

Data Gathering Efforts & Partnerships to Support Models & Rulemaking

FACA MOVES Review Workgroup

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Air Quality & Modeling Center
Assessment and Standards Division
U.S. EPA Office of Transportation & Air Quality



Assessment and Standards Division's Data Gathering Efforts & Partnerships to Support Models & Rulemakings

- **Overview on Data Gathering Efforts**
 - Light-Duty Vehicles
 - Heavy-Duty Vehicles & Engines
 - Nonroad Vehicles & Engines
 - Other Efforts

Light-Duty Vehicles

- **Kansas City Pilot LDV/T Test Program (2003/2004)**
 - 480 LDV/LDT tests on emissions (PM and toxics) including PEMS/Dyno; Over 60 hybrids tested with PEMS.
 - Data used to update MOVES
- **Detroit Pilot LDV/LDT Tier 2 Test Program**
 - Ongoing: recruiting 100 vehicles to pilot PEMS emissions including PM SBS with new sampling procedures.
- **LDV/LDT Emission Tier 2 – Longitudinal Study**
 - Ongoing: Working with Colorado (CRADA) to determine deterioration rates on over 600 Tier 2 vehicles.

Light-Duty Vehicles (2)

- **LDV/LDT Evaporative Test Program (2011-2012)**
 - Completed: Worked with Colorado (CRADA) to investigate evap emissions (permeation rates) from LDV/LDT occurring in the fleet.
 - Worked with CRC (CRADA) to investigate evap emissions rates on LDV/LDTs
- **LDV/LDT Evaporative Test Program**
 - Ongoing: Investigating different fuel properties on evap emissions (diurnals, hot running, etc)
- **LDV/LDT Evaporative Test Program**
 - Ongoing: Investigating rate of evap emission that occur in the fleet population by analyzing State I/M data

Light-Duty Vehicles (3)

- **Hybrid Development Pilot Test Program - Ongoing**
- **Battery Simulation Test Program - Ongoing**
- **Gasoline PM Fuel Effects Test Program**
 - Completed: Large partnerships to examine effects of fuel properties on Tier 2 exhaust emissions
- **Gasoline Sulfur Effect Test Program**
 - Ongoing: To study Tier 2 and GDI vehicles on gasoline sulfur level
- **GDI PM Study**
 - Completed: Study GDI vehicles emission and PM.
- **LDV Air Conditioning Study – GHG - Ongoing**

Heavy-Duty Vehicles & Engines

- **HDV “Drayage” Houston/Galveston Test Program**
 - Completed: 36 HDVs including emission/activity- PEMS
 - Data used to valid MOVES emission rates
- **HD In-Use Compliance Test Program**
 - On-going: Over 100 newer MY (2005+) for NTE compliance
 - Data used to valid MOVES emission rates
- **HD GHG Emission Standard (Phase 2) Engine & Powertrain Testing**
 - Ongoing: Development of engine/transmission test procedure

Heavy-Duty Vehicles & Engines (2)

- **HD GHG Emission Standards (Phase 2) Vehicle Testing**
 - Ongoing: Testing MY2013 HD trucks against test procedure
- **HD GHG Emission Standards (Phase 2) GEM Development**
 - Ongoing: Developing new transmission/driver modules to cover transmission designs
- **HD GHG Emission Standards (Phase 2) Simulations**
 - Ongoing: Development of HD engine/vehicle computer modeling to evaluate technology effectiveness/cost

Heavy-Duty Vehicles & Engines (3)

- **MD/HD GHG Emission Standards (Phase 2) – Outside EPA**
 - Ongoing: Work conducted at SwRI on 108 vehicle variants covering MD/HD classifications

Nonroad Vehicles & Engines

- **Pilot Nonroad Construction Equipment**
 - Completed: 29 pieces (150 hours emission/1000 hours activity data. New statistical approach & CRADAs used to conduct test
 - Data used to update MOVES.
- **Nonroad Fuel Effects Study – GHG**
 - Ongoing: Conducted investigation on fuel effects on nonroad equipment
- **Locomotive Test Program**
 - Completed: locomotive emission/fuel rate study in 2008.
- **Marine Test Program**
 - Completed: PEMS emissions on large commercial container ships

Nonroad Vehicles & Engines (2)

- **Small SI Test Programs**
 - Completed: Testing at SwRI on small SI on emissions/loads
 - Completed: Multiple tests on profile of emissions/PM on 2- and 4-stroke engines technologies
 - Completed: Fuel effect on small SI on emissions/PM.
- **Aircraft Emission GHG Test Program**
 - Ongoing: Investigate aircraft turbine emission measurement program including PM.

Other Research Areas

- **PM Equipment & Testing Procedures Development**
 - Ongoing: EPA working w/ PM experts to expand understanding on the parameters that effect PM formation
 - Ongoing: Conducting

Questions?