioning to ZEBs is expected to be highest.

Recommendation: We urge ARB to adopt the Association's counterproposal in full. The counterproposal would help manage the risk inherent in our collective cost modeling efforts.

Please see Attachment A for more details on the Association's counterproposal.

Cutaways and Non-Standard Buses: The Association raised concerns about the application of the regulatory concept to cutaway buses in our comments to the Discussion Document, submitted January 22, 2018.

At the time, we argued that "Battery-electric cutaway buses are a nascent technology and, to the best of our knowledge, have not yet been approved for purchase with federal funding. Cutaway buses are critical to providing service in low-density rural areas and to persons with who qualify for paratransit service under the Americans with Disabilities Act. Additionally, unlike fixed route operations, FTA regulates the paratransit operating environment providing explicit requirements for pick up windows, denial of service as well as acceptable travel times. In the dynamic operating environment of paratransit services these unproven new buses could result in unintended violations of ADA law."

For that reason, we are generally pleased with the findings of the Update that "the priority [of the ZEB rule] should be to focus near term electrification efforts on larger buses that are already available from multiple manufacturers." However, based on feedback from our membership, we believe this near-term exemption should also be extended to over-the-road coaches which, like cutaway buses, are a nascent technology with limited real-world demonstrations.

Recommendation: We urge ARB to adopt the Association's counterproposal in full. The counterproposal would apply only to standard transit buses above 26,000 lbs. gross vehicle weight, and would defer its applicability to cutaway buses and over-the-road coaches until 2030. In 2030, ARB would commission an independent and/or peer-reviewed analysis of the cost and performance of these technologies, and ensure their viability in transit operations, before considering their inclusion in the ZEB rule.

Additionally, we urge ARB to guarantee that the ZEB rule will not require electric trolley buses to be converted to battery-electric or hydrogen fuel cell technologies.

Please see Attachment A for more details on the Association's counterproposal.

Regulatory Assessments: In March 2017, ARB Executive Staff engaged us on the possibility of an alternative path to facilitating a statewide transition to a 100% ZEB fleet, known then as the Memorandum of Understanding (MOU) approach.

During the MOU conversations, the Association proposed that the approach include a regulatory assessment. Within that context, the regulatory assessment was to serve as a risk management strategy for transit agencies and the state against a future that offers uncertainty on ZEB cost and performance, the cost of electricity as a fuel, vehicle weight, infrastructure availability and funding. While the regulatory concept currently under consideration has transformed into a more straightforward rulemaking, these uncertainties and associated risks continue to hold true, underscoring the criticality of this provision to the viability of the ZEB rule.

Our counterproposal would create the foundation and an actionable framework for impartial regulatory assessments by first requiring ARB in 2018 to establish benchmarks for future ZEB cost and performance relative to non-ZEB cost and performance, as well as for the cost of electricity as a fuel, vehicle weight, infrastructure availability and funding. This concept was drawn from the years of ARB work regulating various aspects of combustion engine emissions requirements. The Association is requesting the ARB follow this long-standing practice and in so doing, create an environment where manufacturers must achieve critical benchmarks, ultimately to assure air quality. This provision asks ARB staff to identify the assumptions and projections they are relying on today to guarantee to you, transit agencies and the public that the transition to a 100% ZEB fleet is achievable. The counterproposal would then, in 2023 and every two years thereafter, require ARB to initiate an independent and/or peer-reviewed analysis of these benchmarks against real-world data. Finally, in 2025 and every two years thereafter, ARB would require transit agencies to submit evidence of progress relative to the ZEB deployment plans these agencies established in 2020. If ARB finds that expected costs, performance, infrastructure availability and weight benchmarks are being met in the real world, adequate funding is available statewide (and to the transit agency, specifically), but, also that an agency has failed to make appropriate progress to reach its 2030 ZEB deployment target and/or a fully ZEB fleet by 2040, as outlined in accordance with its ZEB deployment plan, ARB could then institute a purchase mandate for that agency to ensure its targets are met. These provisions, combined, would guarantee that, if these cost, performance, infrastructure availability, weight and funding benchmarks are being met, transit agencies will meet their ZEB deployment targets. Conversely, if these benchmarks are not being met, transit agencies would be provided with additional flexibility in the form of an off-ramp from a strict purchase mandate.

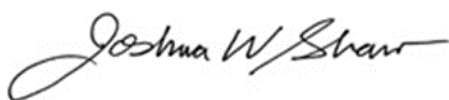
Recommendation: We urge ARB to adopt the Association's counterproposal in full. The counterproposal would create the foundation and an actionable framework for impartial regulatory assessments.

