

2014 Report on Ethanol Market Concentration

I. Introduction

This Report presents the Federal Trade Commission's ("Commission" or "FTC") concentration analysis of the ethanol production industry for 2014. Section 1501(a)(2) of the Energy Policy Act of 2005 requires the FTC ~~year~~ to "perform a market concentration analysis of the ethanol production industry using the Herfindahl-Hirschman Index to determine whether there is sufficient competition among industry participants to avoid price-setting and other anticompetitive behavior."² The statute also requires the FTC to consider all marketing arrangements among industry participants in preparing its analysis.³ The FTC must report its findings to Congress and to the Administrator of the Environmental Protection Agency ("EPA") by December 1.⁴

As in previous reports, FTC staff ("staff") prepared Herfindahl-Hirschman Index ("HHI") calculations for the U.S. ethanol production industry using two different measures of market share – production capacity and actual production. In previous years, staff calculated market shares by attributing share to (1) each producer, (2) each producer or the third-party firm that marketed that capacity; and (3) a third-party marketer alone if that marketer sold production volumes pursuant to a pooling agreement. The industry no longer uses such pooling agreements; thus, this Report does not measure concentration on this basis. Based on production capacity, the

¹ Prior Ethanol Reports are available on the FTC's website: FTC, Oil and Gas Industry Initiatives, Competition Policy: Reports available at <http://www.ftc.gov/tips-advice/competition-guidance/industry-guidance/oil-and-gas>. This Report builds upon Commission reports from previous years, which contain relevant background information that this Report does not repeat.

² Energy Policy Act of 2005, Pub. L. No. 109-58, § 1501, 119 Stat. 594, 1074 (2005) (amended 2007). For purposes of this Report, we presume Congress used the term "price-setting" to mean "price fixing."

³ Id.

⁴ Id.

HHIs for the domestic ethanol production industry range from 333 to 693, depending on the method of market share allocation. Based on actual production the HHIs range from 343 to 743. Compared to the HHI levels in 2013, the level of concentration in the U.S. ethanol industry in 2014 has increased slightly.

The level of concentration and the large number of market participants in the U.S. ethanol production industry suggest that exercise of market power to set prices or coordination on price or output levels is unlikely. As has been the case each year since the Commission began reporting, each of the 2014 HHIs indicates that the industry is unconcentrated. At this level of concentration, a single ethanol producer or marketer lacks market power. Successful anticompetitive coordination would require agreement among a very large number of producers and thus would be unlikely. Imports and the possibility of entry would also act as a serious impediment to exercise of market power by any group of domestic firms.

II. Recent Industry Developments

A. Renewable Fuel Standard

Congress requires the domestic consumption of minimum annual volumes of

The annual RFS mandate for renewable fuels is increasing faster than the market's ability to consume ethanol. Nearly all gasoline sold in the United States today is E10, and the industry's limited ability to provide and consume higher blends is known as the E10 blend wall.⁸ The 2014 statutory goal of 18.15 billion gallons exceeds the achievable overall ethanol production and use given current motor vehicle demand with E10 blending and estimated year-end operable ethanol capacity of 15.6 billion gallons.⁹ The EPA subsequently modified the proposed consumption of all renewables to 15.2 billion gallons. Fuel ethanol represents approximately 13 billion gallons of that total – a level attainable with E10 blending at current gasoline demand levels plus the moderate use of banked credits for previous ethanol consumption exceeding required levels.¹⁰ While the EPA has not finalized the requirements for 2014, some observers believe the final 2014 rule could raise the target somewhat.¹¹

The RFS also sets targets for cellulosic ethanol. The 2013 target was approximately 1 billion gallons, and the 2014 target was 1.75 billion gallons.¹² Cellulosic ethanol production capacity, however, has been slower to develop than anticipated. Cons

