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*Darrell Johnson*  
Chief Executive Officer

January 22, 2017

Ms. Mary Nichols  
Chairman  
California Air Resources Board  
1001 "I" Street  
Sacramento, CA 95814

**Subject: Comments on Innovative Clean Transit Regulation Discussion Document**

Dear Chairman Nichols:

The Orange County Transportation Authority (OCTA) Board of Directors appreciates the opportunity to offer comments on the California Air Resources Board's (ARB) Innovative Clean Transit Regulation Discussion Document (ICT Proposal), dated December 15, 2017. Since the postponement of the initial zero-emission bus purchase requirement in 2009, OCTA has taken significant steps to integrate new technology within its fleet in an economically sustainable manner, while also allowing for emission reductions and the testing of new technology. This includes obtaining over ten hydrogen fuel cell buses, exclusive use renewable natural gas for the existing fleet, and integration of low nitrogen oxide (NOx) engines, with about 20 percent of the fleet utilizing near-zero emission engines. These actions are over and above the significant emission reductions achieved when OCTA initially converted its fleet to natural gas. Transit agencies throughout the state are taking similar steps towards the integration of new technology. OCTA is therefore hopeful that through collaboration between the ARB and transit agency stakeholders, revisions can be formulated which allow the rule to be implemented in a fashion that is economically feasible, and allows for dependable technology to be developed.

The current ICT Proposal seeks to enact several new requirements which could jeopardize not only existing transit service levels, but present challenges in meeting fleet operating needs. These implications directly contradict the ARB's goals in pursuing the ICT, namely improving transit service and reducing emissions. The comments included on the attached document should be considered as revisions are made to the ICT Proposal.

OCTA appreciates the time and effort ARB staff has taken to meet with all transit agencies statewide to discuss the ICT proposal. Going forward, OCTA hopes to continue discussions with the ARB and develop collaborative solutions that will help reduce emissions and improve transit service statewide. As previously

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discussed, this could include efforts to create a performance-based standard, similar to what was proposed by the California Transit Association. If you or your staff have any questions regarding OCTA's comments, please contact Kristin Essner, Manager of State and Federal Relations, at (714) 560-5754 or [kessner@octa.net](mailto:kessner@octa.net).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Darrell Johnson', with a long horizontal stroke extending to the right.

Darrell Johnson  
Chief Executive Officer

DJ:ke  
Attachment

c: Members, California Air Resources Board  
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  
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  
Platinum Advisors



**Orange County Transportation Authority Comments on the California Air Resources Board's Innovative Clean Transit Regulation Discussion Document**

1. Funding is not identified to bridge the gap between existing technology and zero-emission buses, which could directly impact existing transit service.

The Innovative Clean Transit Regulation Discussion Document (ICT Proposal) would create a new unfunded mandate for transit agencies, without the identification of sufficient resources to compensate for the increased costs that would be needed to implement the proposed purchase requirement. For the Orange County Transportation Authority (OCTA), it is estimated that it would cost an additional \$442 million, at current cost estimates, to convert its fleet to zero-emission technology. This does not include other costs for new fueling infrastructure or increased fuel costs. This estimate assumes not only the cost differential between existing compressed natural gas (CNG) buses, but also the need to increase the fleet size to integrate zero-emission buses (ZEB). OCTA's buses must meet a 300 mile range. Replacing a CNG bus with a ZEB is not a straight one-to-one comparison. Instead, because ZEBs cannot meet existing fleet range requirements, transit agencies will have to expand their fleet to comply with the purchase requirement and maintain existing service.

Already, OCTA has budgeted funding from existing sources, including the Transportation Development Act, State Transit Assistance, cap-and-trade, SB 1 (Chapter 5, Statutes of 2017) and federal transit sources, to maintain existing service levels. Any requirement put in place by the ICT Proposal would have to identify new funding sources, beyond those identified, to bridge the funding gap. Otherwise, transit agencies like OCTA would have to analyze potential service reductions. In order to meet the \$442 million funding gap, OCTA would have to look at reducing service by more than 20 percent; a level surpassing what was done during the last recession. This would not only immediately impact the most transit dependent areas of the state, but may also lead to an increase in vehicle miles travelled, which is counter-productive to other California Air Resources Board (ARB) environmental initiatives.

