

# Section V: The Freight Transport Challenge

## UCD ITS Asilomar Conference



*Advanced Transportation Technologies*

*Clean Transportation Solutions*<sup>SM</sup>

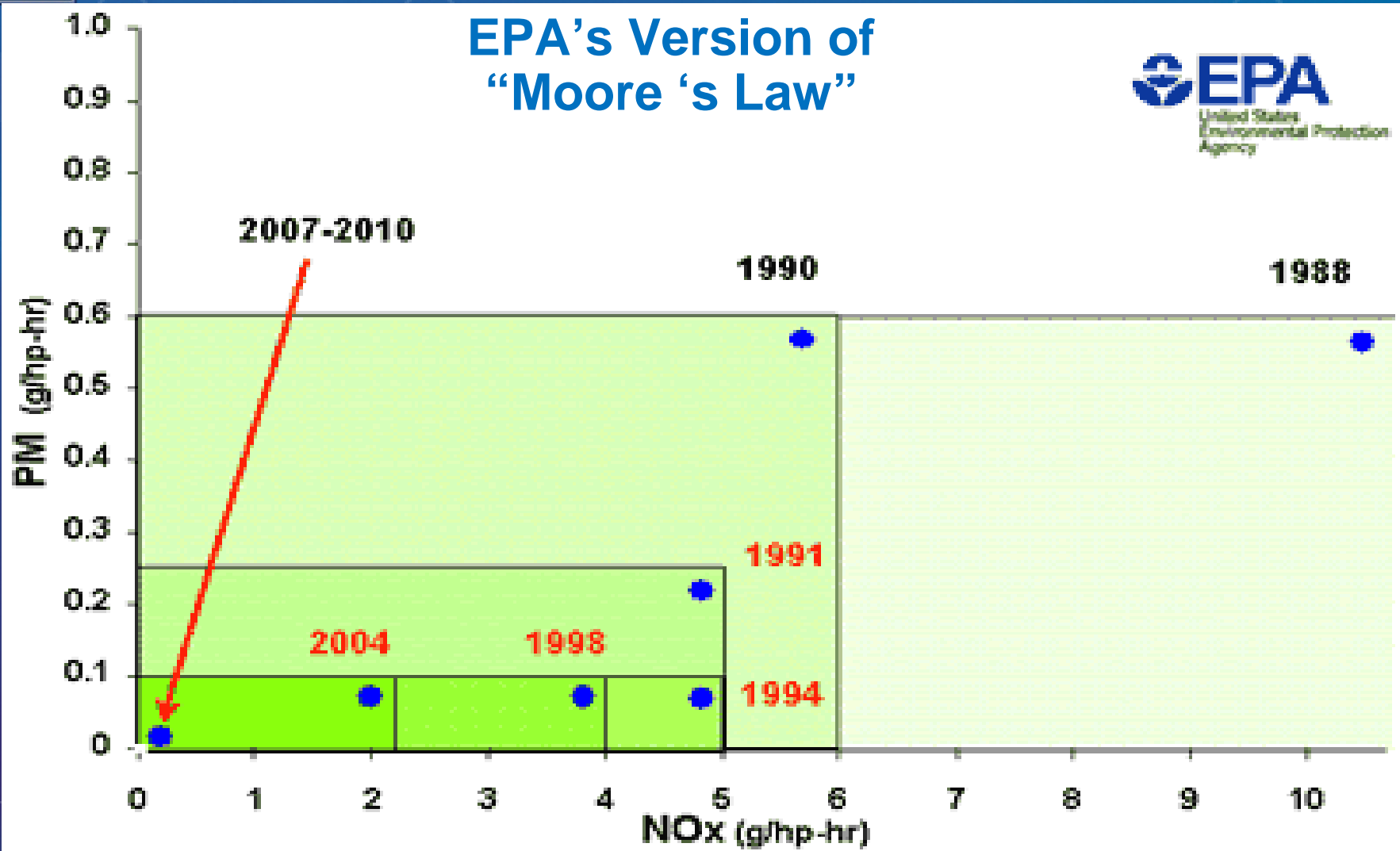


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**John Boesel**  
**President and CEO**  
**August 31, 2011**



