Heavy-Duty On-board Diagnostics

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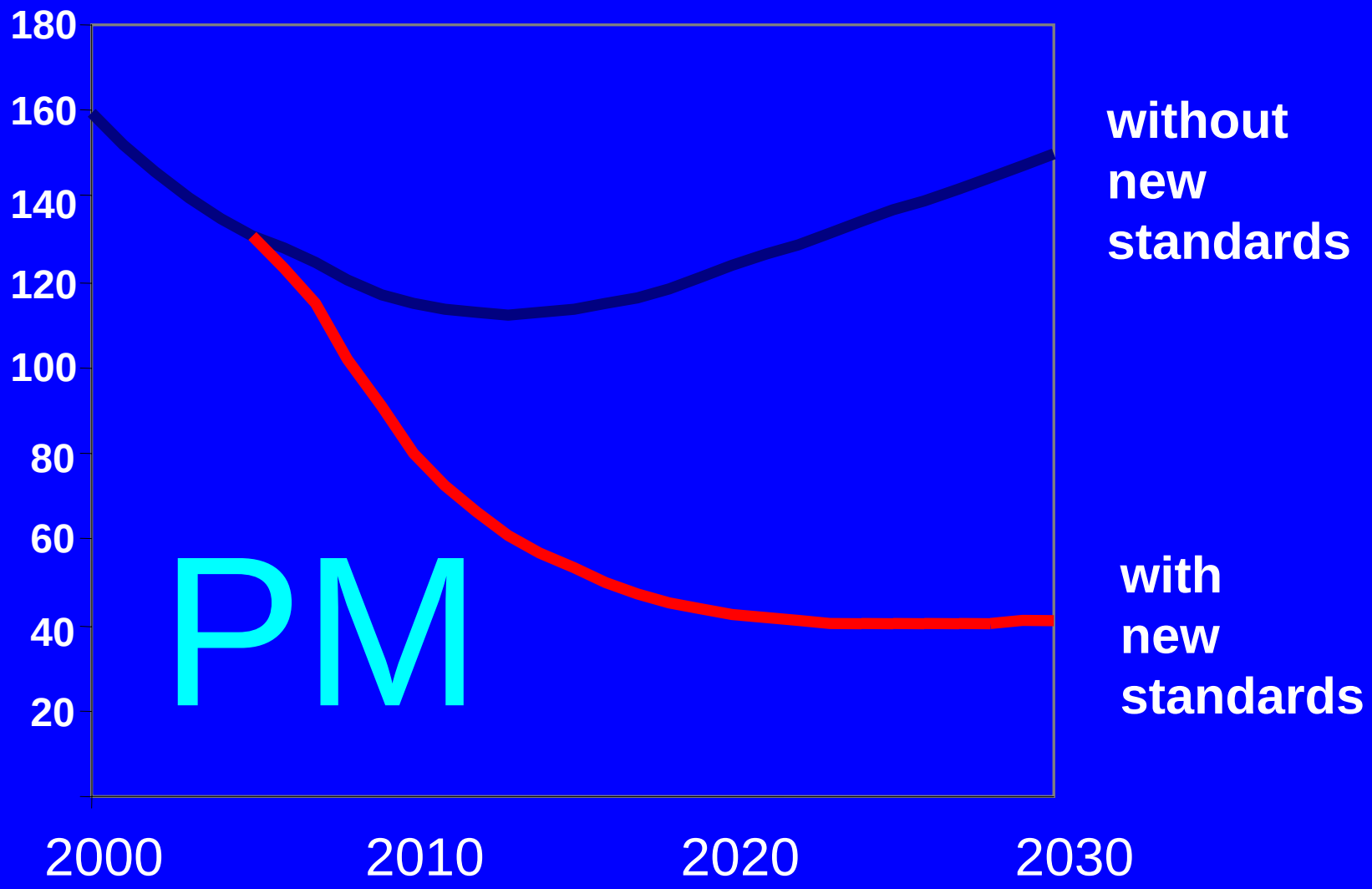
Public Health Concerns

