

2009 Report on Ethanol Market Concentration

I. Introduction

Section 1501(a)(2) of the Energy Policy Act of 2005 (16 U.S.C. § 1501(a)(2))

¹ Energy Policy Act of 2005 § 1501(a)(2).

² See FTC, Report of Ethanol Market Concentration (2005) (“2005 Ethanol Report”), available at <http://www.ftc.gov/reports/ethanol05/20051202ethanolmarket.pdf>; Report of Ethanol Market Concentration (2006) (“2006 Ethanol Report”), available at http://www.ftc.gov/reports/ethanol/Ethanol_Report_2006.pdf; Report of Ethanol Market Concentration (2007) (“2007 Ethanol Report”), available at <http://www.ftc.gov/reports/ethanol/2007ethanol.pdf>; Report of Ethanol Market Concentration (2008) (“2008 Ethanol Report”), available at <http://www.ftc.gov/os/2008/11/081117ethanolreport.pdf>.

³ See Section IV, *infra*.

⁴ This report analyzes fuel ethanol concentration, rather than concentration of all ethanol. Fuel ethanol contains about five percent denaturant, such as gasoline, rendering it undrinkable and not subject to the beverage alcohol tax. <http://www.ethanolrfa.org/resource/made/>. Thus, fuel ethanol and alcohol used in beverages are not substitutes for each other.

⁵ The Commission and the Department of Justice characterize markets where the HHI level is below 1000 as unconcentrated, or competitive. HHIs be

II. Recent Industry Developments

In 2007, Congress significantly increased the minimum amount of renewable fuel that must be used domestically, whether in the form of ethanol blended into gasoline or in the form of biodiesel. The minimum amount, known as the Renewable Fuel Standard (“RFS”), was previously set by the Energy Policy Act of 2005 at 6.1 billion gallons for 2009 and was scheduled to rise each year until reaching 7.5 billion gallons in 2012.⁶ The Energy Independence and Security Act of 2007 raised the 2009 RFS to 11.1 billion gallons and increased the mandated volume to 36 billion gallons by 2022.⁷ Additionally, starting in 2016, the marginal increases (*i.e.*, the additional volume increases over previous years) in the RFS must be met with advanced biofuels, defined as cellulosic ethanol and other biofuels derived from feedstock other than corn starch.⁸

In recent years, the amount of ethanol blended into domestic gasoline has exceeded the RFS standard. This trend continued in 2009, when a large number of refiners, blenders, and marketers blended more ethanol into gasoline than in the previous year. During 2009, the industry blended more ethanol in each month than in the previous month (with the exception of January and February), and blended more in each month than in the same month in 2008.⁹ Industry participants believe that the industry will meet the updated 2009 RFS.

⁶ Energy Policy Act of 2005 § 1501(a)(2).

⁷ Energy Independence and Security Act of 2007 § 202.

⁸ *Id.*

⁹ <http://tonto.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=mferius1&f=m>.

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New plant construction slowed in 2009. As market conditions worsened, several firms abandoned or delayed existing plans to begin new construction. With distressed assets available for purchase, industry participants believe that expanding capacity through acquisition is currently more cost-effective than new construction.

While there is enough ethanol production capacity in existence and under construction to meet the RFS minimums for the next few years, additional capacity will be necessary to meet future RFS mandates established by the 2007 legislation. In addition to investment in the construction of traditional ethanol plants, investment continues in the research and development of cellulosic ethanol production. If the technology sufficiently advances to produce cellulosic ethanol economically, then large-scale investment in the commercial scale production of cellulosic ethanol is likely to follow.

III. Summary of Market Concentration Trends

Since last year's report, both ethanol production and production capacity have increased.

¹⁰ See Renewable Fuels Association ("RFA"), *Growing Innovation: Ethanol Industry Outlook 2009* ("Growing Innovation") at 3.

¹¹ See *Growing Innovation* at 3.

¹² *Id.*

¹⁸ The background information in this section on how HHIs are calculated and their relevance is consistent with the background information in last year's Report on Ethanol Market Concentration. *See* 2008 Ethanol Report at 6-7.

