




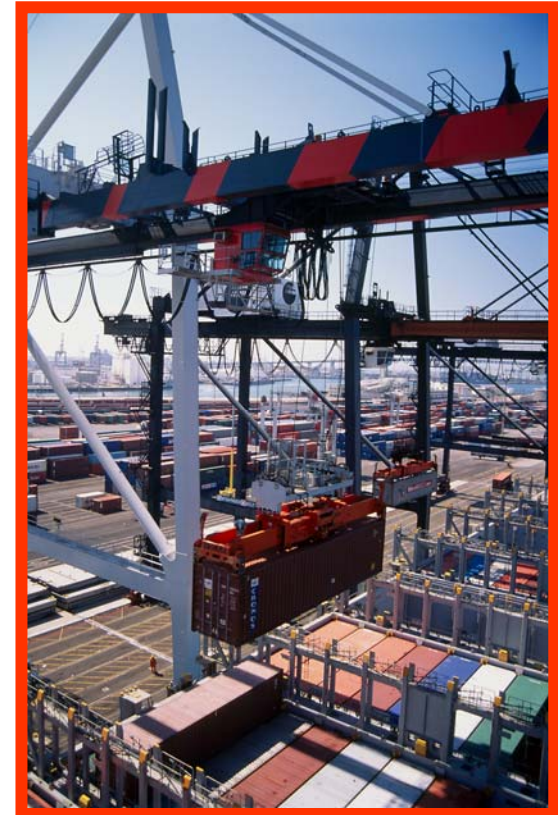
San Pedro Bay Ports Clean Air Action Plan

presented by
Environmental Management Division
Port of Los Angeles



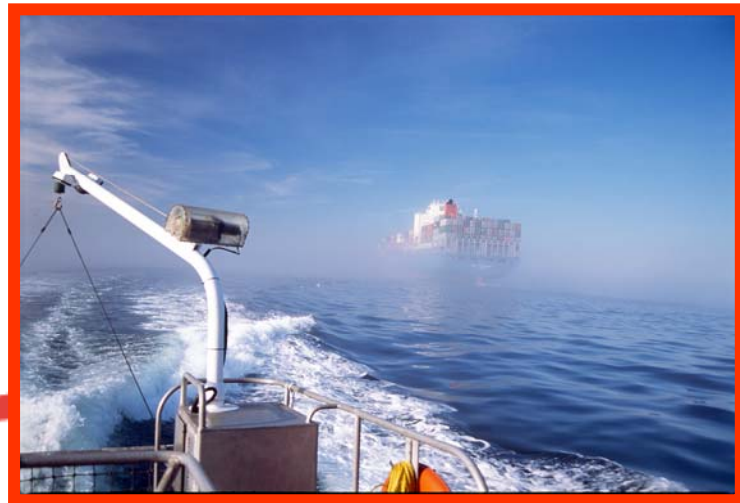
Topics

- ✦ Background
- ✦ Goals & Standards
- ✦ Implementation Strategies
- ✦ Technology Evaluation Initiatives
- ✦ Emissions Reductions
- ✦ Funding
- ✦ Next Steps



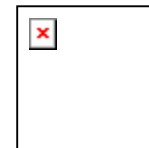
Action Plan Drivers

- ✦ 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)

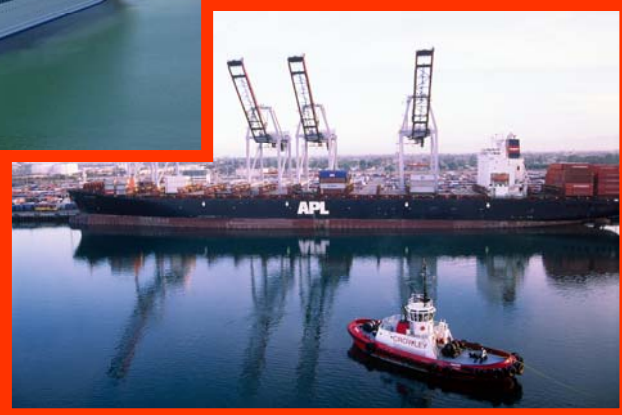
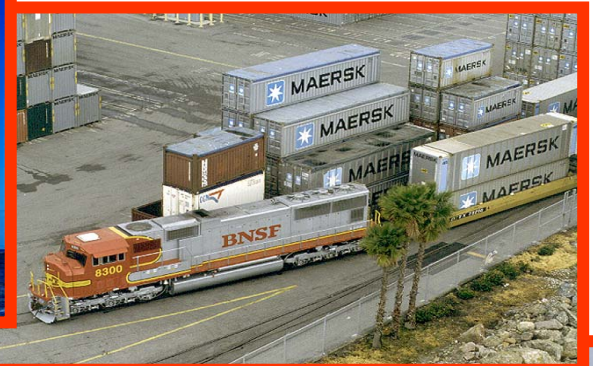


