

A CLEANER PORT.  
A BRIGHTER  
FUTURE.



# Port of Los Angeles 2006 Clean Air Program

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**Multi-Modal Approach to Address Freight Air Quality Issues**

**Current Efforts and Initiatives: Marine Vessels and Ports**

**January 22, 2006**

**TRB Annual Meeting**



AIR



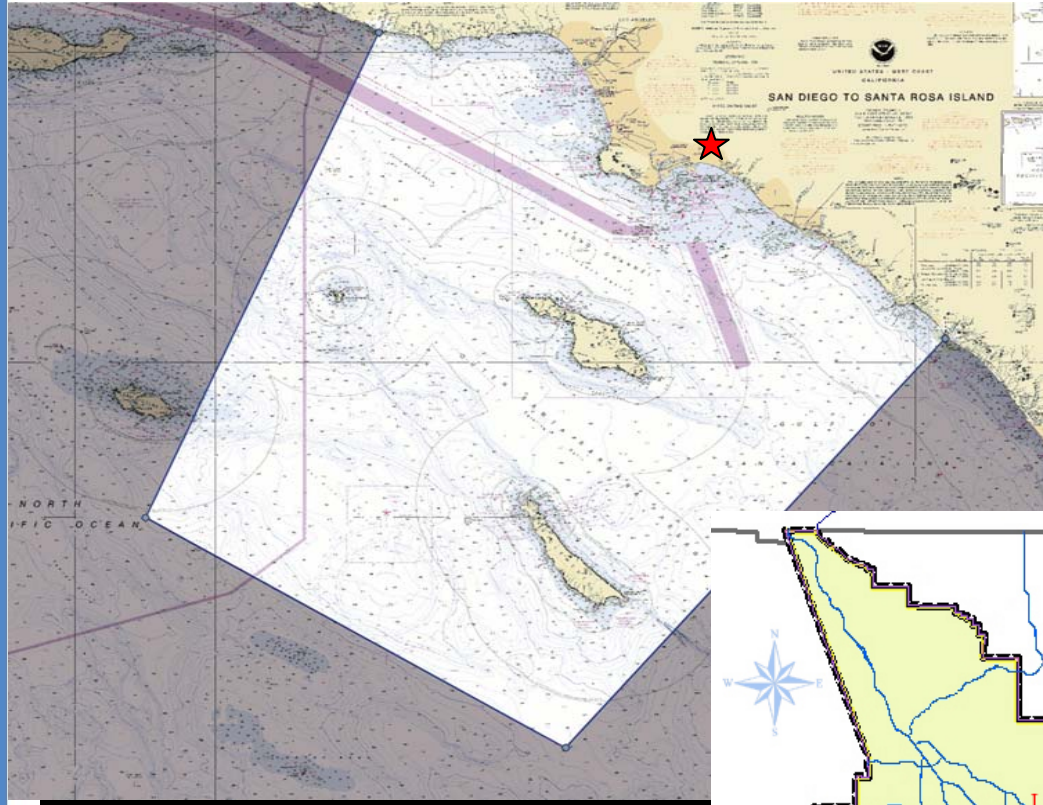
# 2006 Clean Air Program

## Presentation Overview

- **Introduction and Background**
  - Los Angeles Air Basin: Smog
  - Air Inventory
  - No Net Increase
  
- **2006 Clean Air Plan (CAP)**
  - Emissions Control Measures
  - Implementation Strategies
  - Cost Estimates
  
- **Challenges**

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# 2006 Clean Air Program Geographical Extent

