

New Emissions Standards for Locomotives & Diesel Marine Engines



1

Reconciling the Diesel Engine With the Environment: A Comprehensive Approach

Highway



Tier 2 Light-duty (1999)



2007/2010 Heavy-duty (2001)

Common Aspects--

- Systems approach— fuel change enables clean technologies
- Very large environmental benefits
- Responsive to needs of States to meet NAAQS goals
- Collaborative process

Nonroad



Tier 4 diesel (2004)

Locomotive/Marine

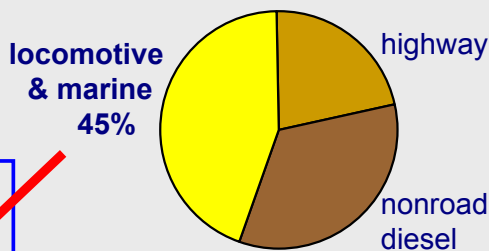


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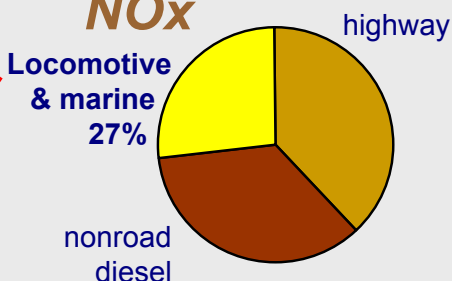
Mobile Source Inventories in 2030

- Potential reductions on the order of:
 - ~25,000 tons/yr of PM
 - ~900,000 tons/yr of NOx
- Compares to nonroad rule reductions of:
 - ~129,000 tons/yr of PM
 - 738,000 tons/yr of NOx

Diesel PM_{2.5}

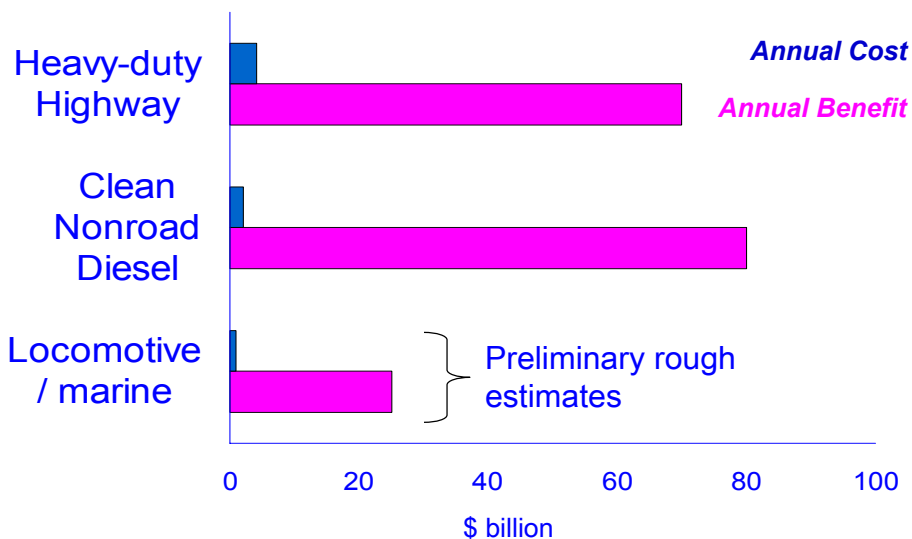


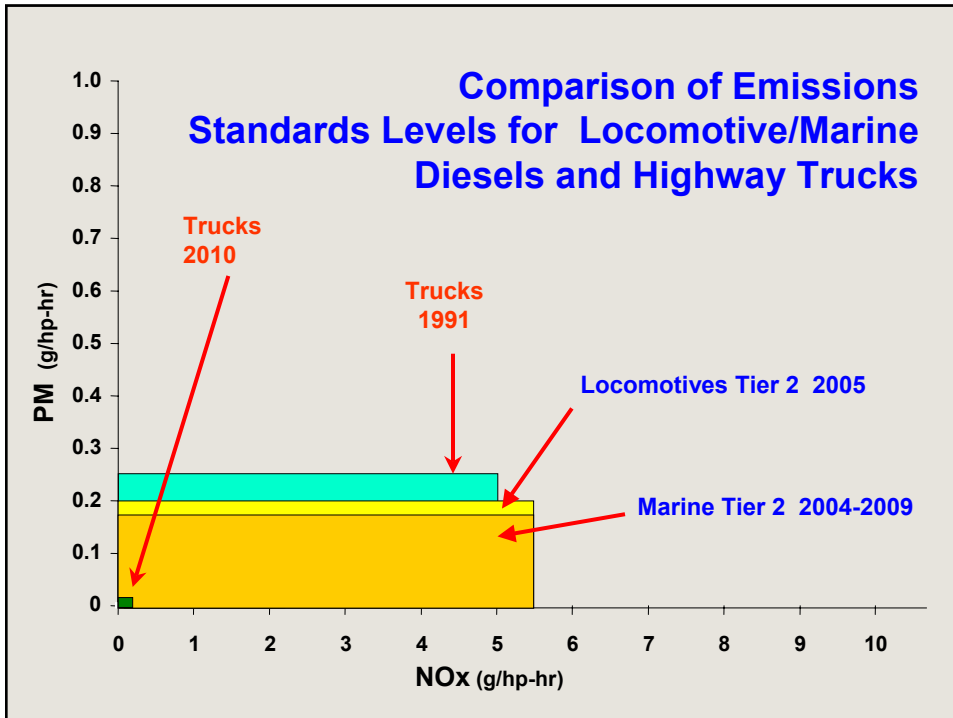
NOx



Potential Health Benefits

Are a Sizeable Fraction of Recent Historic Programs, with a Comparably Large Benefit-Cost Ratio





Locomotive & Marine Diesels Rulemaking

- Published Advance Notice in May 2004
- Targeting high-efficiency aftertreatment
 - Patterned after highway and nonroad programs
 - L&M fuel will be at 500 ppm in 2007, 15 ppm in 2012
 - Large pool of 15 ppm fuel (highway/nonroad) earlier
- Considering new standards as early as 2011
- PM-filter based standard is high environmental priority
- Possibly phase in NOx aftertreatment similar to highway/nonroad approach
- Looking to address existing locomotives too (at remanufacture)

Questions

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