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.[1] Section 1501(a)(2) of the

Energy Policy Act of 2005 requires the FTC each 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) the 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

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[1] Prior Ethanol Reports are available on the FTC's website. *See* 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 that 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.   <u>Renewable Fuel Standard</u>

Congress requires the domestic consumption of minimum annual volumes of renewable fuels, including fuel ethanol. The Energy Policy Act of 2005 originally established this minimum, which we know as the Renewable Fuel Standard ("RFS").[5] The Energy Independence and Security Act of 2007 amended the RFS, significantly increasing the minimum volumes – including a 2014 requirement of 18.15 billion gallons of ethanol – and extending the annual mandate to a peak requirement of 36 billion gallons in 2022.[6]

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[5] Energy Policy Act of 2005 § 1501, 119 Stat. 1069.
[6] Energy Independence and Security Act of 2007, 42 U.S.C. § 7545(o)(2)(B)(i)(I) (2014).

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,[7] 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 fuel 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 renewable fuels 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. Consequently, the EPA has

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[7] *See* EPA, EPA Proposes 2014 Renewable Fuel Standards/Proposal Seeks Input to Address "E10 Blend Wall," Reaffirms Commitment to Biofuels (Nov. 15, 2013), http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceeac8525735900400c27/81c99e6d27c730c485257c24005eecb0!opendocument.

[8] *See* 2014 Renewable Fuel Standard, Proposed Rule, 78 Fed. Reg. 71732 (Nov. 29, 2013).

[9] These figures take into account information obtained through interviews with market participants and publicly available information, including information from the RFA website. *See, e.g.,* RFA, Biorefinery Locations, http://ethanolrfa.org/bio-refinery-locations/ (last modified Nov. 6, 2014).

[10] The EPA uses Renewable Identification Numbers ("RINs") to track compliance with the RFS. *See* 2013 Report on Ethanol Market Concentration 3 (2013) ("2013 Ethanol Report"). Based on EPA estimates, there will be 1.2 billion banked RINs available for use in 2014. *See* 2014 Renewable Fuel Standard, Proposed Rule, *supra* note 8.

[11] Scott Irwin, Rolling Back the Write Down of the Renewable Mandate for 2014: The RINs Market Rings the Bell Again, *Farmdocdaily* (Aug 7, 2014)**,** http://farmdocdaily.illinois.edu/2014/08/rolling-back-the-write-down-of-renewable-mandate-2014.html (last viewed Oct. 19, 2014).

[12] *See* 2014 Renewable Fuel Standards, Proposed Rule, *supra* note 8.

set cellulosic biofuel volumes for 2013 significantly below the statutory levels.[13] With

additional capacity coming on line in late 2014, the EPA proposed to set the cellulosic biofuel

volumes for 2014 at 17 million gallons, a rate still far below the statutory levels. The EPA

proposal appears to match likely cellulosic production for 2014.[14]

In 2012, the EPA approved E15 for vehicles built since the 2001 model year.[15] As

explained in the 2012 Ethanol Report, the industry faces significant hurdles before the market

can consume significant volumes of higher ethanol-gasoline blends.[16] These barriers, which

include coverage under car manufacturers' warranties and the establishment of a distribution

infrastructure, continue to limit consumption of E15.[17] Small increases or even declines in motor

gasoline consumption – and therefore changes in the pool available for blending – also fall short

of the levels needed to meet annual increases in the RFS requirements.[18]

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[13] *See* 2013 Renewable Fuel Standards, 78 Fed. Reg. 49794 (Aug. 15, 2013) (codified at 40
C.F.R. Part 80), at 49800-801.

[14] *See* 2014 Renewable Fuel Standards, Proposed Rule, *supra* note 8. The POET-DSM plant in
Emmetsburg, Iowa (40 million gallons a year ("mgy")) held its grand opening in September
2014. Two other commercial cellulosic plants are nearing completion: the Abengoa plant in
Hugoton, Kansas (23 mgy), and the DuPont plant in Nevada, Iowa (30 mgy). EIA, Commercial-
scale Cellulosic Ethanol Plant Opens (Sept. 5, 2014),
http://www.eia.gov/todayinenergy/detail.cfm?id=17851. All three plants are expected to
commence production as the corn harvest is completed and corn waste becomes available. Other
plants are in various stages of development.

[15] *See* EPA, Fuels and Fuel Additives, E15 (A Blend of Gasoline and Ethanol),
http://www.epa.gov/otaq/regs/fuels/additive/E15/ (last modified Aug. 2, 2013) (describing
EPA's approval of E15).

[16] *See* 2012 Report on Ethanol Market Concentration 5.