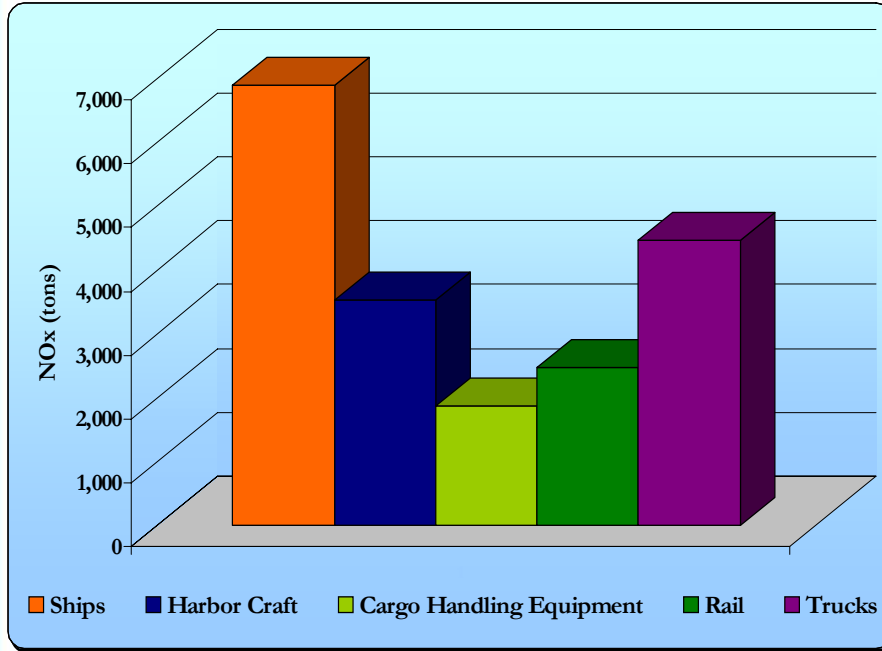


Our "Box" is Large

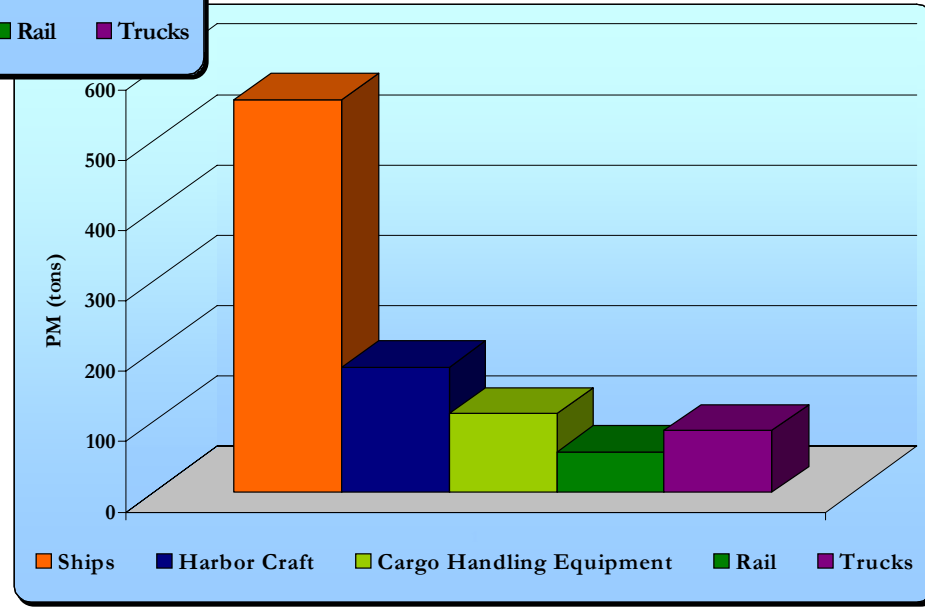
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# 2006 Clean Air Program

## 2001 Baseline Emissions



PM →





# 2006 Clean Air Program

## 2004 Clean Air Program

- In Late 2004, EMD Developed CAP Near-Term Measures
  - Based on Air Inventory
  - Focused on Near-Term Measures to Decrease NOx Primarily, PM and SOx Second
  - Planning/Implementation Period 2005 – 2008
  - Included All Five Port-Related Source Categories
    - ✓ OGV: Ocean going Vessels
    - ✓ CHE: Cargo Handling Equipment
    - ✓ HC: Harbor Craft
    - ✓ Rail
    - ✓ HDV: Heavy Duty Vehicles
  - ~\$34 Million Over 4 Years



