

Future Freight + Cleaner Air

Closing Remarks
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Goods Movement: The Glue of the California Economy ... and its *Greatest Environmental Challenge*



Goods Movement

Starting Points

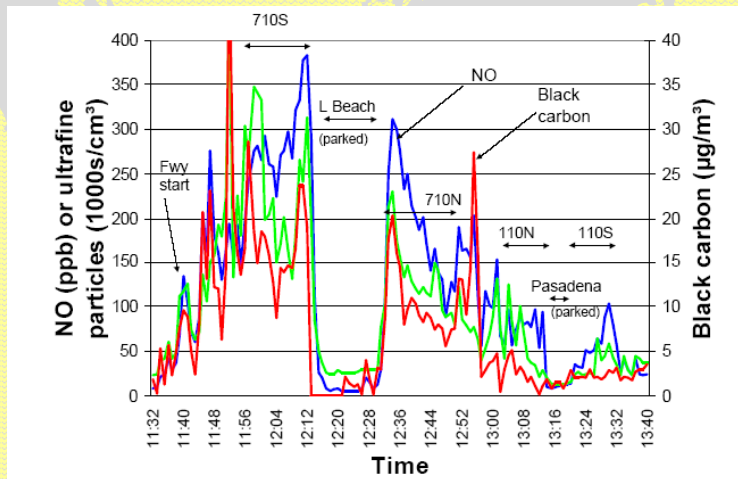
- ◆ Energy conservation should be a firm & sustained ethic for all *GM*
- ◆ Increased marine cargo throughput with no net increase (NNI) is a huge challenge to ports
- ◆ There is a need for Net reductions , not just NNI
- ◆ Airports and Rail facilities should consider similar policies at a minimum
- ◆ Going beyond status quo requires wide range of sources to be addressed
- ◆ Alternative fuels and technology deployment is key
- ◆ Mitigation / Incentive programs are essential

Goods Movement

“Organizing Principles”:

- ✓ Improve Air Quality & Public Health
- ✓ Enhance Mobility
- ✓ Reinforce Homeland Security
- ✓ Promote Job Growth
- ✓ Enhance Energy Diversity
- ✓ Promote GHG Stabilization

Particle Counts on Roadways



From: Fruin, CARB presentation, December 9, 2004

Particle Counts in Southern California Per Cubic Centimeter

Area	Particle Count
Coastal area	600-2,000
Office Spaces	500-2,000
Urban air	10,000 - 40,000
Industrial site	up to 100,000's
Freeways	40,000 - > 1,000,000

From Westerdahl, 2004.

Goods Movement: Challenging Trends

- ◆ **Just in Time (JIT) Delivery**
 - use of rolling stock for storage; creates more congestion
- ◆ **Cargo consolidation / deconsolidation** (transloading)
 - short trip emphasis places greater emphasis on truck over rail use
- ◆ **Intl. Container Ship Fleet Growth**
 - 53% of current capacity on order during 2005 alone
 - Trend: 7,500 → 12,000 TEU's per ship
 - Higher emissions per ship berthed...

Global Gateways = Mega Headaches

- ◆ **POLA + POLB**: 40,000 truck trips / day
- ◆ **International Airports**: LAX + Ontario
 - 1st and 4th largest cargo-handling in CA
- ◆ **12 interstate highways** handling international shipments
- ◆ **Locomotive** main lines of BNSF + UP
 - Major mainline & yard capacity constraints
 - 112 freight trains per day → 165 by 2010

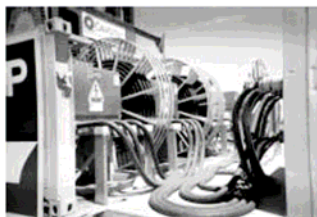
Ominous Long-term Trends

- ◆ 8 hr ozone and PM2.5 non-attainment
- ◆ Asthma rates at all time high (1 in 6 children in SJV)
- ◆ Diesel emission particle counts along freeway 1,000 – 10,000 times higher than non-freeway
- ◆ Ports = 44% of U.S. container throughput!
- ◆ Toxic risks at railyards > 400 / million

Alternative Marine Power Assessment

Preliminary Ship Results

- Looks Promising
 - 333 container ships
 - 24 cruise ships
- Does Not Look Promising
 - 35 roros (vehicle carriers)
- Under Analysis
 - 72 tankers
 - 38 bulk ships
 - 13 reefers