[17] Additional infrastructure is also required to consume greater volumes of gasoline blends
with up to 85 percent ethanol, known as E85. Currently, about 2 percent of all retail stations
in the United States offer E85. *See* EIA, Today in Energy, Access to Alternative
Transportation Fuel Stations Varies Across the Lower 48 States (Apr. 30, 2012),
http://www.eia.gov/todayinenergy/detail.cfm?id=6050&src=email#tabs_AltTransportFuelStatio
n; EIA, Today in Energy, E85 fueling station availability is increasing (Mar. 7, 2014),
(http://www.eia.gov/todayinenergy/detail.cfm?id=15311).

[18] *See* 2014 Renewable Fuel Standards, Proposed Rule, *supra* note 8.

B. __Margins__

As in prior years, fuel ethanol prices and costs have been volatile throughout the reported period, leading to wide margin variations. Despite higher prices for ethanol and byproducts, such as distillers dried grain, high corn prices in the second half of 2012 kept producers from covering rising costs. As margins continued near break-even or fell to negative values, domestic ethanol producers reduced operating rates and idled some plants.[19] As production and inventory levels fell, ethanol prices increased.[20] Ethanol margins began to increase moderately in the first half of 2013, then rose substantially in late 2013 and generally kept increasing through 2014.[21] Chart 1 plots the changes in corn prices, ethanol prices, and plant operating margins for the period 2010 to mid-2014.

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[19] *See* EIA, Today in Energy, Ethanol Producers Respond to Market Conditions (Mar. 11, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=10311.
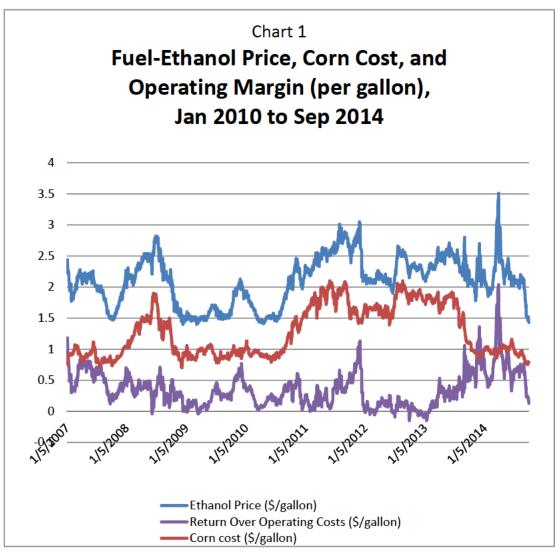
[20] EIA, Weekly U.S. Ending Stocks of Fuel Ethanol, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPOOXE_SAE_NUS_MBBL&f=W (last modified Sept. 4, 2014); EIA, Weekly U.S. Oxygenate Plant Production of Fuel Ethanol, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPOOXE_YOP_NUS_MBBLD&f=W (last modified Aug. 28, 2013); Iowa State University, Agricultural Marketing Resource Center, Weekly Ethanol, Distillers Grain, and Corn Prices, http://www.extension.iastate.edu/agdm/energy/xls/agmrcethanolplantprices.xlsx, (last modified Sept. 15, 2014); The Chicago Board of Trade Prompt Month corn contract price for October 2012 closed at $7.56/bushel, and the September 2014 contract closed at $3.19/bushel. TradingCharts.com, Historical Monthly Commodity Futures Price Chart: Corn (CBOT), http://futures.tradingcharts.com/chart/CN/M, (last viewed Oct 19, 2014).

[21] The economic model of Iowa State University's Center for Agricultural and Rural Development ("CARD") estimated that the typical Iowa ethanol producer lost an estimated $.05/gallon in December 2012, measured by the margin over or below variable cost. By April 2013, estimated variable margins had risen to a profit of $0.38/gallon and increased further to $1.14/gallon in April 2014. "The return over operating costs is one signal of the level of profitability to producing ethanol." CARD, Iowa State University, Historical Ethanol Operating Margins, http://www.card.iastate.edu/research/bio/tools/hist_eth_gm.aspx (last viewed Oct. 22 2014).

Chart 1
Fuel-Ethanol Price, Corn Cost, and Operating Margin (per gallon), Jan 2010 to Sep 2014

- Ethanol Price ($/gallon)
- Return Over Operating Costs ($/gallon)
- Corn cost ($/gallon)

Source: Iowa State University, Agricultural Marketing Resource Center.

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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 late 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 900 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

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[22] *See* EIA, Today in Energy, Abundant 2013 Corn Harvest Boosts Ethanol Production (Dec. 13, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=14171; Price data: CARD, Iowa State University, Historical Ethanol Operating Margins, http://www.card.iastate.edu/research/bio/tools/hist_eth_gm.aspx (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/LeafHandler.ashx?n=pet&s=m_epooxe_eex_nus-z00_mbbl&f=m (last modified Oct. 30, 2014).

large plant, now shut down and under renovation, 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 meet production and shipment goals due to rail system and weather problems. Extreme winter temperatures and snow caused congestion in Midwestern rail terminals, delaying shipments and resulting in significant ethanol stock draws and some short-term plant closings.[28] A strong demand for ethanol exports in the winter months (238 million gallons) also may have contributed to the problem, with longer shipping distances to ports extending the cycle time of rail cars.[29] These problems apparently persisted somewhat through the summer, with some ethanol plants operating at reduced rates due to constrained rail car operability.

