

DOCKET

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Port of
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The Green Port

Heavy-Duty Natural Gas Vehicles at the Port of Long Beach

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Port Programs and AB118



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- Clean Air Action Plan (CAAP)
- Clean Trucks Program
 - Incentives to offset incremental costs
 - Tenant and tariff requirements
- Technology Advancement Program (TAP)
 - PHEV and Battery-Electric Yard Hostler Demonstrations
 - Alternative Fuels for off-road equipment
- Alternative Fuel Infrastructure
 - Fueling stations and bulk fuel production / storage
- Cold-Ironing
- Climate Change / Greenhouse Gas Strategic Plan

Incentivizing Natural Gas Trucks



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- Legacy Fleet Program
 - Fleet modernization program provided funding for LNG trucks prior to the start of CAAP
 - 107 Kenworth T800 Class 8 Trucks with ISX-G engine
- Clean Trucks Program
 - Port and/or commingled Prop 1B funds
 - Prop 1B only program
 - Port solicitation
 - AQMD solicitation
 - Nine different LNG truck variations (Make / Model / Cab Configuration)

Clean Trucks Program: LNG vehicles



ISL-G Engine (Dedicated / SI)

- ✓ Sterling LT8500
- ✓ Freightliner M2-112
- ✓ Kenworth T800
- ✓ Peterbilt 384



Sterling LT8500 Day Cab with ISL-G Engine

ISX-G Engine (Pilot-Injected / HPDI)

- ✓ Kenworth T800
- ✓ Peterbilt 386



Kenworth T800 Day Cab with ISX-G Engine

Subsidized Cost of LNG trucks



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Sterling LT8500 ISL-G – Day Cab

- Lease: \$300/month for first 2 years,
\$500/month for next 5 years.
- Grant: \$105,000 Price: \$161,135
- Participant's Cost: \$56,135



Kenworth T800 ISX-G – Day Cab

- Lease: \$772/month for first 2 years,
\$972/month for next 5 years.
- Grant: \$105,000 Price: \$197,123
- Participant's Cost: \$92,123



LNG Truck Deployment at the Port



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- Currently deployed: ~450*
 - 107 LNG trucks (Legacy Fleet)
 - 154 LNG trucks (Joint CTP with Port or Prop 1B Funds)
 - 130 CNG trucks (Prop 1B early grant program)
 - 59 NG trucks (assumed to be privately funded)
- Soon-to-be deployed
 - 50 LNG trucks (POLB-Specific CTP)
 - 500 Alt Fuel (AQMD/Ports Prop. 1B solicitation)

*Data from ports' DTR.

Port Funded Incentives



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- More than ~\$8 million in subsidies for the Legacy Fleet of 107 trucks
~ \$144,000 subsidy per truck
- More than \$30 million in subsidies towards LNG trucks through the CTP
~ \$147,000* subsidy per truck
- \$5 million in supplemental LNG funding for Prop. 1B

