Proposed Amendments to Regulations to Reduce Emissions from On-Road and Off-Road Diesel Vehicles and Off-Road Large Spark Ignition Engines

December 17, 2010

California Environmental Protection Agency

Air Resources Board

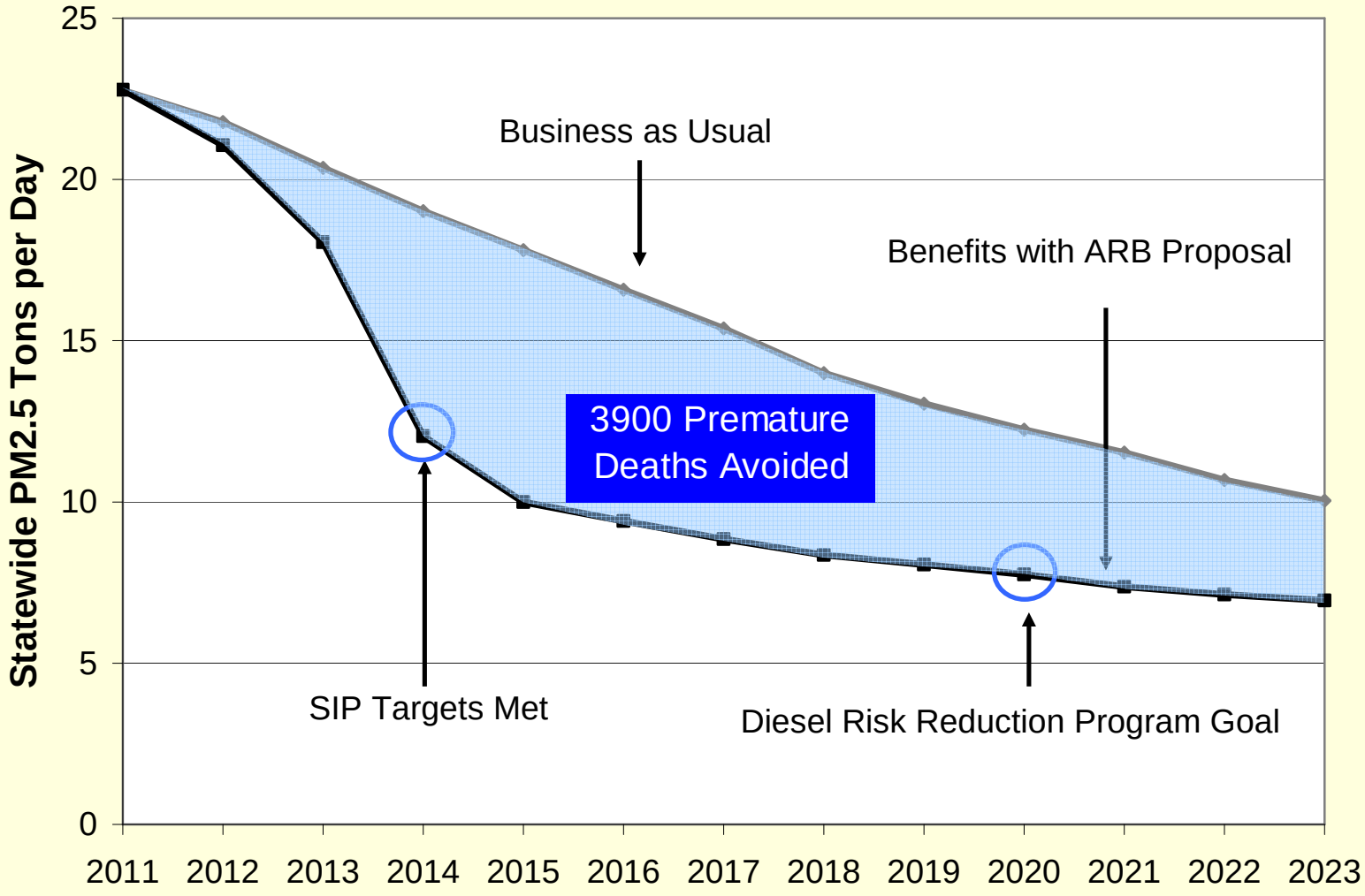
Today’s Presentation

- Introduction
- Truck rule amendments
- Off-road rule amendments
- Environmental impacts
- Recap and closing

