



Port of Los Angeles

Maritime Air Quality Workshops

MAY 17, 2005

Shokoufe Marashi



Port of Los Angeles Air Quality Programs

- Retrofit technologies/emulsified fuel on yard tractors
- Vessel Speed Reduction Program
- Alternate Maritime Power
- Port-wide Air Emission Inventory
- Air Quality Monitoring
- No Net Increase
- Near Term Measures



After Combustion Treatment Diesel Oxidation Catalyst (DOC)

- Up to 557 DOCs has been installed on yard equipment (Gantry cranes, side handlers, fork lifts) mainly on yard tractors operating in the Port
- Cost of \$900,000
- Additional 126 DOCs will be installed



Goods Move

Emulsified Diesel - Yard Equipment

- Reduces NOx by 14% and PM10 by 63%- determined by CARB
- Actual cost today is \$0.30 per gallon
- Port has paid up to \$600,000 for 2 million gallons
- Emulsified Diesel Fuel w/Diesel Oxidation Catalyst
 - 250 tons/yr NOx
 - 24 tons/yr PM



Goods Movement



Port of Los Angeles Vessel Speed Reduction

Effective May 1, 2001

- Purpose to reduce air pollution from ships in SCA Basin
- Expected full implementation-reduction 3 tons smog/day
- Ships maintain speed 12-knots or less within the Air Quality Compliance Zone
- Outreach program– compliance improved from 32% in Jan. 04 to 48% in June 2004



Environmental Programs



Alternative Maritime Power

Connecting Ships to Electric Power While at Berth

China Shipping Terminal

Stern/Barge 660 KV - 440 V



Yusen Terminal

Side Mounted 660KV - 660 KV



Environmental Programs



Estimated Ship/Day Emission Reduction

| | NO _x | SO _x | PM ₁₀ |
|---------------------|-----------------|-----------------|------------------|
| Ship Power* | 1.07 | 0.59 | 0.044 |
| Shore Power* | 0.04 | 0.004 | 0.001 |
| Emission Reduction* | 1.03 | 0.58 | 0.043 |

*tons/day assuming 3mW load for 24 hrs
(Emission Factors from SCAQMD MVEI 1999)



Port-wide Air Quality Monitoring Program

Feb. 2005– to determine the DPM levels in proximity to the Port that are due to Port operational activities.

- Primary Station – Wilmington
- San Pedro Station - Liberty Hill Plaza
- Source-Dominated Station – TITP
- Coastal Boundary Station - Berth 47



Coastal Boundary Station- Berth 47



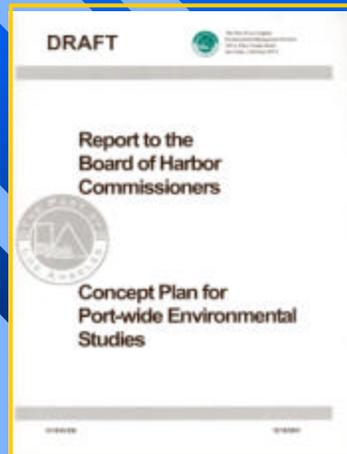
Primary Station- Wilmington



Mayor's Challenge

"No Net Increase In Air Emissions"

- Policy Goal of No Net Increase
- Baseline 2001
- Conducted Inventory
- Air Monitoring Under Way
- Risk Assessment Next Year
- NNI Task Force
- Immediate & Near Term Actions/Measures

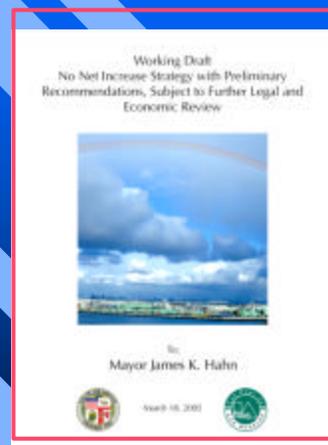


Environmental Programs



NNI/Air Quality Task Force

- **26 August 2004** - Mayor Hahn calls for the formation of a Port Air Quality Task Force
- Task Force Members/Stakeholders :
 - Mayor's Office
 - Port of Los Angeles
 - ARB
 - SCAQMD
 - U.S. EPA
 - PMSA
 - Port Community Advisory Committee (PCAC) (3)
 - BNSF/UP/PHL Railroads
 - NRDC
 - ILWU
 - Teamsters
 - Pacific Energy Partners
 - PCAC Consultants
- Co-Chairs – Harbor Commissioners
 - Camilla Townsend & Tom Warren
- **7 October 2004** – First Task Force Meeting
- Formed Technical Working Group
- **2,3 March 2005** – Delivered Preliminary Findings to Mayor



Environmental Programs



NNI Task Force Control Measures

- Ocean Going Vessels 17
- Harbor Craft 11
- Cargo Handling Equip. 9
- Rail 12
- Heavy Duty Vehicle 19



- VSR
- AMP
- Clean Fuels
- SECA
- Engine Standards



- Replacement
- Eng. Standard
- Clean Fuel
- Idling Reduction

- EPA Tier 2
- Diesel Electric
- LNG
- Clean Fuels
- Electrification



- Retrofit
- AMP
- Clean Fuels
- Engine Standards



- EPA Tier 3
- DPF
- Alt. Fuels

Incentives

Environmental Programs



Near-Term Measures

- "Immediate" Control Measures - Through 2008
- Incentive Based Programs ~\$52 Million
- Yard Tractor Replacement + ULSD
- Cargo Handling Equipment ULSD
- Ship Auxiliary Engine LS Fuel
- Marine ULSD
- Gateway Cities Truck replacement
- Truck Diesel Particulate Filters
- Locomotive Switch Engine Replacement



Environmental Programs



Port Clean Air Program

- Emulsified Diesel - Yard Equip.
- Diesel Oxidation Catalysts
- Alternate Fuel Yard Equip.
- Tug Retrofits



- Cargo Vessel Speed Reduction
- Truck Modernization Program
- Alternative Maritime Power
- Inventory, Monitoring, Testing

Environmental Programs

