

Workshop on Amendments to the Off-Road Diesel Regulation



June & July 2010

California Environmental Protection Agency
Air Resources Board



Workshop Outline

- Background
- Inventory Status
- May Workshop Comments & Survey Results
- Minor Amendments and Clarifications
- Relief Provisions
- Moyer Eligibility
- Potential Alternatives
- Next Steps & Contacts



Background – Truck and Bus and Off-Road Regulations



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10 Guiding Principles for Amendments to Truck and Bus and Off-Road Regulations

1. Continue progress toward cleaner air
2. Maintain public health benefits
3. Meet SIP commitments
4. Incentivize greenhouse gas reductions
5. Improve cost effectiveness
6. Lower peak year costs
7. Consider cumulative impact of both regulations
8. Provide most relief to fleets hardest hit by recession
9. Ensure emission reductions as economy recovers
10. Support clean technologies

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Board Directives from April

- Revise emissions projections
- Meet SIP commitment and maintain public health benefits
- Consider on-road and off-road regulations together
- Consider fleets' cumulative cost from both reg's
- Reward fleets that have taken action to comply
- Explore ways to increase opportunities for incentive funds
- Consider ways to improve access to capital
- Carefully consider stakeholder suggestions
- Do not just postpone a front-loaded regulation

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Impact of Economy on Emissions

- Recession has reduced emissions
- Off-road emission estimates also lower than before
- Room for some relief from both the on-road and off-road regulations
- Need for truck and bus and off-road regulations
 - Meet Federal air quality standards
 - Meet SIP targets - PM 2.5 in 2014 and Ozone in 2023
 - Meet Diesel Risk Reduction Plan goals
 - Maintain public health benefits

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May 2010 Workshops

- Update on emissions inventory, data sources and methodologies
- Proposed amendments
 - Consistent with Board directives
 - Short term and Longer term
- Dates and locations
 - May 6 - El Monte
 - May 12 - Sacramento
 - May 18 - Fresno

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Inventory Status



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Construction Inventory Status

- Currently working on updates
 - Population and under-reporting
 - Activity reporting
 - Load factor
 - Fuel consumption

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Truck and Bus Inventory Status

- Final inventory review
 - Recession and growth forecast
 - Out-of-state truck VMT
 - Regional emissions assessment
 - Interstate vs in-state growth

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Next Steps

- Finalize baseline inventories
- Estimate margin
- Assess emissions impact of regulatory revisions

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May Workshops Comments & Survey Results



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Off-road Regulation Overview

Compliance requirements and deadlines vary by fleet size

Fleet Size Category	Description	Dates and Requirements
Small	2,500 hp and under	2015-2025 PM only (no vehicle or engine turnover)
Medium	2,501 to 5,000 hp	2013-2020 PM and NOx
Large	Over 5,000 hp State and federal government fleets	2010-2020 PM and NOx

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Off-road Regulation: Current Requirements

In each year, two ways to meet the NOx and PM requirements

- Fleet average targets for NOx and PM
or
- **NOx:** Turn over 8 to 10% of fleet horsepower per year
- **PM:** Install exhaust retrofits on 20% of fleet horsepower per year

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Comments from May Workshops

- **Retrofitting/PM Requirements**
 - Harmonize PM requirements with NOx requirements (i.e., PM credits for turnover)
 - Give PM credit for conversion to gasoline
 - Postpone the PM requirement until retrofits improve, Tier 4 available
- **Turnover/NOx Requirements**
 - Give more turnover credit for vehicles that are exported or scrapped

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Comments from May Workshops

- **Overall fleet average/BACT provisions**
 - Make regulation based on age, not emission rates
 - Remove 18% penalty in Hours in Fleet Average Option
 - Remove electric vehicles from fleet size determination and BACT horsepower
 - Slowly phase in the regulatory requirements once waiver is granted
- **Other**
 - Increase Moyer eligibility
 - Give public recognition for fleets in compliance



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May/June 2010 Survey Results - Compliance Requirements