¹⁹ *See* Horizontal Merger Guidelines.

²⁰ For example, a four-firm market with market shares of 30 percent, 30 percent, 20 percent, and 20 percent has an HHI of 2600 [(30*30) + (30*30) + (20*20) + (20*20) = 2600]. HHIs range from 10,000 in a one-firm (pure monopoly) market, to a number close to zero in a highly unconcentrated market.

²¹ *See* footnote 5, *supra* (discussing the HHI threshold levels for characterizing a market as unconcentrated, moderately concentrated, or highly concentrated under the Horizontal Merger Guidelines).

²² A relevant antitrust market has both product and geographic aspects. A product market is a product or group of products such that a hypothetical firm that was the only seller of those products would find it profitable to impose at least a small but significant and nontransitory price increase above the competitive level. If such a price increase would not be profitable because of the loss of sales to other products, the product or group of products would not be a relevant product market. Similarly, a geographic market is a region such that a hypothetical firm that was the only seller of the relevant product in that ret.

potentially smaller relevant geographic markets within the United States that could provide further insight into how ethanol producers compete. This assumption also precludes consideration of a broader product market that includes other gasoline blending components that might be economically viable and environmentally acceptable substitutes for ethanol. It is likely that ethanol competes with other blending components, in which case concentration as measured by HHIs in ethanol production would understate the amount of competition ethanol producers face.

As in previous reports, FTC staff calculated HHIs for the ethanol industry using different measures of concentration. First, staff measured the market share for each producer based on the producer's production capacity and, alternatively, its actual production. Staff then performed separate HHI calculations using three different market share allocation methods that attribute the respective market shares based on production capacity and, alternatively, actual production to: (1) the producer itself; (2) the firm that actually marketed the producer's ethanol output; and (3) the marketing firm only when marketing the producer's volumes pursuant to a pooling agreement. Under each of these measures, the industry's HHIs declined in 2009.

small but significant and nontransitory price increase above the competitive level. If such a price increase would not be profitable because of the loss of sales to sellers outside the region, the region would be too narrowly defined to be a relevant geographic market. *See* Horizontal Merger Guidelines §§ 1.1-1.2.

A. Concentration with Market Shares Based on Production Capacity

1. *Attributing Market Shares to Producers*

Staff first calculated market shares of producers based on their fuel ethanol production capacity. Production capacity provides a useful and easily confirmable indicator of a producer's competitive significance.²³

Staff relied on publicly available information and interviews with producers, marketers, and other industry participants to determine the production capacity of each ethanol plant (as well as other information presented herein). On its website, the RFA provides updated data on ethanol plant capacity and announced capacity expansions. Other publicly available information is available from the producers' websites, many of which provide information regarding existing plant capacities and construction plans. Some marketers also publicly announce new agreements with producers.

In determining the capacity of individual producers, staff included the capacity of new plants under construction and expansions of existing plants under construction. Staff considered plants or expansions to be under construction only if the firm had finalized its construction plans, received necessary financing for the construction, and begun physical construction. Once a new plant or expansion project has reached this stage, completion is likely within twelve to eighteen months. Including the capacity from such projects in the current market is consistent with the approach adopted in the Horizontal Merger Guidelines.²⁴

²³ See Horizontal Merger Guidelines § 1.41. A firm's capacity is likely the best measure of its competitiveness because ethanol is an undifferentiated product (*i.e.*, producers manufacture chemically identical ethanol).

²⁴ See *id.* § 1.32. The Horizontal Merger Guidelines specifically discuss "uncommitted entrants" as being in the relevant market. Uncommitted entrants are those firms that are not

Thus, for purposes of competitive analysis, attributing producers' capacities to the marketers, rather than to the producers themse

²⁹ 2008 Ethanol Report at 11.

