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Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Proposed Innovative Clean Transit Rule

Dear Chair Nichols and Members of the Governing Board,

Clean Energy continues to hold real concerns over the proposed Innovative Clean Transit (ICT) rulemaking. While it is evident that the Air Resources Board (ARB) staff is determined to move aggressively toward a zero-emission ICT rulemaking, we and many other transit property stakeholders maintain our position that the staff analysis supporting the rule is overly optimistic and underestimates the potential public health, societal, and economic costs that could result from faulty analysis. Compounding the pain, the ICT does not have adequate benchmarking and regulatory assessment mechanisms to ensure transit properties up and down the state have the flexibility to successfully operate and fulfill their mission of transporting people for work, school, health or leisure. Further, we find the proposed ICT to be devoid of its obligation under Government Code Section 11346.5(D)(13) to fully consider alternatives to ZEBs.

Clean Energy strongly encourages ARB's Governing Board to direct staff to perform a alternatives analysis prior to rule adoption. Further, Clean Energy urges the Governing Board to require a regulatory assessment with benchmarks prior to any ZEB purchase requirement. The Governing Board should, at the very least, give itself the authority to scale back the rule if ARB staff's ZEB projections on cost, operational reliability and technology readiness fall short. Further, the Governing Board should ensure that transit properties are resilient during a state-of-emergency and allow transit properties to meet their ZEB purchase requirements with near zero emission strategies powered by renewable fuels if ZEB strategies fail to meet key benchmarks required for full ZEB adoption.

Reasonable Alternatives Not Considered

ARB is required to examine alternatives to a proposed regulation under Government Code Section 11346.5(D)(13) which reads as follows:

"A statement that the adopting agency must determine that no reasonable alternative considered by the agency or that has otherwise been identified and brought to the attention of the agency would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would

be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.” (emphasis added)

ARB staff chose not to fully examine both zero and near-zero emission alternatives by stating in the ISOR that “no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the authorizing law.” However, LA County Metro performed a comparative study on zero and near-zero emission technologies which found that near-zero emission technologies fueled by renewable natural gas would be more effective at reducing emissions and at a much lower cost to implement. Since ARB opted not to fully evaluate all viable alternatives Clean Energy recommends that ARB conduct a thorough alternatives analysis for the proposed ICT prior to its adoption to comply with existing law.

As stated above, LA Metro conducted a study to compare the zero and near-zero emission alternatives. The study, commissioned by a transit agency, found that near-zero technologies with RNG would be more effective at reducing emissions and less expensive. However, the ISOR states “...no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the authorizing law.” In other words, ARB did not fully examine reasonable alternatives and therefore did not fulfill its obligation under Government Code Section 11346.5(D)(13).

Clean Energy recommends that ARB conduct a thorough alternatives analysis for the proposed ICT prior to its adoption to comply with existing law.

Require Benchmarking and Regulatory Assessment to balance Optimistic Technology and Cost Projections

ARB’s assessments of zero emission bus (ZEB) technology and costs remain overly optimistic. While it is evident that ZEB technology has evolved since the first adoption of ARB’s first transit bus rule, today’s ZEB technology still cannot meet the operational and performance needs of most transit agencies, large or small, and there is still much room for improvement before we should consider them fully commercial. In fact, most of the focus on the number of agencies adopting ZEBs into their fleets or the number of ZEBs purchased is more reflective of transit agencies willing to test out the technology based on the very generous incentives that have been provided by the State of California. Such statistics that are being showcased throughout the staff report should not be construed as either complete acceptance of the technology, a testament that the technology works for each agency, or that such purchases are anything more than a demonstration project. ARB’s governing board should not overly misconstrue the true meaning of a transit’s willingness to test out ZEB strategies.

Further, ARB’s cost estimates are substantially below most transit industry expert’s estimates. Assumptions that ZEB can eventually replace conventional buses on a 1:1 basis and ZEB life cycle operational costs could be discounted by as much as 25 percent within the next decade are speculative. In fact, ARB’s cost model does not fully account for electrical charging systems. The California Transit Association estimates statewide costs for such infrastructure could be as much as \$10 billion more than ARB’s estimate. Further, ARB’s cost model does not contemplate

resiliency planning that will be necessary for state of emergency scenarios. Not only can forecasts mislead ARB's Governing Board about the true capital cost of the ICT, a decision to move the rule forward without accurate projections could result in the rule's failure to protect the health of the public, our state's transit agencies, and regional mobility throughout California. The negative outcome could be further compounded if there are no meaningful offramps for transit agencies to access.