Most of the funding sources the ARB does identify in the ICT Proposal are either one-time funding pots or have not yet been identified as eligible for ZEB purchases. Furthermore, ARB has stated many of these sources cannot be used once the purchase requirement is enforced. It is unclear which provisions of state law prevent this, or why ongoing sources of funding like the Low Carbon Transit Operations Program, cannot be used.

2. New zero-emission technology has not been implemented at a scale which adequately demonstrates its technological ability to meet existing fleet requirements.

The ICT Proposal cites the availability of ZEBs that would meet a 300-mile range requirement, however, such vehicles have not yet been tested in actual operation. Rather than state that range is no longer an issue for ZEBs, the ICT Proposal should include



evidence of where such vehicles have been put in service and met those range requirements over an extended period of time. It is also unclear whether existing ZEBs will be able to meet the useful life requirements and whether the warranties for parts will be filled later in the vehicle's use. If unable to meet many of these requirements, this could put federal funding into jeopardy.

The ICT Proposal also does not include a discussion about the potential for impacts from increased bus axle weight. State law includes explicit bus axle weight limitations that transit buses must meet to operate on state highways and local streets and roads. The ICT Proposal fails to discuss these impacts, as required under existing state law. This discussion should also include details about the weight of electric buses and the associated range of the buses. Currently, the range cited by ZEB manufacturers do not account for the weight of the bus loaded with passenger, nor the use of air conditioning which greatly reduces the range.

There also is no discussion about electricity costs and how that will vary based on time of day, based on various fleet fueling requirements. Currently there is no certainty about the future of these costs, or what rates will be imposed for transit agencies. Many of the previous demonstrations of this technology were operating under special rate provisions which should not be held as the standard to determine costs for this regulation.

3. The ICT Proposal dramatically expands its application, without clearly demonstrating the existence of the technology being commercially available.

In previous iterations of the ICT Proposal and of a ZEB purchase requirement, the ARB limited its scope of application to urban buses. The current ICT Proposal significantly expands the scope to now include cutaway buses. This expansion was never previously discussed, and it is unclear that there is a commercially available cutaway bus to meet this requirement. On page six of the ICT Proposal, there is a statement that affirms that while some of these vehicles are in use today, none have been Altoona-tested and are not eligible for federal funding. Furthermore, often these buses are used to fulfill critical American with Disabilities Act (ADA) paratransit services. If transit agencies are not able to find buses to meet the ICT Proposal purchase requirement, this may not only lead to impacts to paratransit service, but could impact a transit agency's compliance with ADA.

4. The timeline for implementation does not allow for sufficient opportunities to assess the technology availability or economic implications prior to enforcement.

The timeline for the ICT Proposal only includes one opportunity for an economic and technological assessment of the regulation's provisions in 2022, which occurs after the first requirement is mandated. Under OCTA's existing procurement process, OCTA will potentially be looking at replacing 58 percent of its fleet by 2023. Currently, it is unclear whether the timing will require either 25 percent or 50 percent of the purchase to be ZEBs, pending regulatory interpretation. This procurement will begin before the 2022 assessment. Pending the assessment by ARB in 2022, these procurement requirements may be deferred or changed based on the findings. However, OCTA will still be required



to abide by the purchase requirement even if the findings by the ARB demonstrate that the technology is not viable in larger operation, or it is not economically viable. The ICT proposal should ensure that technology and economic assessments are done before any requirement is enforced, including prior to 2020. In addition, if at any time a requirement is found to be technologically or economically infeasible, a grace period should be applied for all transit agencies, including agencies undergoing previous procurements.

5. The ICT Proposal fails to account for each transit agency's unique procurement process, potentially impacting certain transit agencies more than others.