- Toughest for Medium/Large fleets to meet:
Most say installing exhaust retrofits
- Relief requested:
 - ~60% of all fleets want decreased turnover and retrofit requirements and/or looser fleet average targets
 - ~30% of all fleets want a 2-year delay
 - Remainder want both
- 90% of respondents want a higher low-use threshold
- Many proposed 1 or 2-year compliance exemption as reward for large fleets meeting March 1, 2010 compliance

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Survey Results Cont'd

- What fits in with normal business cycles?
 - Vehicle/Engine Replacement/Turnover
 - However, many said timeline too accelerated
 - Low use
 - Planning, reporting and labeling
- What does NOT fit in with normal business cycles?
 - Retrofits
 - Some say Vehicle/Engine Replacement/Turnover
 - Retiring seasonal vehicles



Survey Results Cont'd – Retrofits

- ~23% had installed retrofits:
 - Reported problems of clogging and frequent regeneration/service cycles leading to down time
 - Some operator complaints (due to visibility) and difficulty locating installations safely
 - Some reported that the retrofits worked well
- ~77% had not installed retrofits. Why not?
 - Cost, retrofits not cost-effective
 - The issues above
 - Retrofits were not available for their vehicle
 - Other concerns: lack of durability, does not make sense in rental industry

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Minor Amendments and Clarifications



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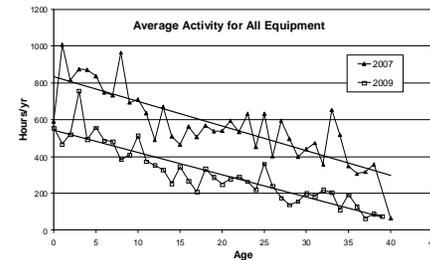
Minor Amendments and Clarifications

- Replace “should” with “shall”
- Reclassification of Yard Trucks
 - All on- and off-road yard trucks under on-road
- Clarify low use provisions (year-by-year vs. permanently designated)
- Alternative fuel provisions
 - Remove electric vehicles from total horsepower and BACT
 - Reorganize and make section more consistent

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Minor Amendments and Clarifications Cont'd

- Should we remove hours in fleet average option?
- Many requested removal of 1.18 factor, but factor required since new vehicles operate more than old



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Minor Amendments and Clarifications Cont'd

- Clarify new fleet requirements
 - Which fleet average targets to meet
 - When fleet can switch to BACT if desired
- Simplify adding vehicle requirements
 - Previously based on compliance path
 - Required fleet to compare NOx emission factor of added vehicle to NOx target for the year (complicated process)

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Minor Amendments and Clarifications Cont'd

- Previous requirements for large/medium fleets meeting BACT

Horsepower Group	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
25-49 hp	T2					T4					
50-74 hp						T3					
75-99 hp	T2					T3					
100-174 hp						T2					T3
175-299 hp	T2										T3
300-599 hp						T2					T3
600-750 hp	T2										T3
Greater than 750 hp						T2					T3

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Minor Amendments and Clarifications Cont'd

- Proposal: not based on compliance path or hp
- Requirements only vary by fleet size

Fleet Size	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Medium/Large			T2	T2	T2	T2	T2	T3	T3	T3	T3	T3
Small		T1	T1	T1	T1	T1	T1	T2	T2	T2	T2	T2

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Minor Amendments and Clarifications Cont'd

- Compliance certification process
 - Rename process to “Responsible Official Affirmation of Reporting”
 - Commonly confused with “Certificate of Reported Compliance”



California Air Resources Board
Compliance Certification

The signing below, I, responsible person, who under the penalty of perjury that the New Certification reported to CARB has been prepared and issued in accordance with the 12 month, 2010/2011 cycle of the On-Off Road Diesel Vehicle Regulation. I, responsible person, also certify that I never knowingly willfully falsify information on any vehicle, equipment, or engine to CARB.

