<u>2013 Report on Ethanol Market Concentration</u>

I.   **Introduction**

This report presents the Federal Trade Commission's ("Commission" or "FTC")

concentration analysis of the ethanol production industry for 2013.[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 – and three different methods of allocating

those market shares. Based on production capacity, the HHIs for the domestic ethanol

production industry range from 290 to 586, depending on the method of market share allocation.

Based on actual production, the HHIs range from 328 to 687. Compared to the HHI levels in

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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/ftc/oilgas/competn_reports.htm. 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*.

2012, the level of concentration in the U.S. ethanol industry in 2013 is essentially unchanged. Three of the six HHIs for 2013 are lower (ranging from 4 to 22 points lower), one of the 2013 HHIs is one point higher, and two of the 2013 HHIs are the same.

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 2013 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 ease of entry would also act as a serious impediment to the exercise of market power by any group of domestic firms.

II.   Recent Industry Developments

Since 2005, Congress has required the domestic consumption of a minimum annual volume of renewable fuels, including ethanol blended into motor fuels (also known as fuel ethanol).[5] The Energy Policy Act of 2005 originally established this minimum, the Renewable Fuel Standard ("RFS"), and set out escalating annual requirements for 2006 through 2012.[6] In the Energy Independence and Security Act of 2007, Congress amended the RFS, significantly increasing the volume minimums – including a 2013 requirement of 16.55 billion gallons – and extending the annual mandate to a peak requirement of 36 billion gallons in 2022.[7]

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[5] This Report analyzes fuel ethanol, rather than all ethanol. Fuel ethanol and beverage-grade alcohol are not substitute products in consumption; fuel ethanol contains up to five percent denaturant (for example, natural gasoline), rendering it undrinkable and exempt from the beverage alcohol tax.
[6] Energy Policy Act of 2005 § 1501, 119 Stat. at 1069.
[7] Energy Independence and Security Act of 2007, 42 U.S.C. § 7545(o)(2)(B)(i)(I) (2013).

The EPA uses Renewable Identification Numbers ("RINs") to track compliance with the RFS. A unique RIN is assigned to each gallon of ethanol produced in or imported into the United States. Refiners or importers, as obligated parties under the statute, can meet RFS requirements by (1) blending ethanol themselves or (2) purchasing RINs (from another blender) generated in that year and the previous year. Up to 20 percent of the total renewable RFS requirements for a given year can be met with RINs generated in the previous year.[8]

Ethanol demand has increased each year since the FTC's first Report on Ethanol Market Concentration in 2005.[9] The industry blended 12.8 billion gallons of ethanol between July 2012 and June 2013, compared to 12.7 billion gallons blended in the prior 12 months.[10] However, ethanol consumption was below the RFS-mandated level for 2012 of 15.2 billion gallons. To meet the 2012 RFS, the industry used carryover RINs for the first time.[11] The industry will likely need to draw from banked RINs to meet the 2013 RFS.[12] Based on projections for future ethanol consumption, the EPA anticipates that it will need to adjust the 2014 RFS downward.[13]

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[8] *See* Department of Energy's Energy Information Administration ("EIA"), Today in Energy, RINs and RVOs are Used to Implement the Renewable Fuel Standard (June 3, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=11511.

[9] *See* EIA, Annual U.S. Refinery and Blender Net Input of Fuel Ethanol, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MFERIUS1&f=A (last modified Mar. 15, 2013).

[10] *See* EIA, Monthly U.S. Refinery and Blender Net Input of Fuel Ethanol, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=mferius1&f=m (last modified Aug. 29, 2013).

[11] *See* EIA, Today in Energy, U.S. Ethanol Production and the Renewable Fuel Standard RIN Bank (June 5, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=11551. Prior to 2012, U.S. ethanol production exceeded RFS-mandated levels, resulting in excess RINs that were banked for future compliance. *Id.*

[12] *See* EIA, Today in Energy, What Caused the Run-up in Ethanol RIN Prices During Early 2013? (June 13, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=11671.

[13] *See* 2013 Renewable Fuel Standards, 78 Fed. Reg. 49794, 49798 (Aug. 15, 2013) (to be codified at 40 C.F.R. pt. 80).

