


US EPA ARCHIVE DOCUMENT




# Discussion of Proposed Modeling of Effects of Onboard Diagnostics (OBD-II) in MOBILE6

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**October 2, 1997**


# Onboard Diagnostic Systems (OBD) in MOBILE6

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- Objective - Provide explicit modeling of benefits of Federal OBD-II requirements in MOBILE6
  - Benefits for exhaust and evaporative emissions, with or without inspection/maintenance (I/M) programs
  - Facilitate discussion and obtain input from stakeholders before final decisions are made on approaches

# OBD-II in MOBILE6

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- Recommendation of Modeling Work Group/Mobile Source Technical Advisory Subcommittee
    - Adopt California modeling approach
    - Alter assumptions/estimates to reflect CA/Federal differences
  - Lack of applicable data on which to base benefits estimates at this time

# OBD-II in MOBILE6


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- Data collection efforts
    - EPA contracting with ATL to test vehicles
    - ARB, CE-CERT, auto mfrs may all collect additional data
    - EPA contract with Sierra Research to do OBD-II testing at Wisconsin high-volume I/M lanes
    - Monitoring of OBD-II check implementation in Davis Co (UT), CO, OR

# Eventual Goal for MOBILE6




- Consistent, logical, defensible credits
- Covering both exhaust and evaporative emissions
- Credits for areas with or without operating I/M programs

# Basic Modeling Assumptions

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- OBD-II will limit migration of vehicles from “normal” to higher emitter categories, at least for part of vehicle lifetimes
  - OBD-II will reduce rates at which vehicles fail functional tests (purge/pressure) of evaporative emission control systems

# Proposals Offered for Comment

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- During “bumper to bumper” warranty period
  - During “intermediate” period (after 5 yr/50,000 mi, through Federal warranty coverage of catalyst/ECU of 8 yr/80,000 mi)
  - After expiration of all warranty coverage




# During First 5 Years/50,000 Miles




- OBD-II will keep all but a small “residual” population of vehicles from exceeding “normal” emitter levels
- OBD-II will keep all but a small “residual” of vehicles from failing functional (purge/pressure) tests of evap controls


## During “Intermediate” Period

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- EPA believes some benefits may be attributable to OBD-II after 5 yrs/50,000 mi, through the Federal warranty requirements of 8 years/80,000 miles for catalyst and computer control modules
  - Program code will be developed to allow modeling of some benefit in this period


# During “Intermediate” Period

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- No specific proposal at this time due to lack of data and likelihood of at least some data being available next year
  - Not productive to make specific, quantitative estimates considering state of knowledge and pending data acquisition programs


# After expiration of all warranties

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- Rate of increase in non-“normal” exhaust emitters, and in vehicles failing one/both functional evap tests, will be same as used in MOBILE6 w/o OBD-II
  - At 8 yrs/80K mi fraction of such vehs will be much lower than now assumed, but rate of increase in that fraction after 8/80 will be same as used in MOBILE6 w/o OBD-II


# Underlying Factors (“to be determined...”)

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- A number of factors will influence the basic estimates proposed
  - As data become available, EPA will modify estimates as needed
  - Comments and supporting information from stakeholders are requested on proposals above and on the “other influences” outlined next

## To be determined:

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- To what extent will OBD-II result in vehicle designs experiencing fewer emission control problems in use?
  - At what rate will OBD-II detect and alert drivers of emission control problems...
    - ...causing exhaust emissions  $> 1.5$  (or  $1.75$ ) x standards?
    - ...adversely impacting evap control system effectiveness (including ORVR)?

## To be determined:

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- At what rates will owners respond to illuminated MILs?
    - During 5/50? During 5/50 to 8/80? After warranty expirations?
  - Given illuminated MILs and owner response rates, at what rates will correct/effective repairs be made?

## To be determined:




- What will the average “lag time” (delay) be between MIL illuminations and repairs? During 5/50; 5/50 to 8/80?


(This average delay will determine the size of the “residual” population of vehicles mentioned earlier)



# Plans for Revising Estimates

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- As noted, data to address these questions raised currently lacking
  - Everything presented today should be considered preliminary and subject to revision on basis of data as it becomes available

# Plans for Revising Estimates

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- Estimates may be revised late in MOBILE6 development (possibly even after release of “beta version”)
  - Revisions will not be made without opportunity for stakeholder review and comment (though 60 days may not be available if changes are very late in model development process)