2
 DEPARTMENT OF CARB
 responsible person
 Name of Responsible Official or Designer
 Signature of Responsible Official or Designer

Simplex Eng'g Firm
 Company / Agency name
 Job Title
 Date

State of California
 Department of Resources
 1400 Franklin Street, Suite 1000
 Sacramento, CA 95832

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Minor Amendments and Clarifications Cont'd

- NOx Compliance after Final Target Date
 - Clarify that NOx BACT exemptions still apply after March 1, 2020
 - NOx carryover credits expire after March 1, 2020; consistent with PM final requirements
- Tier 1 Uncontrolled language
 - Remove the requirement that Tier 1 uncontrolled vehicles must be turned over before other Tier 1 vehicles

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Minor Amendments and Clarifications Cont'd

- Exemption for 2010 compliant fleets
 - Recognition for fleets that met first requirements, even though not enforced
 - Large fleets that met the March 1, 2010 compliance requirements are exempt from their first *new* compliance date
 - Benefit for those that got reduced activity credit



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Proposed Amendments



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Considerations

- Delay regulation start to allow recovery
- Phase in retrofits more slowly / focus relief on retrofit requirements
 - Recognize retrofits not a perfect fit for every vehicle / application
- Focus on cost effective reduction (more low use exemptions)

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Proposed Amendments

1. Two-year delay of regulation start date
2. Allow turnover to count toward PM BACT requirements (effectively reduces annual requirement to 12%)
3. Double credit extension
4. Remove 2013 'balloon payment'
5. Increase low-use threshold
6. Maintain turnover rate for a longer period (i.e. fleets continue 8-10% turn-over for a longer period – affects ~2017 and later) ³¹

1. Delay Regulation Start Date

- Large fleets first compliance date would be March 1, 2012
- Medium and small fleet provisions to be determined
 - Up to 2 year delay possible
- Fleets would not 'use up' credits, but ARB would not extend expiring credits either

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2. Turnover Counts Toward PM BACT

- Effectively reduced annual retrofit requirement to 12% for most fleets
 - Base requirement of 20% for PM BACT minus the 8% required turnover for NOx BACT equals ~12% PM BACT
- Allows fleets to choose turnover in lieu of additional retrofitting
 - Helpful for fleets such as rental where retrofitting is difficult
- How to credit turnover to be determined 33

3. Extend Double Credit for Retrofits

- Large fleets double credit period ended January 1, 2010
- Small and medium fleet double credit currently extends through March 1, 2012
- Extend for all fleets
 - Large to March 1, 2012
 - Medium to March 1, 2013
 - Small to March 1, 2015

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4. Remove 2013 Balloon Payment

- Current requirements in 2013:
 - Retrofit 36% of fleet hp
 - Turn over 14.4% of fleet hp
- Lowered to:
 - Retrofit 20% of fleet hp
 - Turn over 8% of fleet hp
- 2012 requirements remain:
 - 12% Retrofits, 4.8% Turnover



5. Low Use

- Raise low-use threshold from 100 to 150 hours per year
- Additional ~7% of entire statewide fleet will be exempt
- Some fleets will decrease fleet size category due to additional vehicles classified as low-use

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6. Maintain Required NOx Turnover for a Longer Period

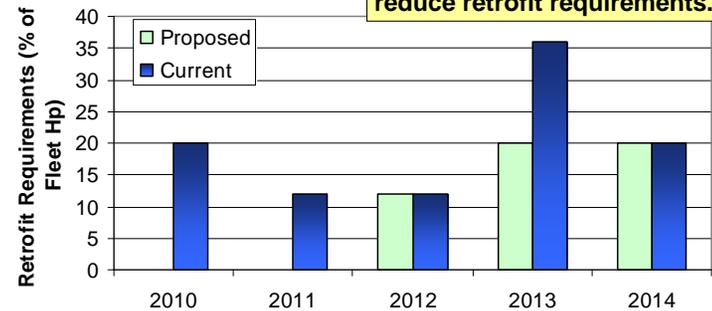
- Lower NOx fleets averages from 2017 to 2022
- Would require fleets to move to more Tier 4i and Tier 4
- More NOx emissions benefits in later years

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Reduced PM Retrofit Requirements

