Report on Ethanol Market Concentration

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Federal Trade Commission

transport ethanol by rail or truck to product terminals, where they blend it with gasoline for further downstream sale.

Several factors account for the recent increase in ethanol production and demand.

blenders, and importers must contain 4 billion gallons of renewable fuel, such as ethanol or biodiesel. The volume requirement increases annually, reaching 7.5 billion gallons by 2012. Although ethanol sales will likely exceed these requirements in the short term, the Energy Policy Act's guarantee of certain renewable fuel sales provides additional incentives for producers to build new ethanol production capacity.

II. Measuring Concentration Using Capacity

The Energy Policy Act requires the Commission to analyze ethanol production using the HHI measurement of market concentration. The HHI is a tool that the Commission and the Department of Justice use in reviewing the competitive effects of me

This analysis begins with the assumption, implicit in the Energy Policy Act's study requirement, that U.S. fuel ethanol

This analysis also is based on the assumption that the geographic market is the United States.[12] However, to the extent staff did not account for the effect of imported ethanol, the HHIs again overstate concentration in the industry. Many Western Hemisphere countries produce ethanol, and over 140 million gallons were imported into the United States in 2004. Imported volumes vary according to ethanol prices, and while imports are a small share of U.S. production, imported ethanol may become more significant in the event of a U.S. ethanol price increase. The federal tariff does not always make foreign ethanol uneconomic to import, because the Caribbean Basin Initiative, CAFTA, NAFTA, and other free trade agreements may affect the tariff's applicability.

Assuming that ethanol constitutes a product market, staff calculated HHIs in several different ways. First, staff calculated HHIs based on the ethanol productive capacity of each individual producing firm. The results are discussed in this section. Staff also calculated capacity-based HHIs that attributed producers' capacities to their common marketer. Those results are discussed in Section III. Finally, staff cross-checked these calculations by

(producers manufacture chemically-identical ethanol), a firm's capacity likely is the best indication of its competitiveness.[13]

To determine the productive capacity of each ethanol plant, staff relied upon publicly available information supplemented by interviews

If each producer is allocated capacity based on this approach, staff determined that the HHI for U.S. fuel ethanol capacity would be 499, or "unconcentrated" under the Horizontal Merger Guidelines.

III. Measuring Concentrat

pooling agreement may be treated as reducing the number of bidders that could supply the customer. In this light, each of the producers' volumes might be attributed to the common marketer that acts as the sole "bidder" in their stead. On the other hand, because marketers have no control over a producer's output decision, a producer may have an incentive to boost production in the event of an increase in ethanol prices, and thereby may undercut the pool price as the marketer is forced to find additional buyers at potentially lower prices. This suggests that even in the pooling context producers might best be considered as independent firms.

Given the highly fact-specific nature of market analysis, staff cannot determine with certainty the effect of each marketing agreement in the industry. Staff therefore calculated HHIs by attributing all producers' shares to their marketer, regardless of whether the marketing agreement involves pooling volumes. This approach, which results in the highest level of concentration, yields an HHI of 1259, or "moderately concentrated" under the Horizontal Merger Guidelines. Staff alternatively calculated HHIs that attributed shares to marketers only when they had pooling arrangements with their producers. For producers using non-pooling arrangements, we attributed the market shares to the producers themselves. Using this approach, staff determined that the HHI was 813, or "unconcentrated" under the Horizontal Merger Guidelines.

IV. Measuring Concentration Using Production

As stated in § 1.5 of the Horizontal Merger Guidelines, the HHI analysis "suggest[s] greater precision than is possible with the available economic tools and information." Although staff believes capacity is a good indicator of concentration in this industry, staff also identified limitations on the capacity-based HHI analysis, which are outlined below. Thus, as a means of

cross-checking these conclusions, staff also performed an HHI analysis using ethanol production data.

Ethanol plant capacity is difficult to measure with absolute precision. Most industry participants report capacity based on "guaranteed" or name-plate capacity. Typically, a builder constructs an ethanol plant that is designed or guaranteed to produce a certain volume of ethanol. In this industry, the guaranteed amount often falls below the volume the plant can actually produce. Moreover, as the producer gains expertise in running the plant, adopts new technologies, and improves the production process, the plant's actual capacity will tend to exceed its rated capacity. It is not uncommon for ethanol plants to run 10 to 15 percent higher than their stated capacities.

To test the conclusions of the capacity-based HHI analysis, staff performed a parallel analysis using ethanol production data. Every month, EIA collects confidential non-public information on production of oxygenates such as ethanol and MTBE. Oxygenate producers with production over 8 million gallons must report to EIA their monthly production volumes by product. EIA agreed to calculate the HHI data based on annual production from July 2004 through June 2005, following the same attribution methods outlined above. To maintain its confidentiality obligations, EIA reported only the final HHI numbers and did not disclose to us the volumes of ethanol attributed to each producer.

Figure 1 indicates that HHIs based on production are higher than HHIs based on capacity. Using the "all producer" model, in which volumes are attributed to each producer, the HHI for ethanol production is 929, which is still "unconcentrated." Using the "all marketer" model, in

which producers' volumes are attributed to their common marketers, the HHI for ethanol production is 1613, or "moderately concentrated."[14]

Figure 1: Domestic Fuel Ethanol Concentration

Treatment of Marketing Agreements	HHI Based on Capacity	HHI Based on Production
Attribute capacity/production to the producer	499	929
Attribute capacity/production from members of pool marketing agreements to marketer, otherwise to producer	813	1221
Attribute capacity/production from members of all marketing agreements to marketer, otherwise to producer	1259	1613

Source: RFA, EIA
Note: Capacity includes new construction and expansions anticipated within one year. Production is from July 2004 to June 2005.

