Transitioning Vehicle Inspection and Maintenance Programs
- Workgroup Report -

May 8, 2008

Transitioning I/M Workgroup

- Workgroup formed in response to state concerns about changes
- Charter
  - Develop a joint strategy and background information for states and EPA to use in transitioning I/M programs from tailpipe-testing systems to OBD-testing systems. Address overarching issues with existing OBD programs that may impact transitioning.

FACA Workgroup Members

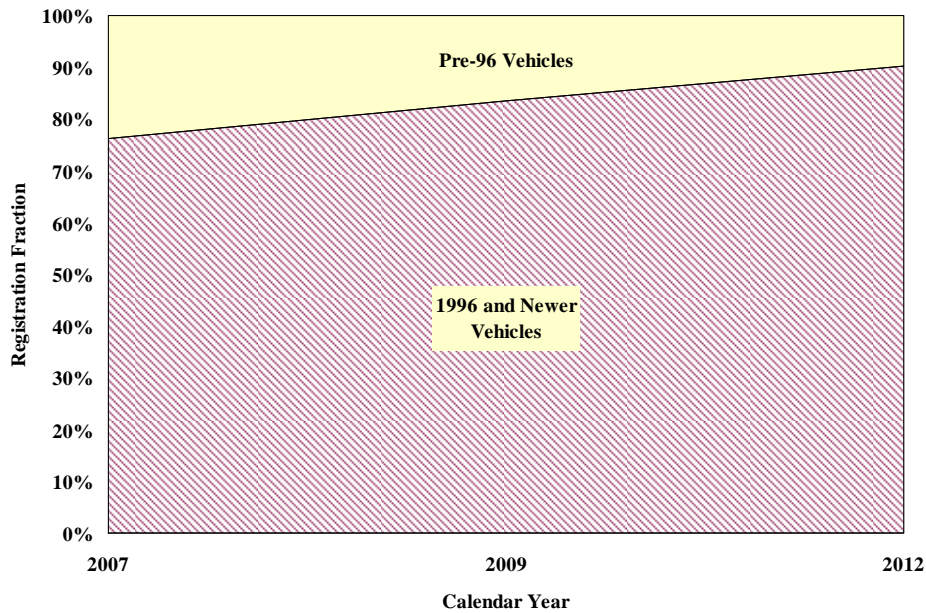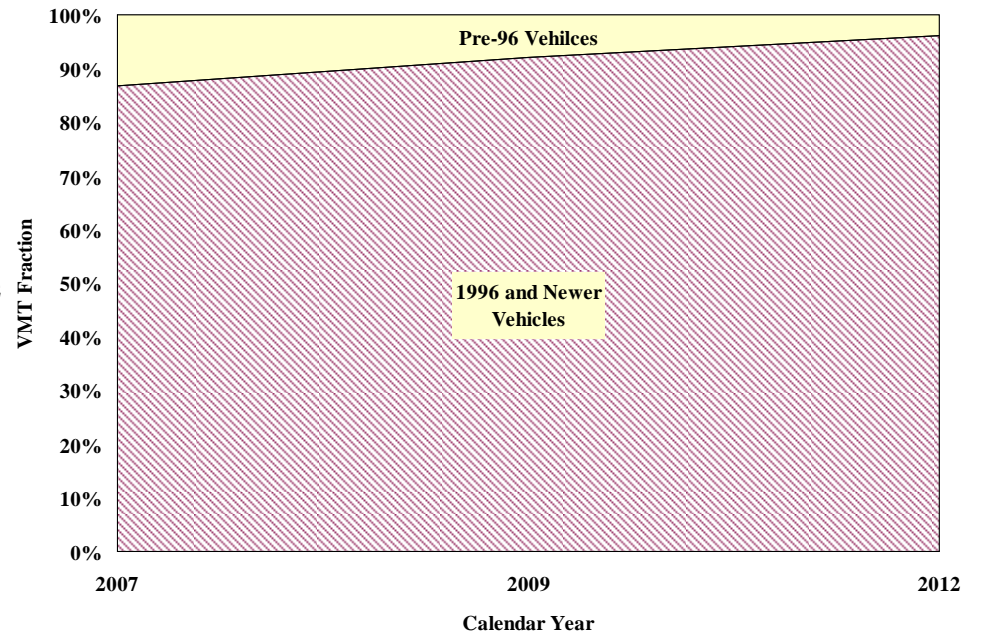| Organization	Name	Organization	Name
EPA, Co-lead	Gene Tierney	New Jersey	Rob Schell
Oregon, Co-Lead	Ted Kotsakis	Envirotest	Chris Stock
California	James Goldstein	SysTech	Lothar Geilen
Massachusetts	Nancy Seidman	Gordon-Darby	Richard Joy
North Carolina	Brock Nicholson	AIAM	John Cabiniss
Missouri	Haskins Hobson	Alliance	Greg Dana
New York	Jim Clyne	ERG	Sandeep Kishan
Maryland	Dave Filbert	Washington	Dennis McLerran
Texas	Bob Wierzowiecki		

