Port Air Quality Improvement Strategies

Rick Cameron
Director of Environmental Planning

What is the Clean Air Action Plan?

- Joint plan by POLA & POLB
- To significantly reduce air pollution from port-related mobile sources
- Developed in cooperation with USEPA, CARB, AQMD

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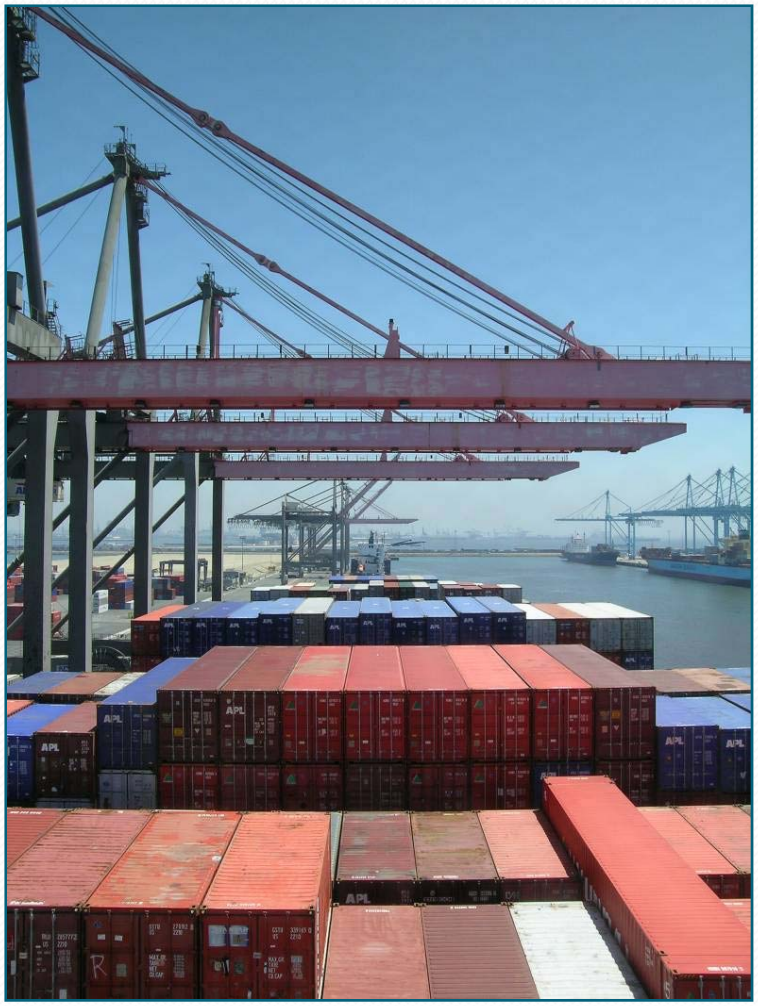
Clean Air Action Plan Principles

- Minimize health risk
- Reduce "fair share" of air emissions
- Set consistent standards
- Allow port development to continue



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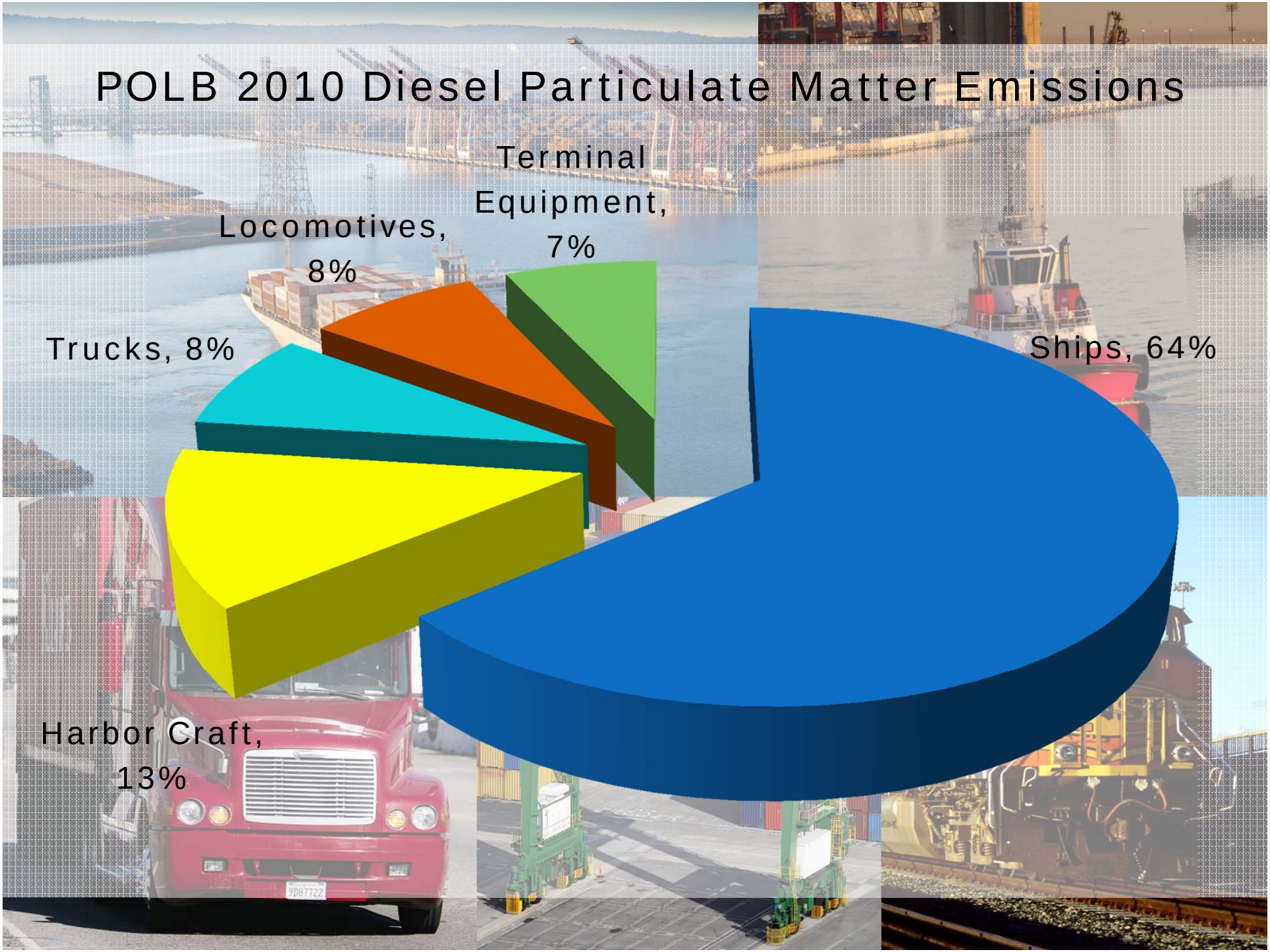
POLB 2010 Diesel Particulate Matter Emissions



