EPA's New Mobile Model (MOVES2014)

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MOVES2014

- New <u>Mo</u>tor <u>V</u>ehicle <u>E</u>missions <u>S</u>imulator model that replaces the MOVES2010a and MOVES2010b

- Changes in MOVES2014

  - Implementation of new Control Programs
  - Improved science based new test programs and studies, and
  - Improved functionality

New Control Programs

- MOVES2014 now includes three new emission control programs

  - Tier 3 vehicle engine emission and fuel standards that begin in 2017

  - Heavy-duty vehicle engine greenhouse gas regulations that phase in 2014-2018

  - Light-duty vehicle engine greenhouse gas regulations that phase in 2017-2025

Functional Improvements

- **Addition of the NONROAD2008 model into MOVES2014**

    - Users can select whether to run MOVES to obtain on-road or non-road emission estimates

    - Non-road estimates produce the same results as the NONROAD2008/NMIM model

Fuel Input Changes

- Fuel Supply table - County ID column replaced with Fuel Region ID column
  - The correct Fuel Region ID should appear automatically when converting MOVES2010 files to MOVES2014 files

- Users now have the capability of choosing ethanol (E-85) as a fuel type
  - Fuel Usage table specifies the fraction of E-85 capable vehicles using E-85 versus those using conventional gasoline
  - If no data is provided default data will be used

- Fuel Wizard now available in the Fuel tab of the County Data Manager
  - Fuel properties can be modified in a manner consistent with refinery modeling
  - Example: changing a fuel's Reid Vapor Pressure (RVP) will prompt the fuel wizard to make changes to other fuel formulation properties of that fuel

VMT Input Changes

- EPA has removed leap years from the model

- HPMSvtypeperyear class change

    - HPMS vehicle classes 20 and 30 have been combined into a new class 25 to represent light-duty vehicles under 10,000 lbs

    - HPMSvtypeperyear tables with the old 20 and 30 classes should not be imported into MOVES2014

Starts Input

- New tables for start data input that can be used independently or in conjunction with each other:

    - **startsPerDay** – defines the number of starts per day
    - **startsHourFraction** – specifies the distribution of starts throughout the day
    - **startsSourceTypeFraction** – allocates starts to different source types
    - **startsMonthAdjust** – adjusts start activity by month
    - **starts** – allows users to provide the complete starts table
      (by source type, hourdayid, modelyear, monthid)

- If no local start data are provided, they will be calculated based on the user defined source type population input

Hotelling Input

- Users can now provide specific hotelling activity data
    - Hotelling Activity Distribution Table
        - Allows users to specify the fraction of long haul combination trucks that are in idle mode, Auxiliary Power Unit mode, or engine-off mode during the modeling period

    - Hotelling Hours Table
        - Allows the users to input hotelling hours directly into the model
        - The amount of idle hours is based on long haul combination truck VMT on rural restricted roadways

- If no local data is provided for these tables, national default data will be used

Ramp Option

- New option to separate ramp emissions from highway emissions

- To obtain separate ramp emissions select the "Provide separate ramp output" box

- This is optional and will not affect the emissions calculation and the total emissions inventory

Input Data Formats:
MOVES2010a vs MOVE2014

- Structure of MOVES2014 pretty similar to MOVES2010a
  - Short learning curve for MOVES2014

- Some changes in input table formats
  - EPA provided tools to convert MOVES2010a/b input files to MOVES2014 format
  - A few additional modifications of certain tables may be needed

Implications for SIP & Conformity

- Tier 3 & GHG rules in MOVES2014 provide greater emissions reductions over time making it easier to demonstrate attainment

- SIP Mobile emissions development – Use MOVES2014 as expeditiously as possible. Develop emissions using MOVES2014 if significant effort not already been put into MOVES2010a/b

- Conformity- 2 year grace period