

A CLEANER PORT.
A BRIGHTER
FUTURE.



Overview

2006 Inventory of Air Emissions

Lisa Wunder
Environmental Management
Port of Los Angeles

September 16, 2008
Presentation to Port Community Advisory Committee



AIR

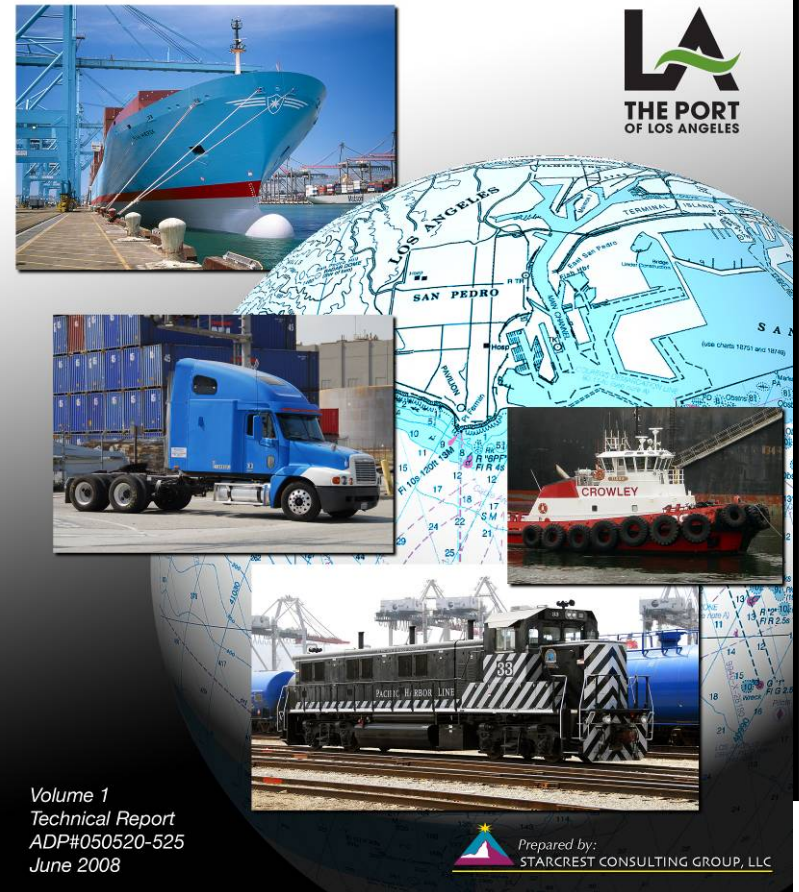


Topics

2006 Inventory of Air Emissions

- Development
- Cargo Throughput and Vessel Call Changes
- 2006 Results
- Comparison of Results (all three inventories)
- Conclusions & Looking Forward

PORT OF LOS ANGELES INVENTORY OF AIR EMISSIONS - 2006



A CLEANER PORT.
A BRIGHTER
FUTURE.



AIR

Development

2006 Inventory of Air Emissions

- Developed in conjunction w/Port of Long Beach
- Estimated Greenhouse Gas Emissions from all mobile sources for the first time
- Methodology coordinated w/regulatory agencies through TWG
- Captured equipment/vessel specific emissions reduction efforts
- Validated results & compared to 2005 & 2001
- Database was updated & used for all source categories



