London Breed, Mayor

Cheryl Brinkman, Chairman
Malcolm Heinicke, Vice Chairman
Gwyneth Borden, Director
Lee Hsu, Director
Cristina Rubke, Director
Art Torres, Director

Edward D. Reiskin, Director of Transportation

September 18, 2018

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

Subject: Comments to the Innovative Clean Transit Staff Report: Initial Statement of Reasons

Dear Chair Nichols and Members of the Air Resources Board:

On behalf of the San Francisco Municipal Transportation Agency (SFMTA), we hereby submit comments in response to the Innovative Clean Transit (ICT) Regulation staff report, dated August 7, 2018.

SFMTA has been one of the national leaders in supporting sustainable, reduced and zero emission revenue transit vehicles. SFMTA currently operates the largest fleet of zero emission electric trolley buses, running on 100 percent greenhouse gas (GHG) free electricity, in North America. Environmental stewardship and mitigating the effects of climate change are core agency priorities. In fact, zero emission transit service is just one strategy among a suite of program areas the agency has identified in the Transportation Climate Action Strategy, which establishes a framework for
1) Reducing GHG emissions from the San Francisco transportation sector, and 2) Increasing the resilience of the San Francisco transportation system to future climate impacts.

At the SFMTA Board of Directors meeting on May 15, 2018, SFMTA adopted a Zero Emission Vehicle Policy. The policy outlines numerous steps SFMTA has taken and will take to ensure it continues to support sustainable, zero emission revenue transit vehicles. Per the adopted policy, SFMTA will begin procuring zero emission buses in 2025, with a goal of achieving a 100 percent battery electric vehicle fleet by 2035. This commitment exceeds the California Air Resource Board's (CARB) goal of achieving a statewide zero-emission fleet by 2040. Below are the steps SFMTA is currently taking in advance of 2025 to achieve the 2035 goal:

- In September 2018, SFMTA procured new electric hybrid buses with higher capacity on-board battery systems in order to initiate a "Green Zone" program. SFMTA will operate these select buses in a zero emission, all-electric battery mode in designated geofenced "Green Zones" along several electric hybrid routes. SFMTA will be the first agency in North America to utilize this "Green Zone" concept and by January 2019, this technology will be implemented on all 68 buses.
- Establishing a battery electric bus pilot program and purchasing a limited number of zero-emission battery electric buses from various manufacturers. SFMTA will test the ZEB all-

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electric battery buses in revenue service throughout San Francisco to evaluate the performance, reliability, operability and maintainability of the ZEB all-electric battery buses that are currently available on the market. SFMTA is expected to release the RFP for the battery bus pilot program in September 2018.

- Partnering with a vehicle charger manufacturer to procure and adopt a state-of-the-art modular charging system that would take up a smaller footprint in the bus yards promises to address the space constraints in the current bus yards. SFMTA is also working with the San Francisco Public Utilities Commission, as well as Pacific Gas and Electric, to establish a new service that will be necessary to charge the pilot battery electric vehicles.
- Initiating a pilot program to explore the possibility of converting one of SFMTA's existing electric hybrid vehicles into a plug-in battery electric bus by replacing the series-hybrid diesel powertrains with larger battery packs and charging provision. If successful, this pilot will pave the way for SFMTA to convert some hybrid electric buses to battery electric buses during mid-life overhauls, allowing SFMTA to accelerate its zero emission goals.

We appreciate the efforts of CARB staff to provide a more flexible framework for transit agencies to meet the zero-emission fleet goal in the ICT Staff Report. To effectively meet that goal, SFMTA strongly urges CARB to address the following issues in the final ICT regulation:

1. **Zero Emission Bus Bonus Credit:** SFMTA strongly believes that its use of electric trolley buses clearly and unequivocally advances CARB's goal of reducing GHG emissions and improving air quality. SFMTA is in the midst of the largest procurement of Zero Emission Buses (185 40' Zero Emission Trolley Buses) in North America. Trolley coaches should be counted as Zero Emission Buses and qualify for Bonus Credit for early adoption for the following reasons:
    - SFMTA's newest trolley coaches can be converted to full battery electric buses simply by removing the trolley poles and associated equipment and replacing these with a larger battery pack(s) and charging provision. We plan to conduct a pilot program to convert trolley coaches to battery electric buses to learn the feasibility of such conversion.
    - SFMTA's trolley coaches are truly zero-emission and are even more efficient and greener than electric buses. They use overhead wire infrastructure and much of the regenerated energy is fed back to the overhead line, making them more energy efficient. Our trolleys are greener than conventional battery electric buses as the electricity powering them is sourced from the hydroelectric Hetch Hetchy power plant.
    - SFMTA's next generation New Flyer trolleys contain state of the art propulsion/battery technology and support technological advances. In fact, the breakthrough in electric bus technology was made possible due to the New Flyer trolley coaches, which currently operate as short-range battery electric buses, using identical technology when running off of battery power. As battery technology improves, SFMTA plans to extend the range of operation on battery power.

2. **Deferral from Zero-Emission Bus Purchase Requirements:** SFMTA operates buses in one of the most challenging topographical urban environments and requires buses that can operate on up to 23 percent grade with Gross Vehicle Weight Rating, which current battery electric buses cannot do. SFMTA recommends modification of the following language to include a provision for gradeability under Section 9, titled "Deferral from Zero-Emission Bus Purchase Requirements:"

    - **"**When available ZEBs cannot meet a transit agency's daily mileage needs **and/or gradeability requirement** for the buses replaced per that purchase.

