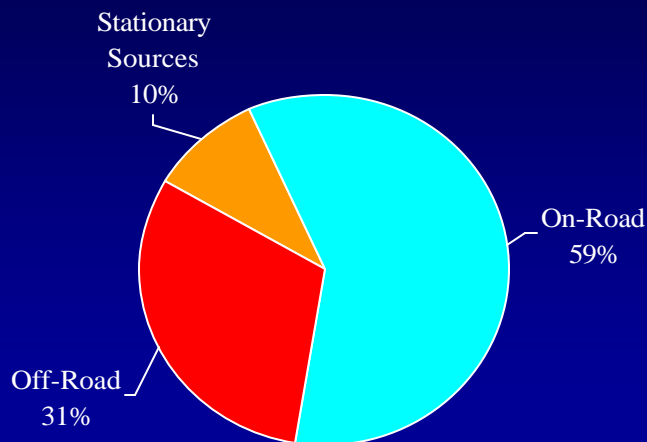


Projects at the Ports of Los Angeles and Long Beach

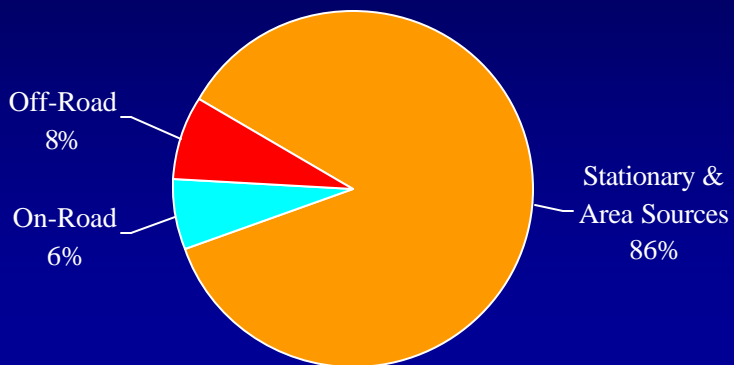
Dipankar Sarkar
South Coast Air Quality Management District

September 12, 2006

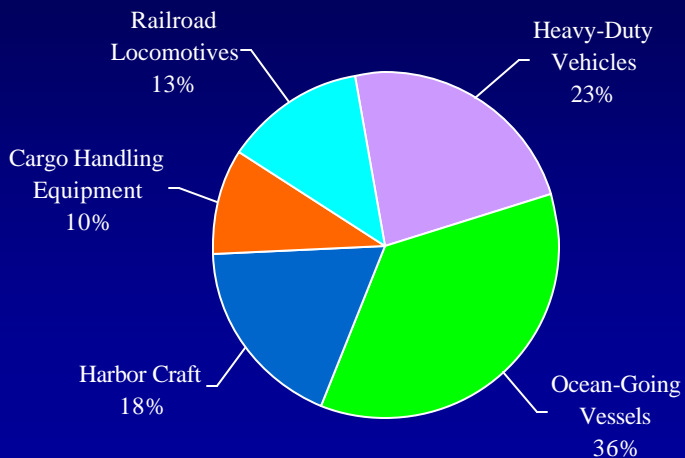
2006 Basin Estimated NO_x Emissions



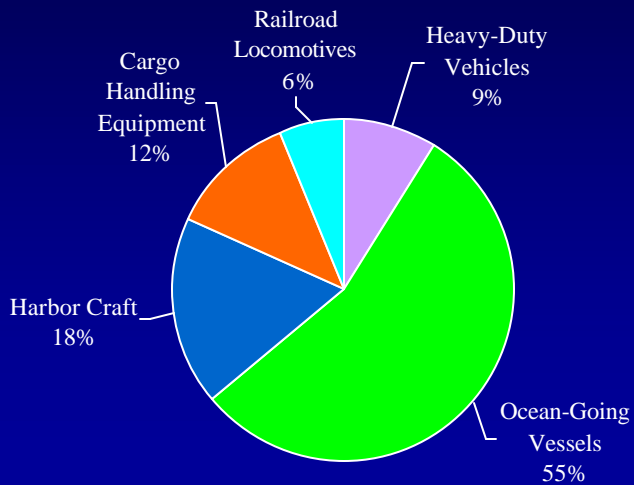
2006 Basin Estimated PM₁₀ Emissions



Port of Los Angeles NO_x Emissions



Port of Los Angeles PM₁₀ Emissions



Port Projects Marine Vessels



Port Projects Marine Vessels

	Number of Vessels	Budget (\$ million)	NO _x Reduction (tons/yr.)	PM Reduction (tons/yr.)
Carl Moyer	45	7.1	264	14
RECLAIM	49	12.1	658	30
State Emissions Mitigation Program	119	7.1	456	18
Rule 2202 AQIP	75	5.8	285	11
Total	288	32.1	1,660	73



Port Projects Cargo Handling Equipment

- Port of Los Angeles
 - \$1 Million; Engine Control Systems
 - DOCs, DPFs, PuriNO_x Fuel
 - Approx. 450 Yard Tractors
 - On-Going Projects

- Port of Los Angeles
 - \$244,000
 - Use of PuriNO_x Fuel in 80 CHEs

- SSA Marine
 - \$120,500
 - DOC in 41 CHEs



Port Projects Cargo Handling Equipment

- **Maersk Pacific Limited, Port of Los Angeles**
 - \$100,000
 - Use of PuriNOx fuel in approx. 225 Portside Equipment

- **General Petroleum, Los Angeles**
 - \$69,000
 - Use of PuriNOx fuel in 10 On-Road Heavy-Duty Trucks

- **Port of Long Beach**
 - \$75,000
 - DOCs in 26 Yard Tractors



Port Projects Cargo Handling Equipment

Project Proponent	Contract Term	Equipment	Pollutant (tons)	
			PM	NOx
Port of Los Angeles	3 yr	80 yard equipment	8.74	20.35
General Petroleum	2 yrs	10 HDVs	0.43	3.29
Maersk Pacific, Ltd.	1 yr	50 yard equipment	2.86	6.67



Port Projects Locomotives

- **Repower 15 Switcher Locomotives**
 - Pacific Harbor Line
 - \$6.8 Million
 - 115 tpy NO_x and 4.5 tpy PM Reductions
 - 2003 and 2005
- **Hybrid Locomotive**
 - RAILSERVE at Chevron Refinery
 - \$425,000
 - 11 tpy NO_x and 0.5 tpy PM Reductions



Port Projects Locomotives

- **2 Line Haul LNG Locomotives**
 - Ports to Lancaster
 - \$3.4 Million
 - 34 tpy NO_x and 3.5 tpy PM Reductions



Port Projects Truck Fleet Modernization

Carl Moyer Truck Fleet Modernization Program

- **Replace Pre-1990 Diesel Trucks with 2006 Trucks**
- **Class 7 and 8 Heavy-Duty Trucks**
- **PM Traps, GPS**
- **Emission Reductions per Truck: 0.7 tpy NO_x, 0.1 tpy PM**
- **\$6 Million**
- **RFP Released in July 2006**



Port Projects Port LNG Truck Program

Port LNG Truck Fleet Program

- **Modernization and Expansion**
- **Replace Older Class 8 Trucks with 2006 LNG Trucks**
- **\$6 Million AQMD Allocation**
- **POLA and POLB Participation**



Future Port Projects

- **Develop DPF for PHL Switcher Locomotive**
- **Develop DPF, DOC and SCR Technology for Cargo Handling Equipment and Locomotives**
- **Use of Clean Fuels and Alternative Fuels**
- **Increase Alternative Maritime Power Use**