As stated above, OCTA's procurement process is unique in that, unlike in the hypothetical scenario presented on page 12 of the ICT Proposal, OCTA does not procure vehicles every three years, and its procurements are for much larger portions of its fleet. Acknowledging that not every transit agency's procurement process is the same, or useful life requirements, the ICT Proposal should include flexibility to address each agency's process. This includes cost assessments, technology capabilities, bus availability and manufacturer warranty standards.

6. Early action credits should be granted in a manner that takes into account all transit agency actions taken prior to any new requirement taking effect.

OCTA supports ARB efforts to recognize those agencies that have taken steps to implement advanced technologies prior to any new regulatory requirements. Currently, the ICT Proposal provides for different credit levels depending on whether the bus was put into service before or after January 1, 2018 for hydrogen buses. It is unclear why that differentiation is made. Instead, the two credits should be awarded for all hydrogen buses procured prior to the regulation taking effect. In addition, credit should be awarded for all battery electric buses procured prior to the regulation taking effect, rather than no credit being awarded for buses put in service after December 31, 2017.

7. The proposed conditions that would allow for temporary delay fail to take into account situations where service cuts may result or the technology fails to meet its stated capabilities

OCTA appreciates efforts to include scenarios where the ARB Executive Director may approve extensions for compliance with the requirements when certain conditions are present. While each of the scenarios presented are valid, this type of extension should also be granted in other situations, including (but not limited to) situations where:

- additional new funding is not identified to cover the increased costs associated with this regulation
- transit funding is reduced or cut by the state or federal government
- the new technology is unable to comply with state or federal requirements and/or does not pass the new Altoona testing requirements
- the costs of complying with the regulation would result in a reduction in transit service



- the buses are unable to meet a transit agency's range or useful life requirements

8. The ACT Proposal must consider infrastructure transition and facility requirements that will be required for a technology transition.

ARB's ICT Proposal will require a complete re-assessment of current operating infrastructure to include a revamp of the existing power grid for battery powered buses, sources of hydrogen for fuel-cell buses, electrical charging outlets throughout the facilities, high voltage connectors, individual controllers intended to monitor energy dispensed on as a per bus basis, among other updates. This will all require expanded right of way at the transit bases, which may not be available. This will also necessitate additional funding investment, which is not contemplated in the current ICT Proposal. As an example, currently, one of the largest OCTA facilities has a peak electricity consumption for a 200-bus operation in the range of ~1.6 MWhr. Based on today's requirement for charging battery-powered buses, this amount of energy is only capable of charging about 26 electric buses. In order to support 200 electric buses, this capacity needs to be multiplied by about eight times.

Within each base, the infrastructure will also need to be updated. Existing fueling practice includes a location for fuel dispensing, with each bus only requiring five to seven minutes for fueling. Fueling for ZEBs would entail multiple sources/locations for vehicle tracking, fuel dispensing, recording of consumables, etc. Additionally, plug-in battery powered buses are required to be "plugged-in" for several hours which extends fueling time and requires facility capacity. For each fueling station, installation of electrical conduits, electric plugs, individual charging and monitoring stations will also be required. These updates should be covered in the ICT Proposal.

9. Personnel training will be required for any technology transition, which is not currently addressed in the ICT Proposal.

Traditionally, the work-force found in the transit industry includes a high degree of expertise with diesel engines, with transition now occurring because of the introduction of natural gas engines. With high demand for this knowledge in fields outside of transit, there are also numerous existing issues in attracting talent to fill maintenance and operations roles. ARB's ICT Proposal will create an added level of difficulty, by requiring a completely new type of staff knowledge, without any identified training opportunities.

A transition to ZEBs would require complete retraining on not only the technological operating elements of a bus, but also the safety aspects. Without any existing large operations of ZEBs at transit facilities, many of the implications of the technology change are unknown. Gradual implementation of the technology would allow transit agencies to mitigate these risks and prepare and protect their staff.