



# Reducing On-Road Truck Emissions Through the Port of Los Angeles Air Quality Mitigation Program

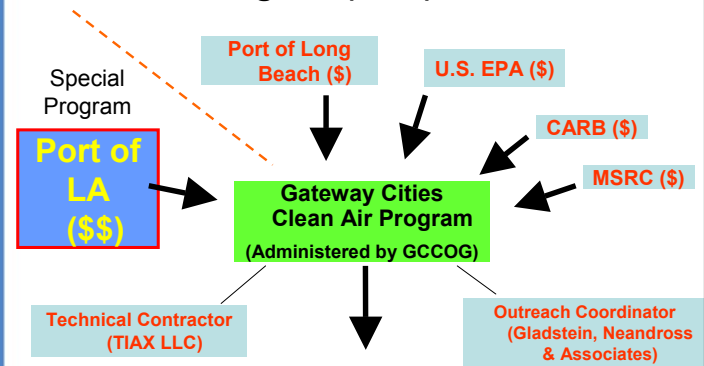
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Port of Los Angeles

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Faster Freight - Cleaner Air  
January 30 – February 1, 2006



## Current Structure for the Gateway Cities Clean Air Program (CAP)



- Three Primary Program Elements for POLA:
- Diesel Truck Fleet Modernization (Existing)
  - Truck Retrofits for Additional PM Control (Existing)
  - Possible Alternative Fuel Element to be Added (More later)



## The POLA-Funded Gateway Program Reduces Emissions From Heavy-Duty Vehicles Servicing POLA

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Typical pre-1987 truck



Typical 1999 or newer truck

- ▶ Old trucks (pre-1987) having little or no emissions controls are scrapped and **REPLACED** with cleaner, newer trucks
- ▶ These “replacement trucks” are **RETROFITTED** with devices that provide additional emissions reduction benefits
- ▶ **REFUELING** strategies (e.g., alternative fuels) are being considered to obtain even greater emissions reductions



## Overview of POLA Fleet Modernization Under Gateway CAP

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- Port haulers tend to drive the oldest trucks, and can't afford to upgrade
- Fleet mod helps replace pre-1987 trucks with 1999 or newer trucks
  - Incentive-based, voluntary program
  - Defines special POLA trucker “vocation”
  - Largest incentives to truckers that can prove they have been creating the most air pollution
  - Owner pays about one third of total replacement truck cost
  - Old truck engine and chassis are permanently destroyed
- **NOx and PM benefits are compelling and cost effective**
- **Trucker realizes about 30 – 40% reduction in fuel costs**



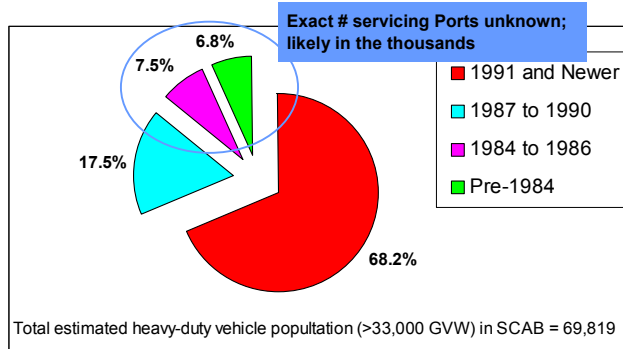
Gateway program truck undergoing scrapping process



## Existing Population of HHDVs in South Coast Air Basin

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It is estimated that about 15% of the heavy-duty Class 8 trucks in the South Coast Air Basin are MY 1986 and older. **This equates to about 10,000 vehicles.**



Source: EMFAC runs provided by the South Coast AQMD



## The Gateway CAP Includes Multi-faceted and Effective Outreach

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- Training for dealers
- Targeted, well-advertised outreach workshops for truckers
- Distribution of flyers and brochures in English and Spanish
- Toll-free call line maintained by TIAX (bi-lingual)
- Dealers' efforts to locate customers who are eligible for grant funding
- Bilingual Clean Air Program website linked to GCCOG's





## Gateway CAP Outreach Event for Owner- Operators (August 2004 Wilmington)

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- About 100 attended
- 9 dealers participated
- Details about the program and how to participate were provided
- Simultaneous translation provided



## Dealers Are a Very Important Part of the Gateway CAP, Including Outreach

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- 9 authorized truck dealerships

