

Changes to the In-Use Off-Road Diesel Vehicle Regulation



April 29, 2009
Diamond Bar

Off-Road Implementation Section

California Environmental Protection Agency

Air Resources Board



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Outline

- Changes Required in AB 8 2X
 - Goals for Implementing Language
 - Three Amendments Driven by AB 8 2X
 - Implementation (Revised based on input at April 7 workshop)
 - Credit for Tier 1 retirements
 - Different time period for reduced activity
 - Get credit even if records are imperfect
 - Simplified credit accounting provisions
- Fleet Examples
- Economic and Emission Impact of Changes
 - State Implementation Plan context
- Minimizing Emission and Economic Disbenefits
- Other Potential Amendments
- Next Steps

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Assembly Bill AB 8 2X

- Approved by Governor on February 20, 2009
- Part of budget agreement
- Directs ARB to make amendments to off-road regulation
- Not self-implementing
- Regulation not delayed
- Will help some fleets meet 2010 requirements

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Goals for Implementing Language

- Follow legislature's direction
- Simplicity
 - Align with existing structure where possible
- Maintain existing flexibility in regulation

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Amendments Directed by AB 8 2X

- 20/20/60 BACT Changes for 2011 to 2013
- Credit for Reducing Total Fleet Horsepower
- Credit for Reduced Activity

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20-20-60 BACT

- Staff's proposed change: Apply the number directly to the total BACT percents (NOx/PM) for three years

Revised BACT Schedule

(% turnover required/ % retrofit required)

	2010	2011	2012	2013	2014
Existing	8 / 20	8 / 20	8 / 20	8 / 20	8 / 20
Proposed	8 / 20	4.8 / 12	4.8 / 12	14.4 / 36	8 / 20

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Calculation of Proposed Percents

- Turnover
 - Covers years 2011-2013
 - Total percent turnover required = $3 * 8\% = 24\%$
 - 20/20/60 percentages of 24% = 4.8/4.8/14.4
- Retrofits
 - Covers years 2011-2013
 - Total percent turnover required = $3 * 20\% = 60\%$
 - 20/20/60 percentages of 60% = 12/12/36

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Medium Fleets and Large Fleets Meeting the Targets in 2012

- Avoid penalizing fleets that meet the fleet averages in 2012
- For all medium fleets and for large fleets that met the fleet average targets in 2012
 - Maximum turnover required for the 2013 compliance date is 8%
 - Maximum retrofit required for the 2013 compliance date is 20%

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Credit for Retirement that Reduces Total Fleet Horsepower

- Staff's Proposed changes
 - Total fleet horsepower be reduced from March 1, 2006 to March 1, 2010
 - Retirement of Tier 0s and Tier 1s (subject to criteria on next slide)
 - Fleets can choose between previous (non-shrinking) early retirement credit and the new credit
 - Credit does not expire

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Credit for Tier 1 Retirements

- Credit for Tier 1 retirement added to proposal based on input at April 7 workshop
 - Turn over “dirtiest first”
 - Include Tier 1s without a PM standard (i.e., Tier 1s between 50 and 174 horsepower)
 - Other Tier 1s to count if all other Tier 0s and Tier 1s without a PM standard are retired first

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No Credit for Retirement of Higher Tiers

- Change proposed is consistent with the Order of Turnover requirements in Title 13, section 2449.1(a)(2)(A)3
 - No credit for turnover of Tier 2 or higher vehicles until Tier 0 and dirtiest Tier 1 vehicles are retired
- Avoids presenting fleets with an incentive to retire their cleaner vehicles first, making their fleets dirtier
 - For example, a fleet that retires its Tier 2 and 3 vehicles and keeps its Tier 0 and 1 vehicles

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Staff Rationale

- Differentiates fleets that fluctuate hp from a fleet that has permanently reduced its total fleet hp
 - Provides more equity between fleets
- Keeps amendments aligned with existing structure such that fleets continue to turn over the dirtier engines first
- **Input** – Feedback on revisions?

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New Records Required

- April 7 proposed - same as currently required for early turnover
 - Vehicle and engine data
 - Vehicle retirements
 - For each and every vehicle within the fleet between March 1, 2006 and March 1, 2010
 - Date of any purchase and/or retirement between those dates
- On April 7, stakeholders suggested ARB should accept fewer records
 - **Input** – suggestions re: what should be required?