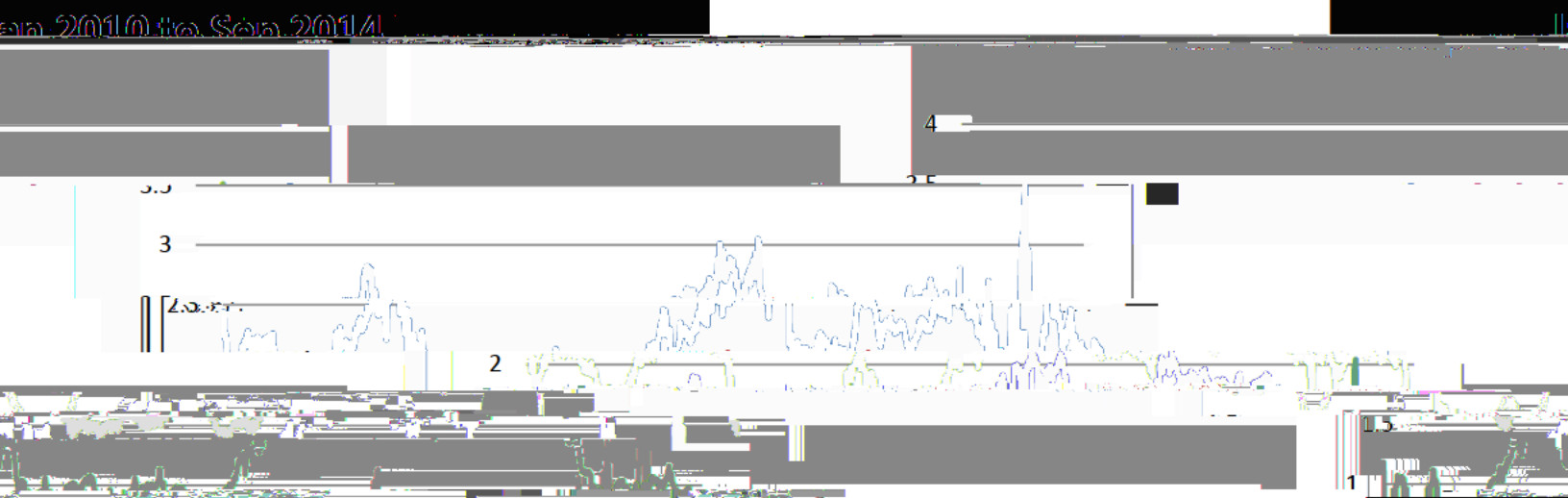
B. Margins

As in prior years, fuel ethanol prices and costs have been vol

Chart 1

margin (per gallon)

Operating M



A decrease in corn prices by more than half from peak 2012-2013 levels (\$8.15 per bushel in August 2012 to \$3.09 per bushel in September 2014) and strong exports were the principal causes of the recent increase in profits.²² Ethanol profit margins increased, leading to a 9.3 percent increase in ethanol production from the previous year. Output of ethanol-blended gasoline also rose.²³ Ethanol inventory levels increased by about 100 million gallons between June 2013 and June 2014.²⁴ In the wake of Brazil's ethanol production problems, U.S. imports from that nation decreased by 40 percent.²⁵ The fall in imports, coupled with higher demand elsewhere in the world, made the United States a net exporter of 500 million gallons of ethanol from July 2013 to June 2014.²⁶

The lower margins of 2012, followed by a revival in 2013, affected industry structure. Consolidation occurred between mid-2012 and mid-2014, as more than a dozen plants (with a combined capacity of more than 100 million gallons a year) were acquired by existing producers. As ethanol margins improved from mid-2013 to September 2014, at least six long-closed ethanol plants reopened, some after extensive renovation. Another

²² See EIA, Today in Energy, Abundant 2013 Corn Harvest Boosts Ethanol Production (Dec. 13, 2013), <http://www.eia.gov/todayinenergy/detail.cfm?id=1417>, Price data: CARD, Iowa State University, Historical Ethanol Operating Margins, http://www.card.iastate.edu/research/bio/tools/hist_eth_gm (last viewed Oct 19, 2014).

