



SFMTA Battery Electric Bus Pilot Program

SFMTA Board Meeting

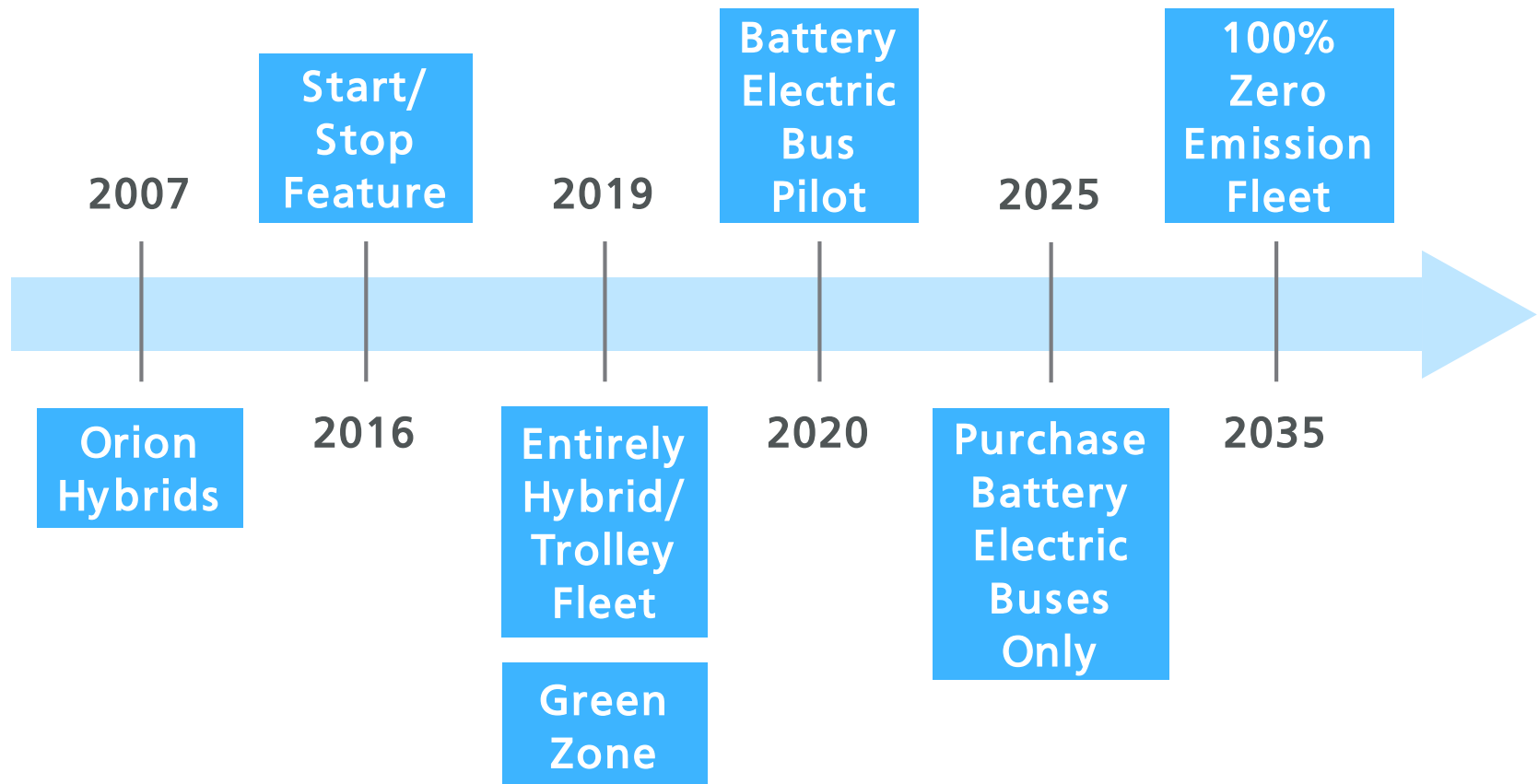
November 5, 2019

Zero Emission Vehicles Resolution

- SFMTA currently operates greenest fleet in North America
- SFMTA is national leader in pursuing sustainable, reduced, and zero emissions transit vehicles
- California Air Resources Board (CARB) has set ambitious requirements for electric-bus adoption in California
- SFMTA Board of Directors Zero Emissions Vehicle Resolution (2018) guides all aspects of our battery-electric vehicle program:
 - 2020: Pilot electric buses
 - 2025: 100% electric procurements
 - 2035: all electric fleet



Zero Emission Timeline



Battery-Electric Bus Pilot Overview

- Procure nine 40-ft battery-electric buses – three each from three different manufacturers to determine the current state of battery electric technology
- Use vehicles in regular revenue service on SFMTA's most demanding routes
- Install charging infrastructure at the Woods Maintenance yard
- Prepare a report analyzing the electric buses and comparing them to our existing hybrid electric and electric trolley buses.