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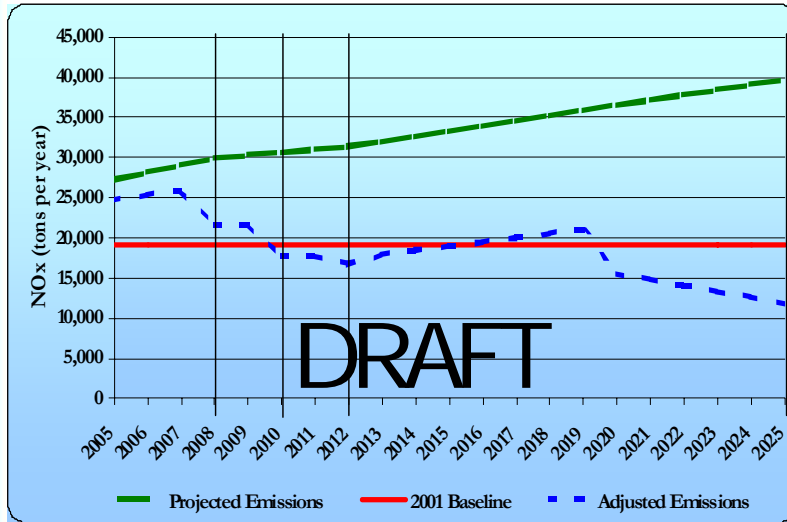
## 2004/5 No Net Increase Plan (NNI)

- In 2005, No Net Increase was the Plan
  - Former Mayor Hahn's Initiative
  - Return Port Emissions Back Down to 2001 Levels
  - Multi-Participant
  - Intensive 9 Month Evaluation
  - Emissions Levels Based on 2001 EI Baseline & Methods
  - Focused Primarily on NOx and PM
  - Based on Unconstrained Cargo Growth
  - Planning/Implementation Period 2005 - 2025
  - 68 Measures Developed for All Five Source Categories

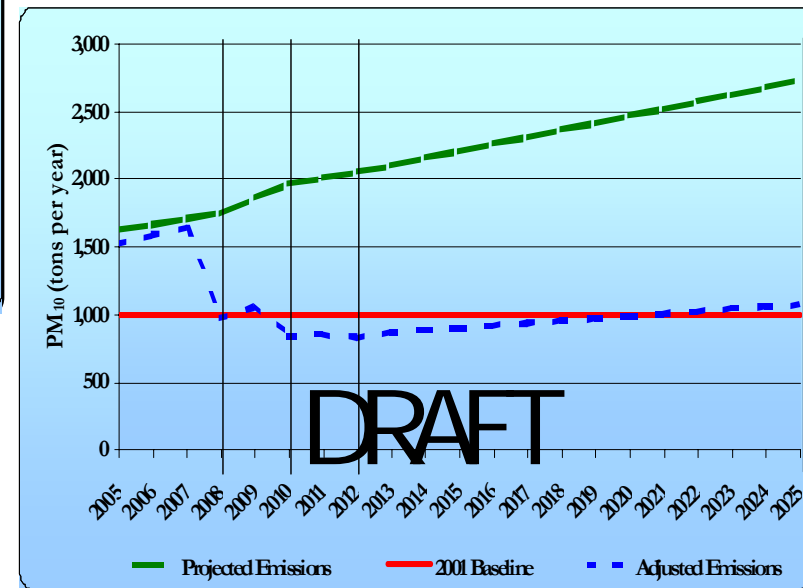
# 2006 Clean Air Program

## 2004/5 NNI

- ~\$12 to \$16 **Billion** Total Costs Between 2005 - 2025
- ~\$10 to \$14 **Billion** Unfunded Between 2005 - 2025