Reasons for Changes

- Emissions lower than anticipated
- Reduced ability to make investments
- Board directed revisions

Rules Meet Public Health and Air Quality Goals



Reduced Emissions Confirmed

- 50 percent decrease in black carbon observed
- Long term study
- Attributed to the decrease in diesel emissions

"Impact of California's Air Pollution Laws on Black Carbon and their Implications for Direct Radiative Forcing" by Bahadur, et. al.

Latest Information Used

- Met with stakeholders
- Evaluated effects of recession on businesses
- Reaffirmed PM mortality study
- Updated emissions inventories

Reduced Emissions Provide Margin for Economic Relief

- Inventory update presented in November
- Emissions lower than anticipated in the SIP
- Establishes 2014 margin for economic relief
- Determines future emissions estimates

Revised 5 Rules to Provide Economic Relief

- Provide more time and improve compliance flexibility
- Address special situations
- Compliance costs reduced more than 60 percent
- Continue to protect public health

Proposed Amendments for Trucks and Buses

Greatest Economic Relief for Lighter Trucks*

- 4 year delay
- 150,000 trucks cleaned-up by replacement
- All 2010 model year engines by 2023

* Gross vehicle weight rating (GVWR) of 26,000 pounds or less.

Economic Life of Heavier* Trucks Extended

- PM filters delayed 1 year
- Replacements delayed 2 years
- Extend use of newer trucks with retrofits
- Replace older trucks
- All 2010 model year engines by 2023

* GVWR more than 26,000 pounds

Other Amendments Provide Additional Economic Relief

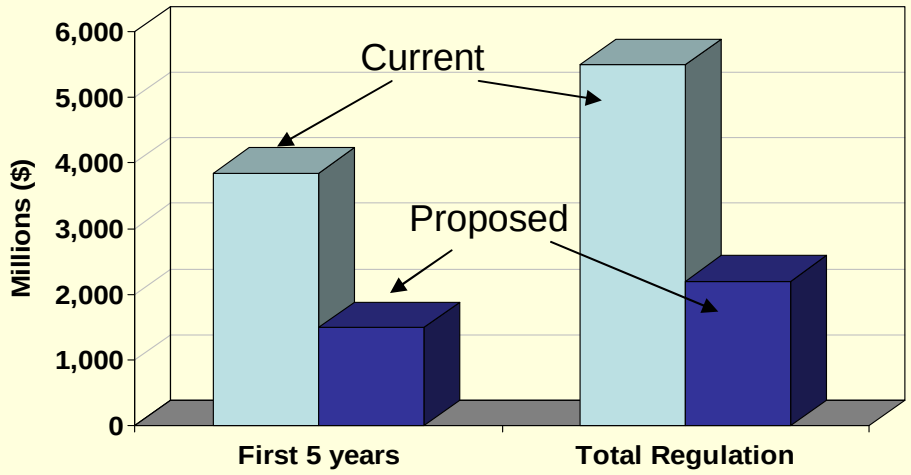
- Phase-in option to spread out compliance
- Greater credits for truck retirement
- Greater credits for early retrofits and cleaner vehicles
- Small fleet provisions expanded
- Second opportunity to apply for ag exemptions
- New phase-in option for log trucks