**Los Angeles Freightliner Whittier**

**¡DESHÁGASE DE SU CAMIÓN VIEJO!!  
Y ADQUIERA UNO NUEVO**

**DUMP YOUR OLD TRUCK!!  
& GET A NEW ONE**

**ATTENTION**

**MEMBERS OF  
LOS ANGELES  
LONG BEACH**

**DOWN  
PAYMENT**

**3 Years, 100k  
Miles  
FREE  
Warranty!!**

**GO WITH THE  
DEALERSHIP  
YOU  
TRUSTED!!**

**2004 LOS**

**GATEWAY CLEAN  
AIR PROGRAM**

**Trade In**

**TODOS LOS CAMIONES 1 AÑO / 100K MILEAS DE GARANTIA EN EL MOTOR  
ALL TRUCKS WITH 1 YEAR / 100K MILES ENGINE WARRANTY**

**2429 S. Peck Road - Whittier, CA 90601**



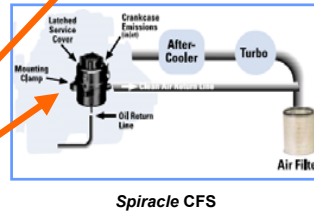
## All POLA-funded Replacement Trucks Receive a Diesel Emission Control System (DECS)

- **Right now: Donaldson 6000 Diesel Oxidation Catalyst (DOC) System**

- CARB-verified "Level 1" system, achieves  $\geq 25\%$  PM reduction
- Compatible with today's California (CARB no.2) diesel
- Verified for use on 1991 and newer on-road diesel trucks (Classes 5-8)

- **The system consists of two parts:**

- DOC muffler oxidizes soot to reduce PM emissions
- *Spiracle* Crankcase Filtration System (CFS) installed under hood to reduce blow-by gases
- DOC system maintenance



## POLA's On-Road DECS Strategy (cont.)

### Installing the DOC



### Installing the *Spiracle* CFS





## POLA's On-Road DECS Strategy (cont.)

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- **Current Status**
  - DOC system installations began late September 2005
  - 23 installations as of January 2006
- **Future Options for Retrofit: Diesel Particulate Filters (DPFs)**
  - CARB-verified "Level 3", achieves  $\geq 85\%$  PM reduction
  - Replaces most original equipment mufflers
  - Requires ultra-low sulfur diesel (ULSD) fuel
  - Requires regular filter cleaning / inspection
- **Another Future Option for Retrofit: Cleaire Longview**
  - Achieves 85% PM and 25% NO<sub>x</sub> reduction



Internal view of a DPF



The Longview System



## All POLA-funded Replacement Trucks Receive an Automatic Vehicle Locator (AVL)

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- **Purpose**
  - Automatically monitor vehicle usage in the South Coast Air Basin (SCAB) and Port of Los Angeles sub-region
  - Eliminate biannual self-reporting forms for participants
- **Logistics**
  - GPS device installed by authorized technician prior to vehicle leaving dealership lot
  - Truck usage data automatically transmitted to vendor
  - Summarized data provided to GCCOG on monthly basis
- **Important Note**
  - Only parameters affecting the program's air quality benefits are monitored. No "real-time" monitoring will be conducted by the GCCOG (unless safety is involved).



GLOBALGUARD



## Installation of AVLs

### • AVL Overview

- Weatherproof, tamperproof, and robust
- GCCOG automatically notified if unit malfunctions
- Product covered by 5-yr warranty

### • AVL Current Status

- Installations began late July 2005
- 35 units installed to date
- 45 existing participants are being called back to have AVLs installed in Jan / Feb 2006

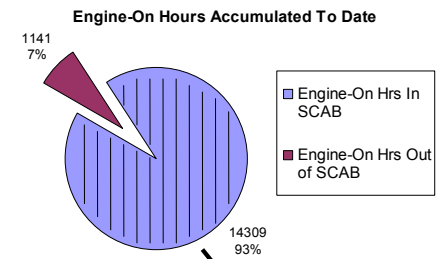


Authorized technician installing GlobalGuard AVL

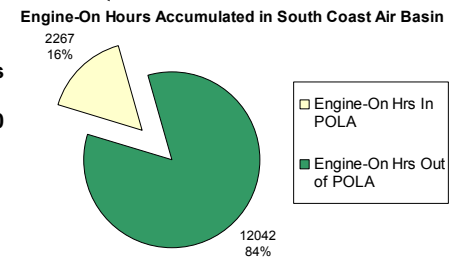
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## AVL Data Accumulated to Date



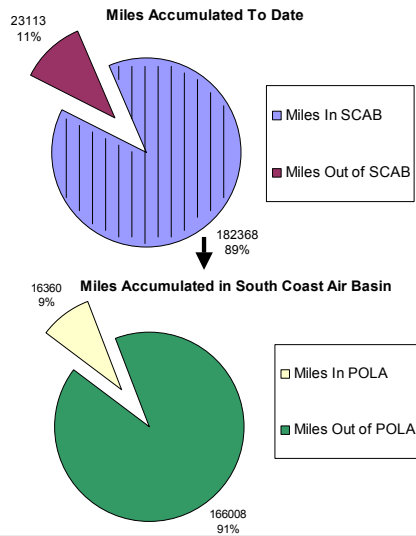
- The 35 participants with AVLs have combined for 9,000 inbound trips to POLA since late July 2005