III.   Summary of Market Trends

Domestic ethanol production increased since last year's Report, while production capacity remained the same. Domestic ethanol production from July 2013 through June 2014 increased approximately 8.6 percent from the prior 12 months, from 12.8 billion to 13.9 billion gallons.[30] Domestic ethanol production capacity (including capacity under construction) remained constant at approximately 15.6 billion gallons per year.[31]

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[27] Six other plants either converted to other uses or permanently closed. The future of a few other long-closed (or never operational) plants is unclear. These plants are not included in this Report.

[28] *See* EIA, This Week In Petroleum, Rapid Rise in Ethanol Prices Since Early February Reflects Logistical Problems, http://www.eia.gov/petroleum/weekly/archive/2014/140402/twipprint.html (Apr 2, 2014); EIA, Weekly U.S. Ending Stocks of Fuel Ethanol, *supra* note 20.

[29] *See* EIA, U.S. Exports of Fuel Ethanol, *supra* note 26.

[30] *See* EIA, Monthly U.S. Oxygenate Plant Production of Fuel Ethanol, http://www.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=m_epooxe_yop_nus_1&f=m (last modified Sept. 29, 2014). However, overall production increased over 800 percent between 2000 and 2014. *See* RFA, Battling for the Barrel: 2013 Ethanol Industry Outlook 3 (2013),

The number of firms producing ethanol has decreased slightly since last year's Report. As of September 2014, 148 firms produce or likely will 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, unchanged from its percent share in 2013.[32]

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

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

[31] *See supra* note 9.

[32] *See* 2013 Ethanol Report *supra* note 10, at 8.

[33] Energy Policy Act of 2005 § 1501, 119 Stat. 1074. A given market's HHI is the sum of the squares of the individual market shares of all market participants. 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.

[34] The Commission and the U.S. Department of Justice regularly use HHIs to measure concentration in a relevant antitrust market as part of their analysis of the likely effects of a merger or acquisition on competition in that market. *See* U.S. Department of Justice and Federal Trade Commission Horizontal Merger Guidelines (2010) ("Horizontal Merger Guidelines") § 5.3, *available at* http://ftc.gov/os/2010/08/ 100819hmg.pdf.

[35] A relevant antitrust market has both product and geographic aspects. A relevant product market is a product or group of products such that a hypothetical profit-maximizing firm that was the only seller of those products likely could profitably impose at least a small but significant and nontransitory increase in price ("SSNIP"). 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 relevant geographic market is a region such that a hypothetical profit-maximizing firm that was the only seller of the relevant product in that region likely could impose at least a SSNIP 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

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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 also 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. First, 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

ethanol production data the EIA collects, FTC staff provided to EIA staff the information

necessary to allocate market shares. [36] EIA staff performed each of the two HHI calculations

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narrow to be a relevant geographic market. *See* Horizontal Merger Guidelines, *supra* note 34,
§§4.1-4.2.
[36] For producers for which EIA maintains production data, FTC staff provided EIA with the
identity of those producers' marketers. EIA used this information, in conjunction with its own
data on ethanol production, to calculate the HHIs that attribute market share to marketers.

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[38] calculations described below, staff first calculated producers'

market shares based on their fuel ethanol production capacity.[39] 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

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[37] Because the production data are confidential, EIA staff did not disclose to FTC staff the
volumes of ethanol attributable to any individual producer or the 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 and 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, *supra* note 34, § 5.3.

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

[40] *See* Horizontal Merger Guidelines, *supra* note 34, § 5.2. In markets for homogeneous
products (such as ethanol), a firm may derive its 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. *Id.*

currently undergoing expansion.[41] Incorporating capacity from such projects into current market

share calculations is consistent with the approach set forth in the Horizontal Merger Guidelines.[42]

1.   *Attributing Market Shares to Producers*

Under the first approach to market concentration, staff allocated market share to each

producer based on the producer's percentage of total production capacity. This method of

calculation yielded an HHI of 333, a level regarded as unconcentrated under the Horizontal

Merger Guidelines.[43] This HHI is slightly higher from last year's HHI of 290.[44]

2.   *Attributing Market Shares to Marketers*

Many producers enter into marketing agreements with third parties to market their

ethanol to blenders and end users, while other producers sell their output directly. An ethanol

marketer may represent and make limited decisions for multiple individual producers, essentially

aggregating these producers' capacities under a single entity. For purposes of competitive

analysis, attributing production capacity to marketers rather than to the actual producers provides

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[41] Staff included the capacity of these plant construction and expansion projects only where the producer had finalized construction plans, received the necessary financing for construction, and begun physical construction.

