

REFINING THE RULE- BASED GASOHOL ESTIMATION MODEL

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Introduction I

- # Data on gasohol consumption by State is difficult to obtain
 - No common definition of gasohol
 - Many States are unable to separate and report gasohol usage from other fuel types
 - Fuel components in non-attainment areas vary
 - Lack of a valid State-level surrogate data set for gasohol use
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Introduction II

- # FHWA periodically reviews its gasohol estimation process
 - # In 2002-2003, ORNL reviewed the regression-based gasohol estimation model that has been in use by FHWA for several years.
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Introduction III

- # This review is based on:
 - An analytical assessment of that model
 - A review of potential data sets
 - # An improved rule-based gasohol model was developed by ORNL
 - # This new model uses data from
 - the Internal Revenue Service (IRS)
 - Energy Information Administration (EIA)
 - Environmental Protection Agency (EPA)
 - FHWA, and other sources
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Introduction IV

- # Produces State-level gasohol consumption estimates
- # This gasohol estimation model was validated in 2003 and employed by the FHWA for the 2004 attribution process
- # Details on the rule-based gasohol model and its data sources are provided in a technical report, entitled *The Federal Highway Administration Gasohol Consumption Estimation Model* (ORNL/TM-2003/210, August 2003).

GASOHOL ESTIMATION REFINEMENTS I

- # FHWA published gasohol gallons by State in two blending levels (i.e., 10% and less-than-10%)
 - # Changes in estimation methodology in the revised 2003 gasohol model did not provide FHWA with these features
 - # To support users that have been relying on estimates of gasohol by blending level and total gallons of ethanol used in gasohol, an enhancement to the 2003 rule-based model was necessary.
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GASOHOL ESTIMATION REFINEMENTS II

- # Non-highway use of gasoline as currently reported by FHWA includes gasohol gallons
 - # Non-highway gallons were subtracted from the combined gasoline and gasohol consumption to obtain estimates of total on-highway use gallons
 - # This practice leads to the implicit assumption that all non-highway gallons are non-blended gasoline (i.e., non-gasohol), which is not realistic
 - # FHWA and ORNL developed a methodology with the ability to split non-highway use gallons from both gasoline and gasohol totals
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GASOHOL ESTIMATION REFINEMENTS III

- # Predictions of increased gasohol usage due to the MTBE ban were assumed to occur in a graduated manner (i.e., with an even rate) over time, until the complete ban takes effect
 - # Further examination on the MTBE module of the rule-based gasohol model suggests a non-linear option
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GASOHOL ESTIMATION SUMMARY

- # Three enhancements were made to the 2003 version of the rule-based gasohol estimation model. They are:
 - Separating gasohol gallons by blends
 - Separating non-highway and highway use of gasohol
 - Developing a refined method to better estimate impacts due to the MTBE ban
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