



CRS Issue Statement on Agriculture-Based Biofuels

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Since the 1970s, federal incentives have played a major role in encouraging agriculture-based renewable energy production. Policy goals include the stimulation of alternative uses of domestic grain and oilseeds, the promotion of national security through greater energy independence, and the encouragement of rural economic development. Federal incentives, notably tax credits, a minimum renewable fuel use requirement, and research and development funding, have helped biofuels output (ethanol and biodiesel) to surge in recent years, growing from 1.4 billion gallons in 1998 to over 11 billion in 2009. Nearly all of the growth has been in corn-starch ethanol.

A key issue facing Congress is the appropriate level and type of federal intervention in renewable energy markets in general, and the biofuels sector in particular. While the expansion of agriculture-based biofuels (particularly corn-based ethanol) has arguably achieved some success in increasing grain and oilseed demand, stimulating rural economies, and raising farm incomes, there has also been considerable spillover effect in other markets—most notably in land, energy, livestock, and farm input markets. This policy debate routinely confronts Congress because every year several of the federal policy provisions that support the U.S. biofuels industry, for example, certain tax credits or the import tariff, are set to expire pending congressional action to extend them.

Three important bills have been enacted in recent years with major impacts on the biofuels industry. First, the Energy Policy Act of 2005 (EPAAct, P.L. 109-58) established a renewable fuel standard (RFS) that mandated minimum-use volumes of biofuels in the national transportation fuel supply. Second, the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140) greatly expanded the RFS. In particular, under EISA the biofuels blending mandate, or RFS, expands from 9 billion gallons in 2008 to 36 billion gallons in 2022, with special carve-outs for advanced biofuels (i.e., non-corn-starch ethanol), cellulosic biofuels, and biodiesel. Finally, the Food, Conservation, and Energy Act of 2008 (the farm bill, P.L. 110-246) extended and expanded incentives for ethanol production, extended tariffs on imported ethanol, and promoted use of bio-based products.

On February 3, 2010, the Environmental Protection Agency (EPA), the federal agency in charge of administering the RFS program, announced final rules for implementing the RFS. In addition to the specific volume mandates, the new rules include mandatory reductions in life-cycle greenhouse gas (GHG) emissions for each biofuels category, and restrictions on the type and nature of feedstocks used to produce RFS-qualifying biofuels.

Congress will likely be confronted with the ability (or inability) of the U.S. biofuels sector to expand production capacity to meet the ever-increasing RFS mandate. Through 2009, U.S. biofuels production has easily exceeded the RFS since its inception in 2005. However, under EISA the cellulosic biofuels mandate grows quickly from 100 million gallons per year (mgpy) in 2010 to 16 billion gallons by 2022. As a result, after 2015, most of the increase in the overall RFS is intended to come from cellulosic biofuels (rather than corn-starch ethanol). However, the speed of cellulosic biofuels development remains a major uncertainty.

Congress might face issues relating to cellulosic biofuels production such as the effectiveness of incentives to spur commercial viability. In early 2010, cellulosic biofuels were being produced in the United States on a very small, non-commercial, scale, thus making the 100 mgpy mandate for 2010 a daunting target. As a result, the EPA announced (February 3, 2010) a reduction in the 2010 cellulosic biofuels RFS to 6.5 million gallons. Waivers are built into EISA to accommodate shortfalls if the U.S. biofuels industry (with imports) fails to meet the RFS. If shortfalls are

expected to continue to occur, Congress might debate legislative remedies such as changing eligibility requirements or reducing RFS volumes to accommodate potential long-term shortfalls.

As the RFS mandate for biofuels steadily increases and becomes binding, it will have important consequences for food and energy markets. The short-lived commodity price spikes of mid-2008 hinted at the potential conflict associated with conversion of domestic food crops to biofuels. In an attempt to shift biofuels policy distortions away from livestock feed and other markets, both EISA and the 2008 farm bill redirect biofuels research and development emphasis to cellulosic biofuels, since they can potentially be produced from non-food feedstocks such as crop residues, dedicated energy crops, and woody biomass. As a result, any shortcomings in the development of cellulosic biofuels production could compound the potential unintended consequences of U.S. biofuels policy.

Another contentious biofuels issue confronting Congress is whether the ethanol-to-gasoline blending rate should be expanded from 10% to 15%. In the absence of such an expansion, many in the ethanol industry fear that producers will confront a “blending wall” that will limit the ability of the U.S. fuel market to absorb further production increases in ethanol. The resulting surplus, if it were to occur, would likely depress biofuels prices and investment. The EPA is presently reviewing this issue and is expected to make a recommendation in mid-2010.

From an international perspective, Brazil and the United States are leading biofuels producers and the European Union is a major consumer and importer. Numerous biofuels trade issues are potential areas of debate for Congress during the 111th Congress. A leading trade issue is the \$0.54 per gallon tariff that the United States applies to ethanol imported from most countries. Although the tariff was implemented to offset benefits intended for U.S.-produced biofuels, it raises the price of ethanol and reduces potential supply, a key issue in light of the RFS. Furthermore, the domestic tax credit for ethanol has been reduced gradually over time from \$0.54 per gallon to \$0.45 per gallon today. As a result, the tariff not only offsets the domestic benefit, but imposes a punitive charge of \$0.09 per gallon on qualifying imported ethanol.

Another trade-related biofuels issue is whether tax credits for U.S. biodiesel production should apply if the fuel is exported rather than sold in the United States. Some maintain the credit should only apply to fuel that contributes to U.S. energy independence, not fuel that is exported for consumption in other countries.

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For detailed information select from the following topical links.

Agriculture-Based Biofuels

[Cellulosic Biofuels: Analysis of Policy Issues for Congress](#)

[Meeting the Renewable Fuel Standard \(RFS\) Mandate for Cellulosic Biofuels: Questions and Answers](#)

[Intermediate-Level Blends of Ethanol in Gasoline, and the Ethanol “Blend Wall”](#)

[Biofuels Incentives: A Summary of Federal Programs](#)

[Biofuels Provisions in the 2007 Energy Bill and the 2008 Farm Bill: A Side-by-Side Comparison](#)

[Renewable Energy Programs in the 2008 Farm Bill](#)

[Selected Issues Related to an Expansion of the Renewable Fuel Standard \(RFS\)](#)

[Calculation of Lifecycle Greenhouse Gas Emissions for the Renewable Fuel Standard \(RFS\)](#)

[Waiver Authority Under the Renewable Fuel Standard \(RFS\)](#)

[Biochar: Examination of an Emerging Concept to Mitigate Climate Change](#)

[Biomass: Comparison of Definitions in Legislation](#)