The annual RFS mandate for renewable fuels is increasing faster than the industry's ability to consume higher ethanol-gasoline blends and the growth in demand for gasoline containing 10 percent ethanol ("E10"). Today, nearly all gasoline sold in the United States is E10.[14] In 2012, the EPA approved gasoline blends that have 15 percent ethanol content ("E15") for vehicles built since the 2001 model year.[15] As explained in last year's 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 establishment of a distribution infrastructure – continue to limit consumption of E15. Additional infrastructure is also required to consume greater volumes of gasoline blends with up to 85 percent ethanol, known as E85.[17] The EIA projects that the average ethanol share of the gasoline pool will increase only modestly between 2012 and 2014, at levels insufficient to meet future RFS mandates.[18] The industry's limited ability to consume ethanol blends higher than E10 is known as the E10 blendwall.[19] Increases in motor gasoline consumption – and increases in the pool available for blending – are also falling short of the levels needed to meet annual increases in the RFS requirement.[20]

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[14] *See* EIA, Today in Energy, EPA Finalizes Renewable Fuel Standard for 2013; Additional Adjustments Expected in 2014 (Aug. 14, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=12531.

[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 (2012) ("2012 Ethanol Report").

[17] *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_AltTransportFuelStations-4.

[18] *See* EIA, Short-term Energy and Summer Fuels Outlook 10 (Apr. 2013), *available at* http://www.eia.gov/forecasts/steo/archives/apr13.pdf.

[19] *See* 2013 Renewable Fuel Standards, *supra* note 13, at 49809.

[20] *See* EIA, *supra* note 14.

As in prior years, fuel ethanol prices have been volatile throughout the reported period, leading to wide variations in margins. The industry faced a challenging production environment in the second half of 2012 and first half of 2013. A poor corn harvest in 2012 significantly increased corn prices, which increased input prices for ethanol producers.[21] This exacerbated an already tight margin environment caused by weak gasoline (and therefore ethanol) demand,[22] pre-existing high ethanol inventory levels,[23] and low-cost ethanol imports from Brazil.[24] Higher ethanol prices in the second half of 2012 failed to cover the rising costs for domestic ethanol plants lacking the equipment to recover other product streams such as corn oil. As margins reached break-even or negative values, domestic ethanol producers decreased production by reducing operating rates or temporarily idling plants.[25] As production (and inventory) levels fell, ethanol prices increased.[26] Ethanol margins increased in the first half of 2013, and production

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[21] *See* EIA, Today in Energy, 2012 Brief: U.S. Ethanol Prices and Production Lower Compared to 2011 (Jan. 31, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=9791.
[22] *Id.*
[23] *See* 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 Aug. 28, 2013). Ethanol producers were slow to decrease production after the expiration of VEETC on December 31, 2011. *See* 2012 Ethanol Report, *supra* note 16, at 6.
[24] *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 Aug. 29, 2013).
[25] *See* EIA, Today in Energy, Ethanol Producers Respond to Market Conditions (Mar. 11, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=10311.
[26] *See* 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); EIA, Weekly U.S. Ending Stocks of Fuel Ethanol, *supra* note 23; Iowa State University, Agricultural Marketing Resource Center, Tracking Ethanol Profitability, http://www.extension.iastate.edu/agdm/energy/xls/d1-10ethanolprofitability.xlsx (last modified Sept. 9, 2013).

levels increased as a result.[27] The industry anticipates that the corn harvest this year will be

abundant, resulting in lower input prices towards the end of this year.[28]

Additional capacity will be necessary to fulfill future RFS requirements, particularly for

advanced biofuels (defined as cellulosic ethanol and other biofuels derived from feedstocks other

than corn starch).[29] The total volumes of cellulosic production to date have been small as the

industry continues to face challenges in developing commercial-scale facilities. Consequently,

the EPA has set the cellulosic biofuel volumes for 2013 at a rate significantly below the statutory

levels. The EPA anticipates it will reduce the cellulosic biofuel volume for 2014.[30]

III.   Summary of Market Concentration Trends

Domestic ethanol production decreased since last year's Report, while production

capacity increased slightly. Domestic ethanol production decreased between eight and nine

percent for the July 2012 through June 2013 period, to 12.8 billion gallons from 14.0 billion

gallons for the prior 12 months.[31] Domestic ethanol production capacity (including capacity

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[27] *See* Iowa State University, Agricultural Marketing Resource Center, *supra* note 26; EIA, Weekly U.S. Oxygenate Plant Production of Fuel Ethanol, *supra* note 26.

[28] *See, e.g.*, United States Department of Agriculture, World Agricultural Supply and Demand Estimates 1-2 (Sept. 12, 2013), *available at* http://www.usda.gov/oce/commodity/wasde/latest.pdf.

