



# **In-Use Emissions from Light- & Medium-Duty Vehicles**

**Clean Fuels Program Advisory Group**

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# In-Use Emissions

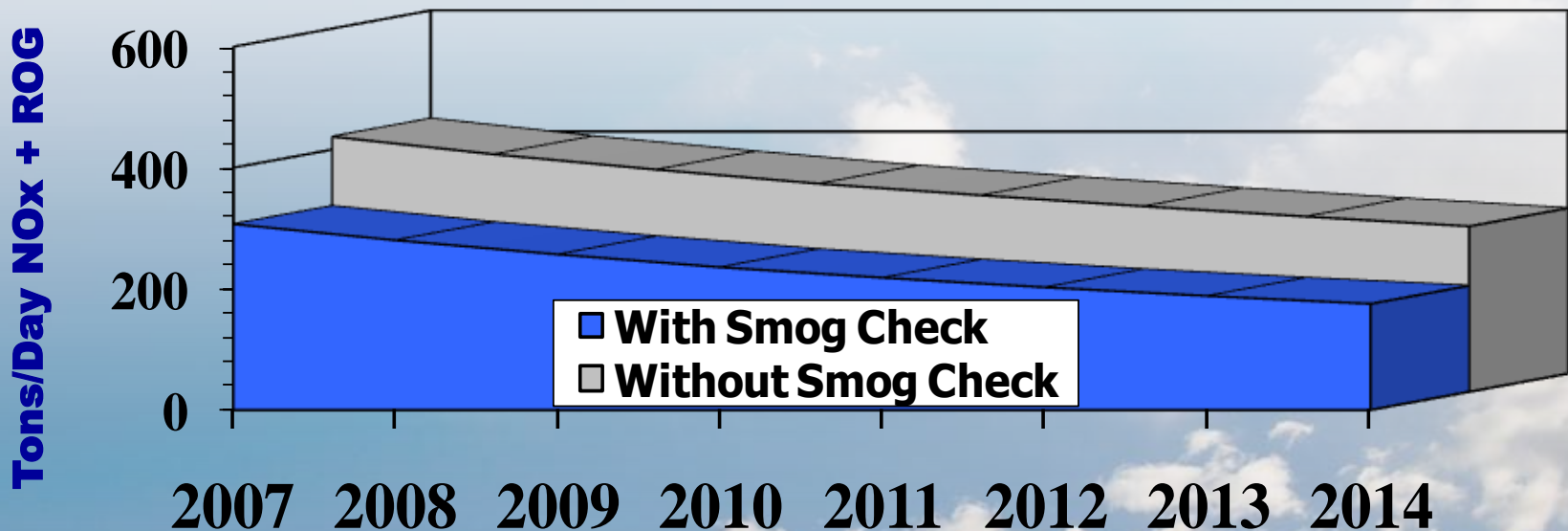
## ● Light & Medium-Duty Contributions\*

- 20% NO<sub>x</sub>
- 23% VOC
- 11% PM<sub>2.5</sub>



## ● Past Remote Sensing Studies Indicate that the Highest Emitting 10% of Light-Duty Vehicles Contribute More than 50% of the Emissions

# Benefits of In-Use Test Program For Light & Medium Duty Vehicles



**\*In the South Coast Air Basin per CARB's 2007 EMFAC Model**



# 2007 SIP Commitments For In-Use Test Program

- **Inclusion of Diesels and Motorcycles**
- **Addition**
  - Visible emissions check
  - Low pressure evap test
- **Certification**
  - Test procedures for plug-in hybrids
  - To address illegal tampering of motorcycles
- **Annual Testing of Older Vehicles**



# Potential Enhancements To In-Use Test Program

- **Drop Tailpipe Testing in Lieu of OBD II Only Monitoring**
  - Analyzers inadequate to measure cert. levels
  - Cost savings significant
  - Ca. & Co. only states still tailpipe testing
- **Potential for 24/7 Monitoring**
  - Transponders
  - Oregon Innovative Program

# **HEROS Phase I Results**

- **> 25,000 Potential High Emitters Identified Through Remote Sensing on Freeways**
- **> 15,000 Invitation Letters Mailed**
- **~ 1,200 Vehicles Tested**
- **375 Vehicles Repaired or Scrapped**
- **Low Participation Rate**



# Implications

- **Incentives Insufficient to Draw In Those Identified through Remote Sensing**
- **Some Vehicle Owners may be Able to Work Around Smog Check Program**
- **Remote Sensing**
  - **Viable means to identify high emitters**
  - **Provides independent check**



# Future HEROS Phase II

- **Objective: Higher Participation**

- **Approach**

- **Series of advertised events**
- **Attract interested participants**
- **Pre-qualify participants for Moyer eligibility**
- **Screen for high emitters at events**
- **Remote sensing – potential technology for screening**





# Other Remote Sensing Applications

## Heavy-Duty Diesel Vehicles (HDDV)

- **Goal: On-Road HDDV Emissions Baseline**
- **Emission Changes Expected as a Result of Recent CARB Regulations**
- **Year 3 of 5-Year Study**
- **Two Locations**
  - **Port of Los Angeles (funded by AQMD)**
  - **Weigh station on Fwy 91 (funded by NREL)**
- **Preliminary Results**
  - **High sulfur vehicles identified**



# Other Remote Sensing Applications

## Locomotives



- **AB 1222**
- **Pilot Study Implemented Through Legislation**
- **Advisory Group Created to Direct Program**
- **Results Reported to Legislature Nov. 2009**
- **Identified Areas for Refinement**
  - **Temperature measurement**
  - **Power notch settings**
- **Potential Future Use Could be for Identifying High Emitters (NO<sub>x</sub> & PM)**