

ZERO EMISSION BUS REGULATION



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Today's Presentation

- ◆ Urban Transit Bus Regulation / Zero-Emission Bus (ZEB) Regulation
- ◆ Status
- ◆ Recommendations

Zero Emission Bus Regulation Background

- ◆ Goal - Encourage a fleet dominated by zero emission vehicles
- ◆ Fuel cell buses demonstrated ability to meet performance needs
- ◆ Fuel cell manufacturers anticipated bus cost to be roughly equivalent to overhead trolley by 2004

Zero Emission Bus (ZEB) Regulation

- ◆ ZEB = hydrogen-fuel cell, electric trolley, or battery electric bus
- ◆ ZEB demonstration project
 - ◆ Diesel path transit agencies
 - ◆ >200 buses as of January 31, 2001
 - ◆ 3 ZEBs per demonstration by Feb. 28, 2006
 - ◆ Final report by July 31, 2007

Zero Emission Bus Regulation Background

- ◆ Fuel cell bus applications would lead light duty applications
 - ◆ Buses could better handle size and weight requirements of initial fuel cells
 - ◆ Buses operated and serviced by trained staff
 - ◆ Buses could be centrally fueled

Zero Emission Bus Regulation

- ◆ ZEB purchase requirements
 - ◆ Diesel path
 - ◆ Based on number of buses January 1, 2007
 - ◆ Agencies with > 200 buses
 - ◆ 15% 2008-2015
 - ◆ Alternative-Fuel path
 - ◆ Based on number of buses January 1, 2009
 - ◆ Agencies with > 200 buses
 - ◆ 15% 2010-2015

Affected Transit Agencies

Transit Agency	Fuel Path	January 1, 2005	15 %
Long Beach Transit	D	191	29
Golden Gate Transit	D	221	33
San Mateo County Transit District	D	347	52
Santa Clara Valley Transportation Authority	D	531	80
Alameda/Contra Costa Transit	D	672	101
San Francisco Municipal Railway	D	893	134
North County Transit District	A	155	23
Santa Monica Big Blue Bus	A	174	26
Omnitrans	A	176	26
Sacramento Regional Transit District	A	253	38
Foothill Transit	A	306	46
San Diego Metropolitan Transit System	A	451	68
Orange County Transportation Authority	A	612	92
Los Angeles County MTA	A	2563	384

ZEB Demonstration Status

- ◆ FCB demonstrations on current regulatory schedule
- ◆ FCBs are operational, meeting street performance goals
- ◆ FCBs are quieter than conventional diesel or compressed natural gas buses
- ◆ Public response has been positive or neutral

ZEB Challenges

- ◆ Current Bus cost greater than anticipated
 - ◆ (Positive news - Next bus of current AC Transit release likely to be $\sim 1/3$ less costly)
- ◆ Reliability
- ◆ Availability
- ◆ Fuel cell service life
- ◆ Fueling infrastructure

ZEB Demonstration Conclusion

- ◆ Buses demonstrated
 - ◆ positive operating performance and
 - ◆ public acceptance
- ◆ Fuel cell buses are feasible but not yet commercial
- ◆ Most successful demonstration – fuel cell dominant battery hybrid bus

ZEB Regulation

- ◆ Goal remains to commercialize full size ZEBs as quickly as possible
- ◆ Modifications to regulation are needed
- ◆ Advanced demonstration added to enable Federal funding option
- ◆ Postpone purchase requirement by 2 years

ZEB Regulation

Modifications Under Consideration

- ◆ Initiates purchase requirement through advanced demonstration.
- ◆ Advanced demonstration benefits
 - ◆ Allows transit agencies to phase in ZEBs
 - ◆ Federal funding
 - ◆ Diesel path to start in 2009
 - ◆ Alternative-Fuel to start in 2011
 - ◆ Buses count towards purchase requirements
- ◆ 15 Percent purchase requirement
 - ◆ Diesel path - January 2010
 - ◆ Alternative-Fuel path - January 2012

Advanced ZEB Demonstration (Diesel and Alternative Fuel Path)

	Diesel	Alt.-Fuel
Solicit Bid Proposals	July 2007	July 2009
Zero Emission Buses in Operation	January 2009	January 2011
Fueling Infrastructure	January 2009	January 2011
Initial Report	July 2009	July 2011
Final Report	January 2010	January 2012

Advanced Demonstration Single Agency Option

- ◆ Zero emission buses
 - ◆ 10 per demonstration
 - ◆ In operation by January 2009
- ◆ Fueling infrastructure
 - ◆ In place by January 2009
- ◆ Maintenance & operating training

Advanced Demonstration Multi-Transit Agency Option

- ◆ Zero emission buses
 - ◆ 12 per demonstration
 - ◆ 3 per participating transit agency (TA)
 - ◆ Rotate 9 bus fleet for 1 month per TA
- ◆ Fueling infrastructure
 - ◆ In place for half of TAs by January 2009
 - ◆ All TAs by end of demonstration
- ◆ Maintenance & operating training for all TAs

ZEB Regulation

Additional Consideration - Shorter Buses

- ◆ Shorter buses may be considered under Executive Officer discretion if operation characteristics meet TA needs
- ◆ The following characteristics need to be addressed and discussed
 - ◆ Passenger capacity
 - ◆ Operating characteristics (hours of operation, refueling)
 - ◆ Performance (freeway, grades)
 - ◆ Chassis durability and warranty
 - ◆ Other
- ◆ Early implementation credits reduced

Additional Consideration

- ◆ Form state wide fuel cell bus working group
 - ◆ Coordinate and leverage statewide effort
 - ◆ Share technology learnings
 - ◆ Discuss resource options

Next Steps

- ◆ Collect additional input from transit agencies
- ◆ May release of staff report
- ◆ July 2006 Board hearing
- ◆ July 2010 Board update

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