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Credit for Reduced Activity

- Staff's proposed changes
 - Total fleet activity must be down – not just per vehicle activity
 - Credits apply to 2010 and 2011 only
 - Reduction of total fleet activity – from July 1, 2007 to March 1, 2010
 - Compare January 1, 2007 - December 31, 2007 annual activity to March 1, 2009 - February 28, 2010
 - **Input** – Time period better?
 - Count reduced activity 1 to 1: % activity reduced = % horsepower as credit

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Reduced Activity Definitions

- Hours multiplied by Horsepower
 - Provides a fleet which stops using a 2000 hp off-road truck, but uses a 35 hp lawnmower much more, from losing credit they should receive
 - Requires hour meters on every vehicle, and logs extending back to July 2007

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Enable Fleets with Incomplete Records to Receive Credit

- To get credit $\leq 15\%$, a fleet would have to show some record that they reduced their activity for the relevant time period
 - Records could include employment records, revenue records, man-hours, taxes, operation records, fuel use, etc.
- To get credit $> 15\%$, a fleet would have to submit hour meter logs for each vehicle

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Feedback Requested

- Two sets of criteria for reduced activity records?
 - Depending on the amount of credit claimed
 - Appropriate level at which to set the threshold for requiring more complete records?
- Requirements for records for getting reduced activity credit more than the threshold
 - Should hour meter records be required for every vehicle?
- Other suggestions for how to give credit for fleets that have incomplete hour meter records?

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Simplified Credit Options

Fleets receive credit for:

- Repowers (NOx) and Retrofits (PM, or NOx/PM)
- Electric or alternative fuel vehicles (and other specialty cases) (NOx/PM)

AND

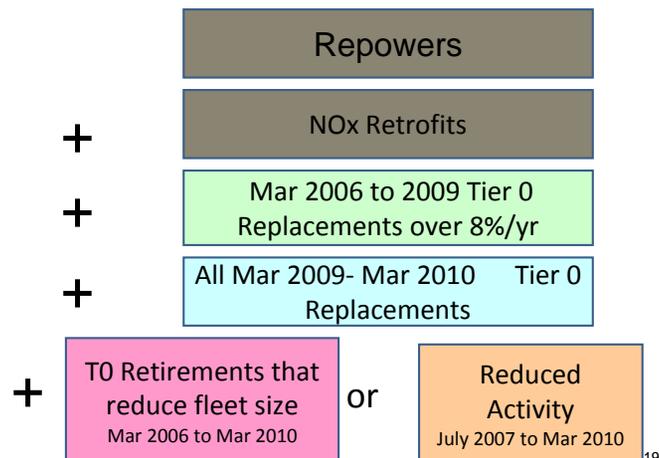
- March 2006 to March 2009 Tier 0 replacements over 8% per year on average (NOx)
- March 2009 to March 2010 all Tier 0 replacements (NOx)

AND

- One of the following to both NOx and PM:
 - Reduced activity July 2007 to March 2010
 - Retired Tier 0s that reduced fleet size March 2006 to March 2010 (or March 2009 to March 2010, if that provides more credit)

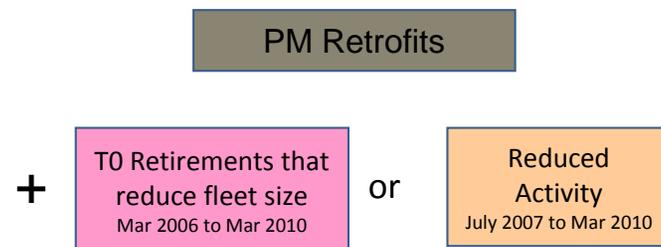
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NOx Credits on March 1, 2010



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PM Credits on March 1, 2010

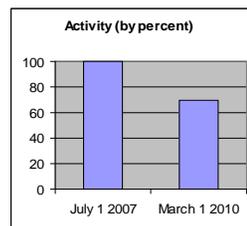
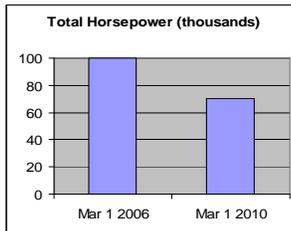


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Why not new credit for both retirement and activity reduction?

Consider example fleet.