California Environmental Protection Agency
 **Air Resources Board**



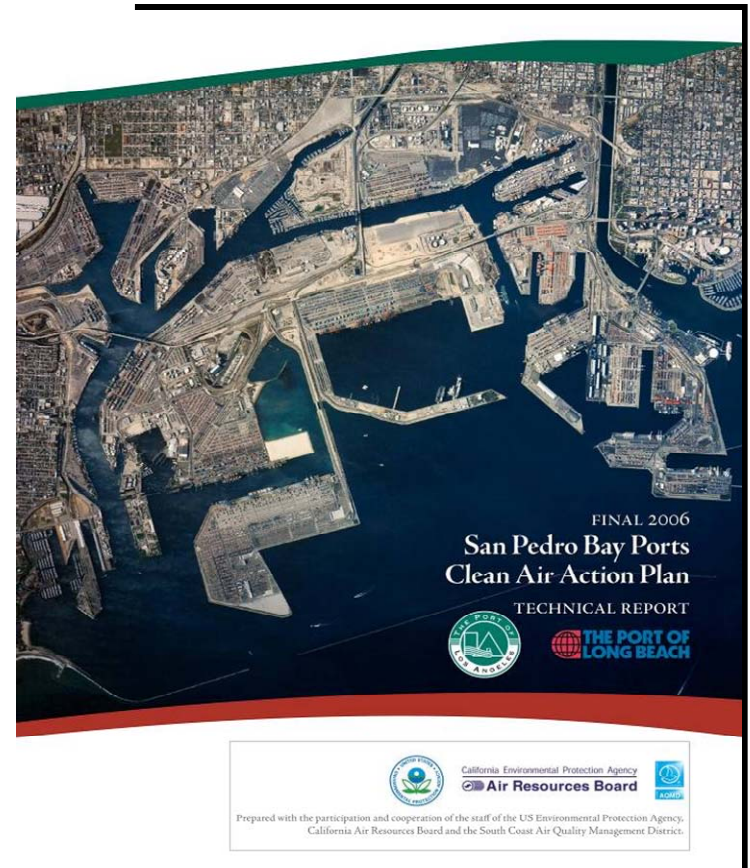
A CLEANER PORT.
A BRIGHTER
FUTURE.



AIR

Clean Air Action Plan 2006 Inventory

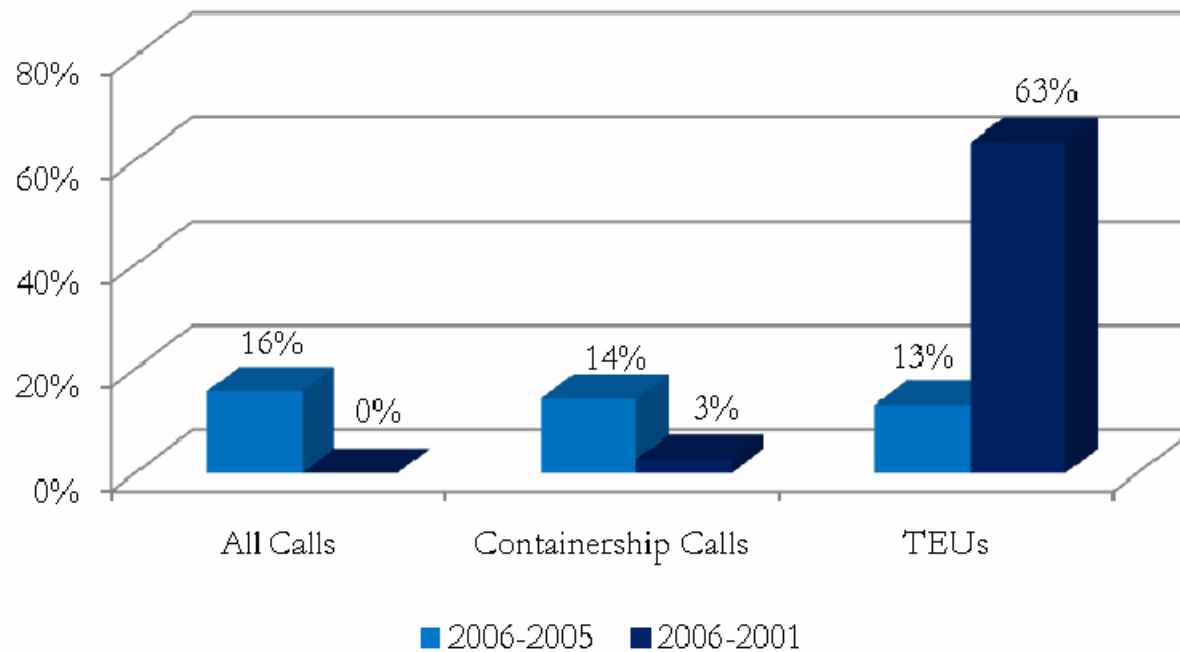
- CAAP adopted November 2006
- CAAP measures started to be implemented in January 2007
- Last inventory to be unaffected by CAAP measures
- CARB auxiliary rule not in affect