← NO<sub>x</sub>



PM →



# 2006 Clean Air Program

## Public Policy Shift

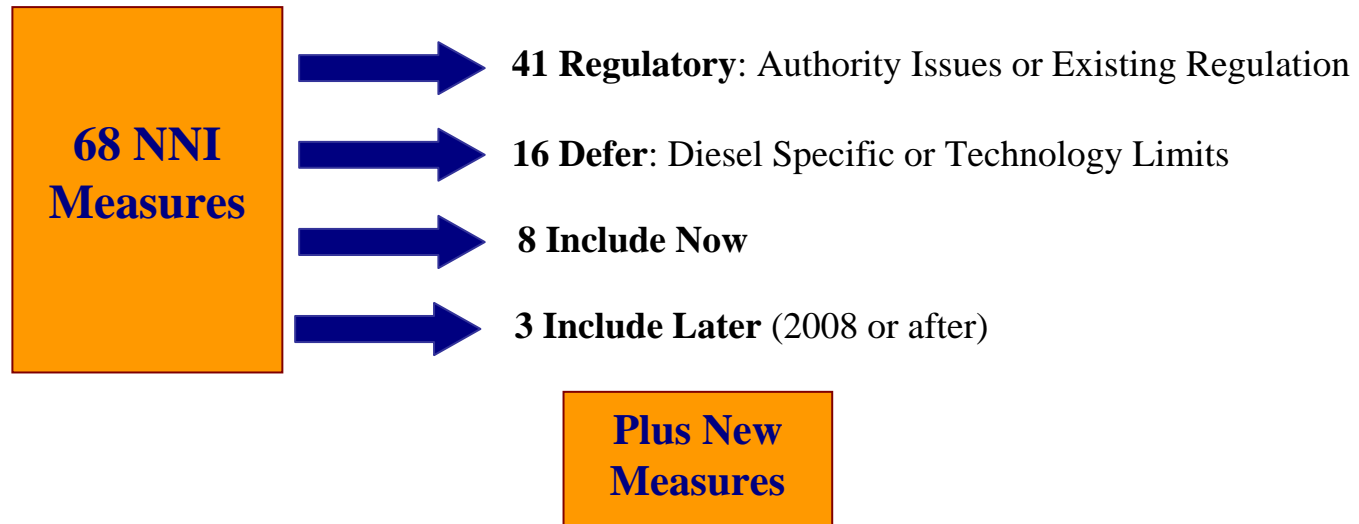
- 2006 Clean Air Plan (CAP)
  - New Mayor and Board of Harbor Commissioners
  - Public Policy Shift of New Board for Air Quality Focuses On:
    - ✓ Focus on **DPM** & NO<sub>x</sub>
    - ✓ Reduce Port-Related Air Emissions in Interest of Public Health
    - ✓ Disconnect Cargo Growth w/Increase of Emissions
    - ✓ Move Away from Diesel Fuels
    - ✓ Evaluate & Facilitate the Introduction of Alternative Fuel as Rapidly as Possible (LNG, Electric, Biofuels, Mag-Lev, etc)
    - ✓ Outreach to International Trading Partners



# 2006 Clean Air Program

## Control Measures

### ➤ Control Measures Evolution



- 17 Recommended Emissions Reduction Measures (6 OGV, 2 HC, 3 CHE, 4 Rail, 2 HDV)
- Planning/Implementation Period FY2006/7 – FY 2010/11
- CAP Does Not Incorporate Regulatory Measures that are Adopted



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## Control Measures – Ocean Going Vessels

- **Six OGV Emissions Reduction Measures**
  - ✓ CAP-OGV 1: Vessel Speed Reduction
  - ✓ CAP-OGV 2: Alternative Maritime Power (AMP)
  - ✓ CAP-OGV 3: Auxiliary Engine Fuel Improvement
  - ✓ CAP-OGV 4: Main Engine Fuel Improvement
  - ✓ CAP-OGV 5: Low Emissions Main Engine
  - ✓ CAP-OGV 6: Reroute Cleanest Ships
  
- **Partnering w/International Trading Partner Ports**
  - ✓ Shanghai Municipal Port (EPA Grant Funding)
  
- **Establishment of Pacific Ports Air Quality Collaborative**
  - ✓ EPA Grant Funding
  
- **Engaging Marine Engine Manufacturers and Shipping Lines**



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## Control Measures – Harbor Craft

- Two HC Emissions Reduction Measures
  - ✓ CAP-HC 1: Biofuels
  - ✓ CAP-HC 2: CS Settlement Air Quality Mitigation Measures
  
- **Develop Infrastructure at Port As Needed**
  - AMP Staging Areas
- **Assist in Verification of Higher Blends of Biofuels**
  - Testing and CARB
- **Encourage/Incentivised Transition to Non-Diesel Fuels**
- **Engage Harbor Craft Operators**



# 2006 Clean Air Program

## Control Measures – Cargo Handling Equipment

- **Three CHE Emissions Reduction Measures**
  - ✓ CAP-CHE 1: Alternative-Fuel Equipment
  - ✓ CAP-CHE 2: CS Settlement AQ Mitigation Measures
  - ✓ CAP-CHE 3: Alternative-Fuel Infrastructure
  
