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EPA's National Clean Diesel Campaign

February 2008

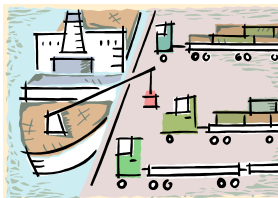
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Presentation Overview

- **Update on IMO Negotiations**

- MARPOL Annex VI
- Ocean-Going Vessels



- **National Clean Diesel Campaign**

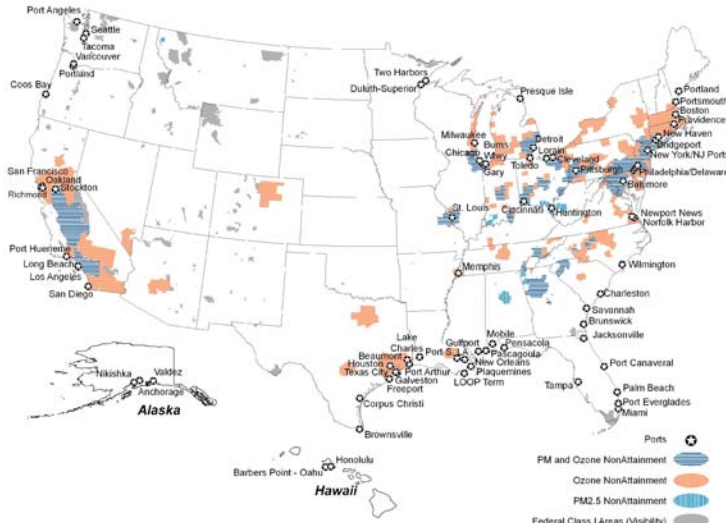
- Energy Policy Act (2005) implementation
- Funding

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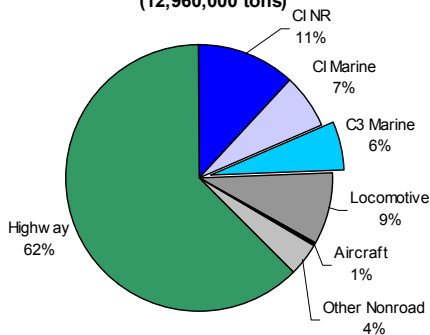
Ports and Nonattainment Areas



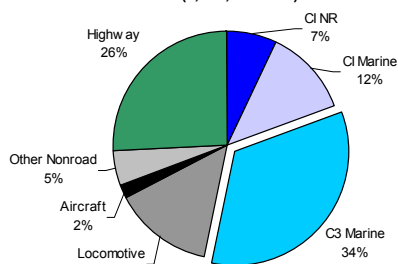
Inventory Overview for NOx

- Marine diesel engines contribute significantly to mobile source air pollution in the United States

2001 Mobile Source NOx Inventory
(12,960,000 tons)



2030 Mobile Source NOx Inventory
(6,010,000 tons)



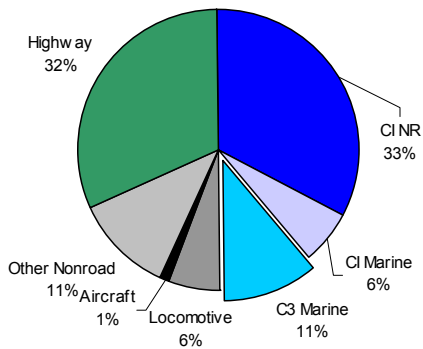
Source of inventory estimates: C3 Marine ANPRM, 72 FR 69522 (Dec 7, 2007)



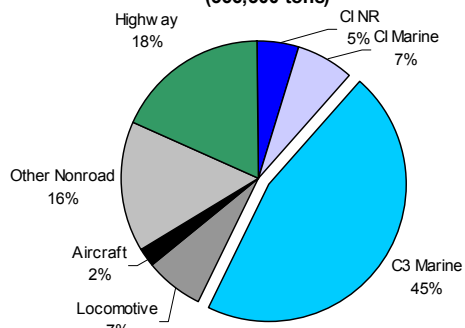
Inventory Overview for PM_{2.5}

- The marine diesel contribution is expected to grow as emissions from other sources decrease