# Emissions of HDV's Have Declined Significantly Over Short Period of Time





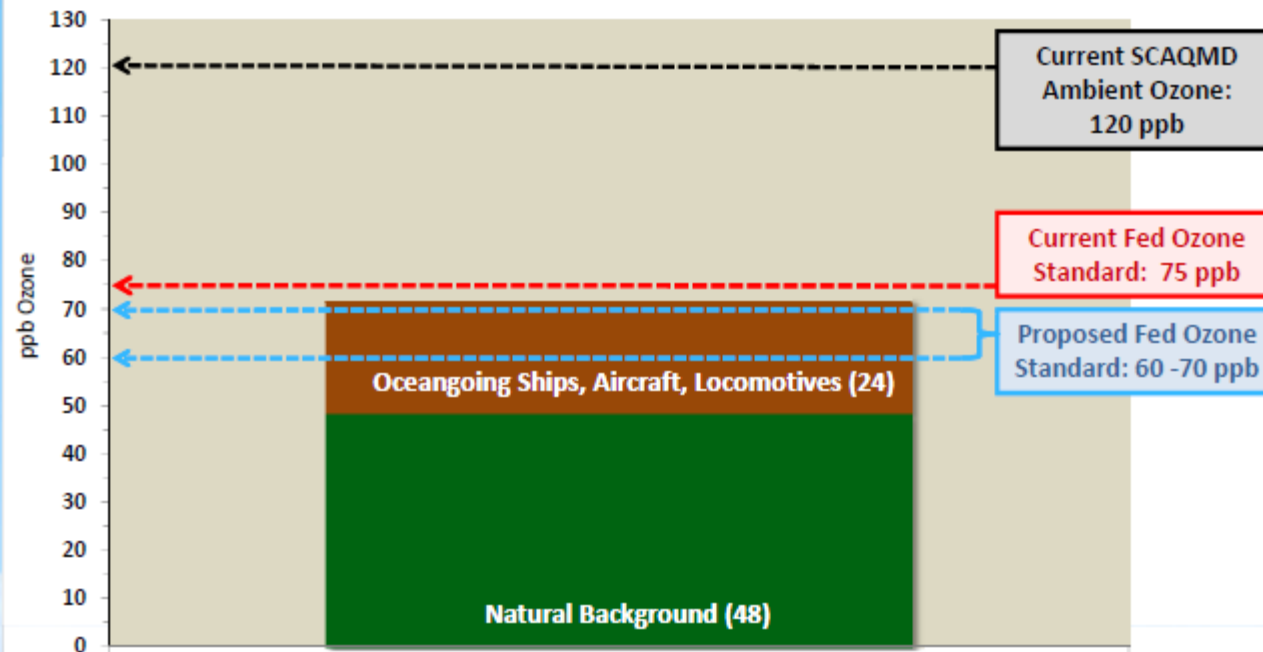
# New Air Rules Would Not Allow For On-Road Emissions in South Coast Region

Source:  
SCAQMD

## 2030 Ozone: Source Contributions

*Background + Ships + Aircraft + Locomotives = 72 ppb*

(With majority Tier 4 Locomotives; Approx 75% Tier 3 Ships)





# I-710 – The Nation’s Zero Emission Truck Corridor?

- 19 mile stretch of highway links nation’s largest port system to rail yard in East Los Angeles
- Corridor has national significance -- 40% of the containers shipped to the U.S. travel through the combined ports of Long Beach and Los Angeles
- Congestion and air quality related health concerns require new ways of thinking -- new truck only lanes being considered
- CALSTART examining feasibility of zero or near-zero emission & low carbon trucks for truck lanes



A zero emission truck only corridor along I-710 could reduce congestion and improve air quality

# First Stages: Identify Tech Feasibility, Barriers, Next Steps



- Draft report prepared for SCAQMD and Metro
- Key preliminary findings:
  - No technology barriers to developing zero-emission freight haul trucks
  - Could be commercial within 5-10 years
  - Key issues are product development, economic, business case and regulatory
  - Need to develop a comprehensive “ecosystem” for success of corridor, vehicles

