Nonroad Diesel 2001

January 16, 2001

Statutory Authority

- With the Clean Air Act Amendments of 1990:

  Section 213 of 1990 Act directed EPA to:
  - evaluate contribution of nonroad sources to urban nonattainment
  - adopt standards if warranted
  - consider comparable highway standards in determining stringency
  - achieve greatest emission reduction possible considering cost, safety, etc.

  regulate any nonroad category that contributes to air pollution

Statutory Authority

- Section 209 of 1990 Act:
  - preempts all state regulation of locomotives and of farm and construction equipment <175 hp
  - allows California to set independent standards for other nonroad sources, with authorization from EPA Administrator
  - allows other states to adopt California standards
- **1991**: EPA study found that nonroad diesels (tractors, bulldozers, ...) are large part of ozone and PM problem

Existing Nonroad CI Regulations Schedule

Year	Tier 1	Tier 2	Tier 3
	Hp phase-in	Hp phase-in	Hp phase-in
1996	175</= to < 750		
1997	100</= to < 175		
1998	50</= to < 100		
1999	25</= to < 50		
2000	<25 and > 750		
2001		300</= to < 600	
2002		600</= to < 750	
2003		100</= to < 300	
2004		25</= to < 100	
2005		<25	
2006		> 750	175</= to < 750
2007			100</= to < 175
2008			50</= to < 100

Harmonization

- Currently in discussion with and obtaining feedback from European government and industry representatives to ensure coordination of implementation schedule and test procedures
- Seeking feedback from Japan on the process
- Nonroad harmonization can serve as a model for future efforts

Potential Regulation

- Timetable for NOx+HC emissions remains consistent with the regulations as adopted
- Timetable for appropriate PM emissions will be addressed in the effort based on appropriate and available technology, based on other factors such as fuel availability, etc.

Nonroad Fuel

- Assuming transfer of some on highway engine technology to nonroad applications
- Fuel sulfur reduction to enable comparable engine technologies
- Current on-highway certification fuel Sulfur level is an option
  - One proposal the Agency has received from industry includes a 500 ppm S cap for nonroad.
  - Due to distribution concerns and other issues - locomotive, marine, and possibly home heating oil may have S levels comparable to nonroad.

Nonroad Diesel Inventory Impacts

It is anticipated that by 2007,

Nearly 50% of Nonroad Mobile Source NOx emissions will be due to Nonroad Diesel applications.

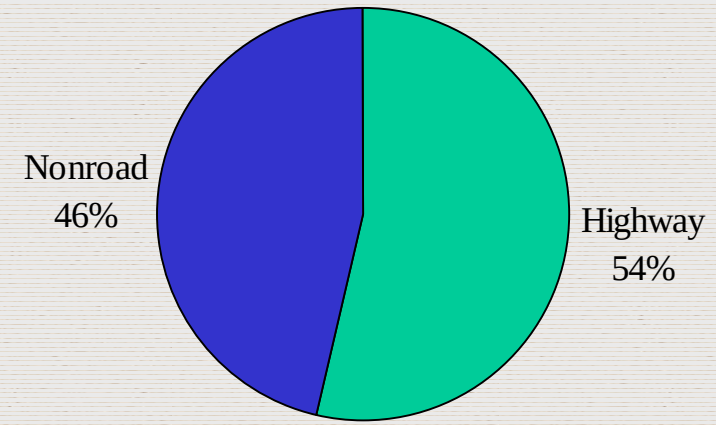
and

Greater than 50% of Nonroad Mobile Source PM emissions will be due to Nonroad Diesel applications.