Amendments Change What Fleets Have to Do

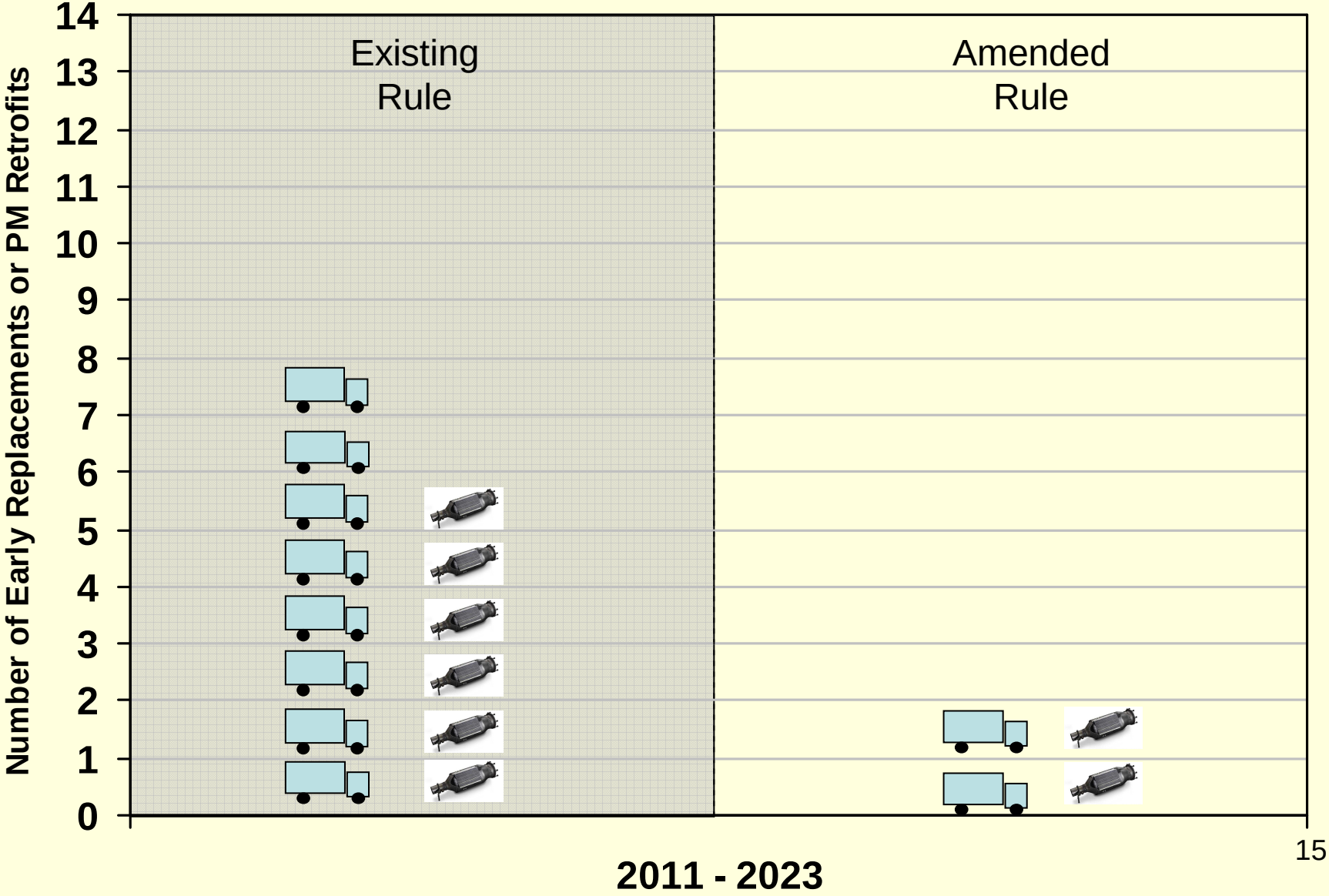
Issue	Existing Regulation	Proposed Amendments
Initial PM filter requirements	2011	2012
Trucks subject to replace only	10,000	150,000
Number of businesses subject to PM filters	175,000	100,000
Initial truck replacements	2013	2015
Age of truck replaced prior to 2020	12 years	20 years