Action Plan Principals

- ✦ 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



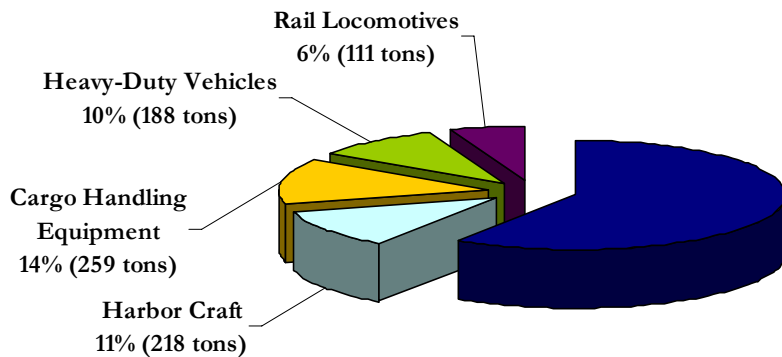
Target Pollutants: DPM, NO_x, SO_x

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

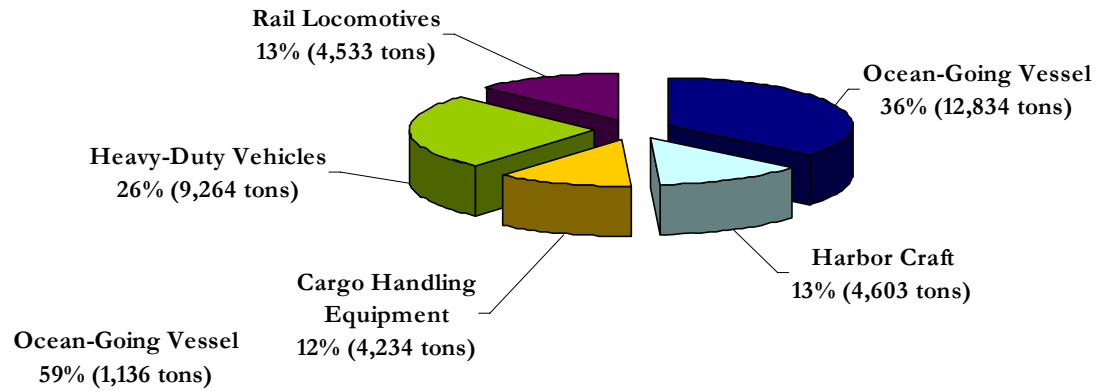


Pollutant Contribution by Source

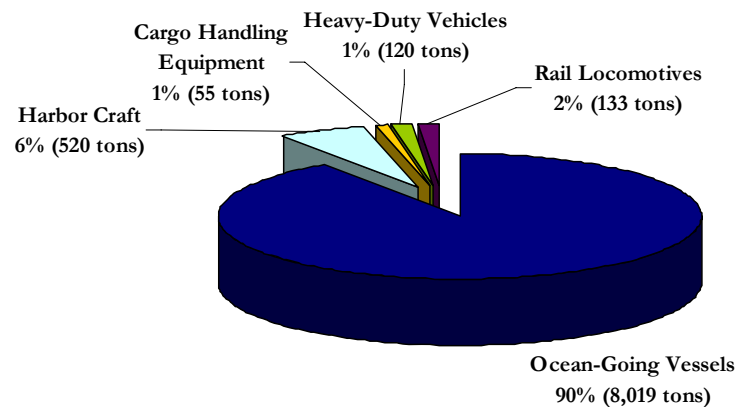
DPM



NO_x

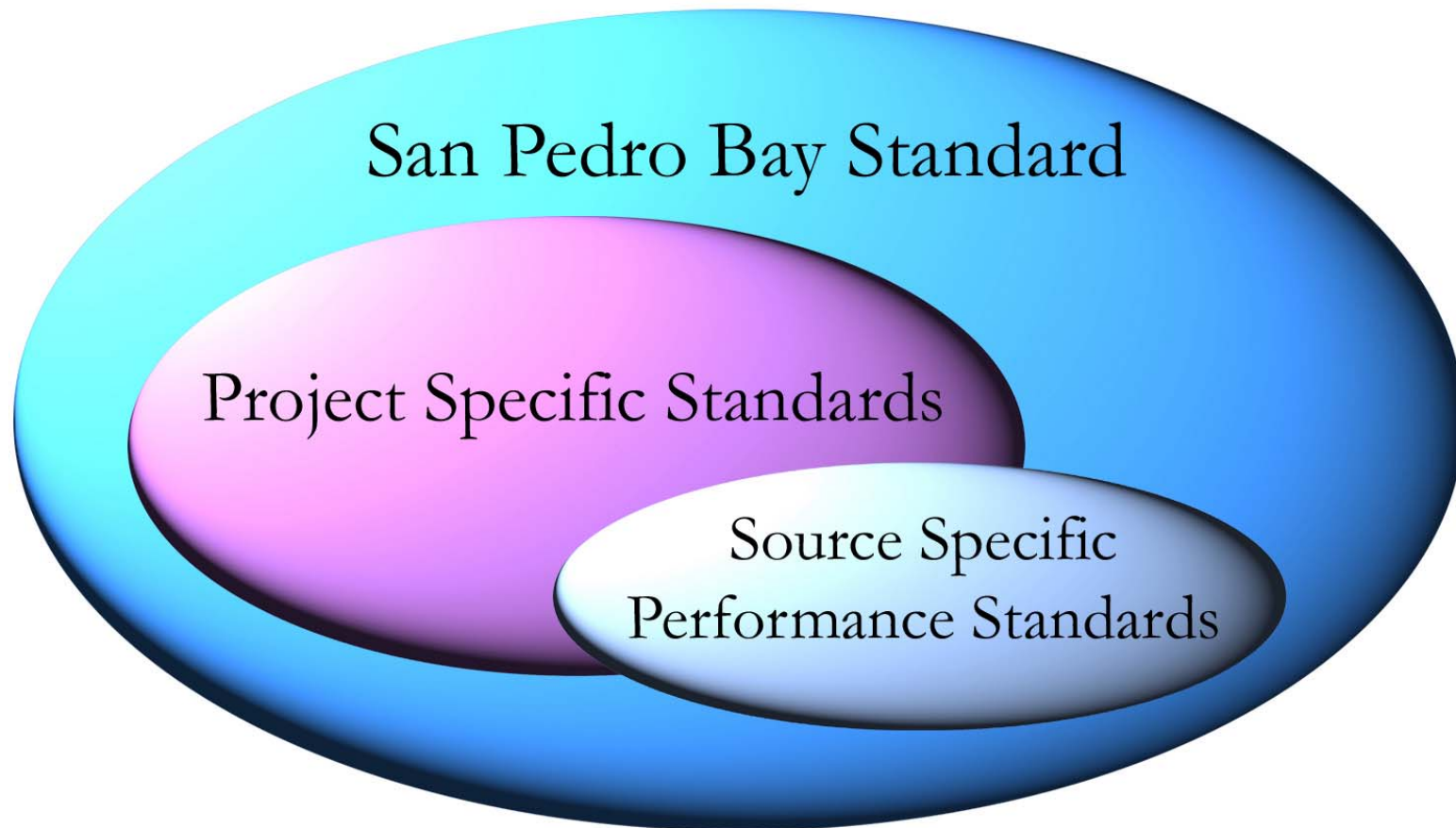


SO_x



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

Measure #	Control Measure/Initiative
SPBP-HDV1	Performance Standards for On-Road HDV
SPBP-HDV2	Alt Fuel Infrastructure for On-Road HDV
SPBP-OGV1	OGV Vessel Speed Reduction
SPBP-OGV2	OGV Reduction of At-Berth Emissions
SPBP-OGV3	OGV Auxiliary Eng Fuel Imprv Standards
SPBP-OGV4	OGV Main Eng Fuel Imprv Standards
SPBP-OGV5	OGV Main & Aux Eng Emission Imprv
SPBP-CHE1	Performance Standard for CHE
SPBP-HC1	Performance Standards for HC
SPBP-RL1	Rail Switch Engine Modernization
SPBP-RL2	Operational Controls for Line-Haul RR
SPBP-RL3	Clean Rail Yard Standards
	Technology Advancement Program
	Infrastructure & Operation Efficiency Imprv
	Construction Standards