A CLEANER PORT.
A BRIGHTER
FUTURE.



Cargo Throughput & Vessel Call Changes 2006-2005 & 2006-2001



Container Ship Calls & Call Densities

Year	All Calls	Containership Calls	TEUs	Average TEUs/Call
2001	2,717	1,584	5,183,520	3,272
2005	2,341	1,423	7,484,625	5,260
2006	2,708	1,626	8,469,853	5,209

AIR

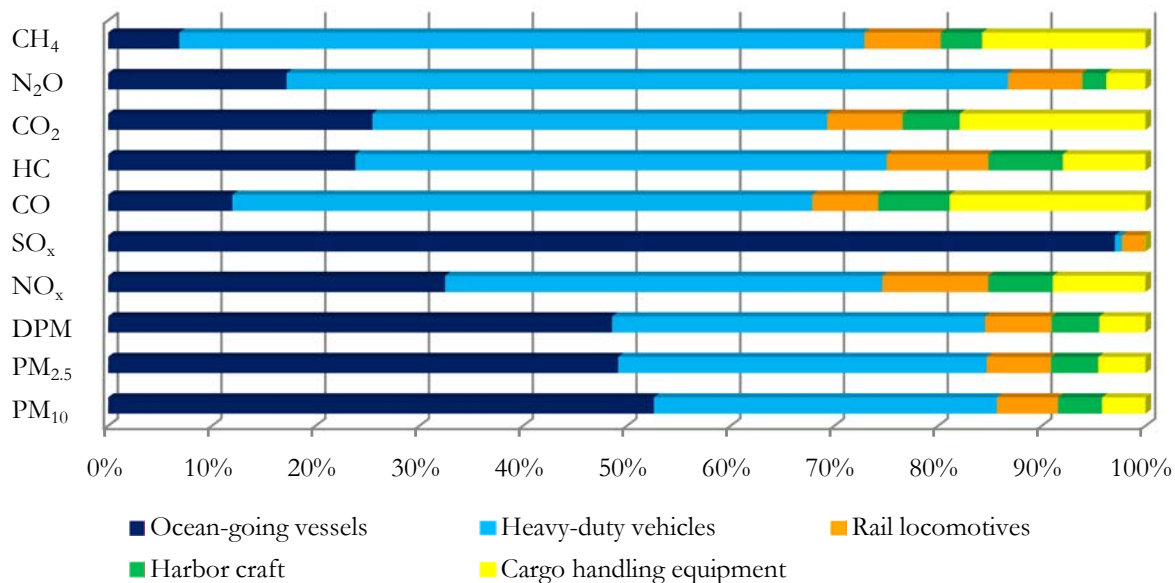
A CLEANER PORT.
A BRIGHTER
FUTURE.



2006 Results By Source Category

Overall Total Emissions Results

Category	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	HC	CO ₂	N ₂ O	CH ₄
(tons per year)										
Ocean-going vessels	644	515	546	6,614	5,711	601	279	406,440	23	3
Harbor craft	52	48	52	1,265	1	345	84	87,746	3	2
Cargo handling equipment	52	49	51	1,853	2	977	95	285,708	5	7
Rail locomotives	72	65	72	2,081	131	320	115	116,210	10	3
Heavy-duty vehicles	404	372	404	8,579	40	2,808	599	699,326	92	28
Total	1,224	1,048	1,126	20,392	5,886	5,052	1,170	1,595,431	133	42