Amendments to Provide Significant Cost Savings to Fleets

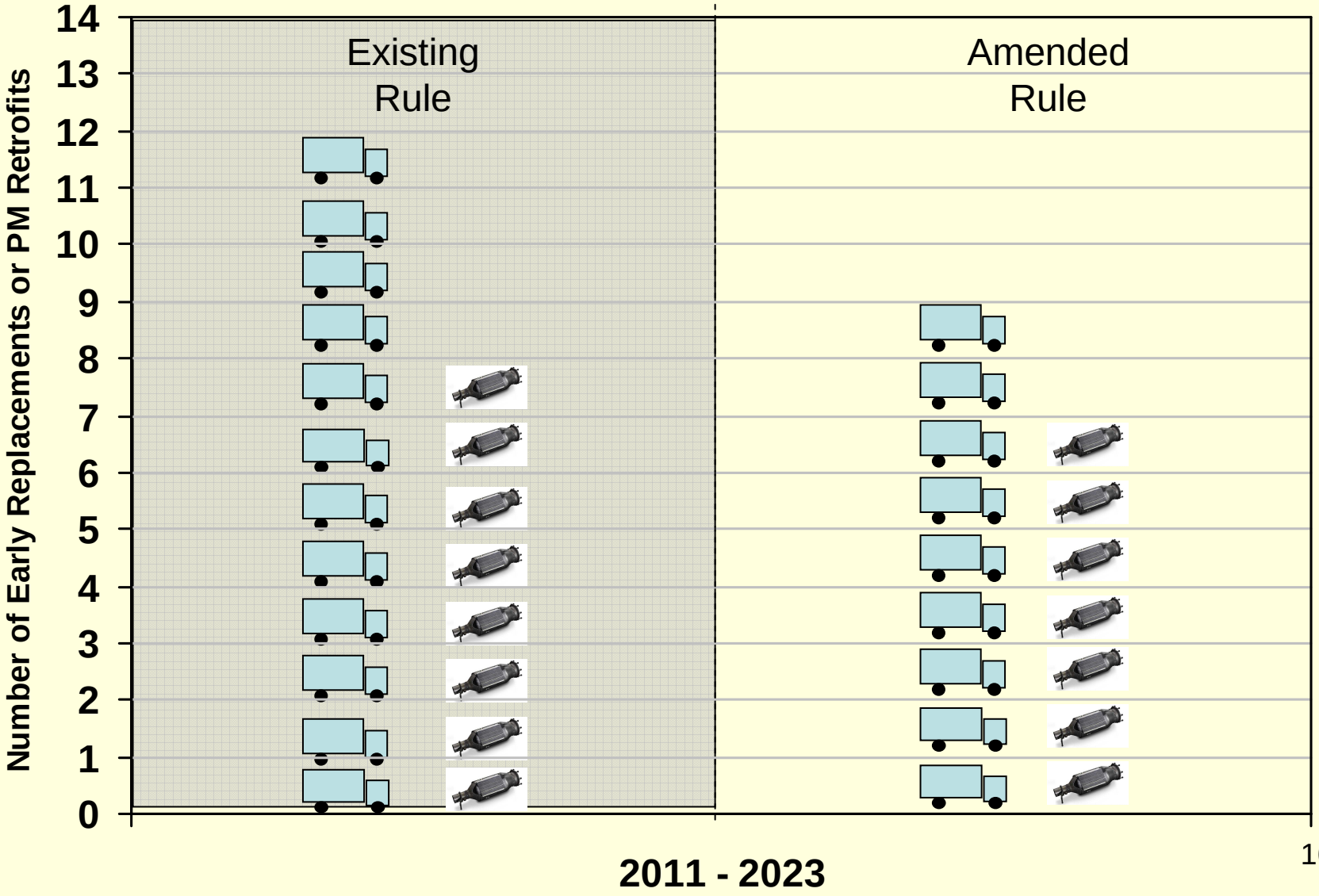
- Lower costs for all fleets
- First 5 year costs down by 60%
- Total 15 year costs down 60%
- Cost reduced $3.3 billion from current regulation



