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Comment on
**“Regulation to Reduce Emissions of
Diesel Particulate Matter and Other
Pollutants from In-Use HHDD Fueled
Vehicles”**

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12/3/2008

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**On and Off-Road Rule
Comparison**

- Off road rule is based upon 10-year turnover cycle. *Good for business planning*
- *Off-road Rule recognized different engine sizes, and different years for Tiers*
- On road rule doesn't allow a consistent turnover cycle. *Bad for businesses that plan based on turnover.*
- *On-road rule doesn't recognize annual miles driven, deterioration.*

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California On Road Fleets

- ARB has two *fleets*
 - < 33,001 pounds Medium-heavy duty (MHD) diesel
 - Single Unit trucks, 20,000 pounds, 23,000 MPY, 208,000 Miles of use
 - >33,000 pounds Heavy-heavy duty (HHD) diesel
 - Tractor Trailers, 65,000 pounds, 60,000 MPY, 700,000 Miles of use
- Engine standards and emission controls are independent of *fleet and engine size*
- Emissions depend on model year, vehicle weight, drive cycle, total miles of use

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Average Truck Fleet Performance Data

Type	NO _x Ton/yr/truck
HHD Tractor	1.11
In-state	
MHD Single	0.23
In-State	

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The Issues

Compared to MHD Vehicles

In-State HHD Diesel vehicles are

- older,
- driven many more miles per year,
- emit more pollutants per mile

Average MHD Cost per ton is 1.8 times the average total HHD fleet cost per ton

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MHD Example-Rental Fleet A low use fleet

Fleet	95% MHD	
Weight	61% < 26,001 (No CDL)	
	95% < 33,001	
	Average	Limit
Age	6.5 Years	86% < 10 yrs
Odometer	67,000	48,000 for 10 years
Miles/Yr	8,000	83% < 12,500

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Implications of Low Use

Low use vehicles

- produce fewer emissions because of lower VMT
- Low use vehicles have fewer accumulated miles (odometer) & thus less emission deterioration

The emission factor is strongly dependent on deterioration

- For MHD vehicles at 48,000/208,000 miles Ef ratio is approximately 0.93 for NO_x and 0.65 for PM.

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Rental Fleet Averaging Compliance– 10 Model years in Fleet Fails in 2014 & 2015

Year,	NO _x Target	NO _x Index	PM Target	PM Index
2011		6.37	0.38	0.25
2012		5.03	0.29	0.21
2013	8.5	3.69	0.17	0.17
2014	5.8	3.10	0.06	0.13
2015	5.8	2.51	0.06	0.10
2016	4.6	1.92	0.06	0.06
2017	4.0	1.60	0.06	0.06
2018	4.0	1.28	0.06	0.06

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Rental Fleet Compliance

- Most Rental Fleets comply always with NO_x but fail PM for 2014 and 2015.
- These fleets will come into compliance by normal turnover in 2016.
- Since there is significant NO_x margin, least cost option is VDECS filters that result in less turnover and less NO_x reduction

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The Fleets and Costs

*The problem is
not small delivery trucks*

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Compliance

- No account for the VMT and Deterioration
- Lower use MHD vehicles, the cost/ton is up to 7 times that of HHD vehicles
- According to it's own "cost effectiveness guidelines", much of the cost assigned to the MHD fleet is not "effective"

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California 2008 Daily VMT and Emissions

	VMT	EF	Emissions, %	NO _x TPD
HH- trucks	76%	1.9	86%	683
MH-In-State	24%	1	14%	125
All				859

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Total Compliance Cost

Out-State HHD	\$ 857 MM	
Ca IRP HHD	\$ 499 MM	
Out-State HHD	\$ 1,281 MM	
Subtotal-HHD	\$2,637 MM	70.8%
In-State MHD	\$ 1,086 MM	29.2%
<i>MHD trucks produce 14% of the emissions but are being charged 30% of the cost.</i>		

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Approximate Cost Effectiveness

$$E\text{-NO}_x = \text{NO}_x + 27 * \text{PM}$$

	\$/ton
HHD	2,090
MHD	3,753
MHD/HHD	1.8 \$/\$

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MHD Fleet Use Distribution for 2008

Miles/year	5,000	7,500	10,000	Total
% E-NO _x	0.43	0.77	1.67	14.2
Relative Cost (to HHD)	6.7	3.6	1.8	

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Modifications to Rule

- Costs need to be more fairly distributed
- Give compliance flexibility to fleets with vehicles 10 years old and newer

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Possible Actions- Equalizing Cost Effectiveness

1. **Modify dates for BACT and averaging targets to bring “cost effectiveness” in line for MHD and HHD fleets**

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Possible Actions- Fairness for Low Use Vehicles

1. **Create a “Low Use” definition for MHD Vehicles similar to that for Agricultural Vehicles**

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Possible Actions- Fairness for Lower Use Vehicles

And/or

2. **Modify the averaging provisions to account for vehicle use**
 - **Emission factors should depend on odometer**
 - **Averaging should depend on VMT**

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