²³ Derived from EIA data. See EIA, Monthly Energy Review (Sept. 2014), Table 10.3, available at <http://www.eia.gov/totalenergy/data/monthly/archive/00351409.pdf>

²⁴ See EIA, Ending Stocks of Fuel Ethanol, *supra* note 20.

²⁵ See EIA, Today in Energy, U.S. Ethanol Imports from Brazil Down in 2013, <http://www.eia.gov/todayinenergy/detail.cfm?id=16131> (May 5, 2014).

²⁶ See EIA, U.S. Exports of Fuel Ethanol, http://www.eia.gov/dnav/pet/hist/Leadfinder.ashx?n=p&s=m_epooxe_eex_nus-z00_mbb&f=m (last modified Oct. 30, 2014).

large plant, now shut down and under renovations, should reopen in 2015, adding more capacity.²⁷

The industry also faced logistical issues this past year. Some producers, particularly in the upper Midwest, were temporarily unable to m

The number of firms producing ethanol has ~~decreased~~ slightly since last year's Report. As of September 2014, 148 firms produce or ~~likely~~ begin producing ethanol within the next 12 to 18 months, compared to 156 firms in 2013. The largest ethanol producer's share of domestic capacity is 10.9 percent, ~~changed~~ from its percent share in 2013.

IV. Analysis

Section 1501(a)(2) of the Energy Policy Act of 2005 instructs the Commission to measure concentration in the U.S. ethanol production industry using HHIs.³³ HHIs can provide a snapshot of market concentration based upon the number of market participants and their respective sales, production, or capacity.³⁴ An analysis of competition among market participants using these HHIs ~~assumes~~ that the U.S. ethanol production industry is an appropriate antitrust market.³⁵ This assumption precludes consideration of a broader relevant product market

available at <http://ethanolrfa.org/page/-/PDFs/RFA%202013%20Ethanol%20Industry%20Outlook.pdf?nocdn=1>

that includes other gasoline blending components that might be economically viable and environmentally acceptable substitutes for ethanol. In the event that ethanol competes with other blending components, HHIs based on a fuel ethanol market would understate the amount of competition in the industry. This assumption precludes consideration of a broader or narrower relevant geographic market than the United States that could provide further insight about competition in ethanol.

This Report presents four HHIs for the ethanol industry, calculated using two different measures of market share – production capacity and actual production and two different methods of allocating those market shares. Staff calculated market shares based on domestic ethanol production capacity. In previous reports, staff attributed the producer's market share to: (1) the producer itself; (2) the producer or the third-party firm that actually marketed the producer's ethanol output; and (3) the third-party marketing firm only if that firm marketed the producer's volumes pursuant to a pooling agreement (and, absent such a pooling agreement, to the producer). Pooling agreements, however, are no longer common in the industry today, and thus they no longer provide a meaningful way to allocate market share. Thus, this Report does not measure concentration on this basis.

Second, EIA staff calculated market shares based on actual production, attributing the market shares as described in the preceding paragraph. Due to the confidential nature of the

and provided the resulting production-based HHIs to our staff.³⁷ FTC staff relied on publicly available information and interviews with producers, marketers, and other industry participants to determine the production capacity of each ethanol plant and to calculate the market shares based on marketing arrangements.

A. Concentration with Market Shares Based on Production Capacity

For each of the HHI calculations described below, staff first calculated producers' market shares based on their ethanol production capacity.³⁸ Production capacity provides a useful and easily confirmable indicator of a producer's competitive significance.⁴⁰ In determining the aggregate capacity of each producer, staff included the capacity of existing plants, as well as the projected capacity of plants currently under construction and plants

³⁷ Because the production data are confidential, staff did not disclose to FTC staff the volumes of ethanol attributable to any individual producer or their market shares based on those volumes.

³⁸ The Commission and the U.S. Department of Justice characterize markets in which the HHI is below 1500 as unconcentrated. HHIs between 1500-2500 indicate moderately concentrated markets, which may or may not raise competitive concerns in the context of a horizontal merger or acquisition. Markets with HHIs over 2500 are highly concentrated, and horizontal mergers or acquisitions in such markets are more likely to pose competitive concerns. See Horizontal Merger Guidelines, supranote 34, § 5.3.