- Business decreases by 30% from 2007 to 2010
 - Vehicle use (activity) down by 30%
 - Fleet sells off 30% of their equipment
- Emissions are down by **30%** total (30,000 hp)



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If Allowed to Combine Credits

- Fleet would receive 60,000 hp total credit to PM and NOx for retiring 30,000 HP
- Equivalent to 86% of the fleet's final horsepower (60,000 hp/70,000 hp)
- Overstates emission reductions actually achieved
- As shown in handout
 - No turnover required until 2016
 - No retrofits required until 2013

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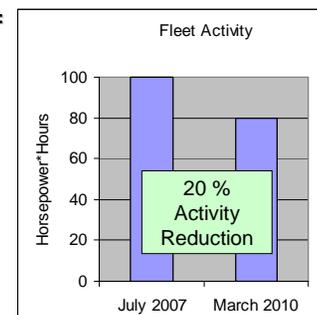
Fleet Examples



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1. Fleet with reduced activity

- Fleet on July 1, 2007 = 10,000 hp
- Fleet reduces activity by 20%
- No retirements
- No replacements
- **0 credit under old provisions**

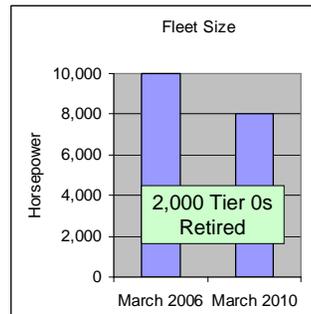


20% (2,000 HP) Credit to PM and NOx

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2. Fleet with retired Tier 0s

- Fleet on July 1, 2007 = 10,000 hp
- Fleet retires 2,000 hp Tier 0s in 2008, and does not replace the horsepower
- No change in total activity (remaining vehicles used more in this case)
- **0 credit under old provisions**



2,000 HP Credit to PM and NOx

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Economic and Emissions Impact of Legislatively Driven Changes



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Economic Impact of Legislatively Driven Changes

- Provides relief to fleets affected by current recession
- Could negatively impact retrofit manufacturers/installers
 - Had geared up to meet off-road regulation requirements
 - If some go out of business, this could make future compliance for fleets more difficult

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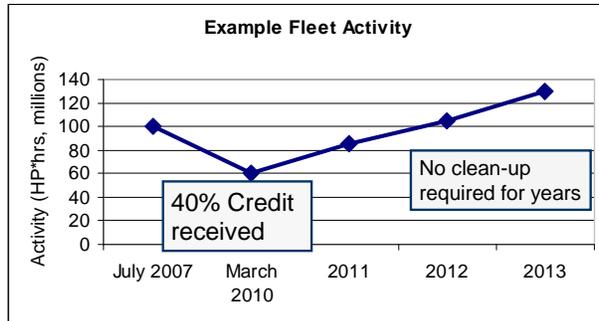
Estimating Emissions Impact

- Legislatively directed changes will allow many fleets to take fewer actions
- Consider a fleet which uses a 40% reduced activity credit, with no vehicle retirement
- No actions may be required for the first two years, no repowers, replacements, retirements, retrofits, etc.
- They will have older, dirtier vehicles than if they did not receive credits

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Estimating Emissions Impact

- When activity resumes or even exceeds previous level, the fleet has the same inventory as 2007, but no clean up has occurred



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Need for Emission Reductions

- Attain ozone and PM standards
 - Particularly in South Coast and San Joaquin Valley
 - Could lose federal highway funds
- Must reduce Diesel Particulate Matter (PM)
 - 70% of known cancer risk from all air toxics
 - Thousands of deaths per year in California (heart disease and cancer)
- Must reduce oxides of nitrogen (NOx)
 - Ozone and secondary PM formation
 - Ozone is a serious lung irritant, associated with premature deaths and asthma

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Minimizing Emission & Economic Disbenefits Potential Options



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Double Credit for NOx Retrofits

- Provide double credit for NOx retrofits installed by January 1, 2010
 - Example: NOx retrofit installed and verified to reduce NOx 60% on a 200 hp engine
 - Receives 400 hp carryover turnover credit toward the NOx BACT requirements
- Same double credit as is currently provided for early PM retrofits
- Alternatively, the double credit for NOx retrofits could extend through March 1, 2011
- Input** – Likely to encourage additional retrofits?

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Exempt Retrofit Vehicles from Turnover

- Lifetime turnover exemption for vehicles retrofit early
 - Exemption transfers with machine if sold
- Limit amount each fleet can accrue
 - Max hp or number of vehicles
 - **Input** – Suggestions re: where to set limit (20 percent of a fleet's horsepower?)

