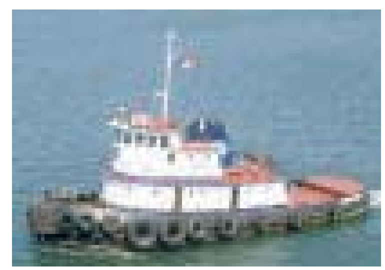
Informal document No. **GRPE-54-18**
(54th GRPE, 4-8 June 2007,
Agenda item 9.)

U.S. EPA Locomotive and Marine Diesel Proposal

Presentation to NRMM Working Group

Geneva, June 2007



Overview

- Background
- What the rule covers
- What we have proposed
- Benefits and Costs
- The Process for Completion

Reconciling Diesels with the Environment: **EPA's National Clean Diesel Campaign**

Tier 2 Light-Duty

final rule 1999
fully phased in 2009
Diesels held to same stringent standards as gasoline vehicles

Heavy-Duty Highway

sales 800,000 / yr
40B gallons / yr
final rule 2000
fully phased in 2010

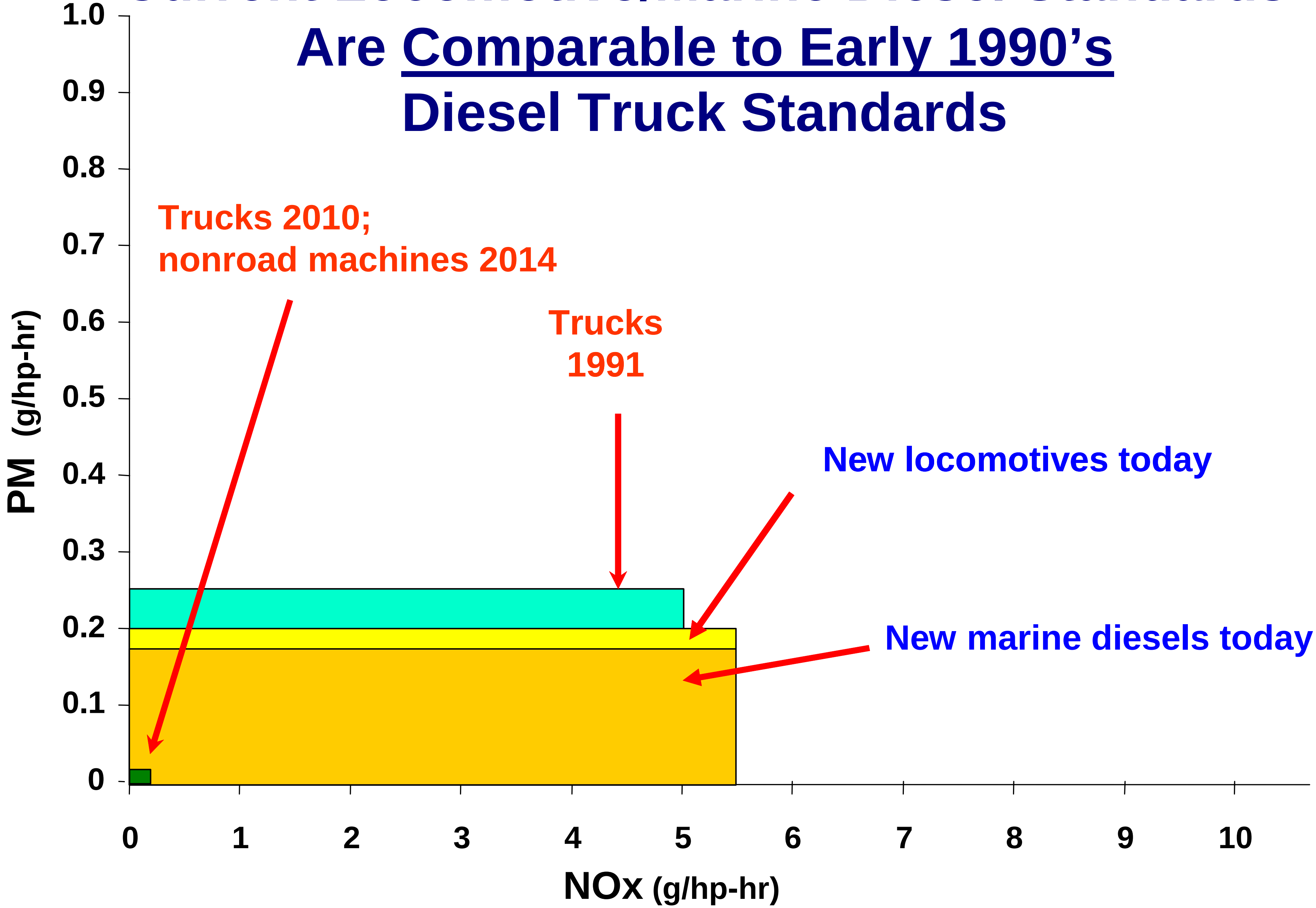
Locomotive/Marine

sales 40,000 (1,000 locomotives) / yr
6B gallons / yr
proposal 2007
fully phased in 2017

Nonroad Diesel

sales over 650,000 / yr
12B gallons / yr
final rule 2004
fully phased in 2015

Current Locomotive/Marine Diesel Standards Are Comparable to Early 1990's Diesel Truck Standards



What the Rule Covers-- Locomotives

Line-Haul

Switch

Sales ~700-1200 / year

Typically rebuilt every 5-7 years

Passenger

What the Rule Covers--
Marine Diesels

<75 hp
<10,000/year

gen sets

sailboats

Recreational
~15,000/year

cruisers

yachts

Category 1 Commercial **(<5 liter/cylinder)**
~15,000/year (about half are aux engines)

workboats

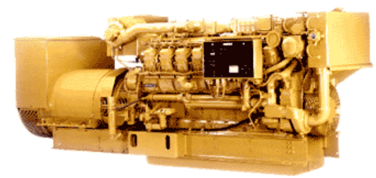
police boats

fishing vessels

Category 2 **(5 to 30 liter/cyl)** **<300/year**

tugboats

ferries



auxiliary power for ocean-going vessels

Great Lakes freighters

Category 3
(>30 liter/cyl)

