

Workshop - Transit Bus Fleet Rule

El Monte: June 25, 2002



California Environmental Protection Agency



Air Resources Board

Workshop Presentation

- Background
- March 2002 Board Hearing Consideration
- Current Regulation Requirements
- Proposed Regulation Changes
- Transit Fleet Examples
- Other Changes and Definition Changes
- Summary of Proposed Regulation
- Discussion



Background

- Select Fuel Path by January 31, 2001
- Low Sulfur Fuel (15 ppm or less)
Starting July 1, 2002
- PM Retrofits 2003-2009
- Zero-Emission Bus Demo 2003
- Zero-Emission Bus Purchases 2008



March 2002 Board Hearing

- Low Sulfur (<15 ppm) Diesel Fuel
 - Generally available
- Retrofit Field Experience
 - 1994 MY and newer - mostly successful
- No Retrofit Devices Verified For pre-94 MY
- Goal of 85% PM Reduction for Pre-1994 Engines Not on Schedule



Resolution 02-16 (March 2002)

- Change the PM Retrofit Schedule
- Achieve feasible reductions in PM as compared to the current implementation schedule
- Bring to the Board September 2002



Current Regulation Emission Reductions

- In 2000, 6679 Diesel Urban Buses Emitted ~1000 lbs./day or ~185 tons/year PM
- EMFAC Calculated 2005 Emission Reductions
 - Tier 1 retrofit = full turnover
 - Tier 2 retrofit = ~55 tons/year



Current PM Retrofit Schedule

Current Diesel Path Requirement

Tiers	2003	2004	2005	2006	2007
Tier 1 Pre-1991	100 %				
Tier 2 1991 - 1995	50 %	100 %			
Tier 3 1996 - 2002			20 %	75 %	100 %

Note: Percentages of retrofit requirements must be met by January 1 of each year.



Current PM Retrofit Schedule

Current Alt. Fuel Path Requirement

Tiers	2003	2004	2005	2006	2007	2008	2009
Tier 1 Pre-1991	100 %						
Tier 2 1991 - 1995	20 %	75 %	100 %				
Tier 3 1996 - 2002					20 %	75 %	100 %

Note: Percentages of retrofit requirements should be met by January 1 of every year.

Proposed PM Fleet Average

- Establish PM Fleet Average Requirement
- Eliminate Tiers/Specific Retrofit Schedules
- Applies Only to Diesel Buses (inc. dual fuel, bi-fuel, hybrids)
- Maintains Diesel and Alt-Fuel Schedules
- Must Use ARB Verified Technology if Retrofitting
- May Use Any Level Technology
- Reporting Requirements Still Apply



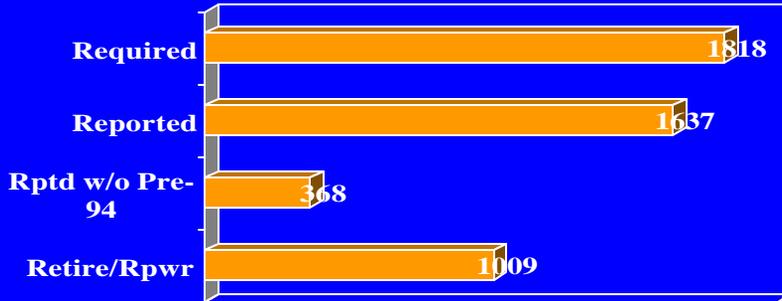
2001 Transit Bus Fleet

MY	Buses	PM g/bhp
pre-88	975	1.0
1988-90	1656	0.6
1991-93	1435	0.1
1994-95	359	0.07
1996-02	2331	0.05
Totals	6756	

2001 PM Fleet Avg = ~ 0.33 g/bhp-hr



2002 Fleet Plans



Retrofit Shortfall = $1818 - 368 - 1009 = 441$



Proposed Regulation

<i>Target Date</i>	<i>Diesel Reduction</i>	<i>Alt-Fuel Reduction</i>
Jan-02		
Jan-04	40%	20%
Jan-05	60%	40%
Jan-07	85%	60%
Jan-09		85%



