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# Port of Los Angeles Electric Truck Initiative Overview

September 2009





## The Environmental Context

*A public health and environmental crisis...*

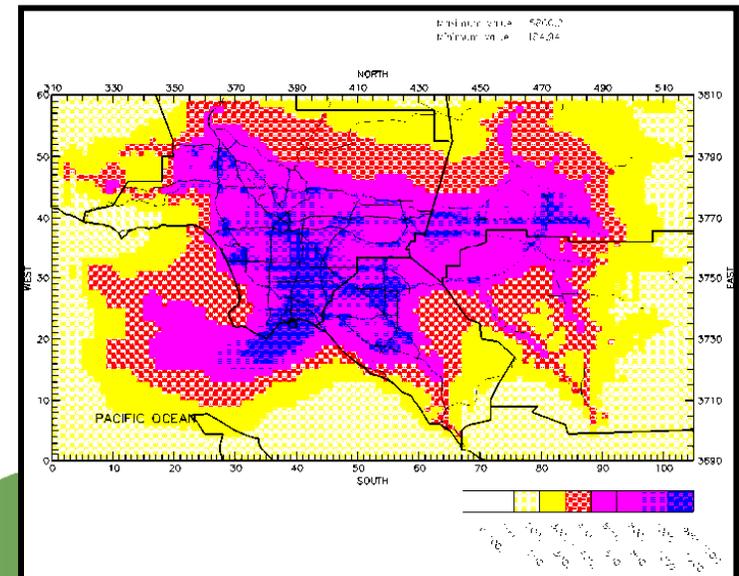
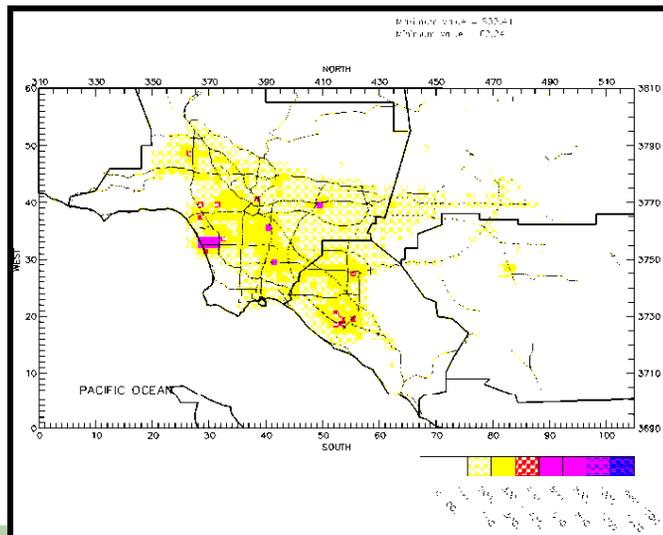
*Between \$500 million and \$1.7 billion in annual externalized costs from port drayage alone....*

Latino areas are hit hard by environmental health threats

**REPORT:** Group suffers more from pollution than the rest of the population, study finds.

Pollution, traffic are linked to illness

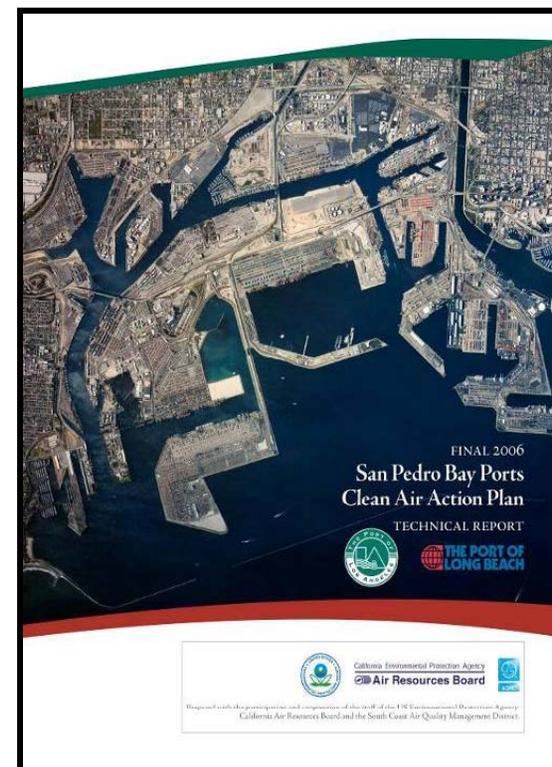
**ENVIRONMENT:** German study finds heart attacks are three times more likely in congestion. Bad air is blamed.





