



**METROPOLITAN  
TRANSPORTATION  
COMMISSION**

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## *Memorandum*

TO: Partnership Technical Advisory Committee

DATE: November 20, 2006

FR: Glen Tepke

W.I.:

RE: Update on Zero Emission Bus Regulations

The California Air Resources Board (CARB) adopted major amendments to its Zero Emission Bus (ZEB) regulations at its meeting on October 19. Members of the Bay Area ZEB Working Group – the five affected operators, MTC and the Bay Area Air Quality Management District – worked with CARB staff over the last year to develop revised regulations that will support the continued development of ZEB technology while providing operators with ZEB cost and performance safeguards, and the final regulations are consistent with those goals.

The ZEB requirements apply to transit operators with 200 or more urban buses. In the Bay Area, AC Transit, Golden Gate Transit, Muni, SamTrans and VTA are the affected operators. Muni already meets the purchase requirement with its electric trolley fleet.

### **Purchase Requirement**

The existing requirement that 15% of bus purchases be ZEBs was postponed from model year 2008 to 2011 for transit operators on the diesel path (all of the affected Bay Area operators are on the diesel path), and from 2010 to 2012 for alternative fuel operators. The delay acknowledges the reality that ZEB technology is still too costly and unproven for large-scale implementation.

### **2009 Feasibility Assessment**

The feasibility of implementing the purchase requirement will be reconsidered by CARB in 2009 based on an assessment of ZEB technology by CARB staff. The assessment will include an evaluation of the cost, durability and reliability of ZEBs against the following thresholds:

- Cost – \$1 million initial purchase cost
- Durability – 20,000-hour fuel cell warranty
- Reliability – 10,000 miles between propulsion system-related road calls

In the revised regulation originally proposed by CARB staff, ZEBs would have to meet all three of the thresholds before the full 15% purchase requirement was implemented, but in the final regulation adopted by the Board, the thresholds will only be factors to be considered in assessing the feasibility of implementing the purchase requirement.

### **Advanced Demonstration Requirement**

The revised regulation language requires diesel path operators with 200 or more urban buses to perform ZEB advanced demonstration projects. Operators have the option of a single-agency demonstration with six ZEBs, or a multi-agency demonstration with three ZEBs per agency and a minimum of 12 ZEBs. The advanced demonstration ZEBs are required to be in service by January 1, 2009 and must be operated for a minimum of 12 months. Current ZEBs purchased for the initial demonstration projects can be counted toward the advanced demonstration fleet requirement if the initial ZEBs are upgraded to current technology.

### **Bay Area Advanced Demonstration Project**

The Bay Area ZEB Working Group will oversee the planning and implementation of the advanced demonstration project required by the revised regulations. The regional demonstration will require 12 ZEBs. The working group will evaluate the potential of updating the fuel cells and other components of the region's six existing ZEBs (three operated by VTA and SamTrans, and three operated by AC Transit and Golden Gate Transit) so they can be counted as part of the required 12.

The capital costs of the advanced demonstration project are expected to range between \$25 million and \$40 million, depending on the cost of new ZEBs, upgrading current ZEBs, and additional fueling and maintenance facilities. Potential funding sources for the advanced demonstration include:

- \$15 million in FY 2008-09 FTA Section 5307 and/or STP Third Cycle funds that have been tentatively committed to support the project by the Partnership.
- A portion of the \$3.6 million in National Fuel Cell Bus Program funds recently awarded to AC Transit; the funds were awarded for accelerated testing of AC Transit's current ZEBs, and the eligibility of upgrading those ZEBs needs to be determined.
- \$5 million provided in the state budget to match National Fuel Cell Bus Program funding.
- \$2 million in state Alternative Fuel Incentives (AB 1811) funds for fuel cell buses.
- Potential support from the Bay Area Air Quality Management District.

The ZEB working group will develop a refined project budget to support applications for funding.