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EPA's Decision To Not Grant RFS Waiver Grounded In Computer Simulation Analyses

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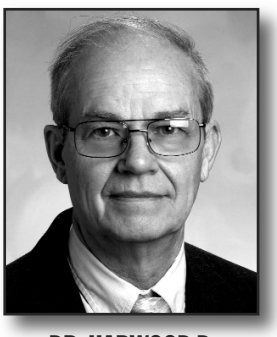

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The Environmental Protection Agency (EPA) used a computer model developed by researchers at Iowa State University (ISU) to evaluate the impact that the implementation of the renewable fuel standard (RFS) would have on the amount of ethanol produced and consumed during the 2012/2013 corn marketing year, and the resulting impacts, if any, on agricultural and other industries.

Our goal in writing this series of columns on the EPA decision on the request for a waiver of the RFS is not to argue for or against the decision. Rather we feel that is important that all sides of the debate understand the process by which the EPA came to its conclusion. As a result much of the information we provide is taken directly from the decision itself. We hope that our columns on this topic will stimulate readers will take the time to read the complete text of the 25 page decision.

"To assess the impact of implementation of the RFS…[the EPA] evaluated two scenarios: one in which no waiver is granted and another in which a waiver of the total renewable fuel mandate is granted" the EPA writes in its "Notice of Decision Regarding Requests for a Waiver on the Renewable Fuel Standard," http://www.gpo.gov/fdsys/pkg/FR-2012-11-27/pdf/2012-28586.pdf.

According to the EPA, "the ISU model is a stochastic equilibrium model that projects, among other outputs, the prices of corn, ethanol and blended fuel given uncertainty in six variables: U.S. corn yields; U.S., Brazilian, and Argentinean soybean yields; U.S. wholesale gasoline prices; and Brazilian ethanol production.

"The analysis simulates 500 scenarios, and for each one the model independently picks a value for each exogenous factor (such as U.S. corn yield) by randomly selecting from a probability distribution curve for that factor. Since the probability of the specific value of a given corn yield is built into the distribution curve for corn yields, the greater the probability of a certain corn yield, the more likely it is that the model will pick that value for any scenario. The result is that the distribution of the random draws for each exogenous factor fairly reflects the probability of the various uncertain variables.

"For each of the 500 scenarios, the model projects ethanol production and the prices of corn, ethanol, and blended fuel based on the values picked for the exogenous factors for that run. As mentioned above, [the EPA] ran the model with and without a waiver, modeling 500 different scenarios, to assess the impact of a waiver."

"The ISU model projects that the average expected amount of conventional ethanol produced in the United States during the 2012/2013 corn crop year without a waiver will be 12.48 billion gallons. ISU's model predicts that for 89 percent of the simulated scenarios, waiving the RFS requirements would not change the overall level of corn ethanol production or overall U.S. ethanol consumption in 2012/2013 because in the event of a waiver the market would demand more ethanol than the RFS would require. For those 89 percent of the scenarios, waiving the RFS requirements would therefore have no impact on ethanol use, corn prices, ethanol prices, or fuel prices," writes the EPA.

The EPA continues, "we refer to that model result as an 89 percent probability that the RFS will not be 'binding' in the 2012/2013 marketing year. Conversely, in 11 percent of the simulated ISU model runs the RFS would be binding. In those 11 percent of the random draws, the resulting market demand for ethanol would be below the RFS requirement and, therefore, the RFS would require greater use of ethanol than the market would otherwise demand.

"The binding scenarios are generally those in which projected fuel prices and corn yields are both unrealistically low, with both gasoline prices and corn yields in 2012/2013 falling significantly below their current DOE and USDA projections. In those cases, the RFS would have an impact, albeit a limited or moderate one, on ethanol use and the food and fuel markets in the United States."

EPA analysts write, "when evaluating the economic impacts of implementation of the RFS volume requirements, our analysis centered on four major areas: average U.S. corn prices, food prices, feed prices, and fuel prices. While there may be other areas of potential impact, we focused on these areas because they are expected to have the largest potential economic impacts in the US."

Averaging across all 500 scenarios, the impact of waiving the RFS requirements would be a decrease in the price of corn by $0.07/bushel. For the 11 percent of scenarios where the RFS was binding, "waiving the [RFS] would result in an average expected decrease in the price of corn of $0.58/bushel. This leads to a non-zero average impact across all 500 scenarios, even though the most likely result is still zero impact."

In looking at "how these changes in corn prices would influence US food prices," the EPA found that, "a $0.07/bushel decrease in corn prices would result in a 0.04 percent decrease in the food consumer price index." This translates into a $2.59 decrease in annual food expenditures for an average household.

For the 11 percent of scenarios where the RFS is binding, the $0.58/bushel decline in corn prices would save an average household $22.68 in annual food expenditures.

Similar reductions in feed prices were found with the largest impact being felt by states like Texas, North Carolina, and Georgia.

As a result, the EPA concludes, "for the 2012/2013 corn marketing year, our analysis shows that it is very likely that the RFS volume requirements will have no impact on ethanol production volumes in the relevant time frame, and therefore no impact on corn, food, or fuel prices. In addition the body of the evidence also indicates that even in the unlikely event that the RFS requirements would have an impact on the corn and other markets during the 2012-2013 timeframe, it would have at most a limited impact on the food, feed, and fuel markets. The nature and magnitude of these projected impacts, which are not likely to occur, would not be characterized as severe." Δ

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