Example 1 - Baseline Year Large Transit Agency - Diesel Path

MY	Buses	PM g/bhp-hr
1988-90	150	0.6
1991-93	175	0.1
1994-95	50	0.07
1996-02	375	0.05
2003+	0	0
Totals	750	
PM AVG		0.173



Example 1 - 2005 Large Transit Agency - Diesel Path

MY	Buses	Reduction	PM g/bhp-hr
1988-90	90	25%	0.45
1991-93	175	50%	0.05
1994-95	50	85%	0.01
1996-02	375	85%	0.01
2003+	60		0.01
Totals	750		
PM AVG		0.072	

Baseline = 0.173 Percent Reduction = 58.3%



Example 1 - 2007

Large Transit Agency - Diesel Path

MY	Buses	Reduction	PM g/bhp-hr
1988-90	0		0
1991-93	0		0
1994-95	50	85%	0.01
1996-02	375	85%	0.01
2003+	350		0.01
Totals	775		
PM AVG		0.01	

Baseline = 0.173 Percent Reduction = 94.2%



Example 2 - Baseline Year

Small Transit Agency - Diesel Path

MY	Buses	PM g/bhp-hr
1988-90	8	0.6
1991-93	3	0.1
1994-95	7	0.07
1996-02	6	0.05
2003+	0	0
Totals	24	
PM AVG		0.245



Example 2 - 2005

Small Transit Agency - Diesel Path

MY	Buses	Reduction	PM g/bhp-hr
1988-90	4	50%	0.3
1991-93	3	50%	0.05
1994-95	7		0.07
1996-02	6		0.05
2003+	4		0.01
Totals	24		
PM AVG		0.091	

Baseline = 0.245 Percent Reduction = 62.9%



Example 2 - 2007

Small Transit Agency - Diesel Path

MY	Buses	Reduction	PM g/bhp-hr
1988-90	0		0
1991-93	3	50%	0.05
1994-95	7		0.07
1996-02	6	85%	0.01
2003+	8		0.01
Totals	24		
PM AVG		0.033	

Baseline = 0.245 Percent Reduction = 86.5%



Summary of PM Fleet Average

- Percentage Reduction from Baseline
- Baseline as of December 31, 2001
- Applies Only to Diesel Buses (inc. dual fuel, bi-fuel, hybrids)
- Separate Diesel and Alt-Fuel Paths
- Must Use ARB Verified Technology if Retrofitting
- May Use Any Level Technology
- Reporting Requirements Still Apply



Fuel Path Selection Change

- Change from Diesel to Alt Fuel only
- SCAQMD transit agencies only
 - Required to purchase alt-fuel since 2000 (100 or more) or 2001 (15-99)
 - New selection due January 31, 2004 with annual report



Transit Agency Delay

- EO May Grant Delay for Financial Hardship
- Transit Agency Must Provide Evidence:
 - Cost of Implementation
 - Funding Source for Compliance
 - Shortfall Between Cost and Funding Source
 - Date of Compliance
- Delay Restricted to <20 Bus Fleets



Definition Changes

Active Fleet: The total number of urban buses operated by a transit agency or under contract by a transit agency, including spare buses, but no emergency contingency vehicles or non-revenue producing vehicles.

Emergency contingency vehicle: An urban bus placed in an inactive contingency fleet for energy or other local emergencies, after the urban bus has reached the end of its normal minimum useful life.



Definition Changes (cont.)

Spare Bus: An urban bus that is used to accommodate routine maintenance and repair operations, and to replace a bus in scheduled service that breaks down or is involved in an accident



Reporting Requirements

- Slight changes to data required in annual report
 - Now matches data we have asked for in annual reports
- Streamlined reports for PM fleet average due with annual reports
- Must report specific information on retrofit devices used



Summary

- Tiered Retrofit Replaced With PM Fleet Average
- Percentage Reductions From Individual Fleets
- One Time Fuel Path Change for SCAQMD Only
- Modify One and Add Two Definitions
- Delay Provision for Financial Hardship
- Conform Reporting Requirements



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Discussion