Report Completed

- Review of data related to vehicle trends

- Analysis of options for innovative approaches to I/M

- Assessment of costs, benefits and pitfalls

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Changes in LDV Registrations and VMT
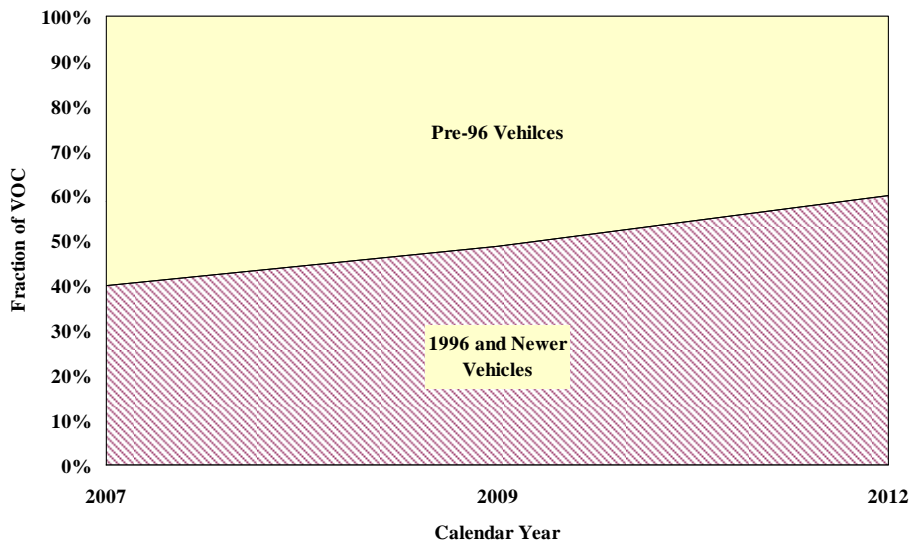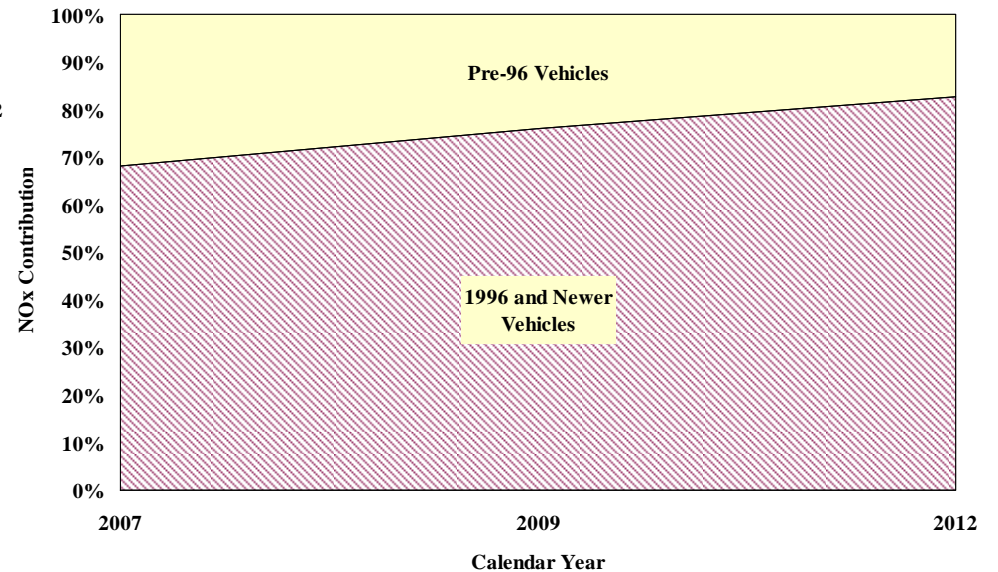
LDV Registrations

