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Will You Grow Crops for Cellulosic Biofuels?

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The Energy Independence Security Act (EISA) requires 15 billion gallons of the 36 billion gallon Renewable Fuel Standard (RFS2) to be met by conventional biofuels or corn ethanol. EPA and EISA also require 16 billion gallons of cellulosic biofuel by 2022.

Where will this come from?

EPA believes we can generate cellulosic biofuel production from agricultural residues, forestry biomass, portions of municipal solid waste, and post recycled paper and wood waste.

It is instructive to read the contortions of EPA in attempting to come up with 16 billion gallons of fuel. Compare that amount to the 140-plus billion gallons of gasoline we burn each year in this country.

Here's my interpretation of EPA's thinking on where agricultural residues/biomass will come from for cellulosic ethanol.

Crop Residues EPA admits none of the feedstocks from agricultural and forestry residues have been collected. Nonetheless EPA claims that the crop residues left in our fields will play an important role in the cellulosic industry. EPA wants to use crop residues such as "…corn stover (the stalks, leaves, and/or cobs) and straw from wheat, rice, barley, and oats."

EPA claims these crops "…produce more than 500 million tons of residues each year…" and that this material, though limited by conservation restraints, can be used for fuel production.

EPA, relying on a study by the American Society of Agronomy, believes that "about 30% of corn stover (about 59 million metric tons) produced in the U.S. could be collected, taking into consideration erosion, soil moisture concerns, and nutrient replacement costs." On no-till corn ground, EPA believes that 50%, or 100 million tons, can be collected and not cause significant erosion.

EPA, again relying on models, claims that our corn stalks and cobs will constitute the majority of the 16 billion gallon cellulosic biofuel standard by producing 4.9 billion gallons out of the 16 billion.

To put this in perspective, EPA asserts that sugarcane bagasse (leftover pulp from processing) presumably grown here in the U.S. will generate 600 million gallons. Wheat residues, EPA believes, will generate 100 million gallons as will sweet sorghum pulp.

Sweet Sorghum If EPA was really serious about producing fuel, it would look to sweet sorghum and sweet sorghum pulp, but it does not, and suggests only 100 million gallons from this source.

In fact, energy sorghum can produce up to 1,400 gallons of ethanol per acre and its production reduces Greenhouse Gases (GHGs) up to 75%. So far, I have not been able to find where EPA even acknowledges this fact.

Into the Forest Also, EPA will seek cellulosic biofuel from woody biomass or logging residues. Logging residues come from normal harvesting, forest management and clearing operations. EPA estimates, based on 2004 data, that it can force these operations to collect 67 million dry tons of forest residues.

USDA Forest Service data suggests that we can generate approximately 100 million gallons from forestry biomass. Of course, all this forestry biomass will come from the private sector because EISA does not allow forestry material from national forests or virgin forests to be used to produce biofuels.

Urban Waste Urban waste is another cellulosic biofuel feedstock. EPA believes urban waste will be the first material that will produce fuel because of its low cost and the fact that it has already been gathered. Not all urban waste will be allowed to be converted into biofuel. Only wood, yard trimmings, paper, and food wastes will be allowable fuel sources. (Perhaps EPA should check with the Defense Department, where it will find several projects utilizing this fuel have failed.)

EPA believes that 44.5 million tons of urban waste can be used and this will produce 2.3 billion gallons of fuel. EPA is developing extensive rules to determine where residue will be collected and utilized.

EPA will require renewable biomass recordkeeping and implementation rules. To obtain the biomass EPA is seeking from our farms, it wants to assure that we do not increase our farm acreage in this country to more than 402 million acres. In fact EPA says it will monitor the total agricultural land use in this country to guarantee that feedstocks derived from crop residues will not come from acres above this national aggregate baseline.

There are entire sections in the RFS2 (Renewable Fuels Standard) Preamble describing how EPA wants to assure that we do not bring any new land into production to produce fuel.

EPA will have the power to force renewable fuel producers "…to verify that they are using planted crops and crop residue from existing agricultural land." In fact, under EISA, crop residues coming from land beyond the 402 million acre baseline "would not qualify as renewable biomass."

Welcome to EPA - controlling the content of our fuels and farm land acreage in the United States.

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