Moving Company



Concrete Company



School Buses Receive Relief Similar to Trucks

- Exclude GVWR less than 26,001 lbs.
- Delay start of PM filter phase-in 1 year
- Remove reporting
- 15 day change – Flexibility to retrofit MY 88-93

Seven Retrofits or One Replacement

$300 Million Provided to Clean up Public School Buses

Source of Funds	Number of Buses	
	Funding used for PM Filters	Actual use of Funding
State	13000	9000
Federal	0	500
Local	0	200
Remaining non-compliant buses	0	3300
Cost to retrofit remaining buses	0	$60 Million

Truck and Bus 15-day Changes

- New credit for early truck replacements
- New credit for PM filters on all vehicles early
- Ensure 2000 MY trucks still eligible for funding
- Expand NOx exempt attainment area provisions
- Two year deferral for lower-use construction trucks
- Early PM filters for 1996-1997 MY engines

Economic Relief for Drayage Truckers, Less Diesel PM in Communities

- Ensures public health protection in impacted communities
- Stops circumvention of rule
- Modernization delayed from 2014 to 2020
- Requires 2010 engines by 2023

Proposed Amendments to the Tractor-Trailer GHG Regulation

- Additional phase-in option for large fleets
- Extended deadline for tire compliance
- Delayed compliance for certain trailers
- Additional flexibility provisions

Proposed Amendments for Off-Road and LSI Vehicles

Delay Regulation Start by 4 Years for All Fleets

Fleet Size	Current Start	Proposed Start
Large	March 1, 2010	January 1, 2014
Medium	March 1, 2013	January 1, 2017
Small	March 1, 2015	January 1, 2019

Simplify and Reduce Annual Requirements

- Combine PM and NOx requirements
  - No mandatory retrofits
- Reduce BACT requirements
- Raise low-use threshold
  - from 100 to 200 hrs/yr

Simpler Option for Smallest Fleets

- Optional new path for fleets under 500 hp
- Phase out Tier 0 and Tier 1 vehicles
- Clear and simple path

Compliance date	Percent of fleet with cleaner engines
2019	25
2022	50
2026	75
2029	100

Expand Credit for Early Actions

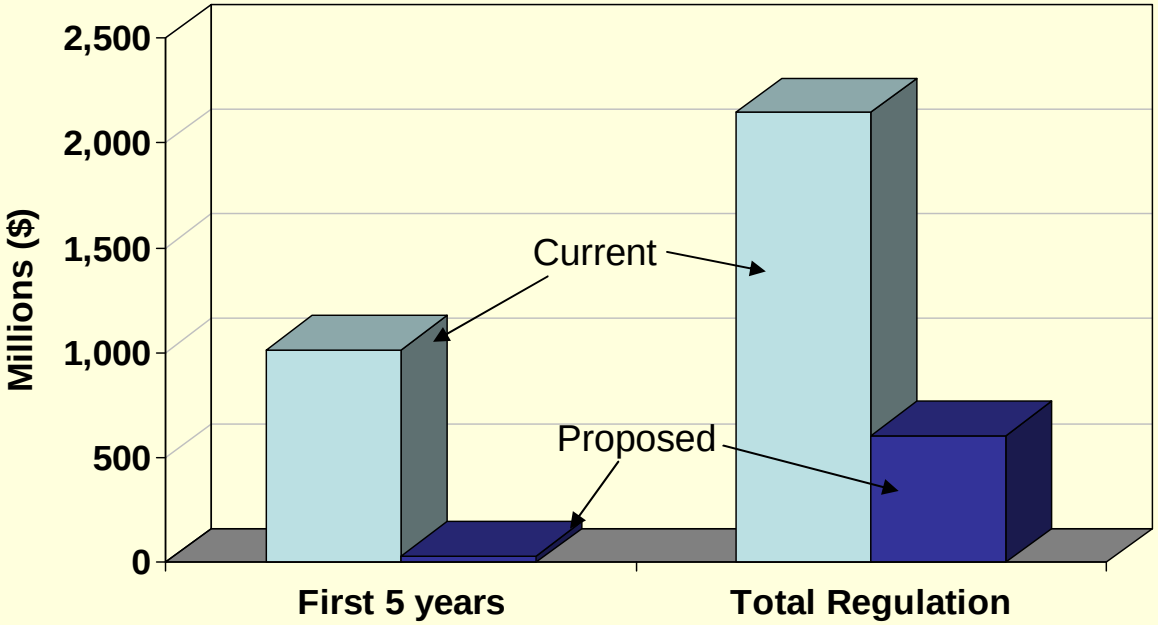
- Early double retrofit credits extended for all fleets
- Expand credits for fleets downsizing from 2010 to 2011
- New credit for fleets that complied with requirements in 2010