Pre-96 Vehicles

1996 and Newer Vehicles

Registration Fraction

Calendar Year

VMT

Pre-96 Vehilces

1996 and Newer Vehicles

VMT Fraction

Calendar Year

Changes in Contributions of Pre- and Post-OBD Light-Duty Vehicles
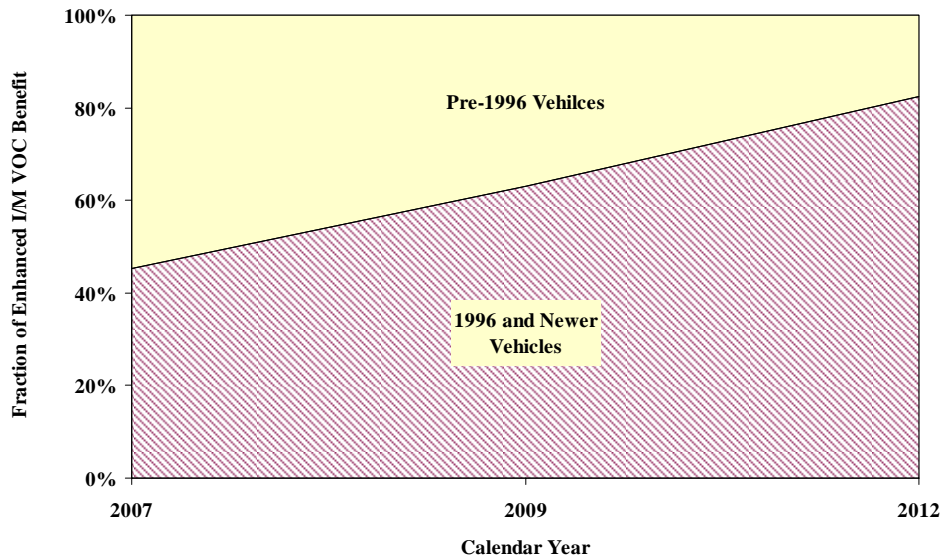
Volatile Organic Compounds

