San Pedro Bay Ports
Clean Air Action Plan

presented by
Environmental Management Division
Port of Los Angeles
Topics

- Background
- Goals & Standards
- Implementation Strategies
- Technology Evaluation Initiatives
- Emissions Reductions
- Funding
- Next Steps
Action Plan Drivers

- Minimize health risk from port operations
- Accelerate existing emissions reduction efforts
- Set consistent project-specific & source-specific standards
- Enable port development
**Action Plan Development**

- **Clean Port Summit – March 2006**
  - Outcome: work together towards solutions

- **SPBP Clean Air Action Plan Working Group formed**
  - Both Ports
  - SCAQMD
  - California Air Resources Board (CARB)
  - Environmental Protection Agency (EPA)
Action Plan Principals

- Work cooperatively to minimize adverse environmental impacts of operations
- Build upon ports & tenants existing programs
- Reduce “Fair Share” of port-related operational emissions
- Ensure that all new projects meet health risk criteria
- Action Plan is a “Living Document” which will be updated & improved annually
Sources and Challenges
Port Related Sources

- Heavy-Duty On-Road Trucks
- Cargo Handling Equipment
- Harbor Craft
- Ocean-Going Vessels
  - Main Engines – Transit Emissions
  - Auxiliary Engines – Transit & Hotelling Emissions
- Railroad Locomotives
  - Switch Engine
  - Line-Haul
Target Pollutants: DPM, NOx, SOx

- DPM-Diesel Particulate Matter: Microscopic particles that includes soot from diesel exhaust; toxic air contaminant
- NOx -Nitrogen Oxides: An ozone precursor that significantly contributes to smog
- SOx- Sulfur Oxides: A precursor to particulates
- The South Coast Air Basin exceeds federal air quality standards for both ozone and particulate matter
Pollutant Contribution by Source

**DPM**
- Heavy-Duty Vehicles: 6% (111 tons)
- Rail Locomotives: 2% (133 tons)
- Cargo Handling Equipment: 14% (259 tons)
- Harbor Craft: 11% (218 tons)

**NOx**
- Heavy-Duty Vehicles: 26% (9,264 tons)
- Rail Locomotives: 13% (4,533 tons)
- Cargo Handling Equipment: 12% (4,234 tons)
- Ocean-Going Vessel: 59% (1,136 tons)
- Harbor Craft: 13% (4,603 tons)

**SOx**
- Heavy-Duty Vehicles: 1% (120 tons)
- Rail Locomotives: 1% (120 tons)
- Cargo Handling Equipment: 1% (55 tons)
- Harbor Craft: 1% (55 tons)

*Port of Los Angeles Baseline 2001 & Port of Long Beach Baseline 2002*
Three Levels of Standards

San Pedro Bay Standard

Project Specific Standards

Source Specific Performance Standards
Standards – Three Levels

- **San Pedro Bay Standards**
  - Reduce public health risk from port-related toxics
  - Prevent port-related violations of National Ambient Air Quality Standards (NAAQS)
  - Reduce port “Fair Share” pollutant emissions

- **Project Specific Standards**
  - Meet 10 in 1,000,000 excess cancer risk threshold
  - Implement maximum feasible controls for projects exceeding CEQA thresholds for criteria pollutants

- **Source Specific Performance Standards**
# Control Measures

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<td>SPBP-OGV1</td>
<td>OGV Vessel Speed Reduction</td>
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<td>SPBP-OGV2</td>
<td>OGV Reduction of At-Berth Emissions</td>
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<td>OGV Auxiliary Eng Fuel Imprv Standards</td>
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<td>OGV Main Eng Fuel Imprv Standards</td>
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<td>SPBP-OGV5</td>
<td>OGV Main &amp; Aux Eng Emission Imprv</td>
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<td>Performance Standard for CHE</td>
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<td>Rail Switch Engine Modernization</td>
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<tr>
<td></td>
<td>Technology Advancement Program</td>
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<td>Infrastructure &amp; Operation Efficiency Imprv</td>
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<td>Construction Standards</td>
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Ports’ Five-Year Commitments

- **Heavy-Duty Vehicles (Trucks)**
  - Two Ports & AQMD $206,000,000

- **Ocean-Going Vessels**
  - 100% compliance w/VSR; extend to 40 nautical miles
  - Port of Los Angeles – 15 berths will be AMP’d
  - Port of Long Beach – 7 berths will be shore-powered
  - ≤0.2% sulfur fuels for main & auxiliary engines

- **Railroad Locomotives**
  - Standards for new or modified rail yards

- **Technology Advancement & Source Testing**
  - Two Ports $20,000,000
Implementation Strategies

- Lease Requirements
- Tariff Changes
- CEQA Mitigations
- Incentives
- Voluntary Measures
- Credit Trading
- Capital Lease Backs
- Government-Backed Loan Guarantees
Relationships of Implementation Strategies
Control Measures - Trucks

SPBP-HDV1 Performance Standards for On-Road Trucks

• By end of 2011, Frequent or Semi-Frequent Trucks will meet or exceed EPA 2007 on-road PM standards (0.01 g/bhp-hr for PM) and be the cleanest available NOx.
Control Measures - Trucks

SPBP-HDV1 Population

- Estimated Population of Trucks (Initial 2005 EI Update)
  - ~41,000 Trucks Servicing Both Ports
  - ~7,000 Frequent Callers (1+ calls/day) ~50% of All Calls
  - ~9,800 Semi-Frequent Callers (0.5-<1 calls/day) ~30% of All Calls
  - ~16,800 Frequent & Semi-Frequent Callers That Represent 80% of All Truck Visits
Control Measures - Trucks