PROTERRA



NEW FLYER



BYD AUTO

Goals for Pilot

- Compare battery buses to one another, as well as to our existing electric hybrid buses and trolley buses
- Evaluate performance, reliability, maintainability, and operability of the buses in SF unique operating environment
- Understand the best current technology on the market; battery technology used in electric vehicles is rapidly evolving
- Evaluate manufacturer's ability to deliver on safety and reliability for the "full bus," not just the battery components
- Evaluate new features that respond to customer and employee feedback such as new seats, CAD/AVL systems, a Passenger Information System, doors, wheelchair ramps, and security systems

Battery Electric Bus Contract Prices

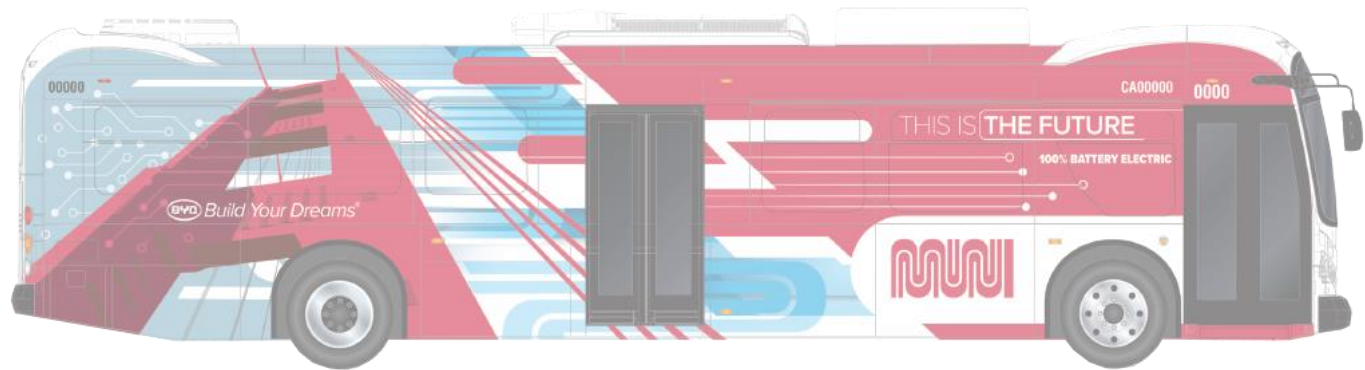
Contract Number	Not to Exceed	Firm Name
SFMTA-2019-02	\$4,452,536	New Flyer
SFMTA-2020-18	\$3,509,150	BYD
SFMTA-2020-19	\$5,262,602	Proterra

Each base contract includes three 40-foot, low floor, battery-electric buses, as well as licenses for the ViriCiti vehicle telematics system, operator and maintenance training packages, spare parts, special tools, and all required operating, maintenance, and parts manuals

Reasons for Price Variation

The contract prices vary due to several factors:

- Base Bus prices vary due to different battery sizes and different vehicle configurations (chassis, suspension, overall bus, etc)
- Proterra and BYD can provide a dual drive motor at this time, which will perform better on the hills
- Except New Flyer, no prior relationships with SFMTA's preferred suppliers leading to significant first-time integration costs:
 - CAD/AVL Systems
 - Automatic Passenger Counter System
 - Transit Signal Priority System
 - Video Surveillance System
 - Passenger Information System
- BYD pricing reflects interest in establishing strong market presence



Alternatives Evaluated based on SFMTA Board Feedback

1. Reduce the number of recommended vendors
2. Reduce scope for New Flyer or Proterra
3. Request voluntary price reductions and/or contract restructuring that would not impact performance
4. Approve full program as presented on October 15

Recommendation

Staff recommends Option 4, approve as presented on October 15

- Reducing vendors could have long-term cost implications by reducing competition by limiting the number of manufacturers familiar with SFMTA operating environment and equipment needs
- Reducing scope would prevent us from understanding the state-of-the-art technology and may lead to over-designing in future procurements and would also have schedule impacts
- Changing price elements introduce new risks (e.g., shifting battery risk to SFMTA) and would also have schedule impacts
- Adopting the pilot as is will help the SFMTA make progress towards its commitment to CARB to begin procuring battery electric buses only in 2025