Clean Trucks Program

2012 - Deadline for port trucks to meet 2007 model year standards

100% - Current percentage of trips made with "clean" trucks

90% - Percentage of pollution reduced from trucks

2 - Number of years ahead of schedule

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Vessel Speed Reduction

12 knots – Reducing speed to 12 knots on arrival and departure prevents significant pollution

90% - Goal for voluntary participation in the program to 20 or 40 nm

25% - Dockage discount for participation to 40 nm

96% - Current participation to 20 nm

83% - Current participation to 40 nm

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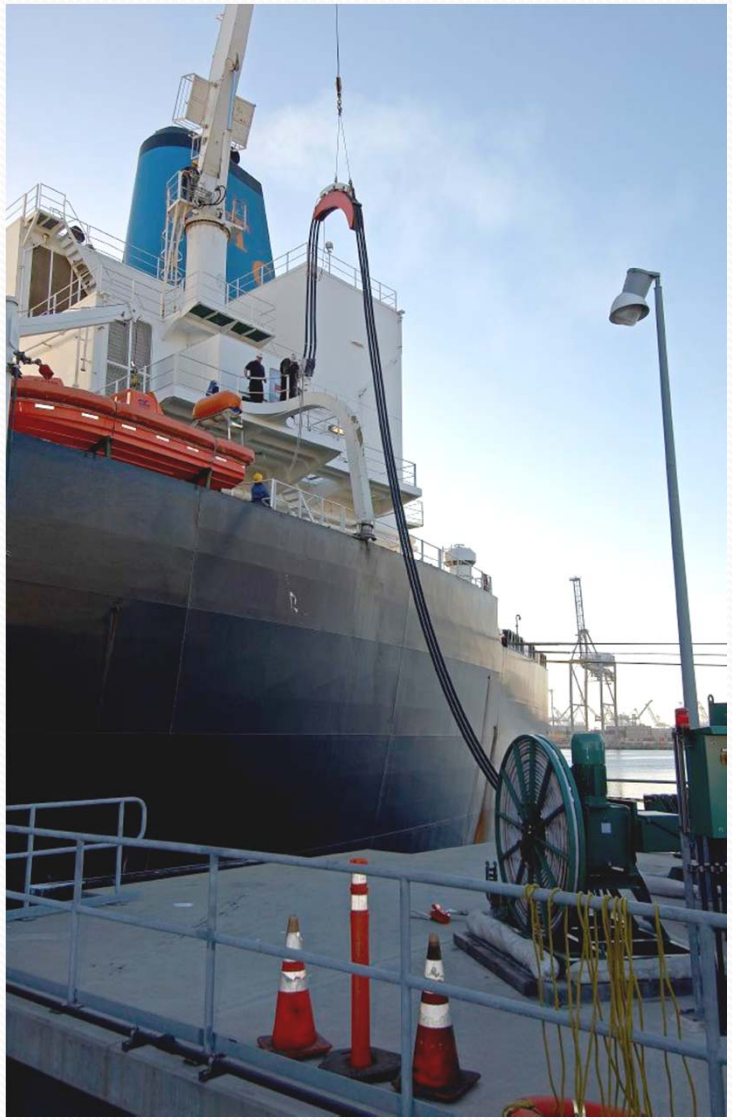
At-Berth Emission Reduction

