

Emission Reduction Plan for Ports and Goods Movement in California

(approved April 2006)



Maritime Workgroup Meeting

September 12, 2006



Air Resources Board
California Environmental Protection Agency

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Key Emission Sources

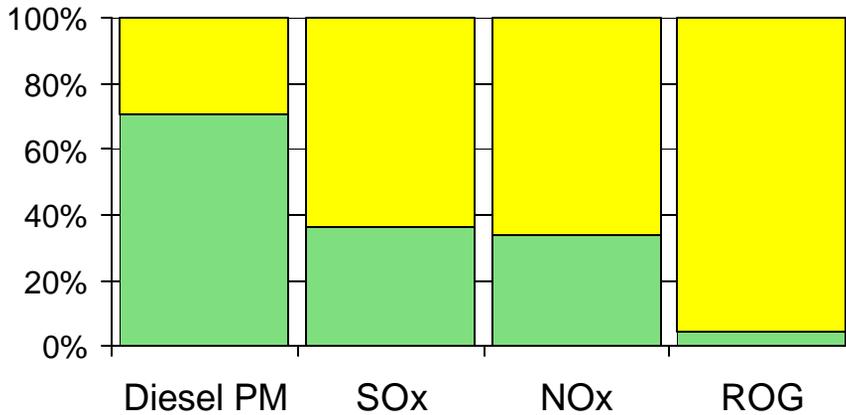
- ▣ Heavy diesel trucks
- ▣ Locomotives
- ▣ Ships
- ▣ Harbor craft
- ▣ Cargo handling equipment



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Goods Movement Contribution to Statewide Emissions in 2005



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ARB Goals for Goods Movement

Reverse growth in emissions

- By 2010, reduce emissions as much as possible, at least to 2001 levels

Reduce diesel PM risk

- Rapid reduction in community risk
- By 2020, reduce statewide risk 85%

Attain all federal standards

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Emission Reduction Strategies

- Cleaner engines and fuels
- Fleet modernization (retrofit or replace)
- Speed reduction and idling limits
- Shore-based power for ships and tugs
- Operational efficiencies
- Land use decisions
- Project and community specific mitigation
- Port programs

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ARB Action – April 20, 2006

Board approved plan and directed staff to:

- Expeditiously pursue proposed ARB rules and other actions
- Work with port operators and others to reduce emissions and health risk
- Report back in November and every 6 months thereafter

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Recently Adopted ARB Rules

- ✓ Low sulfur fuel for trucks, equipment, harbor craft, in-state locomotives
- ✓ Truck idling limits
- ✓ International border trucks
- ✓ Ban on cruise ship incineration
- ✓ Marine auxiliary engine fuels
- ✓ Diesel cargo handling equipment
- ✓ Gas forklifts

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New ARB Rulemaking or Alternatives --- Public Process Underway

- ⊕ Port trucks
- ⊕ Privately-owned truck fleets
- ⊕ Shore power for ships and harbor craft
- ⊕ Ban on ship incineration (beyond cruise ships)
- ⊕ Harbor craft fleets & new engine standards

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New ARB Rulemaking or Alternatives --- Beginning Soon

- ▣ Low sulfur fuel for ship main engines
- ▣ Expanded ship speed reduction
- ▣ Switcher/yard locomotive upgrades
- ▣ "Green ship" construction and deployment to California service

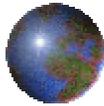
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Conclusions

- ▣ Need expeditious action to cut community risk
- ▣ Reducing goods movement emissions is key for new clean air plans
- ▣ ARB will use its full authority
- ▣ Partnerships are critical for success
- ▣ Will take large effort and resources from industry, agencies, and the public

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Expanded Description of Emission Reduction Strategies

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Ships In/Near Port



- ✓ ARB rule for clean auxiliary engine fuel
- ▣ Shore power or alternative technology
(40% of ship visits by 2010, 100% by 2015)
- ▣ Retrofit controls on auxiliary engines
- ▣ Additional vessel speed reductions