Ports' Five-Year Commitments

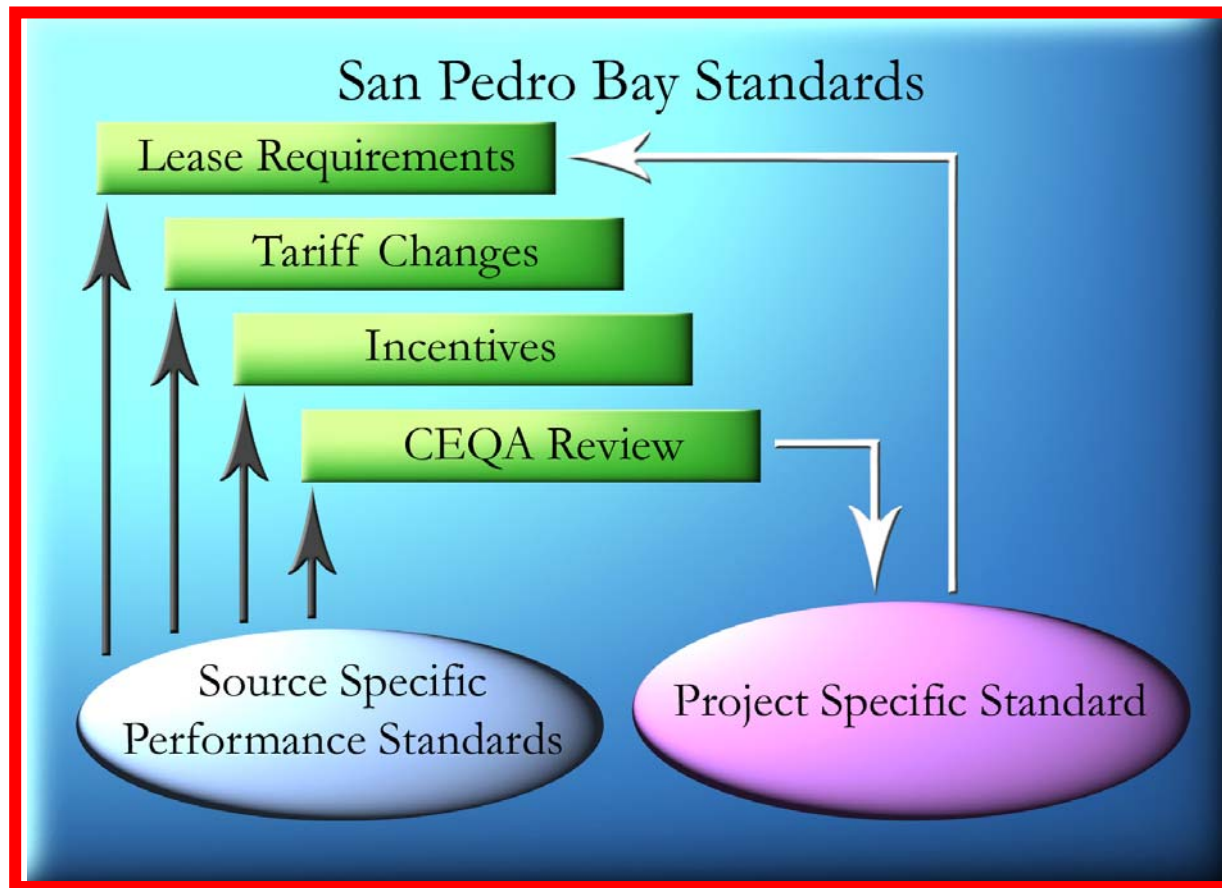
- ✦ **Heavy-Duty Vehicles (Trucks)**
 - Two Ports & AQMD \$206,000,000
- ✦ **Ocean-Going Vessels**
 - 100% compliance w/VSR; extend to 40 nautical miles
 - Port of Los Angeles – 15 berths will be AMP'd
 - Port of Long Beach – 7 berths will be shore-powered
 - $\leq 0.2\%$ sulfur fuels for main & auxiliary 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 NO_x.



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
 - All Semi-Frequent Callers (MY 1993-1997) - ~5,100 Trucks
 - All Semi-Frequent Callers (MY 1998-2003) - ~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 NO_x 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

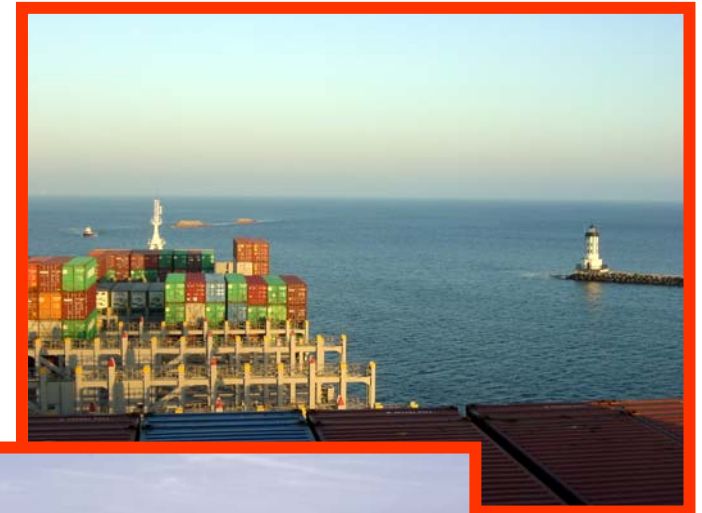
- † Second year, all home-based HC will meet Tier 2 or equivalent engine standards
- † Fifth year, all previously re-powered home-based HC will be retrofitted with most effective CARB verified technologies
- † Within five years of Tier 3 HC engines becoming available, all home-based HC will be re-powered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