SFMTA looks forward to continuing to work in partnership with CARB to advance the goal of achieving zero emissions in our transit fleet and continuing to improve service for our more than 700,000 daily rides. Should you have any questions about our comments, please feel free to reach out to me at 415.701.4720 or Kathleen Sakelaris, Regulatory Affairs Manager, at 415.701.4339. Thank you for your consideration.

Sincerely,

Edward D. Reiskin
Director of Transportation

cc: Mayor London Breed, City & County of San Francisco
SFMTA Board of Directors
Josh Shaw, Executive Director of the California Transit Association

CARB Innovative Clean Transit Proposed Regulation

September 2018

Background

On August 7th, California Air Resources Board (CARB) staff released its proposed Innovative Clean Transit (ICT) regulation for public comment before it will be considered by the CARB Board at their September 27-28 meeting.

Key Components of the Proposed ICT Regulation

Zero Emission Bus (ZEB) Rollout Plan – Transit agencies are required to submit a Plan approved by their governing board for how the agency plans for ZEB purchases, infrastructure buildout, associated financial planning and workforce training.

ZEB Purchase Requirements – For large transit agencies (100 or more buses), the following schedule must be followed for annual new ZEB bus purchases:

- 25 percent by 2023
- 50 percent by 2026
- 100 percent by 2029

ZEB Bonus Credits for Early Placement of ZEBs including extra credits for early Fuel Cell Electric Buses (FCEBs) – As currently drafted, ZEBs include Battery electric buses and Fuel Cell Electric buses, but do not include Trolley Electric Buses.

Recommendations for Proposed ICT Regulation

SFMTA urges CARB to address the following outstanding issues in the final ICT regulation:

1. **Zero Emission Bus Bonus Credit –** As currently drafted, procurement of electric trolleys by SFMTA would not count towards the purchase requirement. SFMTA believes its use of electric trolley buses clearly and unequivocally advances CARB's goal of reducing GHG emissions and improving air quality. SFMTA is in the midst of the largest procurement of Zero Emission Buses (185 40' Zero Emission Trolley Buses) in North America. Trolley coaches should be counted as Zero Emission Buses and qualify for Bonus Credit for early adoption for the following reasons:

    - SFMTA's newest trolley coaches can be converted to full battery electric buses simply by removing the trolley poles and associated equipment and replacing these with a larger battery pack(s) and charging provisions.
    - SFMTA's trolley coaches are truly zero-emission and more energy efficient than electric buses as they use overhead infrastructure and much of the regen is fed back to the overhead line. They are also "greener" as the electricity powering them is

sourced from the hydroelectric Hetch Hetchy power plant.

- SFMTA's next generation New Flyer trolleys contain state of the art propulsion/battery technology and support technological advances. In fact, the breakthrough in electric bus technology was made possible due to the New Flyer trolley coaches, which currently operate as short-range battery electric buses, utilizing identical technology when running off of battery power. As battery technology improves, SFMTA plans to extend the range of operation on battery power.

2. **Deferral from Zero-Emission Bus Purchase Requirements –** SFMTA operates buses in one of the most challenging topographical urban environment and requires buses that can operate on up to 23% grade with Gross Vehicle Weight Rating (GVWR). SFMTA recommends modification of the following language to include a provision for gradeability under Section 9, titled "Deferral from Zero-Emission Bus Purchase Requirements:"

   - **"**When available ZEBs cannot meet a transit agency's daily mileage needs **and/or gradeability requirement** for the buses replaced per that purchase.

SFMTA's Sustainability Commitments

SFMTA is a national leader in supporting sustainable, reduced and zero emission revenue transit vehicles. SFMTA currently operates the largest fleet of zero emission electric trolley buses, running on 100% greenhouse gas (GHG) free electricity, in North America. Zero emission transit service is just one strategy among a suite of program areas the agency has identified in its **Transportation Climate Action Strategy**, which establishes a framework for 1) Reducing Greenhouse gas (GHG) emissions from the San Francisco transportation sector and 2) Increasing the resilience of the San Francisco transportation system to future climate impacts.

SFMTA's Zero Emission Vehicle Policy

In May 2018, SFMTA's Board of Directors adopted a Zero Emission Vehicle Policy, which includes initial procurement of zero emission buses in 2025, with a goal of achieving a 100% battery electric vehicle fleet by 2035. This commitment exceeds the California Air Resource Board's (CARB) goal of achieving a statewide zero-emission fleet by 2040. To help accomplish this accelerated goal, SFMTA is taking the following steps:

- **Green Zones –** Procuring 68 electric hybrid buses with higher capacity on-board battery to initiate a "Green Zone" program. Beginning September 2019, SFMTA will be the first agency in North America to utilize "Green Zone" technology – reverting to full battery electric in designated zones – with full implementation by January 2019.
- **Battery Electric Bus Pilot Program** – Establishing a battery electric bus pilot program and purchasing a limited number of zero-emission battery electric buses from various manufacturers. RFP anticipated for release in September 2018.
- **Hybrid Bus Conversion Pilot Program** – Initiating a pilot program to explore the possibility of converting an existing SFMTA electric hybrid vehicle into a plug-in battery electric bus by replacing the series-hybrid diesel powertrains with larger battery packs and charging provision.