PM BACT Comparison

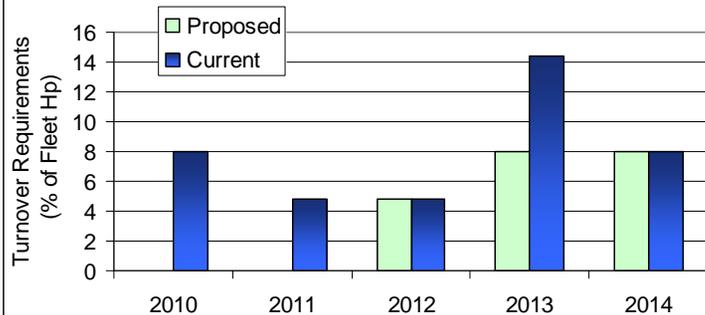
First 5 years: Reduced retrofit requirements by 48%. Turnover would further reduce retrofit requirements.



Reduced NOx Turnover Requirements

NOx Turnover Comparison

First 5 years: Reduced turnover requirements by 48%.



Emissions Estimates

- Proposal provides fewer NOx and PM benefits
 - ~10% fewer NOx benefits over life of reg (preliminary)
 - ~25% fewer PM benefits over life of reg (preliminary)
- Preliminary estimates indicate net NOx and PM emissions still below where estimated for all years due to recession, adjusted estimates
- Staff are continuing work on a tool that will use the DOORS database as an emissions model
- Will include updated load factors and activity
- Estimates will be based on modeling all statewide fleets that have reported

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Moyer Eligibility



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Carl Moyer Program Off-Road Project Eligibility

- Fleet must be three years surplus to regulatory requirement
- Once a fleet is three years from regulatory requirements, can only apply for funding once
- Effect of proposed amendments
 - Delayed regulation start date
 - Additional funding opportunities for medium and small fleets
 - Reducing BACT requirements
 - Potential for additional opportunities for funding due to reduced surplus requirement

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Potential Options and Alternatives



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Potential Options

- Combine PM and NOx requirements
 - Combined fleet average and BACT for PM and NOx
 - Turnover and retrofits treated similarly
 - Could be PM or NOx equivalence, or age-based
- Reduce complexity of the final regulation, but would require re-training fleets

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Potential Options, cont'd

- Percent decrease in BACT requirements
 - PM BACT lowered to match NOx BACT (reduce from 20% to 8 to 10%)
 - NOx BACT lowered from 8 to 10% to 6 to 8%
 - Phase in retrofits more slowly
- Remove need to account for post-2007 flex engines
 - Too difficult to find appropriate emission factors



Potential Options, cont'd

- 'Bubble' concept – overall requirements for fleets that fall under multiple regulations
- ARB open to industry suggestions
- Feedback requested from fleets that must comply with multiple regulations



Other Alternatives Considered but Not Proposed

- 2-5 year delay with no reduction in requirements
 - Does not smooth out peak year costs or requirements
- Provide more credit opportunities
 - Increases complexity, does not always provide credit where it is needed as opposed to across-the-board changes

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Other Alternatives Considered but Not Proposed

- Regulation that fluctuates with the economy/industry
 - Complicated to predict
 - Impossible to make a plan for more than 2-3 years ahead

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Next Steps



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Next Steps

July 2010

- Refine emissions and cost analysis
- Fleet-based analysis using Off-road Simulation Model
- Incorporate feedback from June/July workshops

August 2010

- Final emission inventory estimates released
- Early August: Public Notice and Staff Report released

- Official 45-day comment period begins

September 2010

- End of Month: Board Hearing to consider changes

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For More Information...

Off-Road Regulation information:

www.arb.ca.gov/ordiesel

Listserv (ordiesel):

www.arb.ca.gov/listserv/listserv_ind.php?listname=ordiesel

DIESEL HOTLINE:

(866) 6-DIESEL (866-634-3735)

Email: 8666diesel@arb.ca.gov

DOORS Reporting Questions:

(877) 59-DOORS (877-593-6677)

Email: doors@arb.ca.gov

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