National default contributions based on emissions
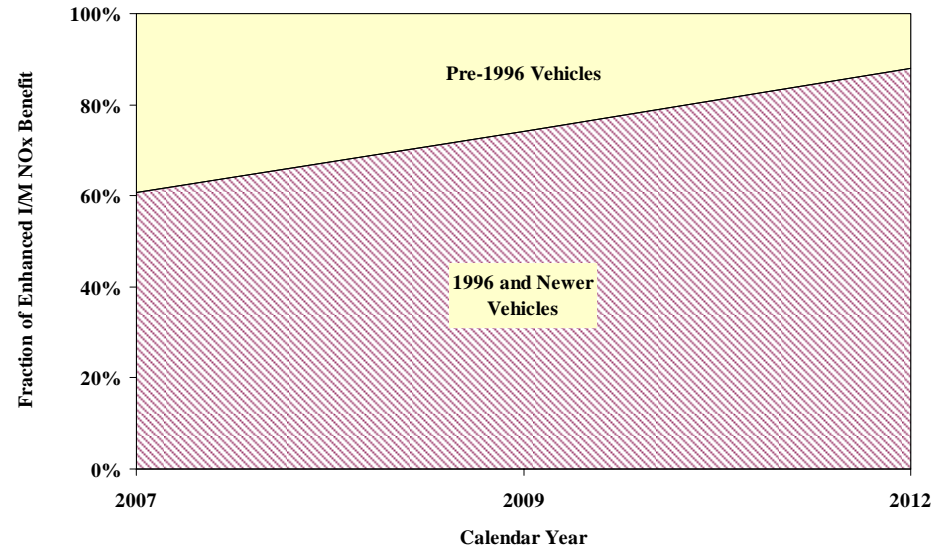
Oxides of Nitrogen

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Changes in Enhanced I/M Benefit From Pre- and Post-OBD Vehicles

Volatile Organic Compounds

National default contributions based on I/M Benefit

Oxides of Nitrogen

Conclusions

- Pre-OBD vehicles diminishing rapidly
  - Registration fraction
  - VMT fraction
- However, Pre-OBD vehicles contribute disproportionately to the inventory
  - I/M effects are driven by technology and standards
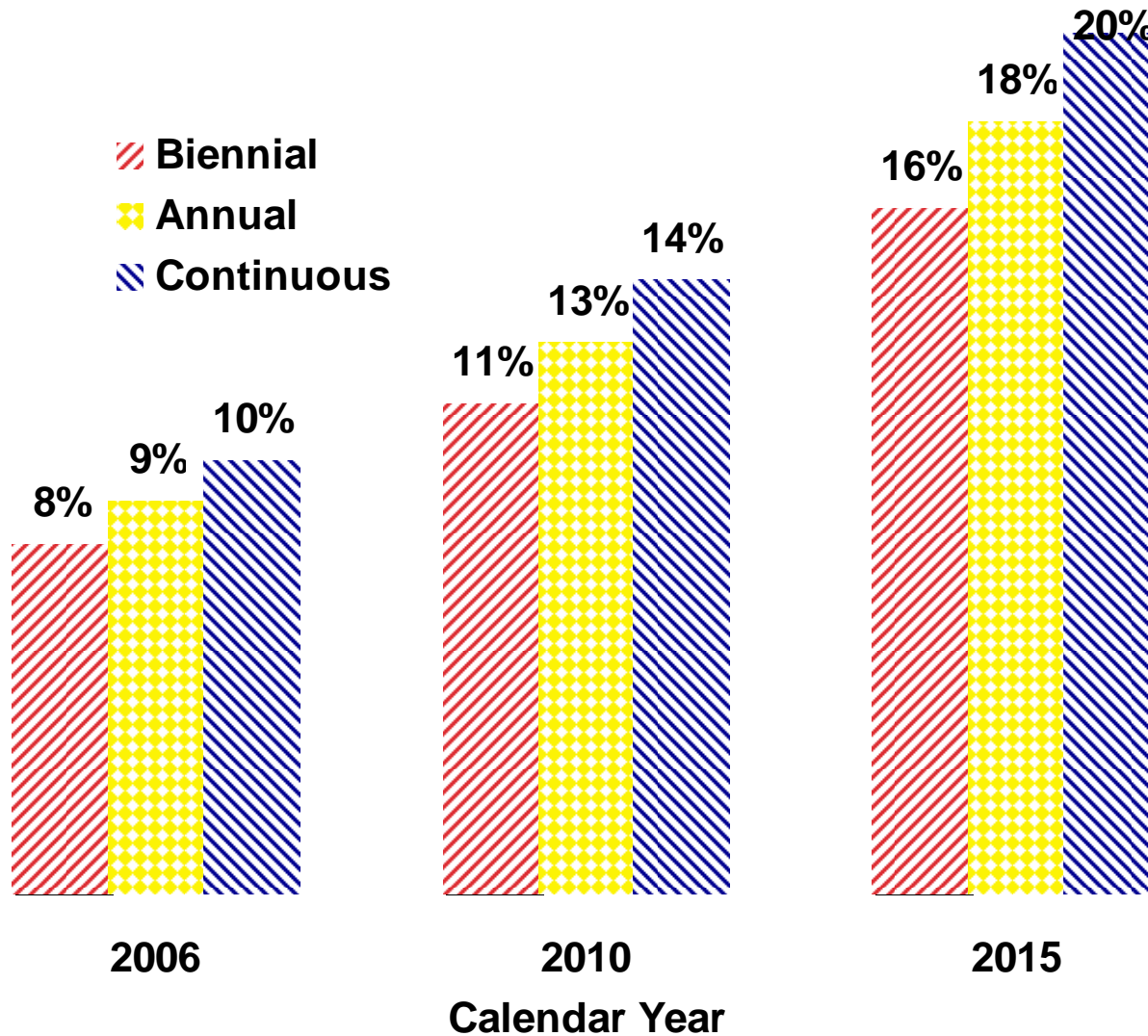- Need to consider local fleet mix in future I/M program designs