* Based on an average subsidy value for all LNG trucks offered through the CTP

Emerging LNG Fueling Stations



Carson Station

- Wilmington & Carson

Port Station

- Anaheim & I Street

Wilmington Station

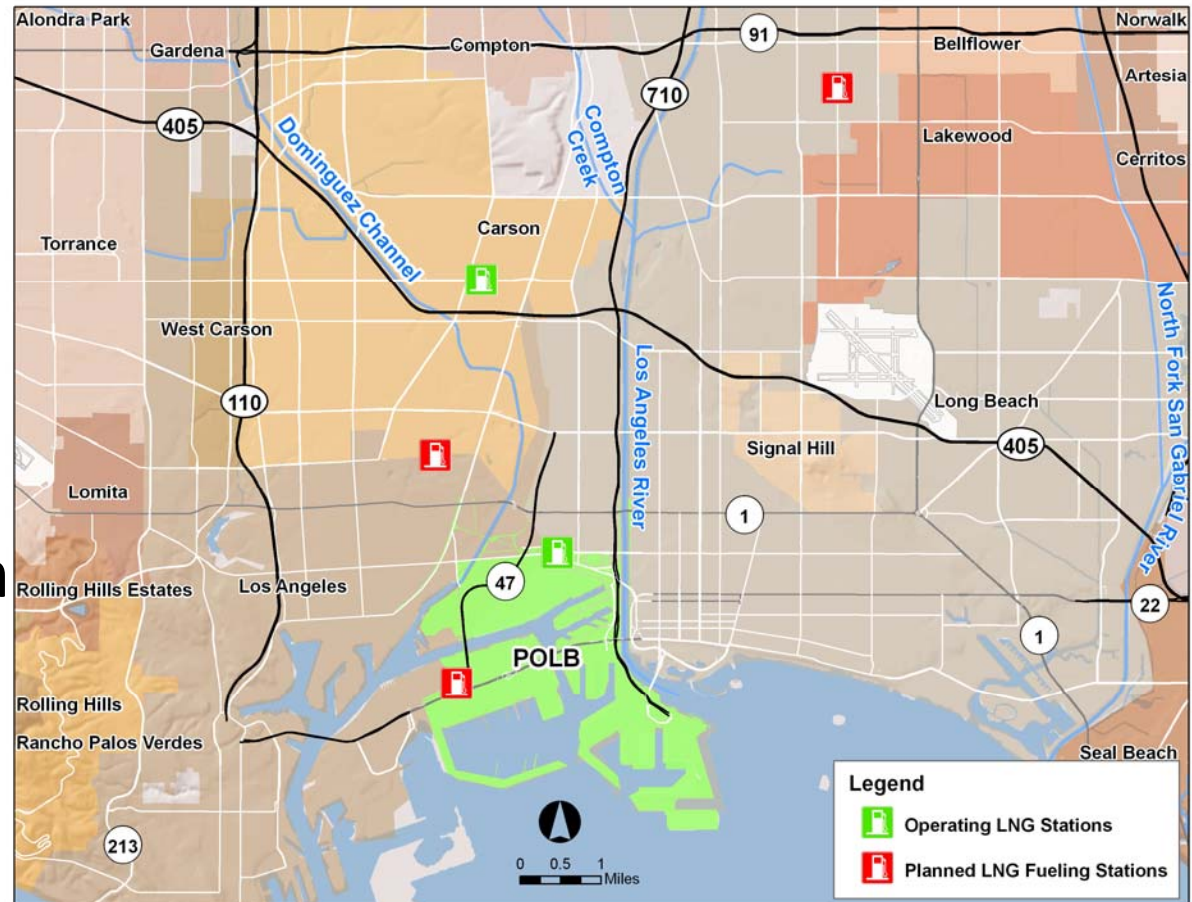
- Lomita & Blinn Avenue
(planned)

No. Long Beach Station

- Paramount & South Street
(planned)

Pier S Station

- Pier S Ave & New Dock Street
(planned)



Fueling Stations Serving the Port



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Anaheim and I Street Station

- Located on property leased by the Port
- Specifically designed to support implementation of the CAAP / CTP
- World's largest natural gas fueling station for trucks*
- Two 25,000 gallon bulk LNG tanks
- Public access for both LNG and CNG
 - 6 LNG dispensers
 - 2 CNG dispensers
- Phase 2 will provide two additional 25,000 gallon tanks for a total of 100,000 gallons of on-site storage



*According to Clean Energy Fuels Corp, 6/30/09 Press Release

More Fueling Stations



Carson Station

- Located at Southern Counties Express
- Retail station with anchor fleet of >70 LNG drayage trucks
- Station throughput is roughly 320,000 LNG gallons per month*



Southern County Express LNG Station, 2045 Carson St., Carson

*According to Clean Energy Fuels Corp, 6/30/09 Press Release

LNG-specific assistance



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Clean Trucks Center, Pier S. Ave. / New Dock St., (Terminal Island)

1-888-KLN-Trux (1-888-556-8789)