2001 Mobile Source PM_{2.5} Inventory
(500,400 tons)



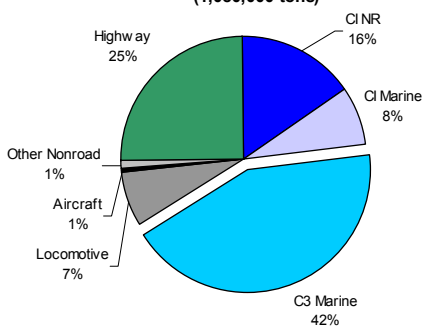
2030 Mobile Source PM_{2.5} Inventory
(366,300 tons)



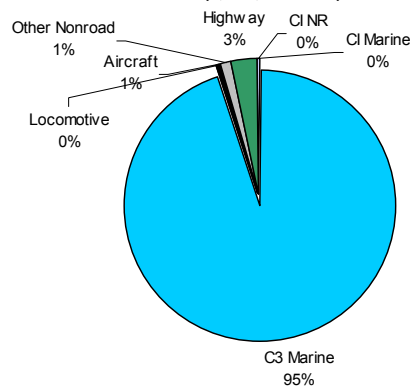
Inventory Overview for SO_x

- SO_x emissions are high due to the sulfur content of residual fuel used in C3 engines

2001 Mobile Source SO₂ Inventory
(1,080,000 tons)



2030 Mobile Source SO₂ Inventory
(1,480,000 tons)





Ocean-Going Vessels

C3^a Contribution to Selected Ports

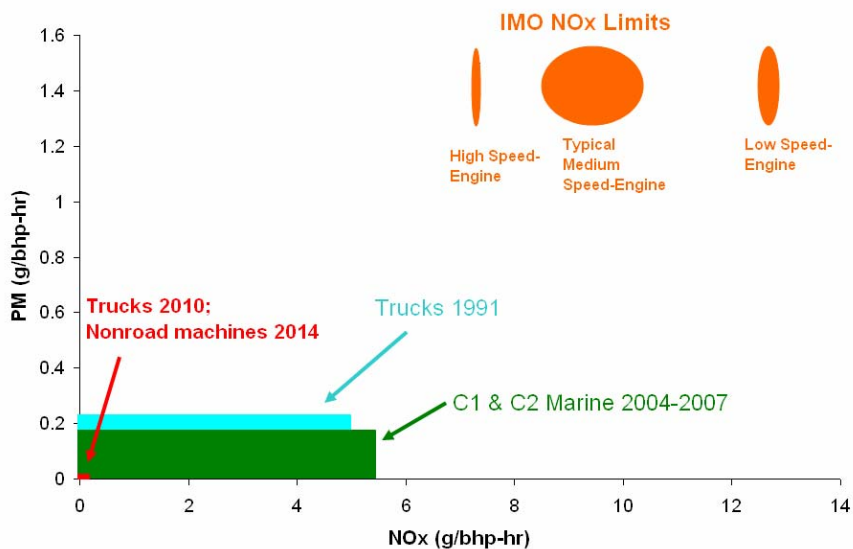
Port Area	NOx	PM _{2.5}	SOx
Valdez, AK	4%	10%	43%
Seattle, WA	10%	20%	56%
Tacoma, WA	20%	38%	74%
San Francisco, CA	1%	1%	31%
Oakland, CA	8%	14%	80%
LA/Long Beach, CA	5%	10%	71%
Beaumont, TX	6%	20%	55%
Galveston, TX	5%	12%	47%
Houston, TX	3%	10%	41%
New Orleans, LA	14%	24%	59%
South Louisiana, LA	12%	24%	58%
Miami, FL	13%	25%	66%
Port Everglades, FL	9%	20%	56%
Jacksonville, FL	5%	11%	52%
Savannah, GA	24%	39%	80%
Charleston, SC	22%	33%	87%
Wilmington, NC	7%	16%	73%
Baltimore, MD	12%	27%	69%
New York/New Jersey	4%	9%	39%
Boston, MA	4%	5%	30%

- Emissions from OGVs can be important in specific ports (2002; source: 2007 ANPRM)

^a This category includes emissions from Category 3 (C3) propulsion engines and C2/3 auxiliary engines used on ocean-going vessels.