Amendments Change What Fleets Have to Do

Fleet Requirements	Existing Regulation	Proposed Amendments
Initial large fleet requirements	2010	2014
Number of mandatory retrofits	>100,000	0
Percent of fleets that can comply with 8 to 10% turnover annually with no other actions	~30%	100%
Percent of the fleet to be controlled by 2014	~85%	~5%
Percent of the cleanest engines in the fleet by 2023	~50%	~55%

Amendments Provide Significant Cost Savings to Fleets

- 2010 to 2014 costs down by 97%
- Peak year costs delayed to 2019
  - Lowered over 70%
- Cost reduced $1.5 billion from current regulation



Off-Road 15-day Changes

- Move both engines of two-engine vehicles into off-road regulation
- “Bubble” Concept - Allow additional retrofits in on-road or off-road to count towards either rule

LSI Amendments Provide Relief and Consistency Between Regulations

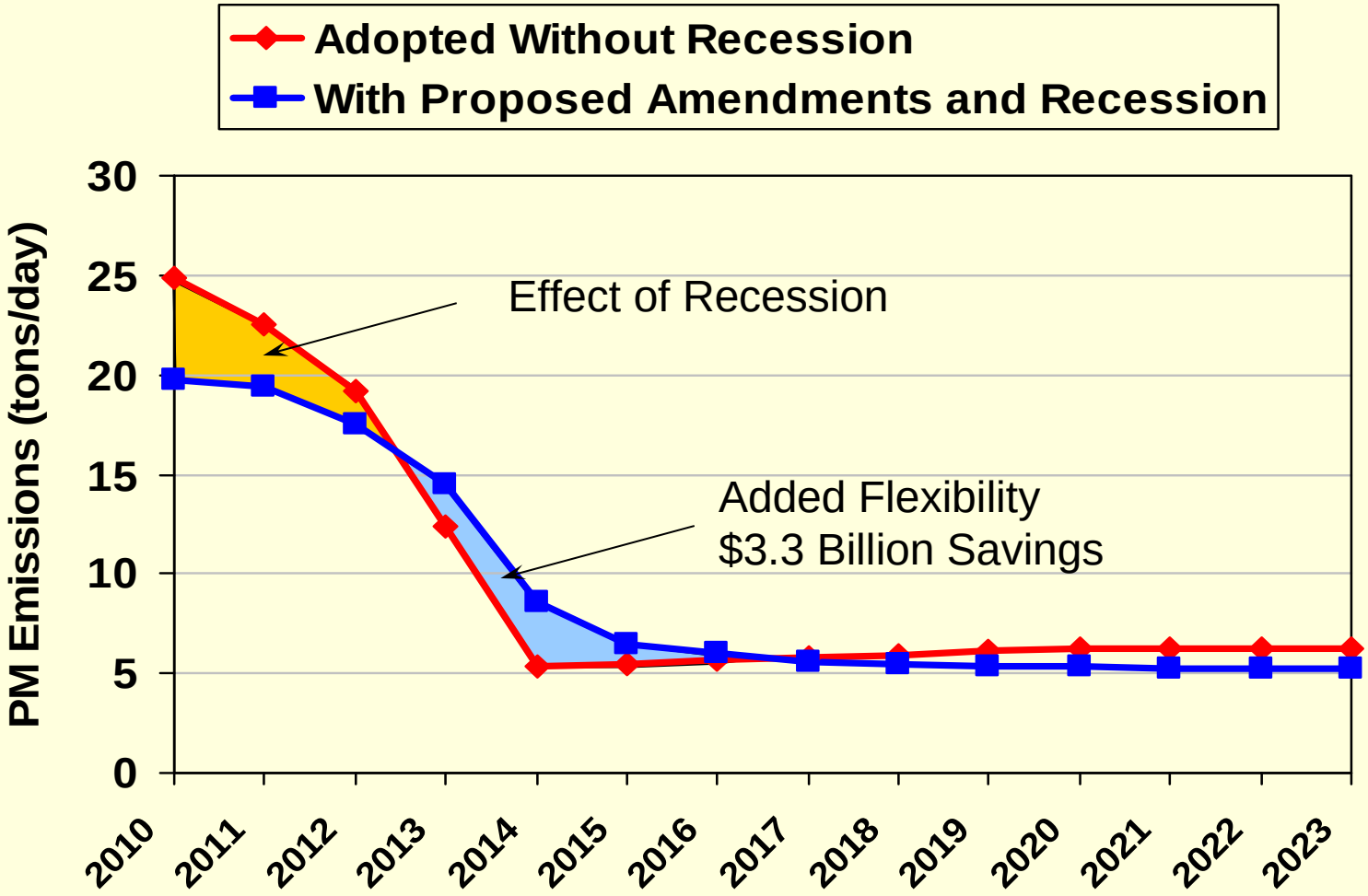
- Re-instate limited hours of use exclusion at 200 hrs/yr
- Broaden compliance extension for non-retrofittable specialty equipment
- Add and modify definitions

Combined On-Road and Off-Road Environmental Impacts

Amended Rules Protect Public Health

- 3900 premature deaths avoided
- Substantial reductions in localized risk
- Reductions toward Diesel Risk Reduction Plan
- School buses controlled – pupil exposures minimized

Combined PM Benefits Preserved 2011 to 2025