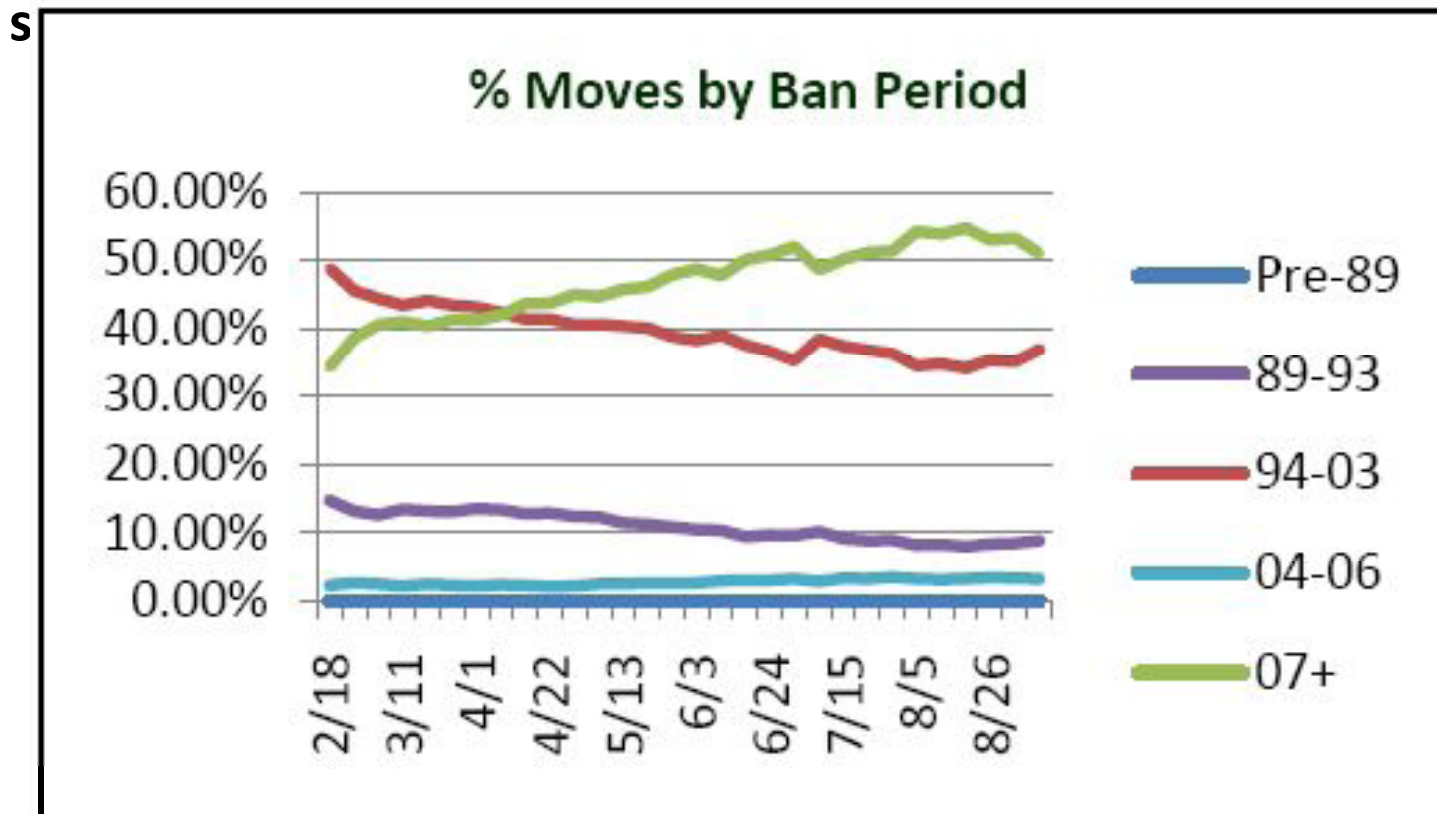


Transition to 2007-compliant trucks



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- Pre-89 trucks banned 10-1-08; next ban is **1/1/10**
- More than 50% of active drayage truck moves now meet 2007