Please see Attachment A for more details on the Association's counterproposal.

Thank you for this opportunity to comment.

Please contact Legislative and Regulatory Advocate Michael Pimentel at 916-446-4656 or at michael@caltransit.org, if you have any questions or comments about the Association's feedback on this regulatory concept.

Sincerely,



Joshua W. Shaw
Executive Director

cc: Kim Craig, Deputy Cabinet Secretary, Office of Governor Edmund G. Brown, Jr.
Alice Reynolds, Senior Advisor, Office of Governor Edmund G. Brown, Jr.
Richard Corey, Executive Officer, California Air Resources Board
Steve Cliff, Deputy Executive Office, California Air Resources Board
Jack Kitowski, Chief, Mobile Source Control Division, California Air Resources Board
Tony Brasil, Branch Chief, Heavy Duty Diesel Implementation Branch, California Air Resources Board
Shirin Barfjani, Air Pollution Specialist, Mobile Source Control Division, California Air Resources Board
Yachun Chow, Manager, Zero Emission Bus Truck and Bus Section, California Air Resources Board
Jennifer Lee, Mobile Source Control Division, California Air Resources Board
Members, Executive Committee, California Transit Association
Members, Zero Emission Bus Task Force, California Transit Association

California Transit Association's INITIAL DRAFT Zero-Emission Bus Deployment Proposal

Highlights:

The California Air Resources Board (ARB) shall, in 2018, adopt a regulation containing the following elements –

- All transit agencies operating in California are required to transition their standard transit bus fleets to 100% zero-emission by 2040
- The ARB, working alongside transit agencies, directs initial funding to deploy zero-emission buses (ZEBs) (equal in # to the ZEBs that would have been purchased under the draft ICT mandate, from 2020-2023) in disadvantaged communities, state or federal non-attainment areas of the state, and/or, transit agencies with experience in the deployment of ZEBs and the potential to demonstrate the scalability of the technology
 - This ensures communities most impacted by poor air quality, and agencies with the dirtiest fleets, are first in line for ZEB deployments
- By 2020, each transit agency is required to develop and submit an individualized ZEB deployment plan to ARB that details its strategy for reaching 2030 and 2040 ZEB deployment targets (with the 2040 target required to be 100% zero-emission)
 - This approach provides transit agencies with the opportunity to plan for their transition to a ZEB fleet, similar to LA Metro in their [Strategic Plan for Metro's Transition to Zero-Emission Buses, adopted October 2017](#) and King County METRO (Seattle) in their [Feasibility of Achieving a Carbon-Neutral or Zero-Emission Fleet, finalized March 2017](#)
- ARB monitors each transit agency's progress toward fulfilling its ZEB deployment plan, and may impose an agency-level purchase mandate, under specified conditions beginning 2025, ensuring the 2040 ZEB deployment target is met

To reach these goals, each transit agency shall:

1. Beginning 2018, apply for funding to support the guaranteed deployment of approximately 350 ZEBs throughout the state from 2020 to 2023, consistent with the estimated deployment of ZEBs under the draft ICT's proposed purchase mandate in this timeframe
 - Access to funding shall be made available first and foremost, and with equal consideration, to: transit agencies serving disadvantaged communities and/ or state- or federally-designated non-attainment areas of the state; and/or, transit agencies with experience in the deployment of ZEBs and the potential to demonstrate the scalability of the technology
 - This preference for disadvantaged communities and/or state- or federally-designated non-attainment areas of the state, and transit agencies with experience in the deployment of ZEBs shall end in 2023
 - Wherein "funding" means: for the *incremental additional cost* of ZEB technology compared to available baseline non-ZEB technology
 - Wherein "funding" means: VW settlement funding or other new sources, and does not mean the redirection of, or the application of new requirements to, the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), Transit and Intercity Rail Capital Program (TIRCP) or Low Carbon Transit Operations Program (LCTOP)
2. By 2020, develop and submit an initial ZEB deployment plan to ARB that details its individualized strategy for reaching its 2030 ZEB deployment target, and, a fully zero-emission fleet by 2040

California Transit Association's INITIAL DRAFT Zero-Emission Bus Deployment Proposal

- This plan shall be updated in 2022 and 2024, and as necessary, to incorporate lessons learned from the targeted early deployments supported by this proposal
- 3. Beginning 2021, submit data annually to ARB on ZEB deployments and purchases, as well as ZEB cost and performance
 - By 2019, transit agencies shall work with ARB to define the data and metrics necessary for reporting costs and performance, as well as the procedures for submitting the data to ARB, so ARB is able to measure agency performance against the benchmarks called for in number 5, below