AIR



How to Compare Different Year Inventories? Estimate 2001, 2005, & 2006 Using the Latest Methods

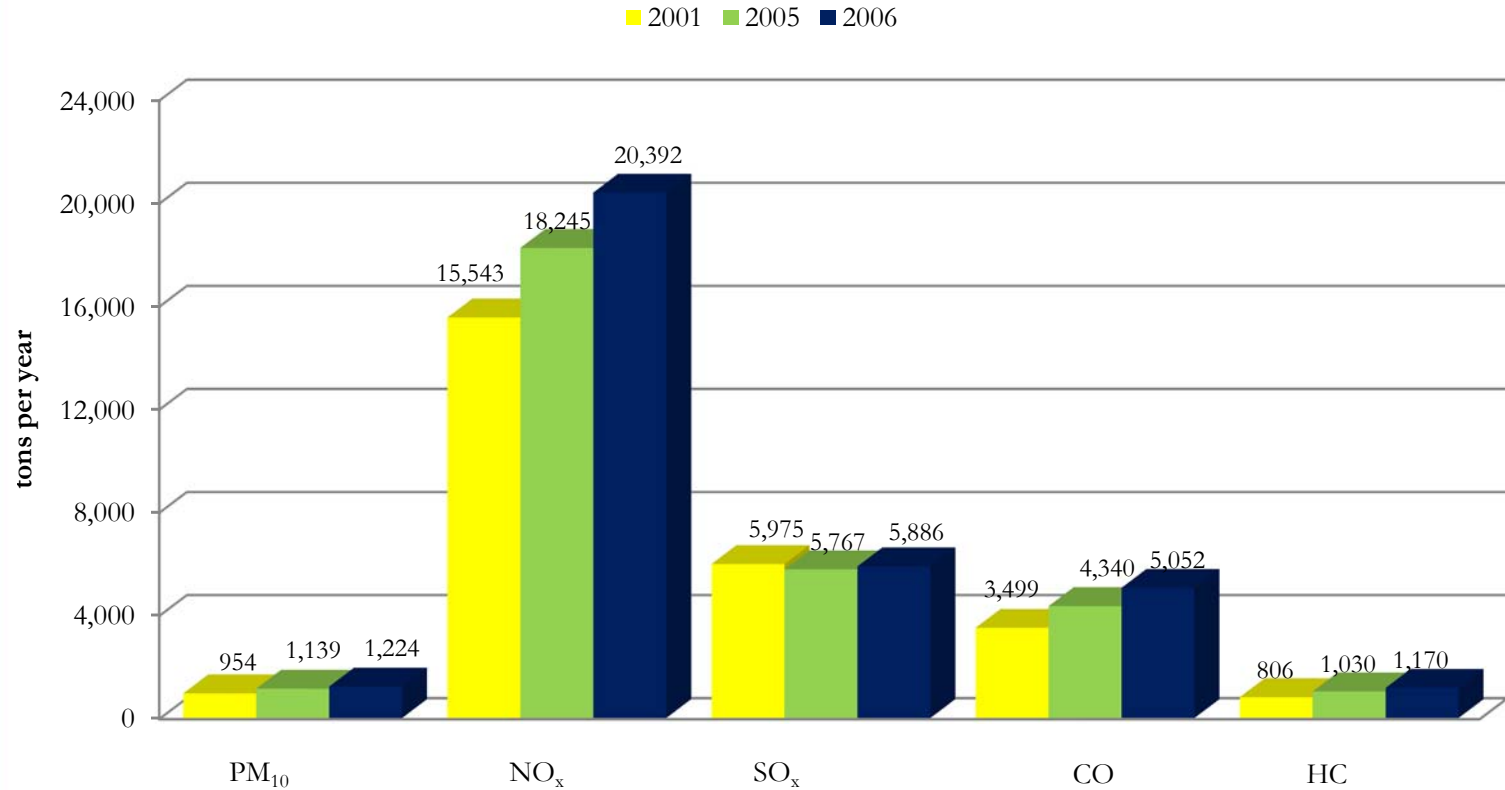
- Inventory = Activity Record + Estimating Methodology
- Using the database, we ran activity records for all three years through the 2006 estimating methodologies
- Important to note: Only ship speeds were changed for 2001, no other activity data was changed for the comparison

A CLEANER PORT.
A BRIGHTER
FUTURE.