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Program Design Issues

- Given that:
  - OBD vehicles do not need tailpipe or evap tests
  - OBD vehicles are cleaner and fewer fail
  - Pre-OBD vehicles are slowly going away

- How do we design a cost-effective I/M program that continues to get significant reductions from the fleet?

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Three Innovative Approaches

- **Kiosk**
  - Self-service, 24 hour testing, no staff
- **Data logger**
  - Plug into OBD port, capture status, disconnect, upload results using a computer or mail in
- **Remote OBD**
  - Continuous monitoring of OBD reported using cellular, wi-fi or radio frequency communications

Emission Benefits - VOC

Legend:
- Biennial
- Annual
- Continuous

2006: 8%, 9%, 10%
2010: 11%, 13%, 14%
2015: 16%, 18%, 20%

Calendar Year

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Lifetime Inspection and Convenience Costs of Periodic I/M vs. Remote OBD

Ten Year Costs

		Periodic OBD	Remote OBD	Savings
Test/Install	Low	$12 billion	$4 billion	$8 billion
Cost	High	$12 billion	$5 billion	$7 billion
Convenience	Low	$9 billion	$1 billion	$8 billion
Cost	High	$17 billion	$2 billion	$15 billion
Total Cost	Low	$21 billion	$5 billion	$16 billion
	High	$29 billion	$7 billion	$22 billion

- Assumes 100% of I/M vehicles switch to Remote OBD

- Costs analyzed over the life of a static fleet (10 years)

- Savings occur in both test costs and convenience costs

- Total of $16-22 billion in savings over 10 years

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Extensive Review Process

- Several rounds of internal and external review
- Concerns included
  - Big brother watching
  - Application of innovative approaches in decentralized programs and those that include safety inspections
  - Limitations of cost analysis
  - What to do about pre-OBD vehicles?

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Conclusions

- Innovative approaches reduce costs and improve convenience
  - Continuous I/M increases benefits
- Timing of dropping pre-OBD vehicles depends on local fleet mix and program design
  - Alternative approaches to covering pre-OBD vehicles may reduce costs and retain some benefit
    - Change of ownership
    - Remote sensing/dirty screen

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Next Steps

- Incorporate Continuous I/M frequency into MOVES

- Universal Protocol for Remote OBD

  - Establish a universal protocol for data and communication; enable reciprocity among I/M programs

  - Tap into existing telematics systems (e.g., Onstar)

  - Hope to avoid having to re-equip a vehicle that moves from one state to another