To ensure progress toward these goals, ARB shall:

- 4. In 2018, estimate the through-2023 incremental additional cost to transit agencies of the regulation, and develop and secure a 5-year funding plan (covering 2018-2023) necessary to deploy approximately 350 ZEBs plus charging infrastructure from 2020 to 2023
 - Wherein “funding” means: for the *incremental additional cost* of ZEB technology compared to available baseline non-ZEB technology
 - Wherein “funding” means: VW settlement funding or other new sources, but does not mean the redirection of, or the application of new requirements to, HVIP, TIRCP or LCTOP
- 5. In 2018, establish, in coordination with transit agencies and manufacturers, benchmarks for future ZEB cost (including purchase costs for battery electric and hydrogen fuel cell, and, electricity rates and hydrogen fuel), performance and weight, compared to future non-ZEB vehicle cost, performance and weight (i.e. so any remaining incremental additional cost increase of ZEBs above the baseline cost for non-ZEBs can be identified)
- 6. In 2018, adopt a commitment to require interoperability between the ZEBs and charging infrastructure offered by different manufacturers
 - The specific standards and protocols for interoperability shall be developed by ARB, transit agencies and manufacturers, in coordination with academic experts
 - Interoperability shall include depot charging infrastructure, including overhead charging, and in-ground inductive charging
- 7. Beginning 2021, monitor the compliance of each transit agency with its ZEB deployment plan
- 8. In 2023 and every two years thereafter, initiate an independent and/ or peer-reviewed analysis of key measures, including, but not limited to:
 - The status of statewide ZEB deployment relative to statewide goals
 - Bus technology, including upfront capital costs (i.e. ZEB, charging and refueling infrastructure and necessary utility upgrades), total cost of ownership (i.e. upfront capital costs, operational costs and maintenance costs), battery density (BEB)/range, battery degradation, operational performance, weight, relevant advances and market availability
 - These measures will be compared against benchmarks established in the initial rulemaking process (see number 5, above)
 - Barriers to electrification, including funding, infrastructure and utility rates
 - These measures will be compared against benchmarks established in the initial rulemaking process (see number 5, above)

California Transit Association's INITIAL DRAFT Zero-Emission Bus Deployment Proposal

9. In 2023 and every two years thereafter, report to the Board on the findings of the report, as part of a public hearing
 - o The Board may alter the regulation based on report findings
10. Subject to the independent/peer-reviewed findings, in 2025 and every two years thereafter, if ARB finds that expected costs, performance and weight benchmarks are being met, adequate funding is available statewide (and to the transit agency, specifically), but, an agency has nonetheless not yet made appropriate progress to reach its 2030 ZEB deployment target and/ or a fully zero-emission fleet by 2040, as outlined in accordance with its ZEB deployment plan, ARB shall institute a purchase mandate for that agency to ensure these targets are met

Other provisions:

Funding

- All current funding programs shall continue, pending appropriation, to provide financial support to transit agencies for ZEB purchases
- Utilities shall be wholly responsible for upgrading and providing sufficient electricity to transit agencies to begin deployments in 2020 and to achieve 100% deployment in 2040; where practical, transit agencies may explore private sector solutions to address infrastructure needs
 - o Electric companies shall not charge transit agencies for such upgraded services

Vehicle Specifications

- The regulation shall apply only to standard transit buses above 26,000 lbs. gross vehicle weight (GVW), and shall defer its applicability to cutaways and over-the-road coaches
 - o Applicability to cutaways and over-the-road coaches shall be revisited in 2030
- The regulation shall not require turnover of electric trolley buses to battery-electric or hydrogen fuel cell
- A ZEB shall be considered commercially available only if it meets the curb weight schedule established by current law
- All transit agencies operating in state- or federally-designated non-attainment areas shall purchase low NOx engines, if available, at the time of otherwise-allowable conventional standard bus purchase
- For otherwise-allowable conventional bus purchases, all transit agencies must purchase renewable fuels when diesel or natural gas contracts are renewed, pending availability

Compliance

- Maintains the ability for transit agencies to submit a joint-compliance plan (i.e. as in the draft ICT)
- Maintains credit for innovative mobility options, which must be approved the ARB Executive Officer (i.e. as in the draft ICT)
- Maintains the ability for the ARB Executive Officer to provide flexibility to a transit agency encountering an agency-specific challenge (i.e. as in in the draft ICT)