SPBP-HDV1 Measure & Funding Focus

- Measure Focus (Fuel Neutral):
  - All Frequent & Semi-Frequent Callers (MY<1993) - ~10,600 Trucks
  - All Semi-Frequent Callers (MY1993-1997) - ~5,100 Trucks
  - All Semi-Frequent Callers (MY1998-2003) - ~850 Trucks

- Funding & Implementation
  - Incentives for the total cost
  - ~$170 Million from POLB/POLA over 5 years
  - AQMD ($12 Million 1st year/$6 Million following years)
  - State Bond/CMAQ/other (unknown – requesting $800M)
  - Exploring options including “Green Lanes,” centralized reservations, & leases
Control Measures - Trucks

SPBP-HDV2 Alt Fuel Infrastructure

- Ports to develop RFP for fueling & central maintenance facility
- Funding:
  - $4 Million from POLB/POLA over two years
  - SCAQMD (tbd)
Control Measures – Cargo Handling Equipment

SPBP-CHE1 Performance Standards for CHE

- Beginning 2007, all CHE purchases will meet:
  - Cleanest available NOx engine & 0.01 g/bhp-hr PM (fuel neutral)
- By end of 2011, all remaining CHE will meet EPA Tier 4 engine standards
- Implementation through leases
Control Measures – Harbor Craft

SPBP-HC1 Performance Standards for HC

- Second year, all home-based HC will meet Tier 2 or equivalent engine standards
- Fifth year, all previously re-powered home-based HC will be retrofitted with most effective CARB verified technologies
- Within five years of Tier 3 HC engines becoming available, all home-based HC will be re-powered with new engines
- Implementation through voluntary measures and incentives
Control Measures – Ocean Going Vessel

SPBP-OGV1 Vessel Speed Reduction

- 100% Compliance All OGV
  - Initially 20 nm (measured from Pt. Fermin), extended to 40 nm
- Implementation through tariff incentives and leases
- Issues:
  - Coast Guard/Marine Exchange/Radar
  - Determine Benefits & Impacts
Control Measures – Ocean Going Vessel

SPBP-OGV2 At-Berth Emission Reductions

- 100% cold-ironing:
  - Container terminals
  - Cruise ship terminals
  - Selected crude terminals
- Equivalent measures at other facilities
- Implementation through leases
- Work cooperatively with tenants to accelerate
Control Measures – Ocean Going Vessel

SPBP-OGV3 & OGV4 Fuel Standards

- Use of $\leq 0.2\%$ sulfur fuels for auxiliary & main engines
  - Initially 20 nm (measured from Pt. Fermin), extended to 40 nm
- Implementation through leases and tariffs pending legal evaluation
- Issues:
  - Fuel availability
  - On-board tankage
Control Measures – Ocean Going Vessel

SPBP-OGV5 Main & Aux Engine Improvements

- Emission reduction engine technologies
  - Slide valves
  - SCR
  - Others
- Technology Advancement Program
- Implementation through leases
Control Measures – Railroad Locomotives

SPBP-RL1 Rail Switch Engine Modernization

- By 2008, all PHL engines replaced with Tier 2
- Equipped w/ idling devices
- Use emulsified or equivalent diesel fuels
- Retrofit with DOC or DPF technologies
- New PHL switch engines must meet EPA Tier 3 standards or equivalent to 90% Reduction of PM & NOx from Tier 2
Control Measures – Railroad Locomotives

SPBP-RL2 Operational Controls for Line-Haul Locomotives

- By 2011 all locomotives entering port facilities will meet Tier 2 standards, DOC/DPF, idle limit, and ULSD
- Goal 90% reduction in PM and NOx
- Implementation through MOU or contractual mechanisms
Control Measures – Railroad Locomotives

SPBP-RL3 Clean Rail Yard Standards

- New rail yards must operate cleanest locomotive technology available
- Yard equipment must meet CHE standard
- Trucks must meet HDV standard
- Implementation through leases
Evaluation of Technologies/Concepts

- Technology Advancement Program
  - Combine expertise & resources
  - Source category emission reductions
  - Evaluate “Green Container Transport” concepts
  - Emission inventory improvements
  - Ports funding commitment: $3 million/year
## Estimated Emission Reductions

<table>
<thead>
<tr>
<th>Category</th>
<th>DPM</th>
<th>NOx</th>
<th>SOx</th>
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<tbody>
<tr>
<td><strong>Trucks</strong></td>
<td>728</td>
<td>6,417</td>
<td></td>
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<tr>
<td><strong>Ships</strong></td>
<td>448</td>
<td>6,296</td>
<td>2,721</td>
</tr>
<tr>
<td><strong>Cargo Handling Equipment</strong></td>
<td>11</td>
<td>376</td>
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<tr>
<td><strong>PHL Switchers</strong></td>
<td>3</td>
<td>163</td>
<td></td>
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<tr>
<td><strong>Total Annual Reductions - 5th Year</strong></td>
<td>1,242</td>
<td>13,090</td>
<td>2,721</td>
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Funding

- Proposed Commitment Over Next Five Years:
  - Port of Los Angeles $177,400,000
  - Port of Long Beach $181,000,000
  - SCAQMD Initial Commitment $36,000,000

- Needed:
  - Bond & Other Funding?? $1,600,000,000 (BS7)
  - Maritime Goods Movement Industry???
Next Steps

- June 28th – Release Draft begin public review
- Brief tenants and customers – June 29/30
- Public Workshops:
  - July 10th – 6 pm – Banning’s Landing
  - July 12th – 7pm – Long Beach Council Chambers
  - July 19th – 7pm – Cesar Chavez Park
  - July 25th – 6pm – Peck Park
- Finish Public Comment Period – July 28th
- Plan Revisions as Appropriate – August
- Board Approval – September
- Implement Action Plan