

TMA[®]

**TRUCK
MANUFACTURERS
ASSOCIATION**[®]

Truck Manufacturers' Contributions to Reducing Idling

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Truck Manufacturers Association

National Idling Reduction Planning
Conference

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Who is TMA?

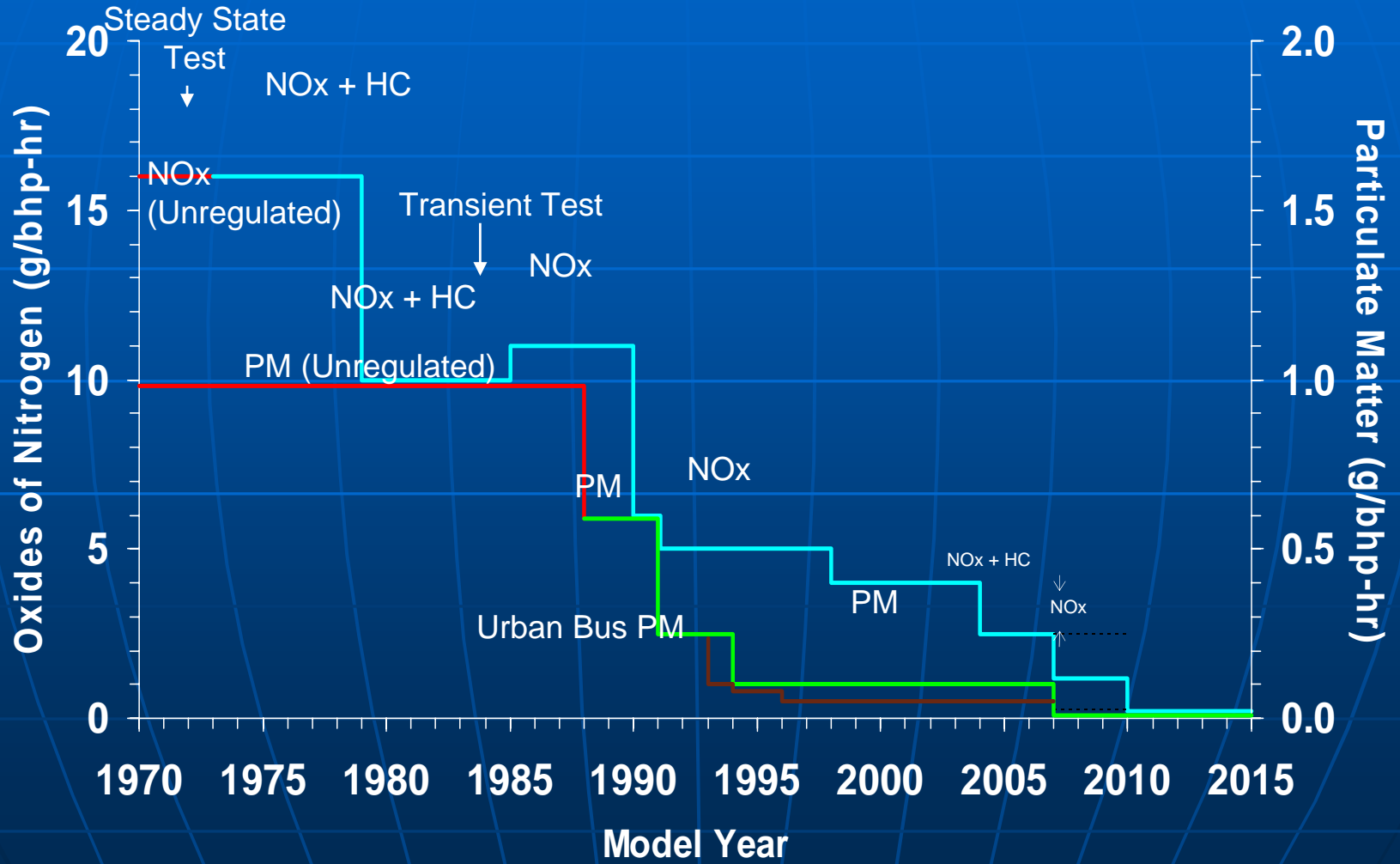
- We represent the major North American Medium/Heavy Truck Manufacturers (GVWR_≥19,500 lbs)
- Focus on Federal/state safety, environment, and energy related regulatory, legislative, and research issues.

TMA Members

- FORD
- FREIGHTLINER
- GM
- INTERNATIONAL
- ISUZU
- MACK
- PACCAR
- VOLVO

Logic/Basis for Reducing Idling

- Fuel Savings
- Reduced Engine Maintenance/Longer Life
- Noise Reduction
- Emissions Reduction
 - Near Zero emission 2007/10 engines diminishes this basis



What is the Scope/Size of the Issue We Face?

- All trucks, but principal focus seems to be on sleeper berth equipped trucks
- How many sleeper-berth equipped trucks are built every year?
- How are they used for rest?

Representative Annual Heavy Truck Tractor Sales (2000-02)

- Approximately **110,000** truck tractors are manufactured each year
- Year-to-year demand fluctuations can double that number
- Approximately 65% are equipped with sleeper berths

Where Do Drivers Stop to Rest?