100% - Shore-power goal for container terminals, cruise ship terminals and selected crude terminals

2014 – Container berths to be equipped with shorepower

Seeking alternative control technologies



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Cleaner Vessel Fuels

2008 - Port incentive to use of ≤0.2% sulfur fuels

2009 - Use of ≤0.5% sulfur fuels for all vessel engines within 24 nm

2014 - Use ≤0.1% sulfur fuel within 24 nm

2015 - Use ≤0.1% sulfur fuel within 200 nm

> 80% - Reduction in vessel particulate matter emissions

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Cleaner Vessels

Encourage deployment of the newest, cleanest ships to our ports

Demonstrate, verify and deploy clean technologies on the existing vessel fleet

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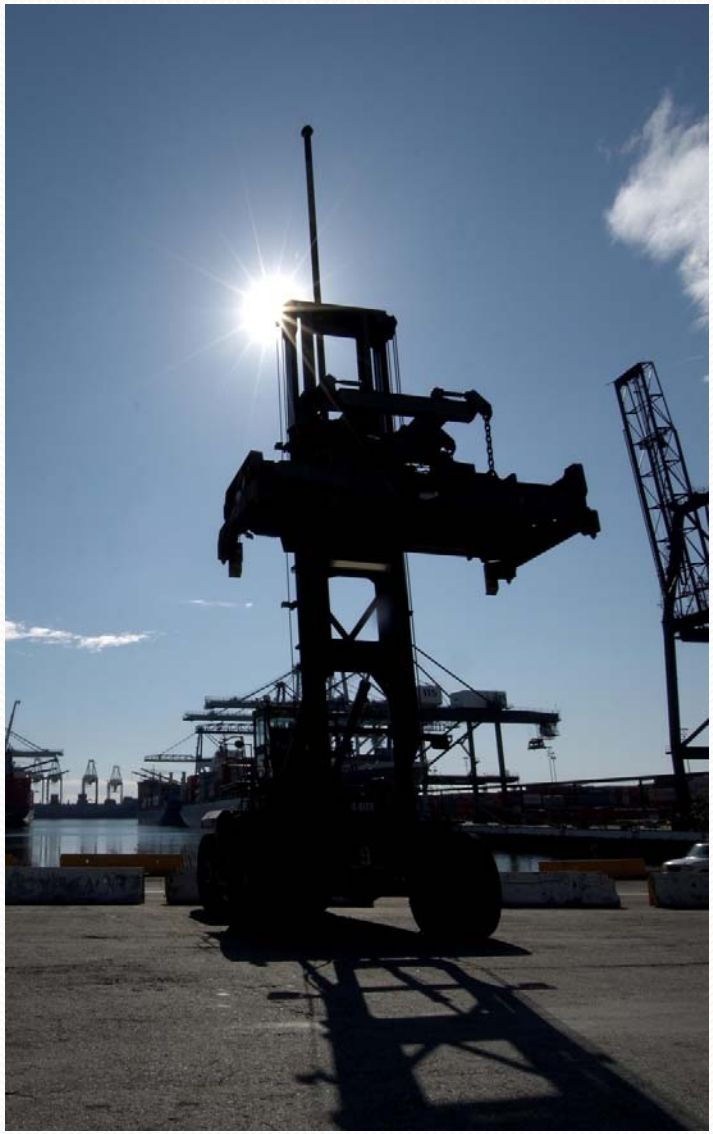
Cargo Handling Equipment

2007 - New purchases must meet cleaner standards

2010 – 2014 - Replacement requirements for existing equipment



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Switcher Locomotives

2008 - PHL upgraded fleet to Tier 2 engines

2011 - Upgraded to Tier 3-Plus

95% - Reduction of DPM

72% - Reduction of NOx

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Technology Advancement

2007 - Formalized program and Advisory Committee established

$3 million per year available for demonstration projects

28 projects, including zero emissions, hybrid, alternative fuel and retrofit technologies

2011 – Ports release "Roadmap to Zero Emissions"

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Reduced Air Pollution (2005 to 2010)

Greenhouse Gas Emissions Down 18%

	2023 Goals
Nitrogen Oxides Down 46%	59%
Sulfur Oxides Down 73%	93%
Diesel Particulates Down 72%	77%

Reduce Cancer Risk by 85%

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How are CAAP Strategies Sustainable?

Environmental Responsibility:

- Reduced air pollution (habitat receptors)
- Reduced water pollution (fallout to surface water)

Social/Community Responsibility:

- Reduced air pollution (human receptors)
- Incentives for more on-rail cargo transport

Financial Responsibility:

- Grants and loans for clean trucks and technologies
- Low cost emission reduction alternatives (e.g., VSR)

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