Control Measures - Ocean Going Vessel

SPBP-OGV1 Vessel Speed Reduction

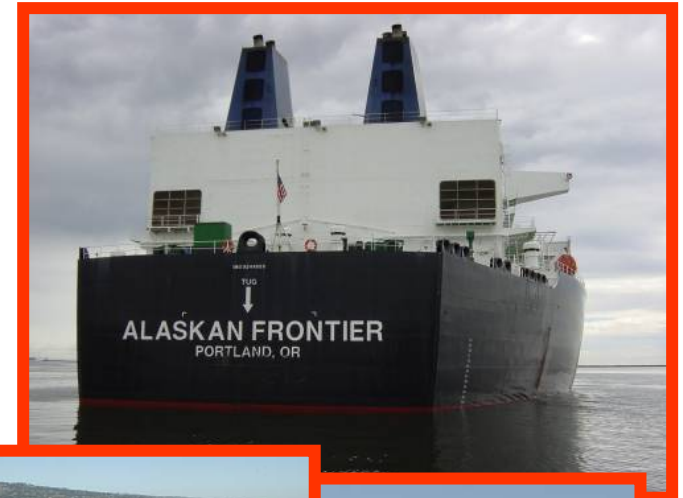
- ✦ **100% Compliance All OGV**
 - Initially 20 nm (measured from Pt. Fermin), extended to 40 nm
- ✦ **Implementation through tariff incentives and leases**
- ✦ **Issues:**
 - Coast Guard/Marine Exchange/Radar
 - Determine Benefits & Impacts



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

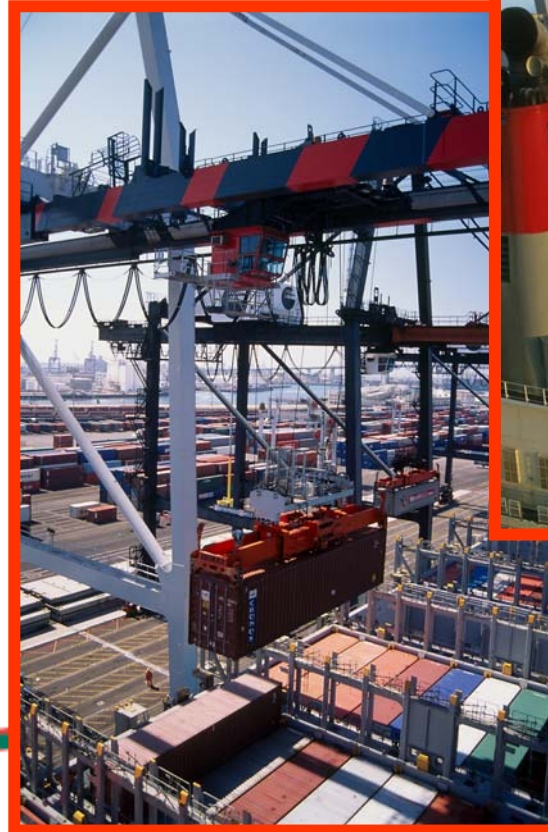
- ✦ Use of $\leq 0.2\%$ sulfur fuels for auxiliary & main engines
 - Initially 20 nm (measured from Pt. Fermin), extended to 40 nm
- ✦ Implementation through leases and tariffs pending legal evaluation
- ✦ Issues:
 - Fuel availability
 - On-board tankage



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 & NO_x 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 NO_x
- ✦ 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

Trucks	728 tons/yr DPM
	6,417 tons/yr NOx
Ships	448 tons/yr DPM
	6,296 tons/yr NOx
	2,721 tons/yr SOx
Cargo Handling Equipment	11 tons/yr DPM
	376 tons/yr NOx
PHL Switchers	3 tons/yr DPM
	163 tons/yr NOx
Total Annual Reductions - 5th Year	1,242 tons/yr DPM
	13,090 tons/yr NOx
	2,721 tons/yr SOx



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**