- Trucks are a major factor in dozens of large cities at risk of violating national air quality standards (ozone and PM)
- Diesel PM has been implicated in an increased risk of lung cancer and respiratory disease
  - **California** has declared it a toxic air contaminant -- moving forward with control program
  - **EPA** has concluded (and the Clean Air Scientific Advisory Committee has approved) that diesel exhaust is likely to be carcinogenic to humans

Heavy-Duty Emissions

(thousand tons / year)



Heavy-Duty Emissions

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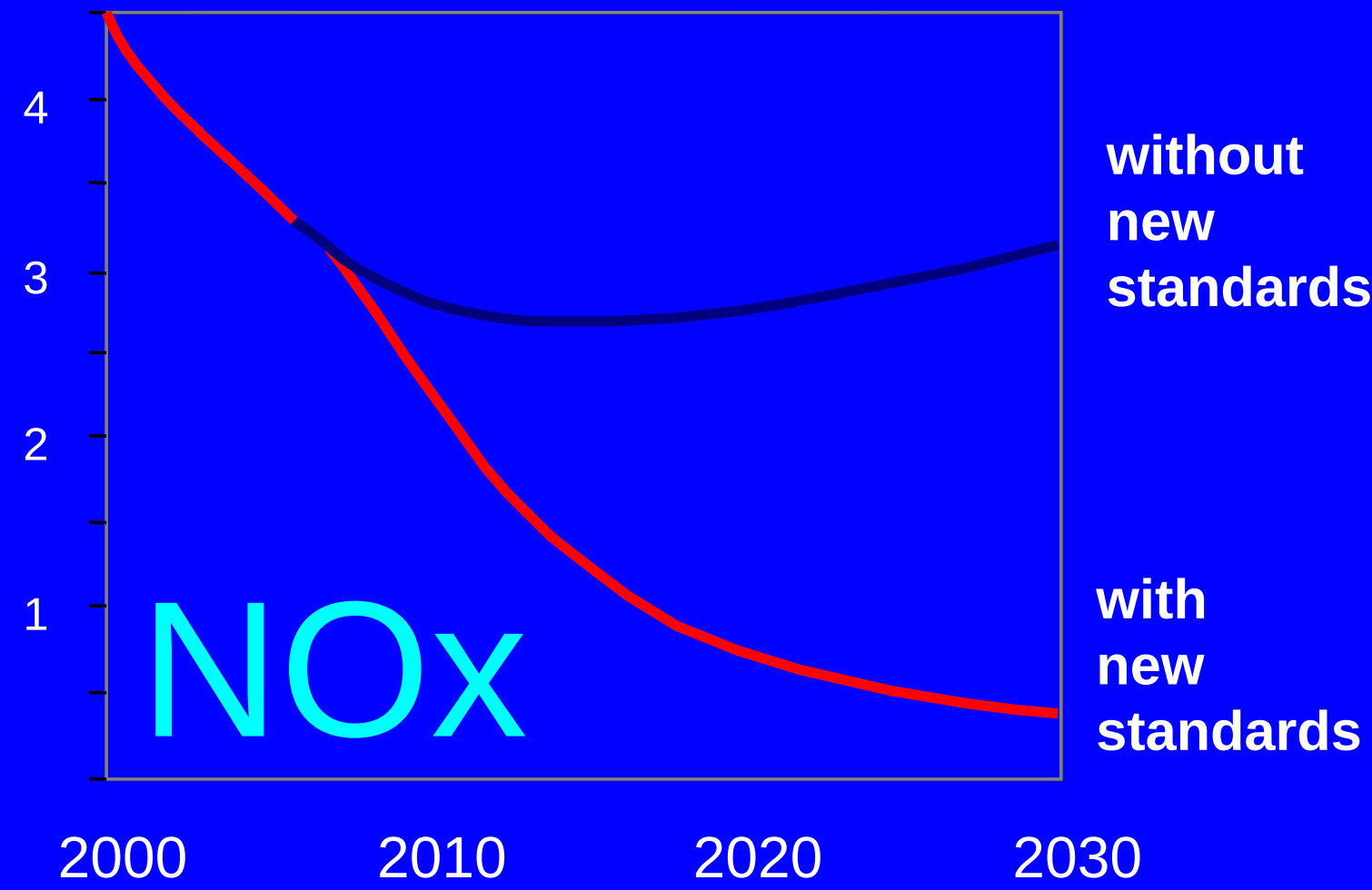

