LOCAL UNION 6
International Brotherhood of Electrical Workers
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DATE: December 13, 2024
TO: Mayor-Elect Daniel Lurie
FROM: John Doherty
RE: SFMTA Facilities Upgrade Bus & Electrification Program

The SFMTA is in the midst of a comprehensive multi-billion-dollar Fleet Electrification and Facilities Renewal program (FEFR). IBEW Local 6 (IBEW6) believes that the SFMTA's approach to determining the nature of the FEFR – emphasizing battery electric buses – is fundamentally flawed, leading to higher capital costs and reduced operational and energy efficiency as compared to a battery assisted trolleybus alternative. IBEW6 urges the Lurie Administration to:

- Conduct an independent fleet electrification alternatives analysis. We believe this can be accomplished for less than $500,000
- Pause the $118 million purchase of additional hybrid-electric buses
- Order a comprehensive independent review of the FEFR program

**BACKGROUND**

The SFMTA is planning for the electrification of its diesel-hybrid bus fleet in response to the California Air Resources Board's (CARB) Clean Transit Rule (CTR), which mandates the elimination of diesel buses and the adoption of zero-emission technology for all of California's transit fleets by 2040. San Francisco already operates the largest Zero-Emission rubber-tire transit fleet in North America, with nearly 90 years of trolleybus service experience.

Parallel to CARB's initiative, the SFMTA is pursuing the systemwide rebuilding of its century-old bus repair facilities, which are outdated and past their useful lives. These two efforts are necessarily linked as the rebuilt facilities will serve as critical infrastructure for this new electrified fleet. The SFMTA had initially planned to completely phase out its trolleybus fleet and replace it with depot-charged battery-electric buses. This plan received significant opposition from the San Francisco Electrical Construction Industry (SFECI) – IBEW6's public policy and research arm – and numerous transit advocates. In November 2023, in part due to SFECI's advocacy, the SFMTA Board reversed its plans and recommitted to keeping trolleybuses in the SFMTA fleet.

The SFECI funded a study as part of its advocacy for the trolleybus system. This study was an electrification alternatives analysis by Dr. Andres Díez, a professor of electrical engineering focused on transit electrification, optimization, and design at the Universidad Pontificia Bolivariana (Colombia) and a consultant to Metro de Medellin. Using state-of-the-art modeling software Dr. Díez and his team analyzed route, yard, and fleet-level electrification alternatives to determine the costs, energy requirements, and operational impacts of plans oriented around battery electric buses, "In-Motion Charging" battery assisted trolleybuses, and traditional trolleybuses.

The study buttressed the SFECI position that leveraging the SFMTA's existing overhead-line infrastructure with battery assisted trolleybuses would lower total lifecycle costs by 20-30% than with battery buses. Implementation would be faster, cheaper, and provide superior operational, environmental, and energy efficiency performance. This battery assisted trolleybus alternative would require fewer buses and less land; it would minimize the cost associated with upgrades to PG&E's distribution infrastructure; it would maximize the use of existing SFMTA rolling stock now slated for mothballing and free up capital earmarked for the purchase of new diesel coaches. The study showed

how, because battery-assisted trolleybuses only need overhead lines for approximately one-third to one-half of their routes, San Francisco could double zero-emission rubber tire transit service with only a modest 33% increase in new overhead line capacity.

**CURRENT STATUS**

SFMTA staff have refused to fully engage with the Electrification Alternatives Analysis, issuing a cursory response memo and rejecting calls for a comprehensive alternatives analysis or even any peer review of SFECI's report. In turn, SFECI has called on the SFMTA to fund a complete electrification analysis that we believe can be accomplished for approximately $500,000.

SFECI's study and a growing body of international scientific and industry research that show the economic, operational, and environmental superiority of battery assisted trolleybuses have not dissuaded the SFMTA from moving forward with the FEFR. In fact, the SFMTA is slated to purchase 94 diesel hybrid buses for $118M while simultaneously mothballing a significant portion of its trolleybus fleet during the Potrero Yard rebuild. We consider this to be irresponsible in the best of times, however rejecting a $500,000 study while asking for more than $2 billion at a time when the SFMTA cannot even keep its lines running at current levels of service is unacceptable.

The folly of the current FEFR program is underscored by the findings of the SFMTA's Battery Electric Bus Pilot Program Evaluation Report presented to the SFMTA Board on September 17th of this year. The report highlights three major problems with the push for battery buses.

First the report indicates that battery buses are wholly unreliable. The best performing bus in the pilot had a service reliability metric approximately 1/7th of the average of both trolleybuses and hybrid coaches over the past year. This means Staff are committing to a program that saddles the SFMTA with an expensive unreliable product that requires significant capital investment and operational changes.

Second, and relatedly, bus availability of 55%-65% was a fraction of the industry standard of about 85%. In practice this will require the fleets to be larger than optimum, require increased staffing requirements for an agency that faces ongoing recruitment challenges, and increased real estate demands (more yard space and land acquisition) necessary to accommodate and maintain the oversized fleet. The larger fleet would not lead to increased service delivery, and construction costs would also increase to accommodate the space needed.

Third, the Battery Electric Bus Pilot Program Evaluation Report minimizes the fact that developing new charging infrastructure will require significant capital upgrades to the broader PG&E electrical grid that the City currently has little control over. These costs are unquantified and would require significant collaboration with PG&E and potentially the CPUC.

**CONCLUSION**

By refusing to consider alternatives, the SFMTA risks wasting hundreds of millions of scarce taxpayer dollars on a capital program that will leave the SFMTA, and the economy that depends on it, worse off. We urge you to take control of this process and ensure the evaluation of a tactically opportunistic program built around our current overhead line system. I have attached a copy of the full technical analysis to this memo along with the accompanying policy brief for reference and your review.