## Preliminary Assessment



## Technologies, Barriers & Opportunities

### I-710 Zero-Emissions Freight Corridor Vehicle Systems

Based on Technology, Truck and System Designer Interviews

**SECOND** DISCUSSION DRAFT - VERSION 2.0  
June 2011

CALSTART





# Technology Readiness Options - I-710 ZET Lane Option

## Ready to Demonstrate Now

Dual Mode Diesel-Electric Hybrid 10-mile EV range

Battery Electric Vehicle - Full EV with limited range

Range-Extender EV with Fuel Cell

Range-Extender EV with Turbine

Double/Triple trailers; RNG fuel; other non-zero emissions technologies

## Ready to Demo Within 3 Years

Dual Mode Hybrid 30+mile range

H/EV with Catenary power

H/EV with In-Road power

Long-Range BEV and/or Plug-In EV/Fast-Charger

CNG Battery-Electric Hybrid

CNG "zero" emissions engines

## Ready to Demo Within 5+ Years

Advanced Fuels, Engines, and infrastructure

Platooning and ITS control of advanced trucks



# Similar to the Volt But Drivers Selects When ZE Miles Occur

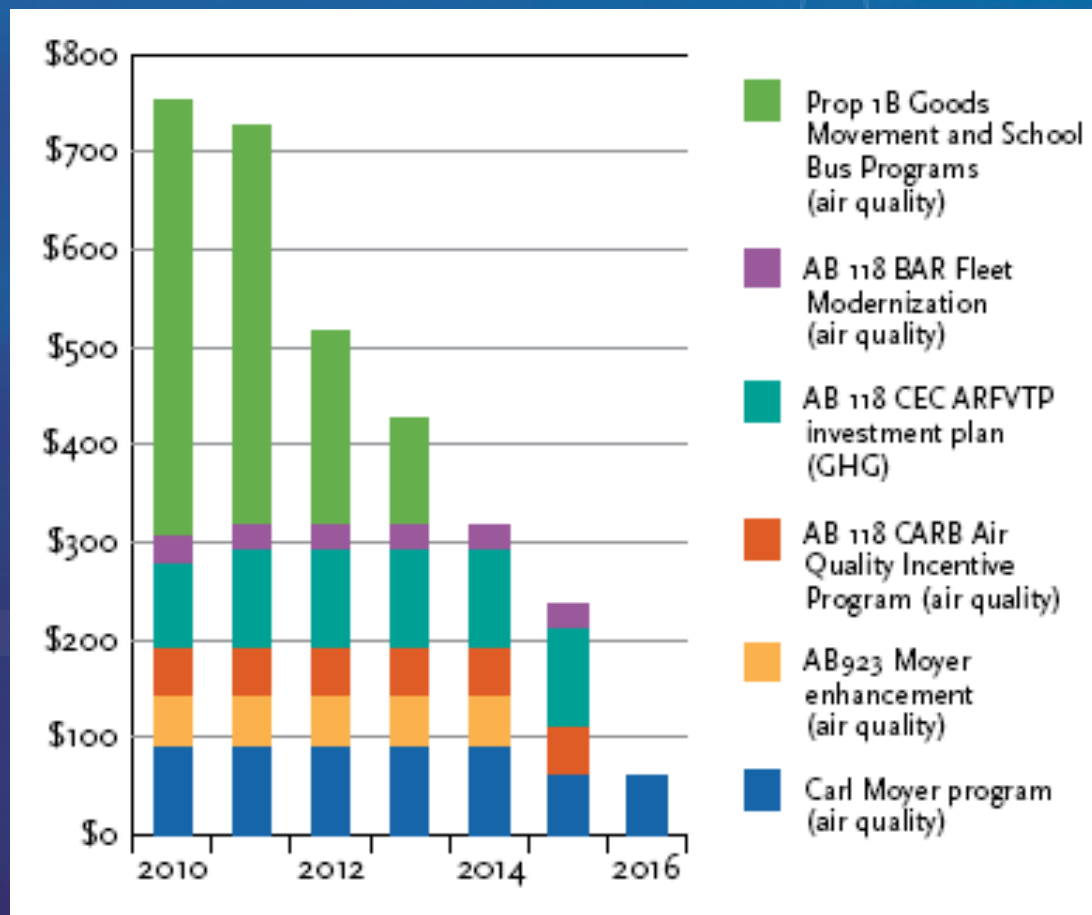


Volvo Plug-in Hybrid Diesel – Michelin Challenge Bibendum,  
Berlin, May 2011



# CA Clean Vehicles Incentives Will Decline Dramatically Over Next Five Years

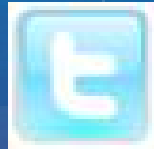
- Several incentive programs will sunset without action
- To sustain progress and meet air quality, climate, and energy security goals, 2012 levels probably need to be maintained
- Need to update criteria toward technologies and solutions that achieve multiple goals



*Funding for clean transportation is scheduled to drop off dramatically*



# ***Clean Transportation Solutions***<sup>SM</sup> ***Advanced Transportation Technologies***<sup>SM</sup>



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