³⁰ 2007 Ethanol Report at 11.

marketing arrangements are credited with their own production for purposes of determining market shares. Measured in this way, the HHI is 296, unconcentrated under the Horizontal Merger Guidelines. It represents a relatively large decrease from last year's HHI of 527³¹ and remains below the 2007 HHI of 453.³²

B. Concentration with Market Shares Based on Production, Using Data from the Energy Information Administration ("EIA")

Staff also measured industry concentration in terms of actual production rather than capacity. Using production (rather than capacity) data is instructive because capacity data have certain limitations, particularly insofar as stated capacity does not necessarily represent actual production capabilities. Ethanol plants often can produce as much as 10 to 15 percent more than their stated design capacities³³ and tend to do so as their owners and operators improve the production process and gain expertise in operating their plants. In this respect, actual production may reflect concentration more accurately than design capacity.

EIA provided the actual production HHIs contained in this report. EIA collects confidential information from firms that produce oxygenates such as ethanol. Firms that produce over eight million gallons of oxygenates per year must submit

³¹ 2008 Ethanol Report at 10.

³² 2007 Ethanol Report at 11.

³³ 2008 Ethanol Report at 11; 2007 Ethanol Report at 12; 2006 Ethanol Report at 9; 2005 Ethanol Report at 12.

For producers for wor

agreement, the HHI is 305. These HHIs based on actual production are all lower than the comparable figures in last year's report. Last year, the HHI based on actual production was 376 when market shares were attributed to each producer, 952 when market shares were attributed to marketers of each producer, and 658 when market shares were attributed to marketers utilizing pooling agreements and, otherwise, attributed to the individual producers.³⁶ Thus, concentration based on both production capacity and actual production has decreased since last year.

The HHI figures presented above, regardless of the particular measure used, indicate that ethanol production in the United States is unconcentrated.

C. Ease of Entry and Imports

The ease of entry and imports also strongly supports a conclusion that domestic ethanol production is unconcentrated. For example, new ethanol production facilities began operation in the past year, and additional facilities are scheduled to begin operating in the coming year. In addition, ethanol imports into the U.S. from foreign sources are significant. In 2008, the U.S. imported an estimated 600 million gallons of ethanol, down from the record 653 million gallons imported in 2006³⁷ but still substantially higher than in prior years.³⁸ The ability of new firms to enter the market quickly and import ethanol in response to increased demand demonstrates that firms likely do not have the ability to engage in anticompetitive behavior, even if domestic ethanol production were more concentrated than it is at the present. In other words, the threat of

³⁶ *Id.*

³⁷ <http://www.ethanolrfa.org/industry/statistics/#F>.

³⁸ The U.S. imported 436 million gallons of ethanol in 2007, 136 million gallons of ethanol in 2005, and 160 million gallons of ethanol in 2004. *Id.*

entry by domestic producers and the presence of imports corroborate the evidence of the low HHIs that domestic ethanol production is unconcentrated.

V. Conclusion

Ethanol production has remained unconcentrated over the last year. Regardless of how concentration is measured, the industry trend toward less concentration observed in prior years has continued. While firms generally did not begin new construction in 2009, additional ethanol production capacity already in progress is likely to become operational in the next twelve to eighteen months. Furthermore, potential entry by new firms and the availability of ethanol imports provide additional constraints on current market participants. These dynamics make it extremely unlikely that a single ethanol producer or marketer or a small group of such firms could wield sufficient market power to successfully engage in price-fixing or other anticompetitive behavior.

Figure 1: Domestic Fuel Ethanol Concentration

Concentration Based on Capacity	2008 HHI³⁹	2009 HHI
Shares attributed to each producer	313	241
Shares attributed to marketers for all marketing agreements	723	547
Shares attributed to marketers only for pooling agreements	527	296