## San Pedro Bay Ports Clean Air Action Plan (CAAP)

- **Comprehensive** Five Year Action Plan
  - Control measures for ships, harbor craft, trucks (Clean Truck Program), cargo handling equipment and locomotives
  - Emission reduction targets:
    - ✓ Diesel Particulate Matter – 47%
    - ✓ Nitrogen Oxides (NOx) – 45%
    - ✓ Sulfur Oxides (SOx) – 52%
  - \$2+ Billion Cost
- **Partnerships**
  - Historic first ever Joint Board Meeting of the Ports of LA and Long Beach
  - Significant multijurisdictional collaboration



The Port of  
**LONG BEACH**



California Environmental Protection Agency  
**Air Resources Board**





## What We've Done...

- **Banned and scrapped dirty trucks:**
  - Began Oct. 1, 2008 with Pre-1989:  
*Between 1,500 and 2,000 dirty trucks immediately removed from the road*
  - Next ban: Jan. 1, 2010
    - Pre-1994 banned outright
    - 1994 – 2003 require retrofit
    - Up to 12,000 trucks could be affected
- **Funded clean trucks:**
  - POLA Incentive: \$44 million at \$22,000/truck = 2,200 2007 EPA Compliant Clean Diesels
  - Recent AQMD Prop 1B Solicitation will add up to 450 more LNG trucks
  - Now more than 5,000 doing over 60% of the drays



## **Additional emissions reductions for truck operations?**

**On terminal operations:**

- **Yard Trucks**

**Drayage Operations:**

- **Very short haul (near dock rail)**
- **Medium distance (downtown Los Angeles, local warehouses)**
- **Regional and longer distance (inland empire and beyond)**



## **Additional emissions reductions for truck operations?**

**On terminal operations:**

- **Yard Trucks are off road vehicles**
- **Operate exclusively on terminals**
- **Localized emissions**
- **Strong candidates for zero emission vehicles**



## Additional emissions reductions for truck operations?

- **Very short drayage:**
  - **Limited range**
  - **Lots of starts and stops**
  - **Also localized emissions near residents**
  - **Strong candidates for zero emission vehicles**



## **Additional emissions reductions for truck operations?**

- **Medium distance drayage:**
  - **Haul distances of 25 - 50 miles**
  - **Increased impact on local highways (e.g. 710 Freeway)**
  - **Emissions cause impacts along local highways**
  - **Candidates for low emission vehicles (e.g. LNG) or zero emission vehicles (e.g. electric)**



## **Additional emissions reductions for truck operations?**

- **Regional and longer distance drayage:**
  - **Haul distances of 50 or more miles**
  - **Impacts on local goods movement corridors (e.g. 10 Freeway)**
  - **Emissions cause impacts along goods movement corridors**
  - **Due to longer distances and only emerging infrastructure, low emission diesel (e.g. 2010 compliant diesel trucks) will continue to play a role**



## Balqon Electric Terminal Tractor and On-Road Truck

- Funded the first all-electric dray and yard trucks...now manufacturing in LA!
- Uses lithium-ion battery technology
- Project Partners: Balqon, POLA





# Zero Emission Electric Truck Collaboration

- **Partnership with UC Riverside CE-CERT**
  - Local participation from goods movement corridor
  - Validation of duty cycles
  - Refine truck technology
  - Assess potential for alternative uses
- **Other partners:**  
**Vision Industries, Balqon**





# Zero Emission Electric Truck Collaboration

- **Two types of trucks:**

- **Battery electric**
  - Has up to 100 mile range under load
  - Can complete at least one full 8-hour shift
- **Hydrogen Fuel Cell**
  - Has up to 400 mile range
  - Runs on battery and hydrogen
- **Testing on going:**
  - CE-CERT preliminary analysis
- **Anticipated cost is \$250,000/unit**