ocean-going ships

Covered in separate initiative

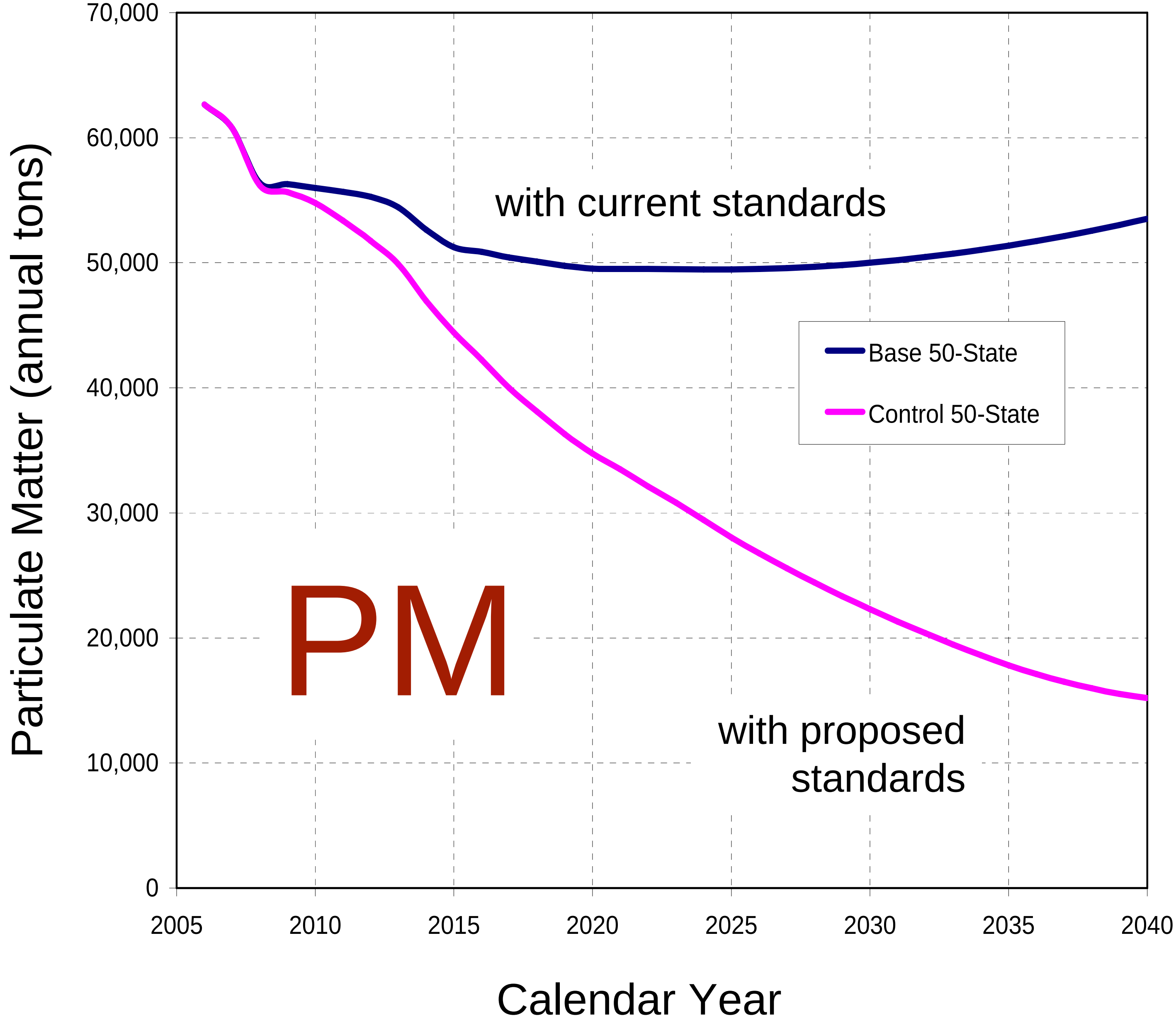
Proposed Locomotive Standards

locomotive groups	date	PM		NO_x	
		standard (g/hp-hr)	reduction %	standard (g/hp-hr)	reduction %
Remanufactured Locomotive Standards					
Remanufactured Tier 0 & 1	2008 as available 2010 required	**0.22**	~60%	**7.4 - 8.0**	~20%
Remanufactured Tier 2	2008 as available 2013 required	**0.10**	50%	**5.5**	--
Newly-built Locomotive Standards					
New Interim (Tier 3) Standards	2012	**0.10**	50%	**5.5**	--
New Long-Term (Tier 4) Standards	PM 2015 NO_x 2017	**0.03**	~90%	**1.3**	80%