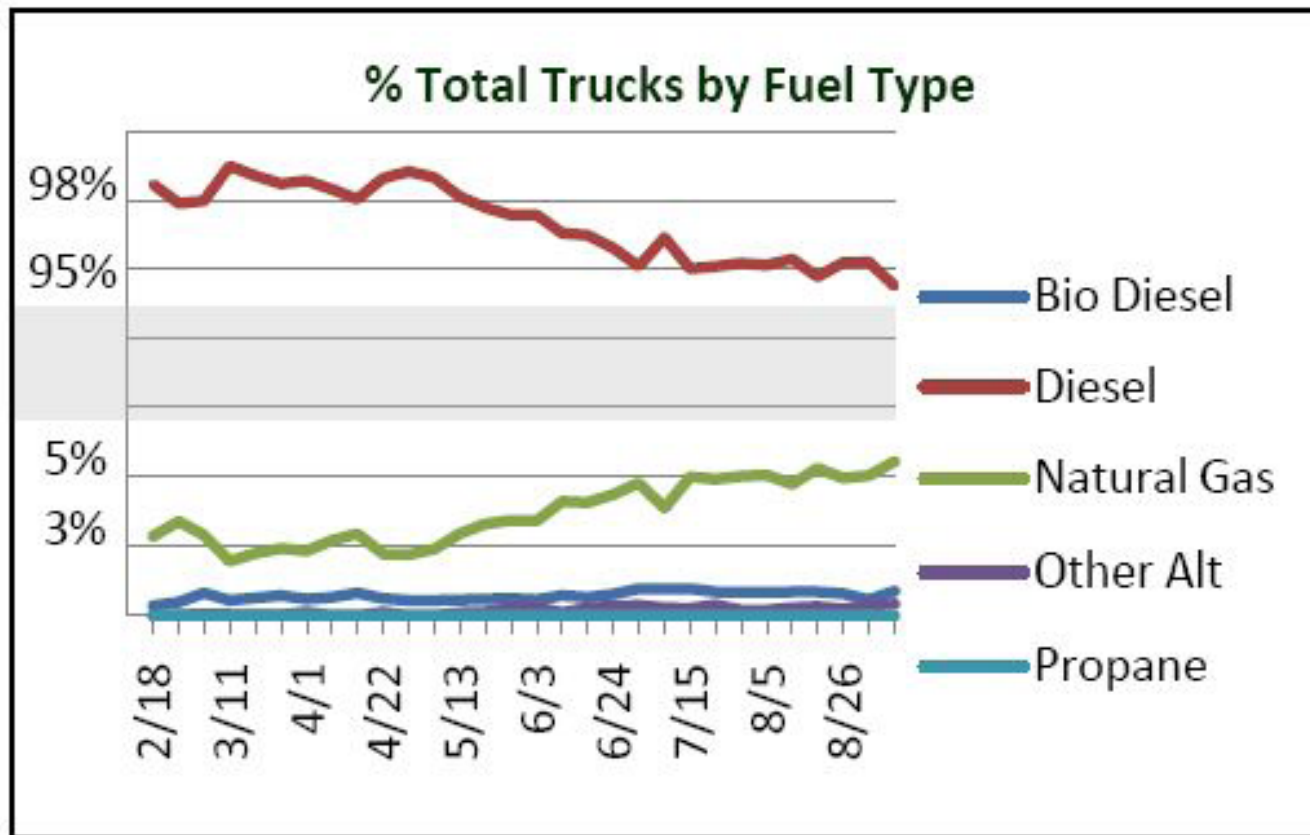
Source: port drayage truck registry

Petroleum displacement is on the rise . . .



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- **Percent of natural gas drayage trucks: small, but increasing**
- **NGV container moves are increasing; diesel fuel is being displaced**



Source: port drayage truck registry



- **Volume Production and Deployments Remain Elusive**
 - Incremental costs remain high, require major subsidies
 - Fueling infrastructure around the ports is improving, but longer hauls are challenging
- **What Will Continue Driving the Choice Towards Natural Gas?**
 - Criteria pollutants: all trucks will soon meet 2010 emissions standards
 - GHGs: benefits highly dependent on feedstock / W2W factors
 - Price vs. diesel: fuel prices are highly volatile
 - Incremental cost: fueling tanks / other components still at a premium
 - Competition: other fuels / technology combinations may quickly evolve and improve (PHEVs, battery electric, hydrogen / fuel cells, propane etc.)



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