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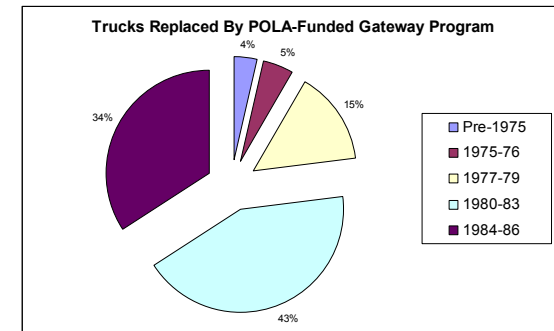


## AVL Data Accumulated to Date (cont.)



## POLA-Funded Gateway Program Status and Air Quality Benefits

- **Current Status**
  - 253 POLA-funded replacement trucks
  - \$6.26 in POLA incentive funds awarded
  - Average Award: \$24,735







## POLA-Funded Gateway Program Status and Air Quality Benefits (cont.)

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- Estimated Emission Reductions**

- Emission benefits are dependent on mileage traveled and in-use emission factors
- Current estimated average emission benefit: 0.50 tons of NOx and 0.11 tons of PM per truck, per year (without DECS)

	NOx	PM
<b>Emission Benefit Per Truck (tons/yr)</b>	0.50	0.11
<b>5-yr Emission Benefit Per Truck (tons)</b>	2.5	0.55
<b>5-yr Emission Benefit 253 Trucks (tons)</b>	632	139

- Estimated Cost Effectiveness (5-yr life)**

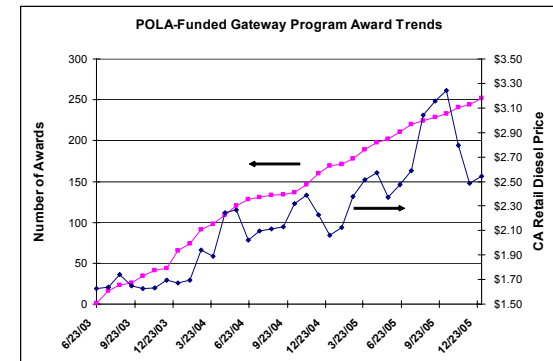
- Approximately \$11,100 per ton NOx based on current program calculations



## Current Award Trends and Issues

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- Volatility of Diesel Price for Owner-Operators**



- DECS / AVL Installation and Monitoring Logistics**
- 1099s for Owner-Operators**



## Upcoming POLA Program Changes

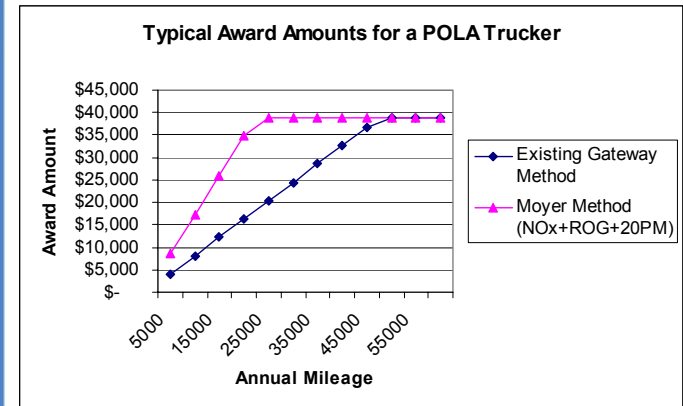
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- **Normalize award methodology with new Statewide Carl Moyer fleet modernization source category**
  - Awards currently based on NOx cost effectiveness formula using EMFAC 2002
  - Moyer methodology will use combined cost effectiveness (NOx + ROG + 20\*PM) of \$14,300 per ton and EMFAC 2005
  - Result: incorporating PM benefit is expected to INCREASE average award and IMPROVE cost effectiveness
- **Proposed LNG Replacement Truck Program**
  - ~\$2.2 M will continue to be directed toward diesel-to-diesel fleet modernization
  - “Discretionary” funds may be shifted away from diesel replacement to trucks fueled with natural gas
  - Program is under development by POLA staff



## Upcoming Program Changes (cont.)

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Example of potential award maximums (as a function of annual mileage) for MY 1983 truck replaced with MY 2000



## Summary: POLA-Funded Gateway Fleet Modernization Program

- The POLA-Funded Gateway CAP continues to successfully reduce NO<sub>x</sub> and PM emissions from trucks heavily serving the POLA and surrounding communities
- For the existing 253 truck replacements, the estimated NO<sub>x</sub> and PM reductions over 5 years of program involvement will be 632 and 139 tons, respectively
- These emission reductions are cost effective and will become even more so with expected program updates
- Strong environmental justice benefits are also being realized
- The universe of potential participants with older trucks appears to be large (thousands)
- The Gateway team greatly appreciates the support of POLA's staff and the Harbor Commissioners



## Thank you

For complete details about the Gateway Cities Clean Air Program, including the Fleet Modernization element, contact:

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- **Outreach Program:** Cliff Gladstein, President, Gladstein Neandross & Associates, 310-314-1934