2007 Mobile Source NOx Inventory

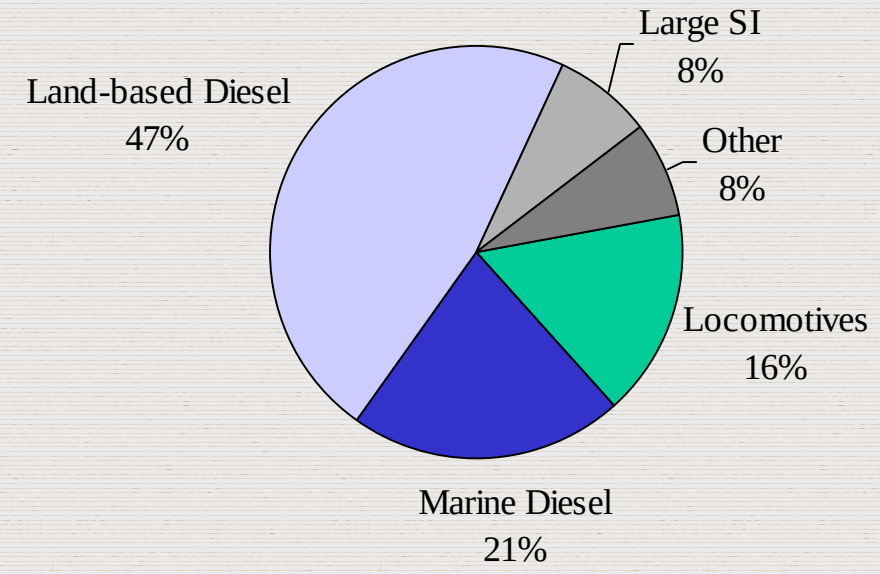
Mobile Sources

~10 million tons per year



Nonroad

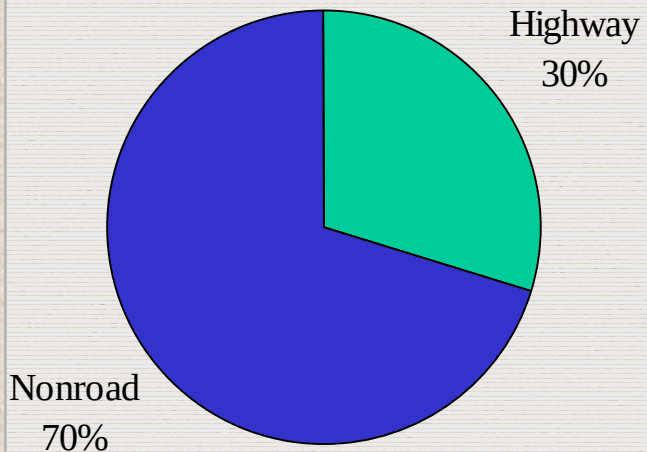
~5 million tons per year



2007 PM Inventories

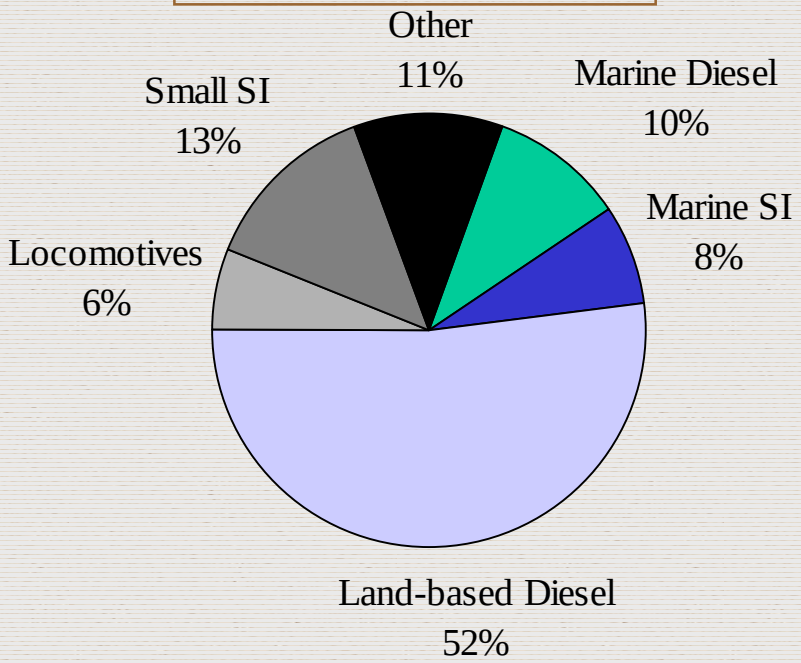
Mobile Sources

~600,000 tons per year



Nonroad

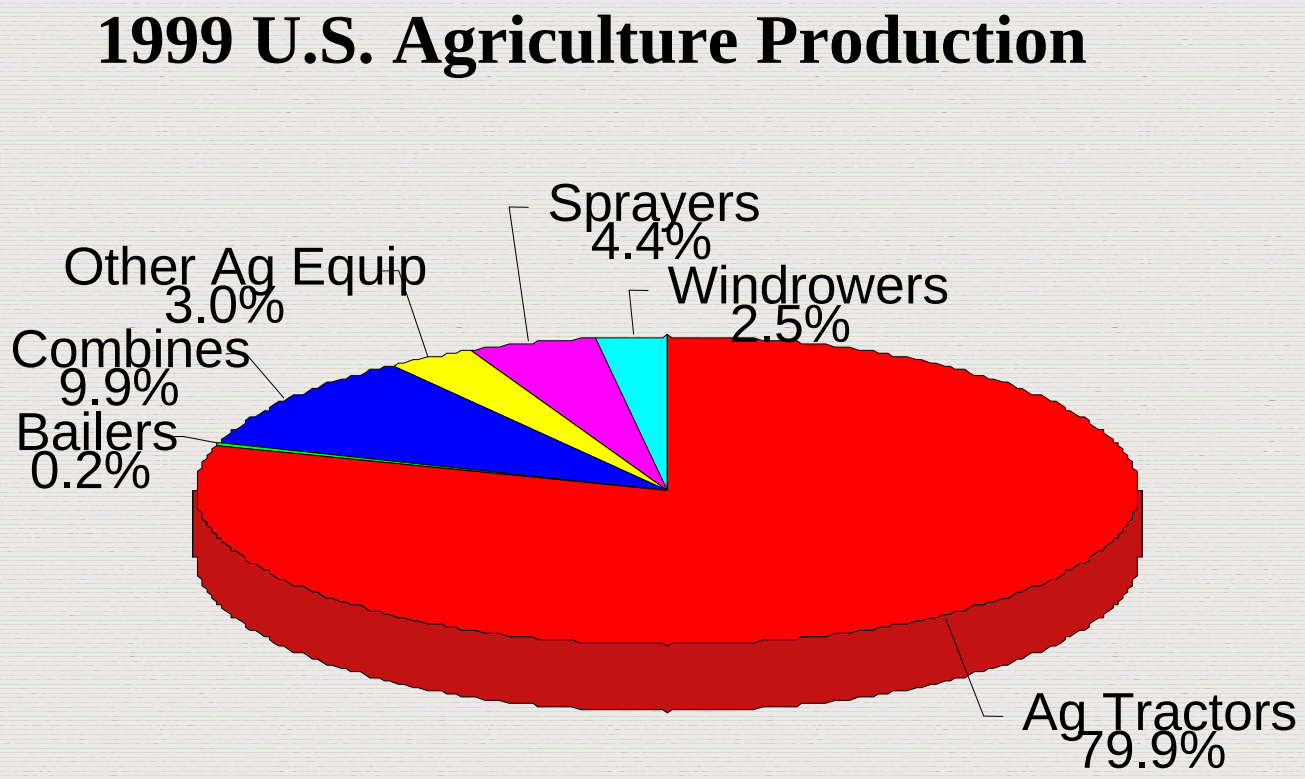
~420,000 tons per year



Feasibility

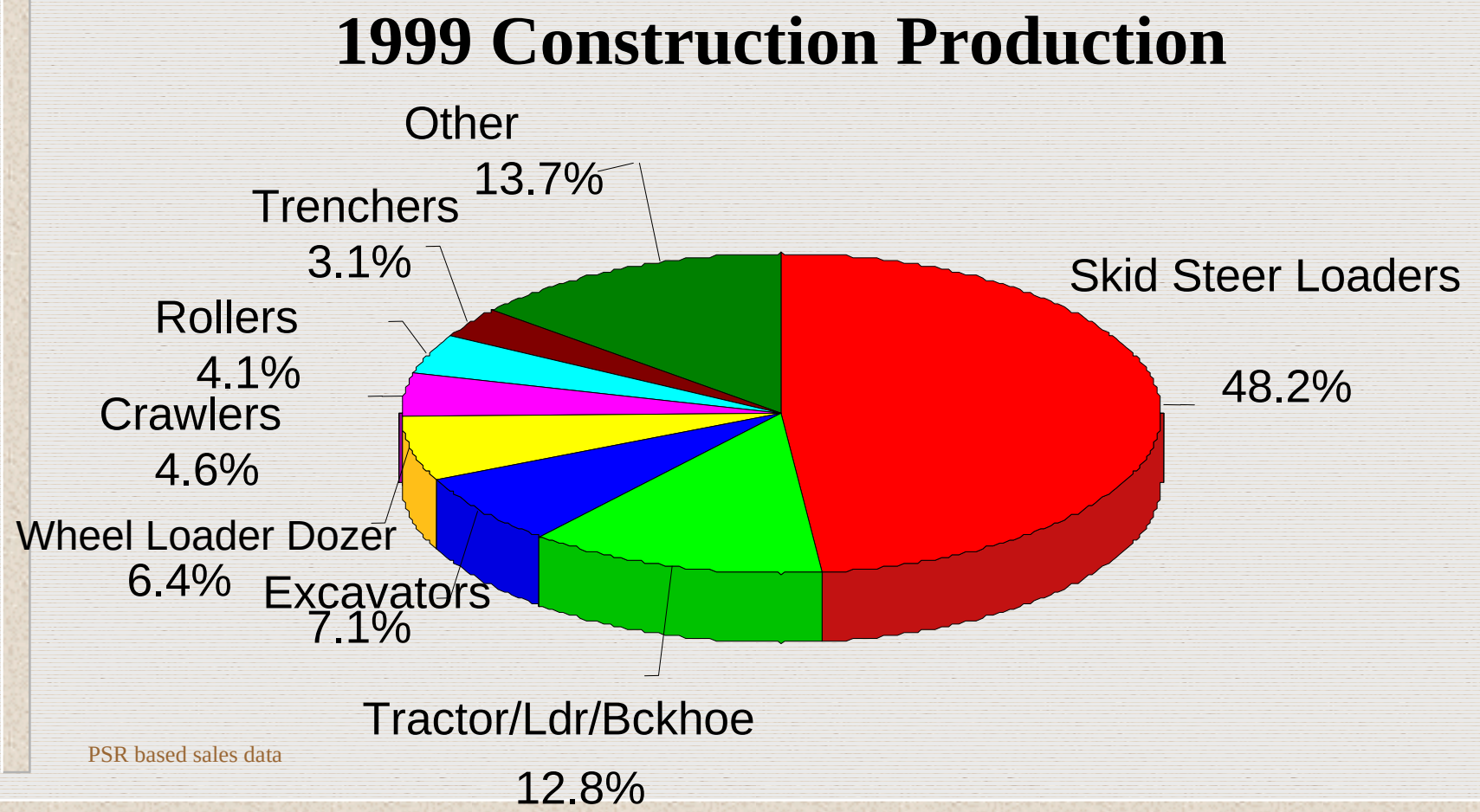
- The nonroad market has a diverse set of applications
- Beyond current regulatory efforts,
  - the issue of the feasibility of control technologies can serve as a driving force implementation
  - equipment constraints are being considered

Nonroad Market



PSR based sales data.

Nonroad Market (continued)



PSR based sales data

Potential Scenarios

- Retention of Current NOx standards with current schedule and PM limits mirroring Highway 2004
- Retention of Current NOx standards with current schedule and aftertreatment forcing PM limits, however potential technical constraints may exist
- Aftertreatment forcing standards with or without a Tier 3
- Phase in of aftertreatment forcing standards based on an as yet to be determined timeline

The timeline for the rulemaking is dependent on the aspects of nonroad emissions control undertaken, including:

- fuel control
- target NOx
- implementation schedule
- target PM levels

Still targeting completion fo the technology review for the Tier 3 NOx+HC and PM levels by December 2001.