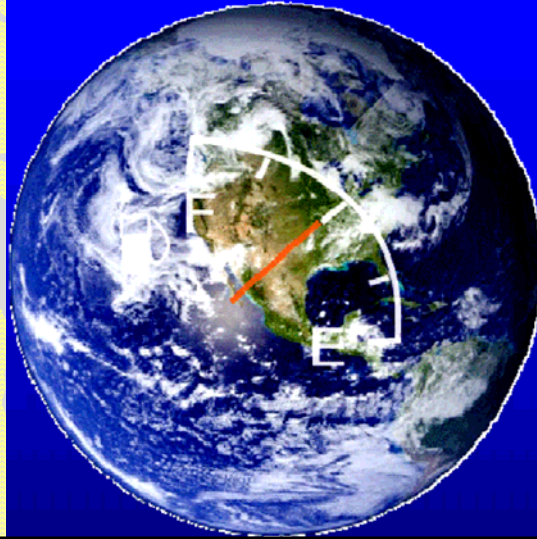
Port Trucks - Background

- ❑ 20,000 to 40,000 trucks serve POLA / POLB
- ❑ Average age = 12 years
- ❑ 28% > 16 years old ('88 and older)
- ❑ Verified PM Retrofits Expanding
- ❑ Reduced idle times = improved efficiency

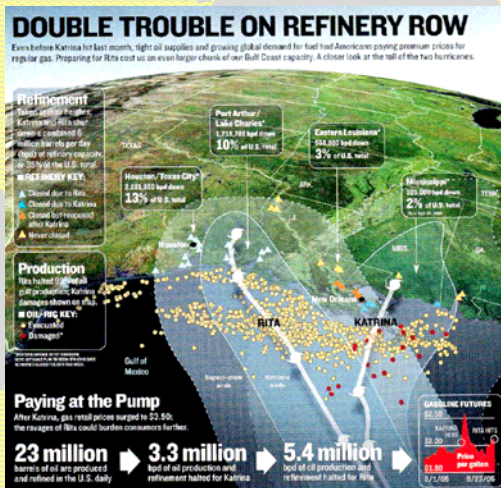
Upcoming Federal Rulemakings

- ◆ Category 3 (Largest) Vessels
- ◆ Locomotives and Smaller Marine Vessels
- ◆ Issues:
 - ◆ Will EPA regulate foreign flag vessels?
 - ◆ Will standards be adequate for this area?
 - ◆ Long useful life sources — will rules expedite benefits in highly polluted areas?

The Era of Post-Peak Oil Production *Is It Occurring during this decade?*



The Need to Respect the “Precautionary Principle” Has Never Been Greater...



Port of LA & Oakland LNG challenges

- ◆ Trucking firms have little capitalization
- ◆ Buy cheapest / dirtiest fuel
- ◆ Moyer program not focused on fuel switching or on smaller truck operator firms
- ◆ Current version of Moyer will have a diminishing impact on alt fuel purchase decisions
- ◆ Ship hotelling and yard hostlers drive majority of cancer risk
- ◆ Yard hostler tech transfer to a wider range of sources
 - Between 2 ports, there are 1,100 units

Revenue Approaches for Burden Sharing ?

- ◆ **City has authority to impose fees on containers**
- ◆ **Costs of full alt fuel deployment estimated at \$11+ B**
- ◆ **Legislation proposed for mitigation fees**
- ◆ **Address several goals synergistically**
 - **Energy diversity** - **“Clean” trucks**
 - **Toxic emissions** - **Climate change gases**

Needed State Policies ?

- ◆ “Mega” Moyer
 - Beyond “down payment”
 - 2nd round focused on goods movement
- ◆ “California Energy Diversification Act”
- ◆ Focus on Ports, Airport Cargo and Locomotive Operations
- ◆ Special targeting of independent small truckers (up to 40,000 in So. California serving ports)

Four Guiding Principles:

- 1) AQMD acknowledges the efforts of both ports to date in recognizing their air pollution problem and taking initial steps to address it;
- 2) The proposed No Net Increase plan for the Port of Los Angeles is a good start, but it's not enough. The ports need to reduce their emissions to achieve clean air;
- 3) The ports of Los Angeles and Long Beach must pursue coordinated emissions-reduction strategies to ensure equity and to prevent one port from obtaining a competitive edge through less stringent environmental standards; and ;
- 4) The ports and shipping companies should bear their fair share of the cost of cleanup, just as stationary sources do today.

Technology Innovation is Key

- ◆ Hybrid trucks + trains
- ◆ Model Clean Wharf Program?.
- ◆ Extensive Fleet Modernization
- ◆ Electrification technology transfer
 - AMP for ships
 - Rail options / selected corridor application
- ◆ Leverage upcoming BNSF facility
 - 1st rail yard with full application of advanced technology?
 - Cost structure – captured through internal profitability ?