The ICT's overly aggressive electrification goals combined with overly optimistic technology advancement and cost projections demand that the ARB Governing Board include a regulatory assessment that evaluates real-world ZEB costs and performance with benchmarks for ZEB cost and performance established at the time of rule adoption. Further, this regulatory assessment should occur before the ZEB purchase requirement goes into effect and should allow the Board to issue an across-the-board suspension of the ZEB purchase requirement, much like the original Transit Fleet Rule did, if real-world EB costs and performance is not yet at parity with the cost and performance of conventionally-fueled transit buses. Further, this safeguard should be in addition to the case-by-case, agency-by-agency, ARB Executive Officer-approved off-ramps from the ZEB purchase requirement discussed under the ICT's *"Deferral for ZEB Purchase Requirement."*

No Resiliency Considerations during a State of Emergency

The proposed ICT rule does not consider how a "ZEB-only" transit fleet could impact California's ability to respond to a state of emergency caused by a natural disaster or a cyber-attack on the electrical grid. The news media has recently covered how our current building codes in California may be insufficient for major earthquakes due to a modeling issue.¹ This discovery created so much concern that Assembly Member Nazarian proposed legislation that would update California's building codes.² Even as Hurricane Florence hits the Carolinas, many residents and commercial businesses lost electrical power just like those hit by Hurricane Katrina along the Gulf Coast or in Puerto Rico with Hurricane Irma.³

In terms of cyberattacks, Russia and China are at the top of the Pentagon's list as cyber threats to the country. In fact, American intelligence agencies have identified cyberthreats as the No. 1 risk facing the United States — it has ranked ahead of terrorism for years now in the annual assessment provided to Congress, even before the Russian intrusion into the election.⁴ In March of this year, the US government released a security alert that claimed Russian hackers sought to

¹ See *"A Seismic Change in Predicting How Earthquakes Will Shake Tall Buildings"* <https://www.nytimes.com/2018/06/27/us/california-earthquakes-building-safety.html> or *"At Risk in a Big Quake: 39 of San Francisco's Top High Rises"* <https://www.nytimes.com/2018/06/14/us/california-earthquakes-high-rises.html>

² See *"California Today: How Much Is a Safe Building Worth?"* <https://www.nytimes.com/2018/07/06/us/california-today-earthquakes-vulnerable-buildings.html>

³ See *"Factbox: More Than 870,000 Without Power as Florence Looms Inland"* <https://www.nytimes.com/reuters/2018/09/15/us/15reuters-storm-florence-outages-factbox.html>

⁴ See *"Pentagon Puts Cyberwarriors on the Offensive, Increasing the Risk of Conflict"* <https://www.nytimes.com/2018/06/17/us/politics/cyber-command-trump.html>

penetrate multiple U.S. critical infrastructure sectors, including **energy**, nuclear, commercial facilities, water, aviation, and manufacturing.⁵

While we expect natural disasters to eventually occur and accept that there are no guarantees that all future cyber-attacks will be prevented, transit fleets often play a critical role in mobilizing the public so that they can evacuate areas that have been hit hard by hurricanes, wildfires, floods and earthquakes. In many cases, these natural disasters have wreaked havoc on electrical power systems that disable both electrical and diesel transit bus platforms. Meanwhile, natural gas buses have often been used to help move people during times of crisis as the pipeline system was not impacted and natural gas vehicle stations are not reliant upon the electrical grid.⁶

Proposed ICT should be more Inclusive of Near Zero Buses Powered by Renewable Gas

Although near zero natural gas buses and renewable natural gas are commercially available, cost-effective and deliver ZEB-like performance for both nitrogen oxide (NOx) a carbon emission, the proposed ICT regulation does little to leverage this more affordable alternative as a compliance option. Instead, the proposed ICT only requires the technology when ZEB technologies are not being purchased by a transit property that already runs a natural gas property. For those transit properties that operate on diesel, there is no requirement at all unless a low NOx diesel product becomes available on the market. Of course, based on the State Implementation Plan, we may not see diesel low NOx engines until 2023.