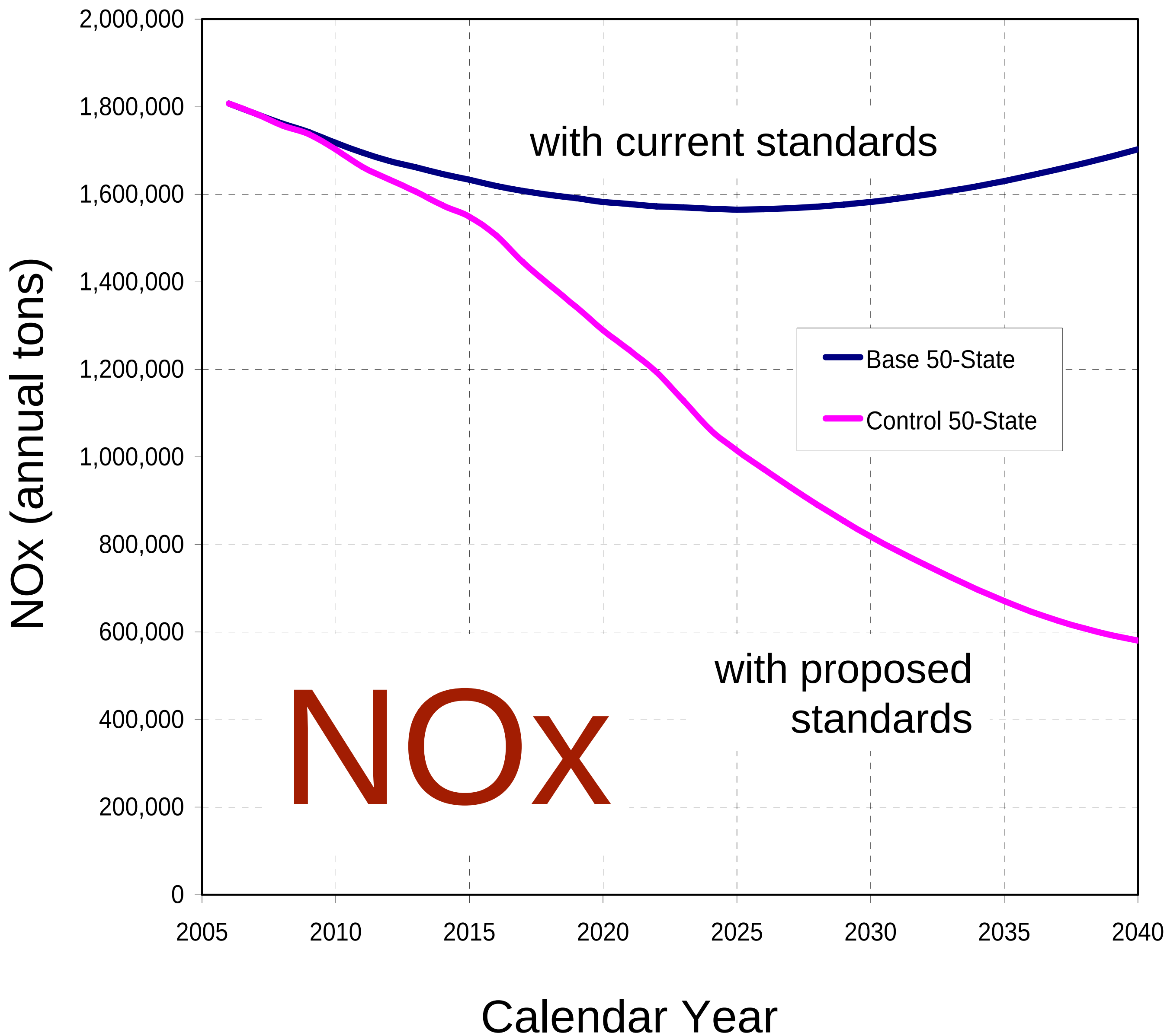
Proposed Marine Diesel Standards

	date	PM		NO_x	
		standard (g/hp-hr)	reduction %	standard (g/hp-hr)	reduction %
New Interim (Tier 3)	2009-2014	**varies by engine size**	~50%	**varies by engine size**	~20%
New Long-Term (Tier 4) Commercial >600kW	2014-2017	**0.03**	~90%	**1.3**	~80%
Existing Marine Engines (requesting comment on remanufacturing stds)	2008	**20-60% reduction**		**0-20% reduction**	

Nationwide PM Reductions From the Proposal



Nationwide NOx Reductions From the Proposal



Proposal Annual Costs and Benefits in 2030

	PM	NO_x
Cost	$159M	$446M
Inventory reduction, tons	28,000	765,000
Cost per ton	$5560	$580
Unit cost as % of typical new locomotive price (similar for marine; varies vessel to vessel)	3%	
Monetized benefits	$12B	
Benefit to cost ratio	20:1	

The Process Toward Completion

- Proposal signed March 1
- Available at EPA's website
  - http://www.epa.gov/otaq/marine.htm
- Public hearings were held:
  - Seattle, 8th of May
  - Chicago, 10th of May
- Comment period will close 2nd of July
- Targeting final rule by the end of the year