[42] *See* Horizontal Merger Guidelines, *supra* note 34, § 5.1. Firms that are not currently producing but likely would respond rapidly in the event of a SSNIP have competitive significance even though they do not currently supply the relevant market. *Id.*

[43] Ethanol producers frequently announce capacity additions, new plants, plant sales, and cancellations of plans to build new capacity. These HHI calculations represent staff's best estimate of the industry's concentration as of September 2014, the cut-off date for our analysis unless otherwise indicated. This approach therefore excludes any more recent publicly available information that might be relevant to industry HHI calculations. These HHI calculations also might not capture the full complexity of industry ownership structures, especially the degree of control by minority interests held by marketers or third-party management service firms. However, the HHI resulting from allocating production to the marketer should capture any such complexity not reflected in the producer HHI.

[44] 2013 Ethanol Report, *supra* note 10, at 10. Some of the change to the HHI may be attributable to a producer's acquisition of another producer's facilities. In several instances, these acquisitions coincided with the restart or reconstruction of an idled facility. Some of the change to the HHI may also be attributable to excluding plants that were converted to other uses, formally closed, or judged unlikely to reopen in the near future.

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, unconcentrated 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 stated 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 and exit of firms, expansion of existing capacity, and variations in capacity utilization rates during the relevant period. Specifically, the production-based HHIs provided below do not fully reflect the deconcentrating impact of new facilities that began production during the last 12 months, nor do they fully reflect

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[45] Some marketers publicly announce new agreements with producers, providing staff with the information necessary to attribute a producer's market share to the correct marketing firm when appropriate. In some instances, staff was unable to determine whether a producer marketed for itself or used an outside marketing firm. In these instances, staff attributed market shares to the producers.

[46] 2013 Ethanol Report, *supra* note 10, at 11.

[47] Similarly, some ethanol producers may not be in a position to utilize their full plant capacity. Actual production may be a better indicator of their competitive significance in such cases.

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-based HHI calculated by attributing the market share of each producer to the firm that markets for that producer results in an HHI of 743, also slightly higher than the 2013 HHI of 687.[48]

C.   **Entry and Imports**

The U.S. ethanol industry is unconcentrated today, suggesting that any unilateral or coordinated attempt to exercise market power is highly unlikely. Should the industry become more concentrated, the possibility of new firms entering the domestic market and the responsiveness of ethanol imports to relative changes in domestic ethanol prices would likely provide additional constraints on anticompetitive behavior by domestic firms. Potential entrants can purchase and re-start existing production facilities that were either unfinished or idled due to recent economic conditions or design and build new plants to enter the market.

Additionally to the extent prices increase because of exercise of market power among a group of U.S. producers or marketers, it is likely that other producers would react by exporting less to take advantage of more favorable U.S. ethanol prices. Additional ethanol may also come

[48] *See* 2013 Ethanol Report, *supra* note 10, at 13.

into the United States as import levels respond to fluctuations in the price of U.S. ethanol relative

to foreign ethanol prices, particularly prices for sugar cane-based ethanol from Brazil.[49]

V.   Conclusion

Regardless of the particular measure of market share or 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.

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[49] The expiration of the ethanol import tariff of $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/LeafHandler.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 Concentration[50]

Concentration Based on Capacity	2013 HHI	2014 HHI
Shares attributed to each producer	290	333
Shares attributed to marketers for all marketing agreements	586	693
Concentration Based on Production	**2013 HHI**	**2014 HHI**
Shares attributed to each producer	328	343
Shares attributed to marketers 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.

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[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.
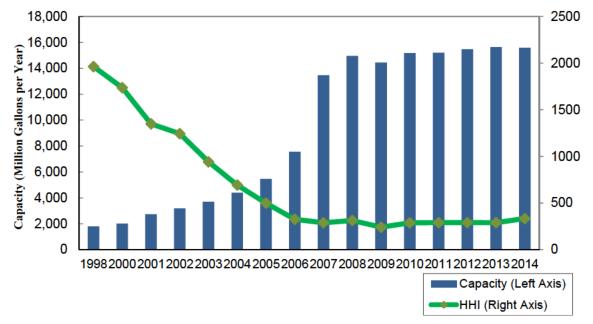
Figure 2: Historical Fuel Ethanol Capacity and HHIs

Note: Annual figures are for operable capacity and capacity under construction at year-end for 1998 to 2004, and as of October for 2005 to 2014*. The HHI figures shown are capacity-based, with market share attributed to the producer. (*Completion expected by mid-2015.)