AIR

How Do The Years Compare? Mass Emissions 2006, 2005, & 2001



A CLEANER PORT.
A BRIGHTER
FUTURE.



AIR

Comparison of Results 2006 – 2005 Mass Emissions Changes

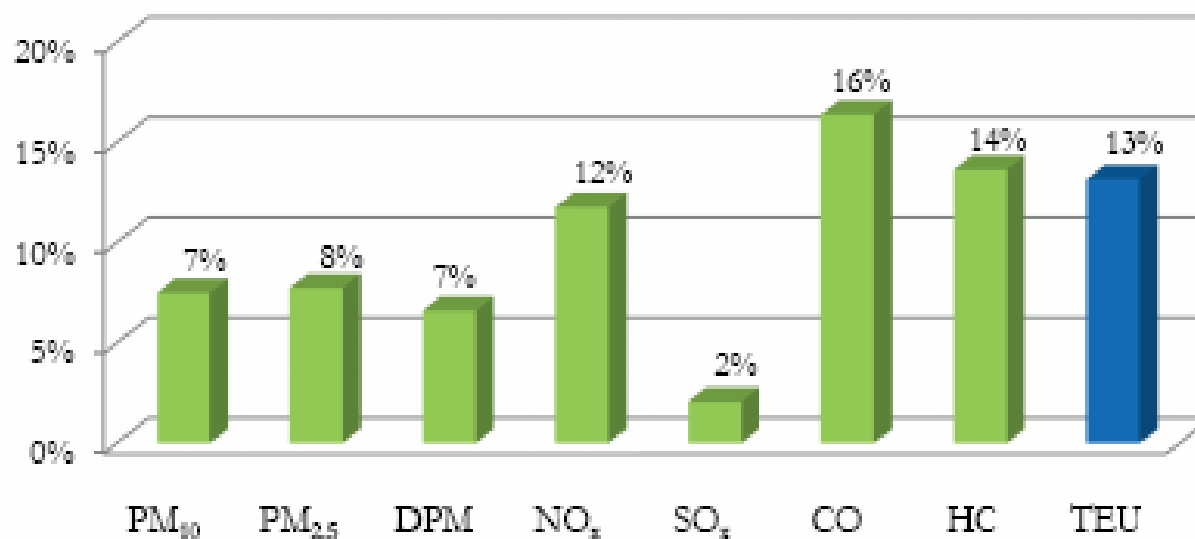
All Source Categories

PM/DPM Increased at Half Rate of Growth

NO_x Increased ~ Same Rate as Growth

SO_x Increased Slightly Against Growth

CO & HC Increased Greater Than Growth



A CLEANER PORT.
A BRIGHTER
FUTURE.