³⁹ The RFA's website provides frequently updated data on ethanol plant capacity and capacity expansion plans. Capacity information is available on many individual producers' websites, some of which also provide details of construction and expansion plans.

⁴⁰ See Horizontal Merger Guidelines, supranote 34, § 5.2. In markets for homogeneous products (such as ethanol), a firm may derive competitive significance primarily from its available capacity i.e., its ability and incentive to increase production in the event of a competitor's price increase or output reduction.

a measure of industry concentration that captures this aggregation. For those producers that engage in direct sales, staff attributed the market shares to the producers themselves.⁴⁵

This approach yields an HHI of 693, concentrated under the Horizontal Merger Guidelines. This HHI is higher than the corresponding HHI of 586 in 2013.⁴⁶

B. Concentration with Market Shares Based on Actual Production

Firms that produce more than eight million gallons of oxygenates (such as ethanol) per year must report to EIA their monthly production volumes by product. Using production 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 design capacities and tend to operate at increasing rates as their owners and operators improve the production process and gain expertise in operating their plants.⁴⁷ In this respect, actual production may reflect a market participant's competitive significance more accurately than would its plants' capacities.

There are some limitations on the accuracy of HHIs based on actual production, just as there are limitations on capacity-based HHIs. HHIs based on production over a given period may overstate or understate actual concentration due to entry a

the concentrating impact of plant closures and idlings during the period. In both cases, these facilities will have produced only a fraction of what they otherwise would produce in a full year, leading to an understatement (in the case of new facilities) or an overstatement (in the case of idled facilities) of their competitive significance in the market. Similarly, the HHIs below do not account for the effects on concentration of plant expansions within the last 12 months and capacity-enhancing improvement projects that are not yet in operation.

These production-based HHIs reflect actual production volumes from July 2013 through June 2014. Where EIA attributed the actual production market share directly to individual producers, the resulting HHI is 343, slightly higher than the 2013 HHI of 328. The production-

into the United States as import levels responded to fluctuations in the price of U.S. ethanol relative to foreign ethanol prices, particularly prices for sugarcane-based ethanol from Brazil.⁴⁹

V. Conclusion

Regardless of the particular measure of market share, the market share allocation method used to calculate concentration, ethanol production remains unconcentrated. The industry is less concentrated today than it was at the time of the first Report on Ethanol Market Concentration in 2005. Furthermore, the possibility of entry and the availability of ethanol imports provide additional constraints on the exercise of market power by current industry participants. These dynamics make it extremely unlikely that a single ethanol producer or marketer or a group of such firms could exercise market power to set prices or coordinate on price or output levels.

⁴⁹ The expiration of the ethanol import tariff \$0.54 per gallon at the end of 2011 has made Brazilian fuel ethanol more cost-competitive relative to domestic production. See 2013 Renewable Fuel Standards, *supra* note 13, at 49818. For example, Brazilian producers responded to the high cost of U.S. corn in the second half of 2012 by exporting record amounts of ethanol into the United States. See EIA, U.S. Imports from Brazil of Fuel Ethanol, http://www.eia.gov/dnav/pet/hist/LeafHdlr.ashx?n=PET&s=MFEIM_NUS-NBR_1&f=M (last modified Oct.30, 2014); 2013 Renewable Fuel Standards, *supra* note 13, at 49818.