[29] *See* Energy Independence and Security Act of 2007, 42 U.S.C. § 7545(o)(2)(B)(i)(II)-(IV) (2013) (setting specific volume requirements for cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable fuel).

[30] *See* 2013 Renewable Fuel Standards, *supra* note 13, at 49800-801, 49823.

[31] *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 Aug. 29, 2013). However, overall production increased about 800 percent between 2000 and 2012. *See* RFA, Battling for the Barrel: 2013 Ethanol Industry Outlook 3 (2013), *available at* http://ethanolrfa.org/page/-/PDFs/RFA%202013%20Ethanol%20Industry%20Outlook.pdf?nocdn=1.

under construction) increased slightly to approximately 15.6 billion gallons per year as of

September 2013, from approximately 15.5 billion gallons per year as of September 2012.[32]

The number of firms producing ethanol has increased slightly since last year's report. As

of September 2013, 156 firms currently produce ethanol or likely will begin producing ethanol

within the next 12 to 18 months, as compared to 154 firms in 2012. The largest ethanol

producer's share of domestic capacity is 10.9 percent, a slight decrease from its 11.1 percent

share in 2012 and below its share in prior years.[33]

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.[34] HHIs can provide a

snapshot of market concentration based upon the number of market participants and their

respective sales, production, or capacity.[35] An analysis of competition among market

participants using these HHIs assumes that the U.S. ethanol production industry is an appropriate

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[32] 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 Sept. 7, 2013).

[33] This figure is comparable to the largest producer's capacity share of 11.5 percent share in 2011 and 11 percent in 2008 and 2009. It remains below the largest producer's capacity shares of 16 percent in 2007, 21 percent in 2006, and 26 percent in 2005. *See* 2012 Ethanol Report, *supra* note 16, at 9.

[34] Energy Policy Act of 2005 § 1501, 119 Stat. at 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.

[35] 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.

antitrust market.[36] This assumption precludes consideration of a broader relevant product market 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.

As in previous years, this report presents six HHIs for the ethanol industry, calculated using two different measures of market share – production capacity and actual production – and three different methods of allocating those market shares. First, staff calculated the market shares based on domestic ethanol production capacity. 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). Second, EIA staff calculated market shares based on actual production, attributing the market shares in the same three ways. Due to the confidential nature of the ethanol production data the EIA collects, staff provided to EIA staff the information necessary to

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[36] 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 narrow to be a relevant geographic market. *See* Horizontal Merger Guidelines, *supra* note 35, §§ 4.1-4.2.

allocate market shares.[37] Using the methods described above, EIA staff performed each of the

three HHI calculations and provided the resulting production-based HHIs to staff.[38] 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.

The resulting HHIs for 2013 are either lower than or about the same as those staff

calculated for the 2012 Ethanol Report, indicating the market is essentially unchanged. The

2013 HHIs, like the 2012 HHIs, indicate that the domestic ethanol production industry is

unconcentrated.[39]

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 fuel ethanol production capacity.[40] Production capacity provides a useful

and easily confirmable indicator of a producer's competitive significance.[41] In determining the

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[37] For producers for which EIA maintains production data, FTC provided EIA with the identity of those producers' marketers and whether those producers entered into pooling agreements with their marketers. EIA used this information, in conjunction with its own data on ethanol production, to calculate the HHIs that attribute market share to marketers.

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

[39] 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 35, § 5.3.

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

[41] *See* Horizontal Merger Guidelines, *supra* note 35, § 5.2. In markets for homogeneous products (such as ethanol), a firm may derive its competitive significance primarily from its

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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 currently undergoing

expansion.[42] Incorporating capacity from such projects into current market share calculations is

consistent with the approach set forth in the Horizontal Merger Guidelines.[43]

1. *Attributing Market Shares to Producers*

Under the simplest 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 290, unconcentrated under the Horizontal Merger Guidelines.[44]

This HHI is unchanged from last year's HHI of 290.[45]

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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ability and incentive to increase production in the event of a competitor's price increase or output
reduction, *i.e.*, its available capacity. *Id.*

[42] 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.