AIR

Comparison of Results

2006 – 2001 Mass Emissions Changes

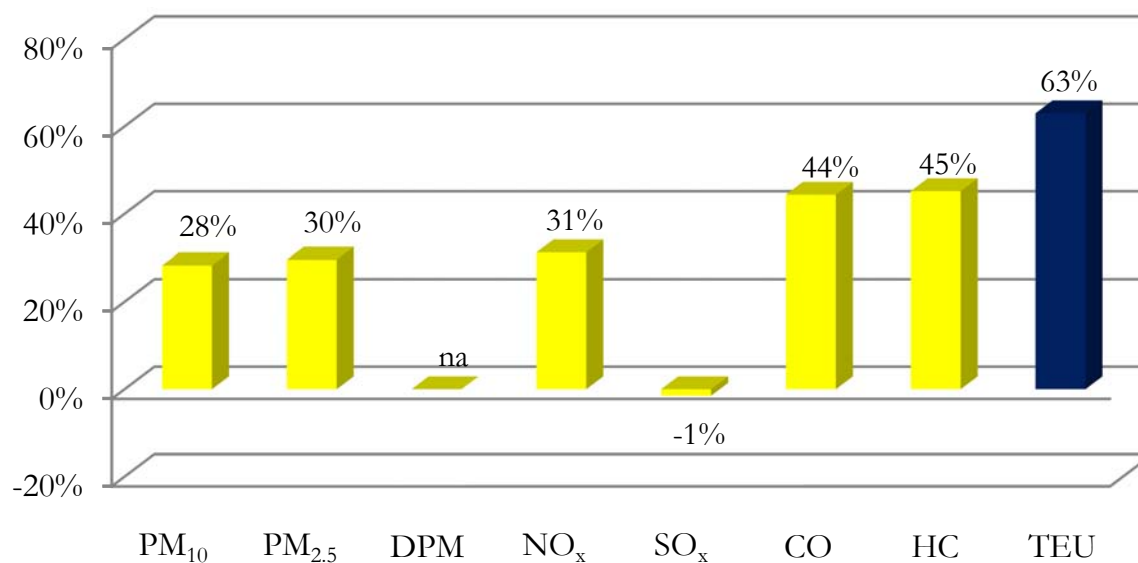
All Source Categories

PM & NO_x – Increased ~ Half Rate of Growth

SO_x – Has not increased w/Growth

CO & HC - Increased ~ Two-Thirds Rate of Growth

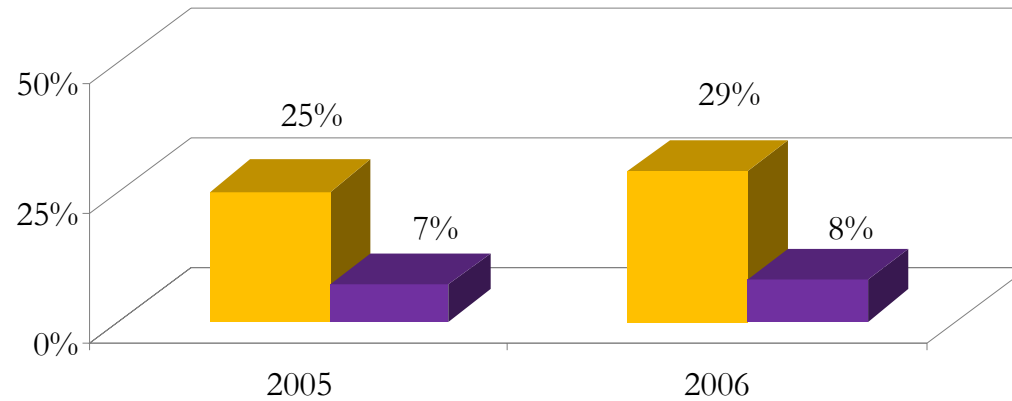
NA on DPM



A CLEANER PORT.
A BRIGHTER
FUTURE.