Figure 1: Domestic Fuel Ethanol Concentration⁵⁰

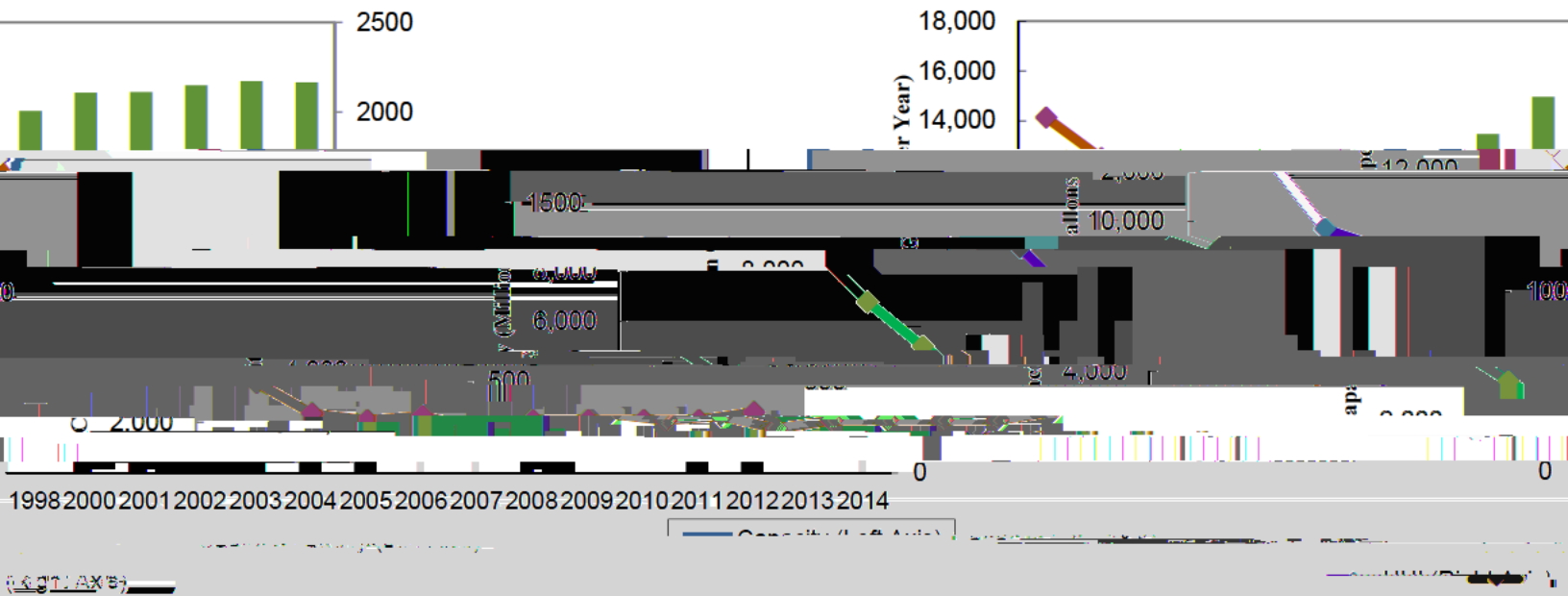
Concentration Based on Capacity	2013 HHI	2014 HHI
Shares attributed to each producer	290	333
Shares attributed to market for all marketing agreements	586	693
Concentration Based on Production	2013 HHI	2014 HHI
Shares attributed to each producer	328	343
Shares attributed to market for all marketing agreements	687	743

Source: Production HHIs from EIA

Note: Capacity for 2013 includes the current capacity as of September 2013 and the capacity additions under construction and expected to be completed within 12 to 18 months after September 2013. Capacity for 2014 includes the current capacity as of September 2014 and the capacity additions under construction and expected to be completed within 12 to 18 months after September 2014. Production data for 2013 are from July 2012 through June 2013, and production data for 2014 are from July 2013 through June 2014.

⁵⁰ As discussed in note 38, *supra*, the Commission and the Department of Justice characterize markets with HHIs below 1500 as unconcentrated. HHIs between 1500 and 2500 indicate moderately concentrated markets and HHIs over 2500 indicate highly concentrated markets that are more likely to pose competitive concerns. An increase in the HHI of less than 100 points is unlikely to have adverse competitive effects. Horizontal Merger Guidelines, *supra* note 34, § 5.3.

Figure 2: Historical Fuel Ethanol Capacity and HHIs



tion at year-end for

Note: Annual figures are for operable capacity and capacity under construction