Given that some transit properties opted to change their entire operational system to accommodate natural gas less than two decades ago to further clean the air, we would encourage ARB providing these transit agencies with greater flexibility on the ZEB adoption timeline. Specifically, these properties should automatically be allowed to delay ZEB purchase requirements until 2025 regardless of the collective ZEB purchase of buses statewide.

ARB Staff's Change in Fleet Size Definition Remains Problematic

We have addressed the issue of fleet size and ARB's proposed changes in definition in earlier comments and we urge the Governing Board to ensure consistency with FTA's definitions. Specifically, under today's ARB transit rule, large fleets are defined as transit agencies with 200 or more buses, excluding cutaway vehicles toward fleet totals. The proposed definition of large transit fleet is 100 or more vehicles and counts both standard transit buses and cutaway vehicles toward fleet totals. Clearly, these definitions have been promulgated by ARB staff for simplicity and greater inclusion of transit properties required to follow a more aggressive ZEB adoption schedule. Unfortunately, this decision to change the definitions of large and small transit fleets will be misaligned with the definitions for small and large agencies used by the Federal Transit Administration (FTA) to determine the eligible uses of critical federal funding sources, like Chapter 53 of Title 49 U.S.C 5307. We strongly recommend that the Governing Board support the

⁵ See *"In a First, U.S. Blames Russia for Cyber Attacks on Energy Grid"*

<https://www.reuters.com/article/us-usa-russia-sanctions-energygrid/in-a-first-u-s-blames-russia-for-cyber-attacks-on-energy-grid-idUSKCN1GR2G3>

⁶ See the Office of Energy Efficiency and Renewable Energy's "5 Ways Alternative Fuels Aid Response to Hurricanes and Natural Disasters at <https://www.energy.gov/eere/articles/5-ways-alternative-fuels-aid-response-hurricanes-and-natural-disasters>).

California Transit Association's request that ARB staff adopt definitions established by the FTA which are as follows:

- A large agency shall be defined as a transit agency operating in a primary urbanized area with population of at least 200,000 with at least 100 vehicles in annual maximum service
- A small agency shall be defined as a transit agency, if any of the following conditions are met:
 - The agency operates in a primary urbanized area with a population less than 200,000; or,
 - The agency operates fewer than 100 vehicles in annual maximum service.

Concluding Thoughts

Clean Energy shares the goals of ARB to further reduce emissions throughout the state's transit properties. Where we diverge in approach is on technology. While ARB is pushing to move transit only to a full ZEB outcome, we believe a more hybrid approach is warranted. Because no one can credibly argue that ZEB technology can fully meet today's transit properties needs with existing battery or fuel cell technology or state that ZEB technologies will be ready in time to aggressively implement ZEB purchase requirements outlined in the ICT, we believe ARB should have performed a full comparative analysis as required by Government Code Section 11346.5(D)(13). Unfortunately, ARB staff opted not to perform this analysis by making a statement that has yet to be validated. Furthermore, the historical narrative that celebrates transit properties that chose to adopt ZEB strategies within the text of the proposed ICT ignores the significant tax payer dollars spent and herculean effort made by transit properties that switched away from diesel to 100 percent natural gas operations. These transit players didn't demonstrate a few buses and run the rest of their fleet on diesel. They made a complete transitional change to a new technology that was proven and cost-effective. Rather than allow such transit properties to harness their existing infrastructure and adopt near zero emission strategies powered by renewable natural gas that can deliver ZEB-like performance, these transit properties are now being forced to abandon their operations for a strategy that has yet to be fully commercialized and install costly infrastructure that will present significant challenges and costs that are largely unforeseen. Furthermore, there is little consideration of resiliency and little consideration of what to do if ARB staff's projections are overly optimistic and prevent transit properties to fulfill their core mission: to move people.

With recent articles alerting us to extended smog days in the South Coast not seen for 20 years,⁷ finding more cost-effective ways to combat mobile source air pollution over costly ZEB strategies may be warranted.

Sincerely,



Todd R. Campbell

⁷ See 87 days of smog: Southern California just saw its longest streak of bad air in decades at <http://www.latimes.com/local/lanow/la-me-smog-streak-20180921-story.html>