- **Encourage/Require Rapid Movement from Diesel Fuels to LNG – Fleet Turnover**
- **Build Required Terminal Infrastructure to Support Alternative Fuels**
  - Pump Stations, Fuel Lines
- **Establish Alternative Fuel Supply Lines**
  - Portwide



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## Control Measures - Rail

- **Four Rail Emissions Reduction Measures**
  - ✓ CAP-RR 1: PHL Modernization
  - ✓ CAP-RR 2: Idling Controls
  - ✓ CAP-RR 3: Electrification of Alameda Corridor
  - ✓ CAP-RR 4: Technology Replacement
  
- **Facilitate Rapid Turnover of Switch Engines Through Incentives**
- **Incorporated Line Haul Progress on Idling Controls**
- **Evaluate Electrification & Other Technology Replacements**
  - Green Goat

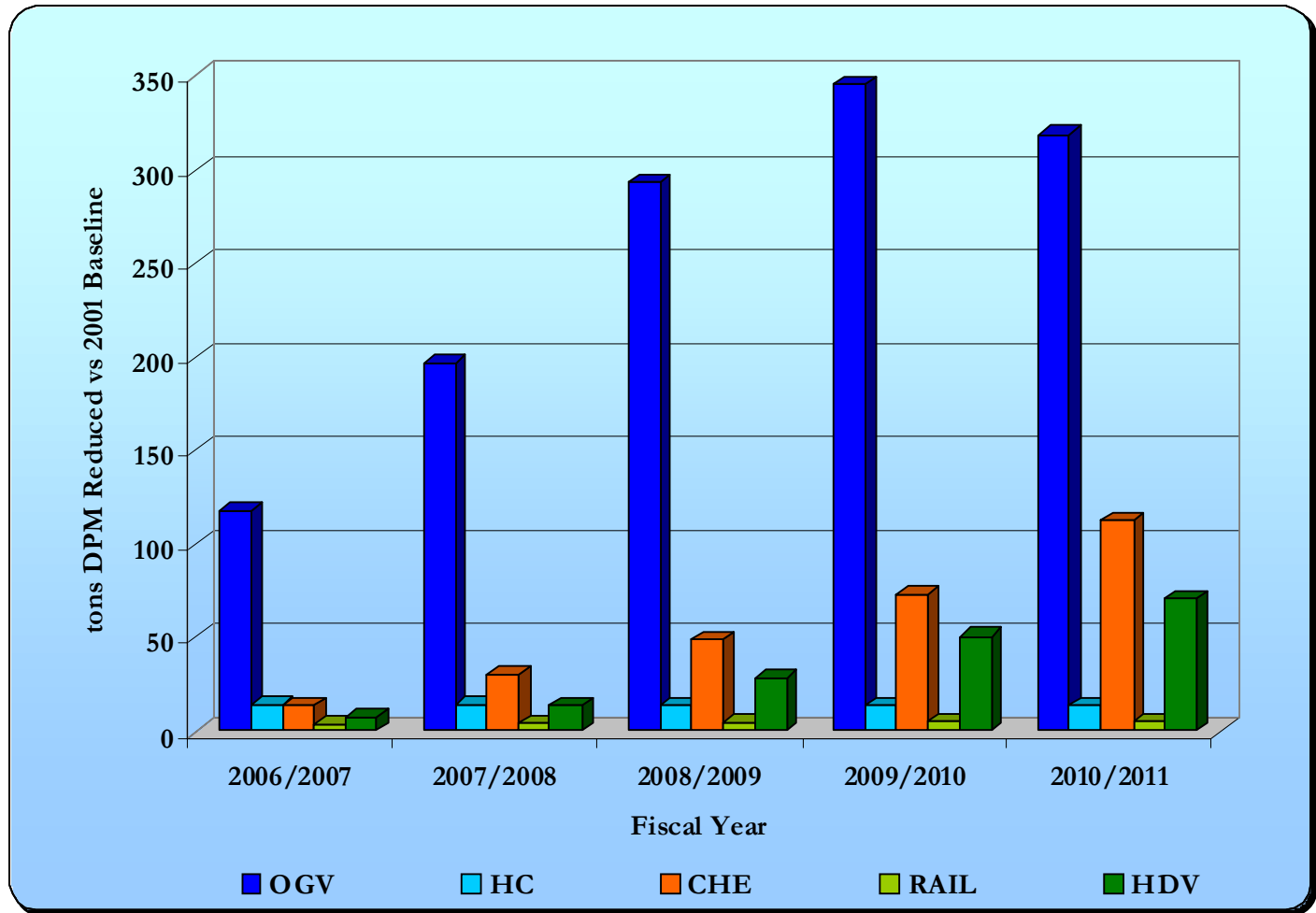


# 2006 Clean Air Program Implementation Strategies

- Implementation
  - **Multiple Implementation Strategies**
  - **CAP Evaluated 11 Potential Strategies**
    - ✓ Voluntary Measures
    - ✓ Port Incentive Funding
    - ✓ Port Infrastructure Improvement Funding
    - ✓ Port Research/Development, Monitoring, & Reporting Funding
    - ✓ Green Port Program
    - ✓ Credit Trading/Market-Based Incentives
    - ✓ Regulatory Incentive/Grant Programs
    - ✓ Capital Lease-Backs
    - ✓ Tariff Changes
    - ✓ Lease Negotiations/Requirements
    - ✓ Consensus Building

# 2006 Clean Air Program

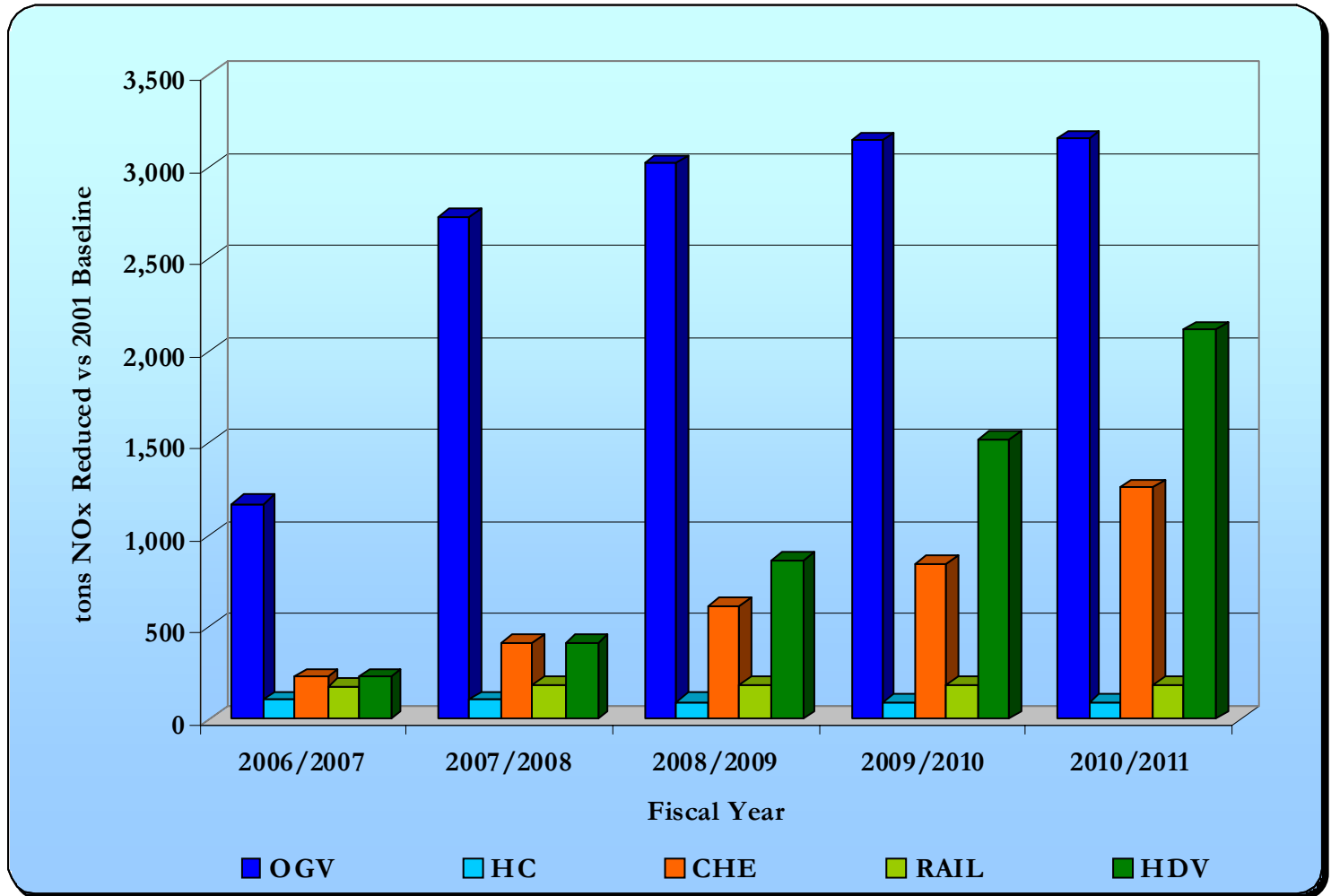
## DPM Emissions Reduction by Source Category