Amended Rules Meet SIP Targets

- 2007 SIP State Strategy committed Board to meet defined emission levels in 2014
- Amended rules provide 5 ton margin in South Coast
- Amended rules meet these levels in the San Joaquin Valley

We Remain on Track to Clean Up Diesel Engines

New diesel engine standards	√
Reformulated diesel fuel	√
Enforcement	In progress
Fleet rules	In progress
Incentivize clean up	In progress

More Opportunities for Funding

Funding Program	Funding Since December 2008	Additional Anticipated Funding Through 2012
1B Goods Movement	$230M	~$400M
Carl Moyer*	$60M	up to $138M
AB 118	$34M	$43M
Loans Guaranteed*	$35M	up to $250M
School Bus	$105M	$85M
Local & Federal Funds *	$120M	up to $230M

* Total on-road and off-road projects

Localized Benefits Confirmed

- July 2007 and July 2010 comparative study*
  - Focused on L.A./Long Beach port truck clean up
  - Exposures reduced by a factor of 2
- November 2009 to June 2010 Oakland study**
  - 40 to 50 percent emission reduction
  - Rapid rate of port truck clean-up observed
  - Similar reductions at Caldecott tunnel took 9 years

* Air Resources Board, Research Division
** Timothy Dalton and Robert Harley (UCB) and Thomas Kirchstetter (LBNL)

Conclusion

Conclusions

- Long term emissions same as expected
- Similar health benefits as expected
- Significant economic relief
- Recommend Board approve proposed amendments