The production-based HHIs in Figure 1 present "worst case" market concentration scenarios for each method of treating marketing agreements. Because they are based on historical data, the production-based HHIs likely overstate the HHIs that will prevail in the near future. Production data do not fully account for entrants that may have begun ethanol production sometime during the period measured by EIA. Production data also do not account for capacity expansions that will produce marketable volumes within the next year. The ethanol industry is growing rapidly, with new entrants lowering concentration over time. The production-based HHIs help demonstrate the impact of entry. Indeed, if staff looked at concentration based solely on capacity of plants operating at the end of 2004, these figures would be very similar to the EIA production-based HHIs.[15]

[14] If producers' volumes are a

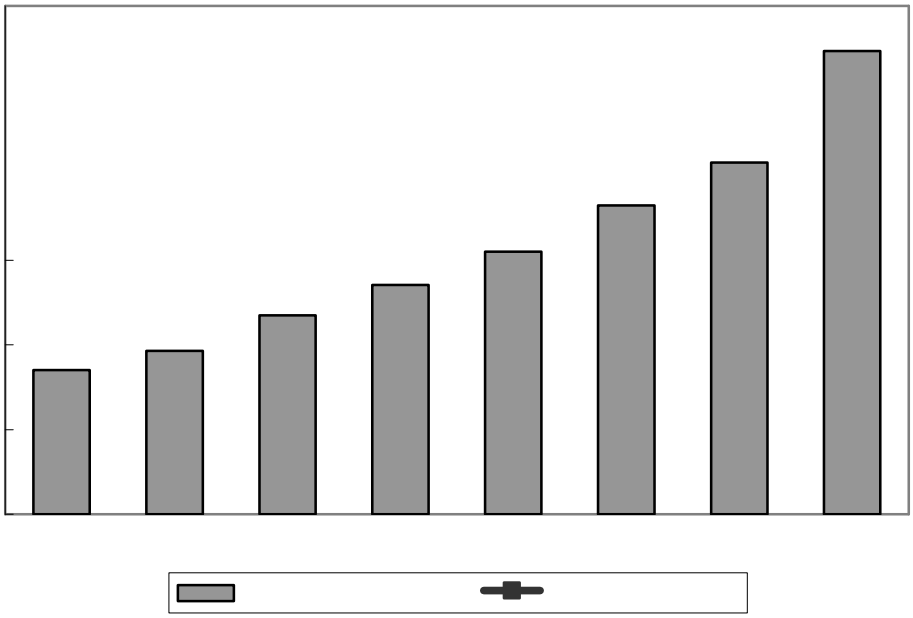
V. The Effect of Entry

The likelihood and magnitude of entry into ethanol production and marketing further affect the potential for anticompetitive behavior in the ethanol industry. The threat of competitively significant entry can deter anticompetitive conduct by reducing the likelihood that one firm (or several firms acting in concert) could profitably raise prices above competitive levels. This is consistent with the approach in § 3.0 of the Horizontal Merger Guidelines, which instructs that "[a] merger is not likely to create or enhance market power or to facilitate its exercise, if entry into the market is so easy that market participants, after the merger, either collectively or unilaterally could not profitably maintain a price increase above premerger levels." The Guidelines generally consider relevant only entry that can occur within a two-year window from initial planning to significant market impact.

Entry into ethanol production and marketing has been active and ongoing. Since late 1998, the number of ethanol producers has grown from 38 to 75. An additional 18 new firms are building new plants that should begin production within the next year. These firms collectively will add 937 million gallons to annual capacity. Incumbent firms are also expanding capacity, both at existing plants and by constructing new plants. As a result of entry and expansion, annual productive capacity has increased from 1.7 billion gallons at the end of 1998, to a projected 5.5 billion gallons by this time next year. Figure 2 shows the growth in U.S. fuel ethanol capacity since late 1998, as well as the impact that this growth has had on industry

concentration.

Figure 2: Historical Fuel Ethanol Capacity and HHIs



a new entrant would not need to rely on current ethanol producers for any of the key inputs for building or operating a new plant.

Barriers to entry at the marketing level appear low as well, as new marketers have entered within the past several years and several more seem poised to do so. Entry seems particularly likely from former marketers of petroleum products or additives (such as MTBE) that can parlay their petroleum industry expertise into ethanol marketing. Some new ethanol plants that market their own ethanol production have entered recently as well.

As an indicator of the risk of anticompetitive conduct in the industry, the HHIs fail to account for the ease and rate of entry into ethanol production and marketing. Because it likely diminishes the incentives for market participants to engage in certain anticompetitive conduct such as cartel pricing, potential entry limits whatever competitive significance one might derive from a particular HHI figure.

VI. Conclusions

The level of concentration in ethanol production would be unlikely to provide the opportunity or incentive for one or more firms to act anticompetitively. Various HHI calculations fell into the "unconcentrated" or "moderately concentrated" range, and new entry and other market factors reduce the significance of even these figures. Nevertheless, staff cannot exclude the possibility that future mergers may raise the potential for anticompetitive effects on segments or aspects of the industry. Given the highly fact-intensive nature of merger review, a merger may raise issues that warrant further investigation or enforcement action.