US Standards Comparison





Ocean-Going Vessels

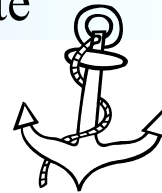


- **Regulatory Program**
 - International actions at International Maritime Organization
 - Engine standards
 - Fuel standards
 - Domestic actions pursuant to Clean Air Act
 - Category 3 Engine standards
- **Additional Actions**
 - Port authority lease agreements
 - Eco-speed programs (e.g., Port of Long Beach)
 - “Cold ironing” or shore-side electric power (e.g., AMP)
 - Freight owners interest in sustainable environmental footprint
 - Technologies and cleaner fuel demonstrations

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IMO Annex VI Update



- **MARPOL**
 - International Convention for the Prevention of Pollution from Ships, 1973, as Modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78)
- **Annex VI**
 - Regulations for the Prevention of Air Pollution from Ships (1997 Protocol)

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Annex VI Update



- MARPOL Annex VI entered into force as of May 19, 2005.
- Senate gave advice and consent on April 6, 2006.
- House passed H.R. 802, an Act “To amend the Act to Prevent Pollution from Ships to implement MARPOL Annex VI” on March 26, 2007.
- H.R. 802 is presently before to the Senate Commerce, Science, and Transportation Committee for consideration.

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Annex VI SO_x Limits

- **The Annex also contains fuel sulfur content limits**
 - 45,000 ppm generally
 - 15,000 ppm for SO_x Emission Control Areas (SECAs)
 - Two areas so far: Baltic Sea and North Sea
 - Current global average is about 27,000 ppm
- A SECA is a mechanism available under Annex VI
 - EPA, in cooperation with a number of stakeholders, including CARB and Environment Canada, is performing the technical background work necessary for the US to make a decision regarding applying to IMO in the future for a SECA designation

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IMO Subcommittee Meeting

- NOx Agreements
 - New Builds
 - Tier 2: 2.5 g/kW-hr reduction from Tier 1 in 2001
 - Tier 3: 80% reduction from Tier 1 in 2016
 - Existing Engines (1990-1999)
 - Kit Approach
- Three Fuel Sulfur Options
 - Global: 10,000 ppm in 2012*, 5,000 ppm in 2015*
 - Regional: Global cap remains unchanged; Emission Control Areas
 - Global/Regional with Micro-Areas

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Annex VI - Enforcement

- We are engaged in the IMO Annex VI negotiation process
- The standards can be enforced against any ship that visits a port of a country that is a party to the convention after that port state ratifies the Annex, whether or not the flag state of the ship has ratified

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National Clean Diesel Campaign



- **Technology-driven**
- **Cost-effective**
- **Helping communities achieve public health goals**



Marcus Peacock (EPA Deputy Administrator) and Wayne Natri (EPA R9 Administrator) present \$300,000 award to Port of Long Beach for Hybrid Yard Hostler Project.

- **Appropriation for the first time under Energy Policy Act (\$49.2 million in FY08)**
 - **Verified/Certified technologies and engines**
- 15. **Funding available this spring**



Recognizing Best Practices

- **Verification of technologies**
- **Recognition for fleet owners, port authorities and terminal operators reducing pollution**
- **Clean Ports USA web site features case studies**
 - We're looking for your information about projects
 - Clearinghouse: creating searchable database





Air Emissions Reduction Strategies

•Technology Strategies

- Refuel
- Retrofit
- Repair/Rebuild
- Repower
- Replace



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•Operational Strategies

- Idle Reduction
- Improved Port Efficiency
- Use of On-shore Power
- Considering Air Quality Impacts of Security Changes
- Contract Specs, Chassis Pools

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Opportunities Available Now

• EPA's programs are in place to help communities clean up diesel engines

- Through these programs EPA is working with its partners to develop and implement strategies

• Now is the time to target the existing fleet

- Cost effective strategies exist today
- Cleaner fuels are deployed throughout the country
- Broad stakeholder support
- States and Tribes putting plans in place to achieve PM and Ozone attainment goals or regional haze
- Funding opportunities exist at state and federal level

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Additional Information

- More information about EPA's Clean Ports USA can be found on our website:
 - www.epa.gov/cleandiesel/ports
- Contact
 - Trish Koman at 734-214-4955
 - koman.trish@epa.gov



National Clean Diesel Campaign