

ANALYSIS OF THE PROPOSED RULEMAKING FOR THE EXPANSION OF THE U.S. RENEWABLE FUEL STANDARD

Prepared for:

**RENEWABLE FUELS ASSOCIATION
AND
ILLINOIS CORN MARKETING BOARD
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September 2009

I. Executive Summary

The Renewable Fuels Association (“RFA”) commissioned Informa Economics (“Informa”) to conduct analyses related to the Notice of Proposed Rulemaking issued by the U.S. Environmental Protection Agency (“EPA”) in May 2009 regarding the Renewable Fuel Standard (referred to as RFS2) expanded by the Energy Independence and Security Act (EISA) of 2007. Specifically, the RFA asked Informa (1) to develop independent forecasts of U.S. and global crop acreage and supply/demand balances, and compare the forecasts to the results of the agricultural economic models used by EPA in the Proposed Rulemaking, and (2) to review the results of the analysis conducted by Winrock for the EPA regarding shifts in land among usage categories in key countries. The following are key findings from Informa’s work.

A. Independent Forecast of U.S. and Global Crop Area and Supply/Demand Balances

- Informa maintains a framework for long-term grain and oilseed forecasts, which are updated as necessary for clients and for internal analytic purposes. Informa’s world baseline is the summation of supply/use analyses of grains and the oilseed complex for 27 individual countries/regions. The 27 elements summed include nineteen individual countries, the European Union and seven geographical regions representing the world.
- In developing the Proposed Rulemaking, the EPA relied heavily on two sets of agricultural economic models: the Forestry and Agricultural Sector Optimization Model (“FASOM”) developed by Texas A&M University, and models maintained by the Food and Agricultural Policy Research Institute (“FAPRI”), which is centered mainly at Iowa State University.
- In its analysis, the EPA utilized the FASOM and FAPRI models to focus on two cases regarding U.S. biofuels production. The reference case reflects biofuel volumes that would have been expected to be produced in the U.S. if the EISA had not been enacted (but the RFS originally established in the Energy Policy Act of 2005 had remained in effect). The EPA’s control case reflects biofuel volumes under the RFS2. The difference in international land use between the two cases is critical since it is a key factor in determining the GHG emissions associated with land-use change that the EPA analysis attributes to the RFS2, and thus the GHG emissions assigned to ethanol.
- Total world corn area is forecast by Informa to be 1.4 million hectares (3.5 million acres) larger in 2022 in the control case relative to the reference case, while FAPRI estimated a 2.5-million-hectare (6.2-million-acre) increase. Total world soybean area is forecast by Informa to decrease by 0.5 million hectares (1.2 million acres) in 2022 in the control case relative to the reference case, while FAPRI estimated an increase of 0.5 million hectares (1.2 million acres). Thus, for the two main crops used as feedstock for biofuel production in the U.S., Informa forecasts that the world’s area will be a total of 0.9 million hectares (2.2 million acres) higher in the control case than in the reference case, compared to a combined increase of 3.0

million hectares (7.4 million acres) simulated by FAPRI. While Informa's forecast shows the additional 2.2 million acres occurring in Brazil and Argentina, it is also plausible that given the small amount of additional acreage needed, it could be accommodated within the United States.

- Regarding crop usage, a key distinction among the Informa, FASOM and FAPRI forecasts is the level of corn exports. For the U.S., there have been long-term trends toward higher soybean exports and flat-to-declining wheat exports; however, corn exports have not exhibited a discernible trend. Informa expects these trends to continue, as reflected in Informa's global crop supply/demand forecast. The rest of the world (outside the U.S.) is essentially expected to be able to meet its grain needs via its own production, although exports from the U.S. will contribute to satisfying the rest of the world's protein meal and vegetable oil needs.

B. Review of Winrock Analysis of Land-Use Transitions

- The EPA used a series of models in conjunction to conduct its analysis of the lifecycle GHG emissions associated with biofuels. While the FASOM and FAPRI models were used to determine the impacts of RFS2 on the agriculture sector, neither is geared toward determining what types of land would be expected to be converted into cropland globally. Accordingly, the EPA commissioned Winrock International ("Winrock") to estimate what classes of land are typically converted into cropland by country and the associated GHG emissions.
- In three key countries – Brazil, China and India – the Winrock findings about whether cropland increased or decreased between 2001 and 2004 were contradicted by data from the U.S. Department of Agriculture ("USDA") and the Food and Agriculture Organization ("FAO") of the United Nations. Based on satellite imagery, Winrock estimated that cropland in Brazil decreased by 1.1 million hectares between 2001 and 2004, falling to 22.5 million hectares from 23.6 million hectares. However, according to USDA data the combined area of major grains and oilseeds increased by 9.0 million hectares during that same time period, to 43.8 million hectares in 2004 from 34.8 million hectares in 2001. The FAO estimated that total arable land and permanent crops increased by a somewhat smaller 335,000 hectares, to 66.8 million hectares from 66.5 million hectares. Thus, the Winrock analysis also arrived at a materially smaller amount of cropland in Brazil than either the USDA or FAO data would indicate.
- Winrock estimated that from 2001 to 2004, cropland in China increased by a significant 14.5 million hectares, which would represent an 8% increase. However, according to the USDA, grain and oilseed area in China fell by 1.7 million hectares from 2001 to 2004; the FAO estimates that total arable land plus permanent crops declined by 313,000 hectares.
- Regarding India, Winrock concluded that cropland increased by a substantial 13.0 million hectares between 2001 and 2004. Similar to the situation in China, this would represent an 8% increase from the 2001 level. However, the USDA estimates that Indian grain and oilseed area declined by 388,000 hectares during that time

period, and FAO data indicate that total arable land plus permanent crops contracted by 128,000 hectares.

- In summary, the conclusions drawn by Winrock using satellite data differ data in some significant ways from the measurements “on the ground” that are reflected in the USDA and FAO data. This is important since, if Winrock’s estimates of the total amount of cropland in each country and the change in cropland between 2001 and 2004 are not accurate, then Winrock’s conclusions regarding how land shifts among land-use classes and associated GHG emissions are also called into question.