[43] *See* Horizontal Merger Guidelines, *supra* note 35, § 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.*

[44] The market shares implicit in these HHI calculations may suggest an analytic precision that
does not reflect the rate of change in this industry, particularly as producers frequently announce
capacity additions, new plants, plant sales, and cancellations of plans to build new capacity.
Staff's HHI calculations represent staff's best estimate of the industry's concentration as of
September 2013, the cut-off date for our analysis unless otherwise indicated. This approach
therefore excludes any more recent publicly available information.

[45] 2012 Ethanol Report, *supra* note 16, at 13.

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.[46]

This approach yields an HHI of 586, unconcentrated under the Horizontal Merger Guidelines. This HHI is lower than the corresponding HHI of 608 in 2012.[47]

3. *Attributing Market Shares to Marketers with Pooling Agreements*

Under a pooling agreement, the marketing firm sells its client producers' volumes in common rather than individually, which allows the marketing firm to make decisions that are more significant for its client producers than under a traditional marketing agreement. Each producer receives a prorated share from the common revenue pool based on the volumes it contributes.[48] Each producer under a pooling agreement receives purchase offers only from its marketer, which also represents other producers. By contrast, under a non-pooling marketing arrangement, the marketer sells its producers' volumes on a plant-specific basis and can present each producer with offers from multiple buyers.

Because individual producers within a pooling arrangement do not participate directly in negotiating the sale of their output, competition among the members of a given pool is limited, if present at all. Buyers deal only with the single marketer, which then allocates the production capacity within its client portfolio to fulfill its output obligations. Therefore, attributing production capacity to marketers only for those producers in pooling arrangements may capture

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[46] 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.

[47] 2012 Ethanol Report, *supra* note 16, at 14.

[48] Although the specific terms of pool marketing agreements vary, pool marketers generally assign a client plant or plants to fulfill sales obligation to specific customers. The output from each plant generally earns an identical return, sometimes adjusted to reflect the cost of transportation from a plant to its output's destination.

more accurately the competitive significance of firms in the ethanol industry. Under this

allocation approach, production volumes sold under non-pooling marketing arrangements

contribute to the producer's market share rather than to the non-pool marketer's share. Measured

in this way, the HHI is 321, unconcentrated under the Horizontal Merger Guidelines. This HHI

represents a slight decrease from last year's HHI of 325.[49]

B.   **Concentration with Market Shares Based on Actual Production**

At staff's request, EIA staff calculated industry concentration using market shares based

on confidential information about market participants' production volumes over the past year.

Firms that produce over 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.[50] In this respect, actual production may reflect a market participant's competitive

significance more accurately than would its plants' capacities.

There are some limitations to the accuracy of HHIs based on actual production, just as

there are limitations to HHIs based on production capacity. 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

time frame. Specifically, the production-based HHIs provided below do not fully reflect the

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[49] 2012 Ethanol Report, *supra* note 16, at 15.
[50] Similarly, some ethanol producers may not be in a position to utilize their full plant capacity, and in such cases, actual production may be a better indicator of their competitive significance.

deconcentrating impact of new facilities that began production during the last 12 months, nor do

they fully reflect 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.

EIA staff provided FTC staff with the final production-based HHIs contained in this

report. These production-based HHIs reflect actual production volumes from July 2012 through

June 2013. Where EIA attributed the actual production market share directly to individual

producers, the resulting HHI is 328, unchanged from the 2012 HHI. 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 687, virtually unchanged from the 2012 HHI of 686. Attributing a

producer's market shares to its marketing firm only when the marketing is pursuant to a pooling

agreement yields an HHI of 359. This HHI is lower than the HHI of 368 in last year's report.[51]

C.   Ease of Entry and Imports

Today, the U.S. ethanol industry is unconcentrated, suggesting that any unilateral or

coordinated attempt to exercise market power is highly unlikely. Should the industry become

more concentrated in the future, the ease with which new firms can enter the domestic market

and the responsiveness of ethanol imports to relative changes in domestic ethanol prices likely

would constrain anticompetitive behavior by domestic firms.

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[51] *See* 2012 Ethanol Report, *supra* note 16, at 17.

The U.S. ethanol production industry lacks significant barriers to entry. Potential entrants can purchase and re-start existing production facilities that are currently idle, some of which are idle due to recent economic conditions. An increase in supply resulting from new entry likely would make any exercise of market power unsustainable.

The probable influx of ethanol imports also likely would restrain any potential exercise of market power by any domestic firm or group of firms. Ethanol import levels are responsive to fluctuations in the price of U.S. ethanol relative to foreign ethanol prices, particularly prices for sugar cane-based ethanol from Brazil. 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.[52] 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.[53] If U.S. ethanol prices were to increase due to the exercise of market power by a domestic firm or group of firms, import volumes would likely increase and render that price increase unsustainable.