On-Dock & Near-Dock Rail Progress 2005 & 2006 Levels



■ On-Dock ■ Near-Dock



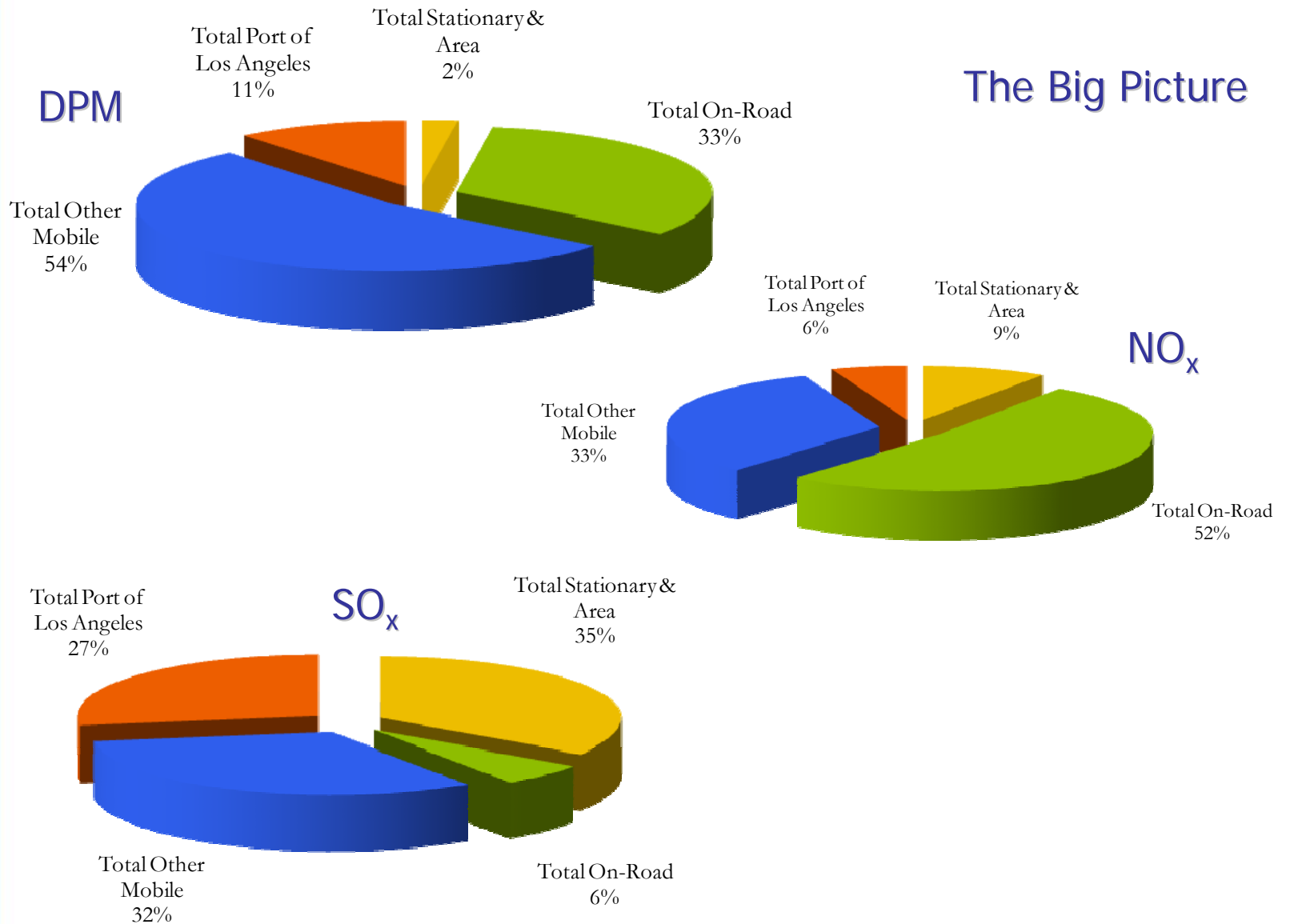
AIR

A CLEANER PORT.
A BRIGHTER
FUTURE.



AIR

POLA's Contribution to Basin Emissions 2006 Emissions





Conclusions & Looking Forward

- Conclusions
 - ✓ CAAP measures aren't in place
 - ✓ Growth in general overcoming reductions
- Looking Forward
 - ✓ Expect to see CAAP measures starting to take effect
 - ✓ Expect OGV emissions to decrease w/increase compliance w/VSR & fuel switch
 - ✓ Expect modest reductions from CHE & harbor craft from fleet turnover & repowers
 - ✓ Expect reductions from the new switching locomotives
 - ✓ Expect truck emissions to grow with cargo increases

PORT OF LOS ANGELES INVENTORY OF AIR EMISSIONS - 2006