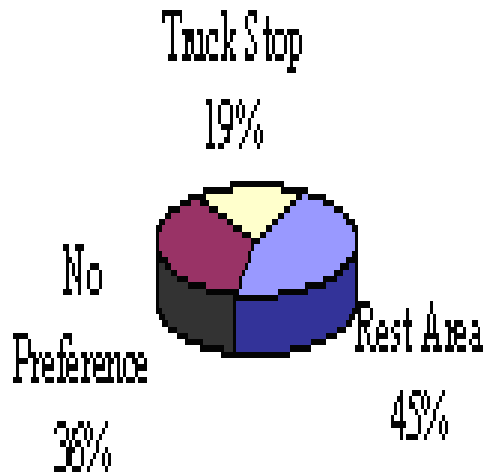
Source: Study of Adequacy of Truck Parking Facilities,
FHWA-RD-01-158

Facility	Last Stop	Next Stop
Home	9%	8%
Truck Stop	56%	58%
Public Rest Area	8%	7%
Loading Dock	10%	14%
Ramp	4%	2%
Other	11%	9%
No Response	4%	4%

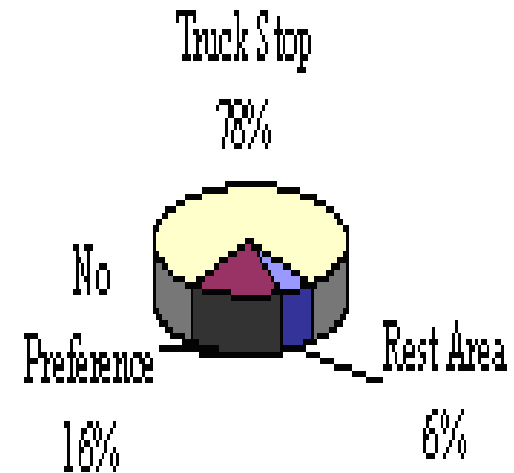
Where Do Drivers Want to Stop for Rest?

Source: Study of Adequacy of Truck Parking Facilities, FHWA-RD-01-158

Preference for a Quick Nap



Preference for an Extended Rest



Where Drivers Stop to Rest Strongly Influences the Types of Alternative Powering Systems Needed

- FHWA survey data indicate significant use of facilities where land-side power could be offered
- Many sites will likely not have power in the near future – and may never offer it
- At least 25% of the time drivers stop/rest where power may never be available
- Thus, vehicles need to be self-sufficient and/or able to connect to land-side systems

Sleeper-Berth Rest and Vehicle Idling Patterns Vary

- Many sleeper berths are exclusively used in long-haul, multi-state operations, with extended stays away from home
- In these cases drivers need to stop and rest for extended time periods
- Shorter distance regional and some local operations also use sleepers to enable occasional, shorter rest breaks.
- In these cases, idling less problematic or land-side solutions more easily planned

Land-Side Issues

- Electrical
 - Sufficient power needed to simultaneously power multiple vehicle systems
 - Need for multiple plugs proliferating
 - Opportunities for standardization exist

Land-Side Issues

- Complete Power, Communications and HVAC Systems
 - Seemingly attractive where/when available
 - Vehicle manufacturers must still plan for significant number of instances when it will not be available

Self-Sufficient Vehicles

- APUs are promising, but significant work remains to better integrate them into new vehicles
 - 2007/10 prime engines will exceed the emissions performance of APU engines
 - Need for redundant HVAC systems and/or more batteries not optimal
 - Packaging and weight a concern especially with advent of DPFs.
 - Cost, durability always a concern
 - F.E.T. always a disincentive

Possible Truck/Diesel APU Interface Standards that could Facilitate Implementation

APU performance targets

- Minimum Output 5000 W
- DC Power 12V DC, 40 A
- Two AC power circuits, 115V AC, 30 A
- Noise level less than 65 dba @ full load @ 10'
- Minimum 1000 hours maintenance interval
- Shore power capable
- 350 lbs targeted weight including frame brackets
- Less than 2 hours installation time
- 10,000 hour warranty

Standard APU interface

- 12V
- 115V
- Fuel lines
- Standardized frame mounted location
- Harness interface to sleeper

Standard A/C interface

- Air distribution
- Standardized frame/sleeper mounting locations
- Harness interface to sleeper

Standard control panel interface

- Packaging
- Harness interface to sleeper

Self-Sufficient Vehicles

- Prime Engine Start-Stop Systems
 - In some vocations/applications and climates, these systems are an economical choice that can perform acceptably
 - Use for extended periods could disrupt drivers' sleep

DOE's 21st Century Truck Program

- Projects like the MorElectric truck have been helpful.
- Fuel cell APUs promising, but are a distant solution.
- Nearer-term solutions are needed for the next 1-5 years
- Sustained and Substantial DOE help needed with:
 - Small diesel engine emissions reduction – particularly PM
 - Electrification of engine accessories and HVAC systems
 - APU/vehicle integration
 - Large-scale fleet evaluation programs with all the truck OEs teamed with suppliers

Truck Manufacturers Contribution and Commitment

- TMA member companies recognize the need to provide their customers and the public fuel-saving alternatives to extended prime engine idling
- TMA member companies are committed, by the end of 2008, to have available as options self-sufficient alternative powering systems and/or land-side compatible connection systems for sleeper-berth trucks

Going Forward Together

- Everyone must help address this problem
 - OE's, suppliers, carriers, drivers, shippers/receivers, truck stop operators, state DOTs, and Federal research agencies
- A variety of solutions, each tailored to carriers' operating patterns, will be needed
- Federal leadership plus additional research and field demonstration programs are essential to accelerate progress
- TMA members are committed to addressing this issue