V.   Conclusion

Ethanol production has remained unconcentrated over the last year. Regardless of the particular measure of market share or the market share allocation method used to calculate concentration, the low concentration levels that characterize the U.S. ethanol production industry have persisted. The industry is less concentrated today than it was at the time of the first Report on Ethanol Market Concentration in 2005, and five of this year's six HHI calculations either are the same as or slightly lower than last year's HHI calculations. Furthermore, the ease of entry

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[52] *See* 2013 Renewable Fuel Standards, *supra* note 13, at 49818.
[53] *See* EIA, *supra* note 24; 2013 Renewable Fuel Standards, *supra* note 13, at 49818.

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.

Figure 1: Domestic Fuel Ethanol Concentration[54]

Concentration Based on Capacity	2012 HHI	2013 HHI
Shares attributed to each producer	290	290
Shares attributed to marketers for all marketing agreements	608	586
Shares attributed to marketers only for pooling agreements	325	321
Concentration Based on Production	**2012 HHI**	**2013 HHI**
Shares attributed to each producer	328	328
Shares attributed to marketers for all marketing agreements	686	687
Shares attributed to marketers only for pooling agreements	368	359

Source: Production HHIs from EIA
Note: Capacity for 2012 includes the current capacity as of September 2012 and the capacity additions under construction and expected to be completed within 12 to 18 months after September 2012. 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. Production data for 2012 are from July 2011 through June 2012, and production data for 2013 are from July 2012 through June 2013.

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[54] As discussed in note 39, *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 35, § 5.3.

Figure 2: Historical Fuel Ethanol Capacity and HHIs
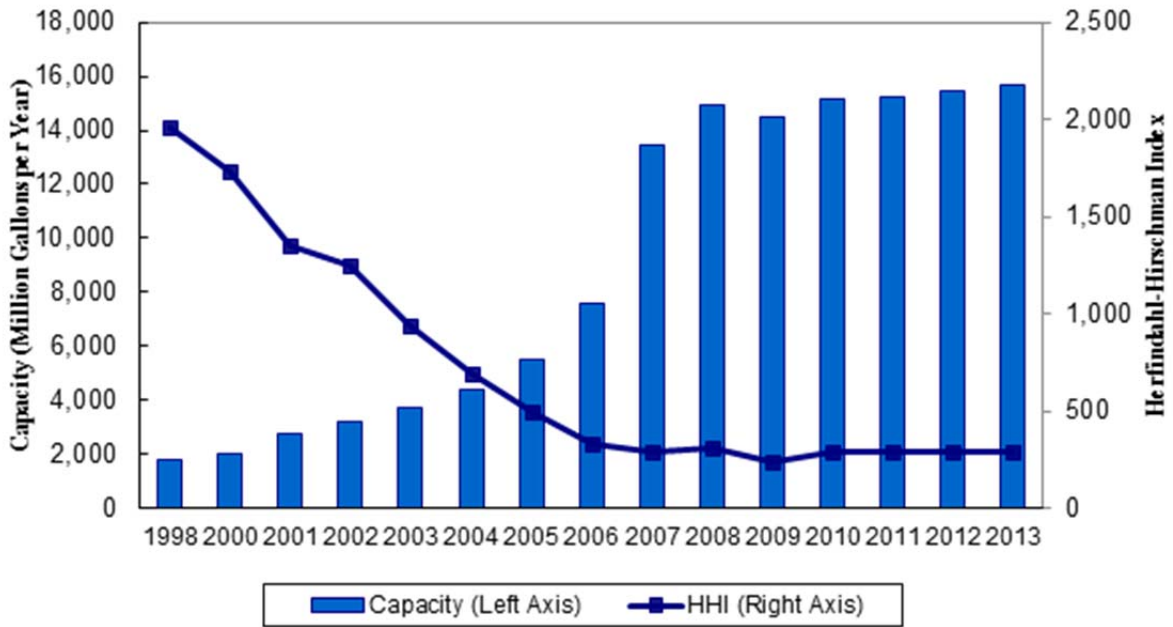
Note: Annual figures are for operating capacity and capacity under construction at year-end for 1998 to 2004, and as of October for 2005 to 2013. The HHI figures shown are capacity-based, with market share attributed to the producer.