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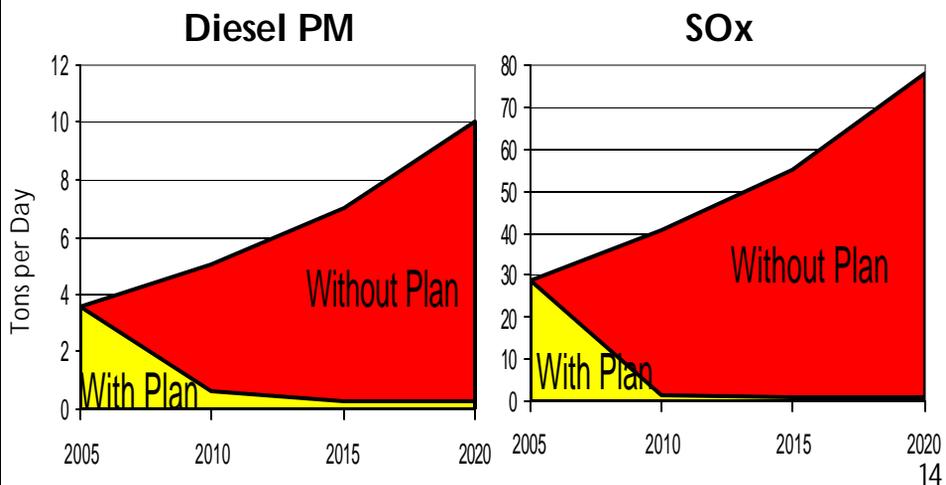
Ships in California Coastal Waters

- Cleaner fuel for main engines
- Bring cleaner ships to California service
 - Step 1: Ships retrofitted with controls (20% of visits by 2010, 50% by 2015)
 - Step 2: "Green" ships at 90% NOx/PM control (25% of visits by 2015, 50% by 2020)
- By 2020: 90% of visits by either new green or retrofitted ships

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Statewide Impact on Ships in Port (Emissions in tons per day, 2005-2020)



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Trucks



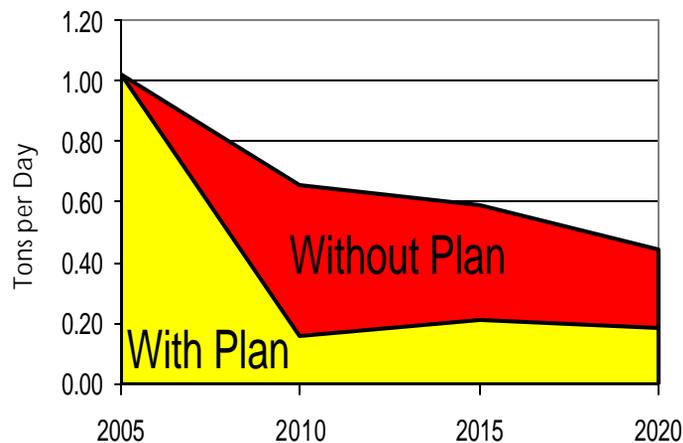
- Port "drayage" truck modernization program
 - Incentives, ARB rule, ports as gatekeepers
 - Need for comprehensive approach
- Statewide fleet rule for private trucks
 - ✓ ARB rules for international trucks, anti-idling and low sulfur diesel

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Statewide Impact on Port Trucks (Emissions in tons per day, 2005-2020)

Diesel PM



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Locomotives



- ▣ Upgrade switcher/local yard locomotives
- ▣ More stringent national locomotive standards
 - Tier 3 for new engines (90%+ PM/NOx), cleaner rebuilds, anti-idling, diagnostics
- ▣ Bring cleaner locomotives to California service
 - ✓ All Tier 2 engines in South Coast by 2010
 - 60% Tier 3 + cleaner rebuilt engines by 2015, 100% by 2020

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Harbor Craft



- ▣ ARB fleet rule for existing engines
- ▣ Shore-based electrical power in port
- ▣ Tighter U.S. EPA or ARB emission standards for new engines

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Cargo Handling Equipment



- ✓ ARB rule for new and existing *diesel* equipment
 - Replace all yard tractors with new, very low PM engines within 5 years
 - Ensure large reduction in NOx
- ✓ ARB rule for new and existing *gas* forklifts and other large industrial equipment

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Next Steps

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SIP Development

- ✦ Development of a statewide strategy underway
- ✦ Key element will be goods movement emission reductions
- ✦ Evaluating alternative approaches and opportunities for additional or alternative measures for emission reductions beyond those identified in Plan
- ✦ Symposium scheduled for October 12 in Sacramento