Planned Updates for the Next Version of MOVES

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What is MOVES?

- EPA’s **MOtor Vehicle Emission Simulator**
- Estimates emissions & energy use for:
  - Onroad vehicles & nonroad equipment
  - Engine running/working, engine starting, idling, evaporative, etc.
  - Criteria pollutants, GHGs, air toxics
  - National, county, or project scale
- Used by:
  - EPA
  - State, regional, and local governments
  - Academics & policy analysts
MOVES: Current Version

- Second official major release (Oct. 2014)
- Replaced MOVES2010 for use in SIPs & conformity
- Included new EPA regulations:
  - LD GHG 2017-2025, HD GHG Phase 1, and Tier 3
  - Updated with the latest data on fuel effects, emission rates and activity for onroad vehicles
- Incorporated NONROAD model into MOVES

MOVES2014a*

- Released in November 2015
- No significant change in onroad criteria pollutant emissions
- Added the capability to estimate VOCs and toxics from nonroad equipment
- Included new data and features
- Corrected bugs

* Minor release
Upcoming Release of Minor Update - MOVES2014b

• Planning a minor update for summer 2018: MOVES2014b
• Will not change onroad inventories
• Improves nonroad emission estimates
  – NR engine population growth rates, NR Tier 4 emission rates, sulfur levels of NR diesel fuels
• EPA is now testing and quantifying net impacts compared to MOVES2014a
• For updates, subscribe to EPA-MOBILENEWS listserv
Next Major Version of MOVES

• Next major version of MOVES to include
  – New data based on latest test programs and analyses
  – Latest vehicle population and activity data
  – Newer rules (e.g. Heavy-Duty Greenhouse Gas Phase 2)
  – Improved functionality and performance
  – Additional features

• Peer reviewed draft reports available

• Timing of release
  – TBD, but 2019 at the earliest

• Impact on emissions is unclear at this time
Updating Emissions

• Updating estimates for:
  – Heavy-duty: Criteria pollutant & GHG emissions
    • 2007/2010+ heavy-duty diesel running and starts (PM/gaseous)
    • Extended idle and auxiliary power units
    • CNG for most sourcetypes
  – Light-duty particulate matter -- including new GDI data
  – Impact of parking time on start emissions
  – Humidity adjustments
  – Temperature adjustments for LD PM running
  – Improved pollutant speciation, including methane
Adding New Vehicle Activity Inputs

• Starts
  – Telematics data provides improved data on start activity for both light-duty and heavy-duty
  – Updating MOVES to incorporate improved activity defaults
  – Providing more options for user activity inputs
Adding New Vehicle Activity Inputs Cont.

• Off-network Idle
  – MOVES2014 accounts for idle activity that is part of the driving cycle
  – Additional idle happens, “off-network”
  – Telematics data provides improved data on idle activity for both light-duty and heavy-duty
  – Updating MOVES to account for this idle time and allow user activity inputs
Additional Vehicle Population & Activity Updates

- Historical and projection data for national VMT and vehicle populations
- National age distributions
- Hotelling activity
- Vehicle weights and other characteristics
Other Planned Changes

• Updating default fuel characteristics
• Extending model to cover calendar years to 2060
• Removing ramps as a separate road type
• Updating “chemical mechanisms” used to generate the emission species used in air quality modeling
• Reducing model run time
MOVES Training

• Three sessions of MOVES 2-Day Hands-on Training Course offered this year:
  – April 24-25 – Atlanta, GA
  – May 15-16 – Research Triangle Park, NC
  – June 19-20 – Ann Arbor, MI

• Will be posting information of new Project Level Training for Quantitative PM Hotspot soon

• Will offer webinar-based training on changes in MOVES2014b after release
Resources

– For more information, see the MOVES web page: www.epa.gov/moves
– Presentations on proposals for next major release of MOVES: www.epa.gov/moves/moves-model-review-work-group
– MOVES training: www.epa.gov/moves/moves-training-sessions
– Send questions about MOVES to: mobile@epa.gov