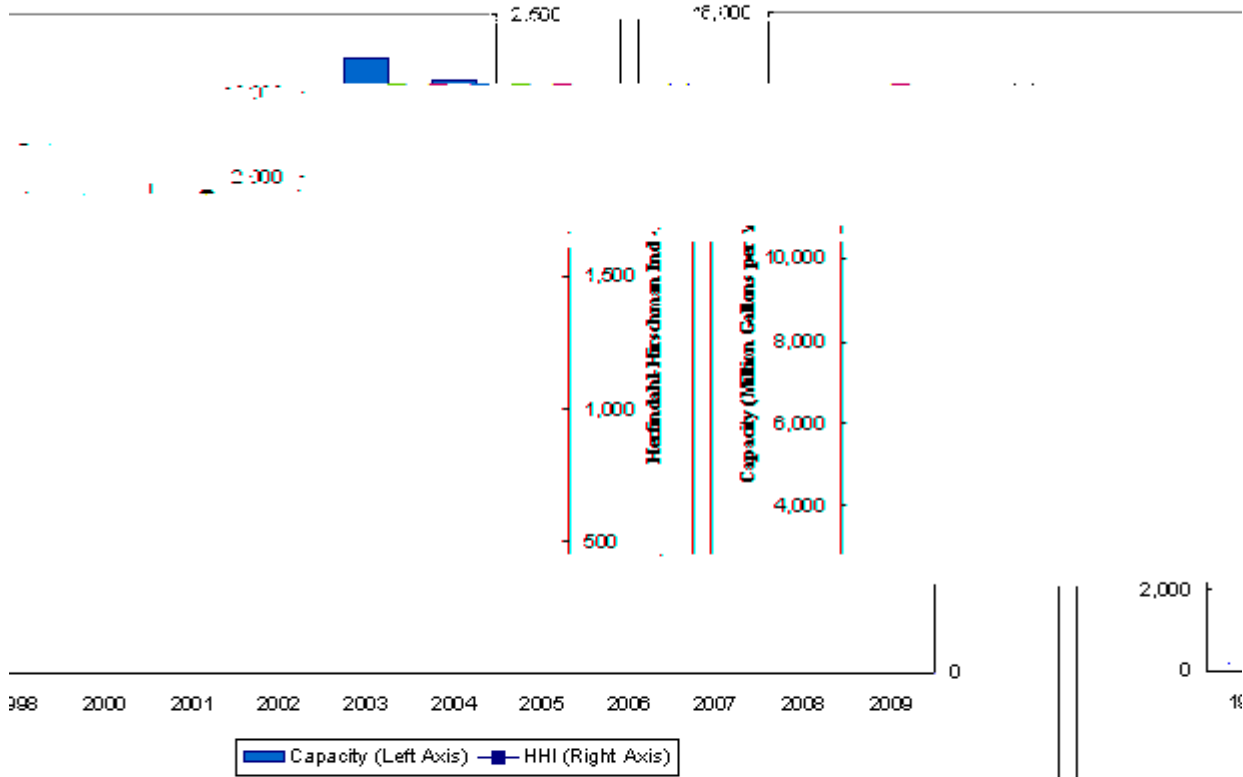
Concentration Based on Production	2008 HHI	2009 HHI
Shares attributed to each producer	376	232
Shares attributed to marketers for all marketing agreements	952	722
Shares attributed to marketers only for pooling agreements	658	305

Source: RFA, EIA

Note: Capacity for 2008 includes the capacity as of September of 2008 and the capacity additions under construction and expected to be completed within 12-18 months of September 2008. Capacity for 2009 includes the current capacity as of September 2009 and the capacity additions under construction and expected to be completed within 12-18 months of September 2009. Production data for 2008 are from July 2007 through June 2008, and production data for 2009 are from July 2008 to June 2009.

³⁹ As discussed in footnote 5 above, the Commission and the Department of Justice characterize markets having HHIs below 1000 as unconcentrated. HHIs between 1000 and 1800 indicate moderately concentrated markets, and HHIs over 1800 indicate highly concentrated markets that are more likely to pose competitive concerns. Horizontal Merger Guidelines § 1.51.

Figure 2: Historical Equal-Energy Capacity and HHI



Source: RFA

Note: Annual figures are for operating capacity and capacity under construction at year-end for 1998 to 2004, and as of

2009. This chart shows the historical trend of capacity and HHI in the natural gas processing industry. The capacity has remained relatively stable until 2003, after which it has increased significantly. The HHI has remained relatively stable around 1,000, indicating a high level of concentration in the industry.