\*2010 Due to Existing Regulation

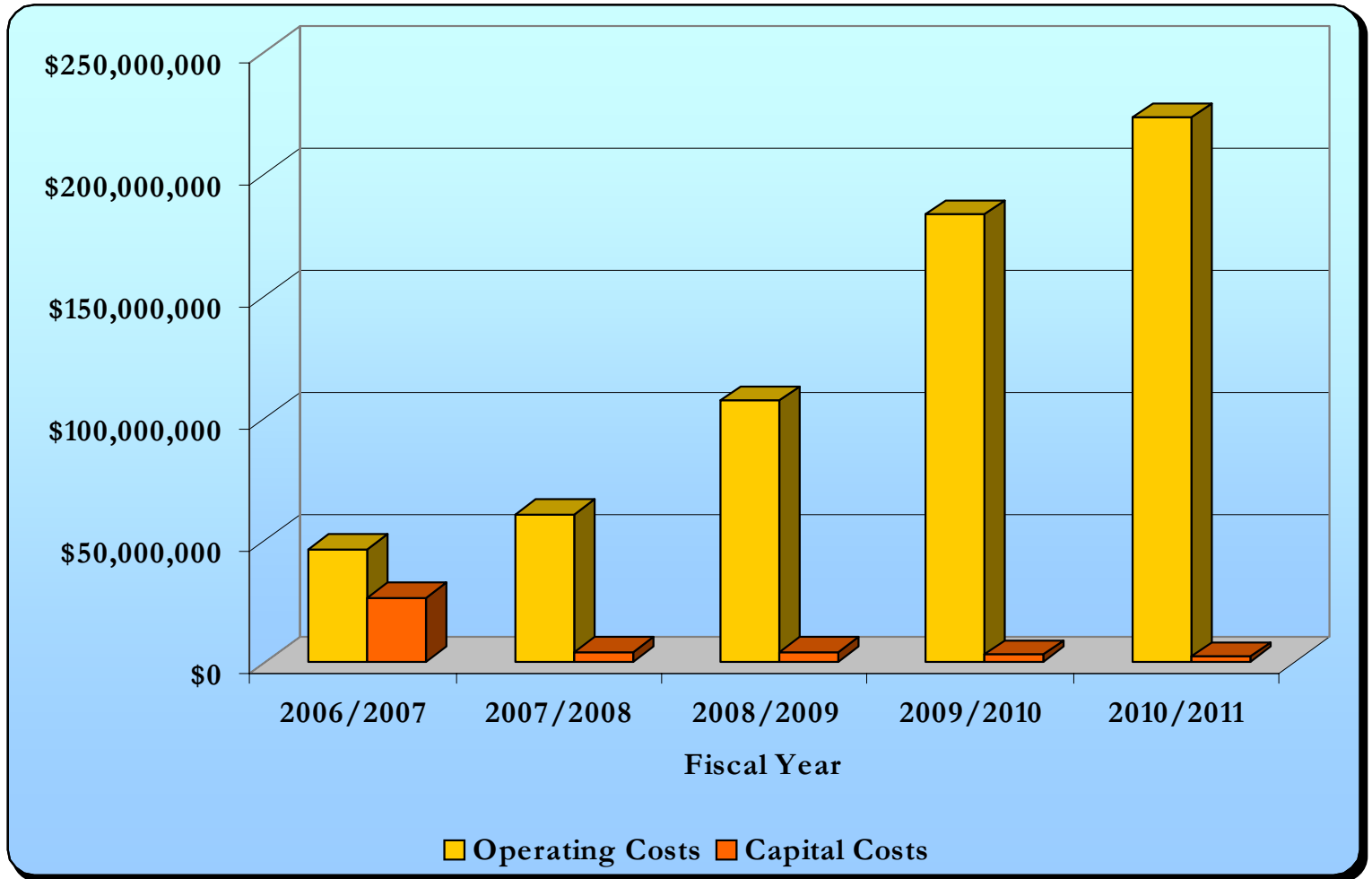
# 2006 Clean Air Program

## NOx Emissions Reduction by Source Category



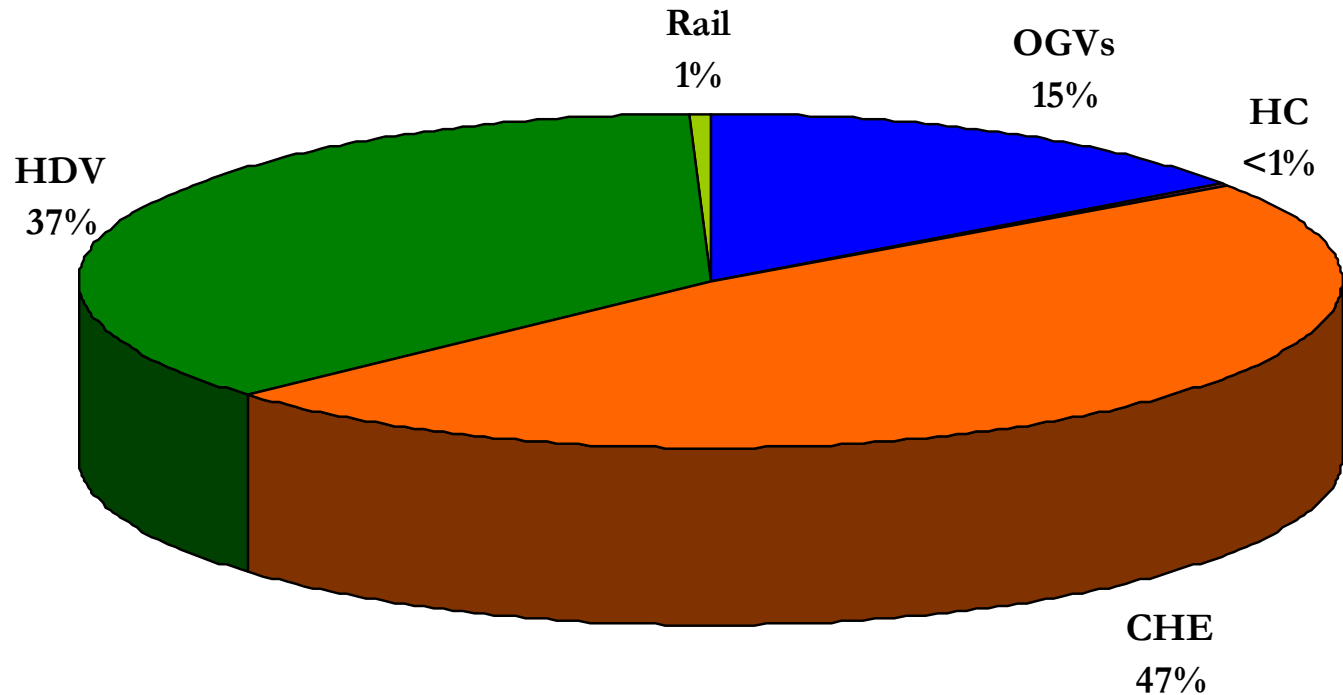
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## Cost Estimates



# 2006 Clean Air Program

## Cost Estimates by Source Category





# 2006 Clean Air Program Implementation Challenges

## ➤ Challenges

- CEQA/NEPA
  - Air Quality Analysis Delta
- Existing Leases and Tariff Limitations
  - How to Open
  - Lease is to the Terminal Operator
- Competitive Disadvantages
- Legal Authority
  - Foreign Flagged Vessels
  - Trucks
- Research Holes
- State and Federal Focus/Plans (Think Globally, Act Locally)
- Limited Funds- How Best to Use Them



# 2006 Clean Air Program

## Conclusions

- **Everything** at POLA is Constantly Changing
- DPM is Main Focus
- Significant Cost Implications
- Landmark Event When Adopted
- This Presentation is Now Out of Date