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Exempt Retrofit Vehicles from Turnover Cont'd

- Pros
 - Allows vehicle owners to keep their equipment longer
 - Could enhance resale value of equipment
 - Motivates early installation of retrofits
 - Short-term emission benefits
 - Continued development and verification of retrofit technology
 - Minimal long-term emission disbenefits
- Cons
 - Fleets would still need to pay for retrofits today
- **Input** – Would this encourage early retrofitting?

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Minimum Annual Retrofitting for Fleets that Utilize the New Credit

- At the April 7, 2009, workshop, the Natural Resources Defense Council (NRDC) proposed:
 - Minimum annual retrofitting and turnover for fleets
 - Regardless of how much new retirement and reduced activity credit they receive
 - NRDC proposed requiring 10% annual retrofitting and 4% annual turnover for fleets not meeting the fleet average targets
- ARB staff does not propose requiring any minimum annual turnover

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Minimum Annual Retrofitting

- Could require 5% per year retrofitting in 2010 through 2012 for fleets not meeting the fleet average targets and utilizing the new credit
- Fleets are granted double credit for retrofits completed through January 1, 2010
 - Therefore, a fleet could actually satisfy the 2010 requirement by retrofitting 2.5 % of its hp
- Would add complexity
- Would spur early retrofitting
- **Feedback** – Good idea? What level is appropriate?

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Provide Additional Incentive Funding

- ARB is in the process of applying for federal stimulus money
 - Diesel Emission Reduction Act (DERA)

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National Clean Diesel Campaign US EPA DERA Funding

\$300M allocated to National & State Programs

- State Program - \$88M
 - ARB allocated ~ \$1.7M for diesel programs
- National Program - \$206M
 - Three competitive components
 - National Clean Diesel (\$156M)
 - Smartway Financing (\$30M)
 - Emerging Technology (\$20M)

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Other Potential Amendments to the Regulation

- Definition of nonprofit training centers
- Clarification that manufacturer delay provisions apply to installer delay as well
- Clarification to safety provisions regarding FAA safety-related requirements
- Public agency fire prevention activities reclassified as forest operations
- Others?

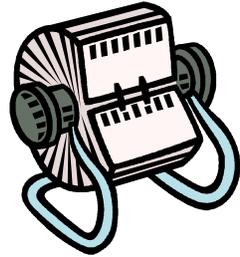
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Next Steps

- Gather feedback from today's workshop
- Public Notice and Staff Report
 - Completed and posted early June
- Board Hearing: July 23 and 24

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ARB Website and Contacts



California Environmental Protection Agency
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In-Use Off-Road Vehicle Regulation Homepage:
www.arb.ca.gov/msprog/ordiesel/ordiesel.htm

The screenshot shows the homepage for In-Use Off-Road Diesel Vehicle Regulation. At the top is a navigation menu with links: Home, Programs, Rulemaking, Board Meetings, Laws & Regulations, Data & Statistics, Permits, Etc., and Events. Below the menu is the page title "IN-USE OFF-ROAD DIESEL VEHICLE REGULATION". The date "Monday, August 25, 2008" and "This page last reviewed August 22, 2008" are displayed. The page is organized into sections: "Up LINKS" with a list of links including ARB Programs, Diesel Program, Mobile Vehicles and Equipment, Mobile Sources, and Off-Road Diesel; "LOCAL LINKS" with links for Archived Documents, Background, Contacts, Current Regulation, Fact Sheets, Fleet Average Calculators, and Frequently Asked Questions (FAQ); and "Quick Links" featuring four buttons: Overview & Fact Sheets, Free Training Seminars, Reporting Forms, and Compliance Planning Tools. A "Regulation Language" button is also present. A text block on the right states that on July 26, 2007, the Air Resources Board (ARB) adopted a regulation to reduce diesel particulate matter (PM) and oxides of nitrogen (NOx) emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. A small image of a yellow construction vehicle is shown at the bottom right.

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Off-Road Contacts

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Knowledge Center - <http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm>
Off-Road Regulation - www.arb.ca.gov/msprog/ordiesel/ordiesel.htm
Diesel Hotline - 1-866-6DIESEL (1-866-634-3735)
DOORS Hotline - 1-877-59DOORS (1-877-593-6677)

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