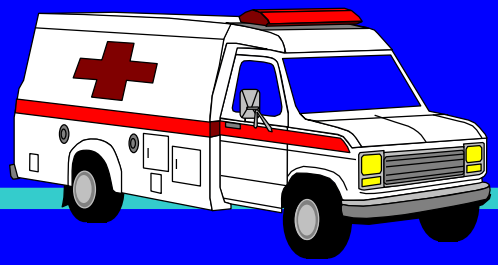

Health Benefits

- *The program will prevent annually:*
  - 8,300 premature deaths
  - 360,000 asthma attacks
  - 9,500 hospital admissions and ER visits
  - 1.5 million lost work days

- *On a dollar-basis*: $70 billion/year (*compares favorably with estimated $4.3 billion/year cost)*

HDOBD Role

- All of these great results assume that the new emissions control systems perform well in-use.
- HDOBD helps to drive such robustness.
  - Failing systems are identified.
  - Failing systems are repaired.

HDOBD Role

- Why do HDOBD when there will soon be a HD In-use Test Program?
  - In-use test program is designed to identify:
    - Poorly designed systems that fail.
    - Systems operating as designed yet failing to maintain emissions compliance.
  - HDOBD will be designed to identify malfunctioning systems/vehicles.
    - Properly designed vehicles that are no longer operating as designed.

HDOBD Regulatory Framework

- Starting point will be CARB's January 2004 draft.
- Seek stakeholder input/data
  - Identify areas for further development
- Emissions thresholds will be an essential part of the regulation.

A Word on Emissions Thresholds

- Emissions thresholds are, typically, stated as some multiple of the standard (e.g., 1.5x the standard).
- The 1.5x emissions level is expected to be an inferred level.
  - That is, actual emissions are not expected to be measured.
  - Instead, component/system operating characteristics are correlated to an expected emissions impact.
  - Actual emissions are inferred based on the operating characteristics and their correlation to emissions.

HDOBD Regulatory Framework

- Comprehensive OBD imposes requirements beyond the engine.
  - Warning light, connector location, non-engine sensors/components (emission-related or used for engine monitors)
- Still looking for the most appropriate method to handle non-engine items.
  - Certification responsibilities; in-use liabilities; roles for truck manufacturers & transmission suppliers.

HDOBD Regulatory Framework

- While this rule will NOT directly establish Roadside/Fleet inspections based on >14k OBD….
  - CA intends to incorporate OBD into future HD inspections.
  - There is likely to be interest in HD inspections outside CA.
- The potential use of OBD in future HD inspections should not be ignored while developing a HDOBD rule.
  - Identify the probable needs of HD inspection programs
    - EPA/CARB will consult other stakeholders.
  - A number of technical issues will be looked at, such as:
    - The need for a dedicated OBD malfunction indicator
    - The need to limit the accepted communication protocols
    - The need for a wireless communication protocol

HDOBD Regulatory Framework

- Service & repair information
  - Identify diagnostic needs of service & repair industry.
    - Data parameters, test results, etc.
  - Ensure OBD and Service Info regulations are harmonized and address repair industry needs.
    - CA Service Info requirements for >14k
    - EPA starting point will be EPA Service Info requirements for <14k.

HDOBD Regulatory Timeline

- Implementation no later than 2010 MY
- CARB timeline:
  - Workshop: January 2005
  - Board Hearing: June 2005
- EPA timeline:
  - NPRM: Spring 2005
  - FRM: December 2005

Next Steps

- Meetings with manufacturers.
  - Begun in October
- Possible meetings with other stakeholders.
- Meet with EMA in early December
- EPA/CARB staff begin working on NPRM/Draft Regulation documents.

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