

# E85: A Tale of Two Markets

A look at disparate price and availability  
according to retail station brand

Since RIN prices began to rise in 2013, the nationwide average discount for E85 (vs. E10) at independent stations has been 14% or greater for all but one month. During the same period, the nationwide average discount for E85 at major-branded stations reached 14% only once.



## OVERVIEW

As EPA considers the volume requirements for the renewable fuel standard (RFS), the potential for growth in consumer demand for E85 is an important variable. Available market data strongly suggest there are two distinct E85 retail markets in the United States. In order to be accurate, EPA's assessment of future E85 market growth must incorporate consideration of this market pattern. E85 is more attractively priced and more often available at independent fuel retail outlets than at major oil company branded stations. This paper reports, but does not attempt to explain, the market factors driving disparate treatment of E85 by store brand.

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## DISCUSSION

While each of us is likely to have preferences of where to refuel our cars, the distinctions between retail fuel outlets tend to be small differences of price or convenience, etc. So, it is notable to find a stark trend that clearly separates fuel retailing practices. With regard to E85, we find two distinct patterns.

- 1) E85 is four times more likely to be sold at an independent-brand retail station than a major oil company branded station.
- 2) Rising RIN prices tend to coincide with lower E85 prices only at independent-brand retail stations, while major-brand retail stations exhibit little or no E85 price differentiation vs. E10.

Significant factors limit our ability to fully understand the reasons for these patterns. Most major oil company branded stations are franchise operations with, presumably, independent owners. We neither have access to complete data for sales and contractual structures within the fuel industry, nor do we have sales volume data separated by station brand. Lastly, there are only 3,300 stations selling E85 nationwide, and our primary data source is the archives of [www.e85prices.com](http://www.e85prices.com).

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Despite these limitations, the pricing and availability patterns are remarkably consistent from state to state and from month to month where data is available. It is this consistency that convinces us EPA should consider these distinct major vs. independent retail behaviors as it attempts to establish a reasonable estimate for future E85 demand growth.

E85 pumps are disproportionately found among independent fuel retailers compared with retail outlets affiliated with a major oil company brand. When E85 is made available at major-oil-company-branded retail outlets, its price relative to conventional E10 at the same station is consistently higher than the price of E85 sold at independent stations relative to the E10 sold at those locations. In short, E85 is not often made available by major-branded outlets, and tends to be expensive when it is.

In our view, it is inappropriate for EPA to use national estimates for pricing, availability and demand for E85. Doing so will lead to artificially reduced assumptions regarding potential consumer demand because pricing at stations varies meaningfully from the average. Consumers at independent stations – which comprise 80% of the available E85 pumps – will be far more likely to choose E85 because of the significant pricing delta vs. gasoline when RIN prices are high. We expect that, if EPA investigates E85 sales growth by station during the 2013 run-up in RIN prices, it will be able to validate that assertion.



## E85 AND RIN GENERATION

Because E85 at major-branded stations tends to track E10 prices, relying on national pricing averages to estimate E85 retail demand will indicate a much weaker price signal to consumers than consumers are actually seeing at local independent stations. Consequently, future demand estimates would be artificially reduced and would suggest modest E85 demand growth even as RIN prices rise. Analyzing retail pricing separated by brand during high RIN price scenarios would tend to suggest flat growth at major-brand stations and significant demand growth at independent stations.

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In considering the appropriate levels for the annual renewable volume obligations (RVO) under the RFS, an important consideration for EPA is the rate at which E85 consumption might increase. The RFS is designed, in part, to rely upon price signals in the marketplace to increase demand and consumption of renewable fuels. It is generally expected that as the prices rise for the RINs (the means of compliance with the RFS), renewable fuel prices for consumers should fall accordingly. RIN

prices should settle at market levels necessary to make renewable fuels sufficiently attractive to ensure demand matches the needed levels of RIN generation. The data in this report suggest that the impact of price signals at independent stations may be far stronger than at stations under major oil company branded canopies.

In the case of E85, pricing at independent stations should promote increased RIN generation. At major-branded stations, where E85 is priced higher than E10 on an energy basis, pricing would suppress RIN generation. EPA has publically discussed its concern that E85 fueling infrastructure will limit consumption. Clearly, consumers cannot fill up on E85 if it is not locally available. But consumer demand should be the primary driver of an expansion of E85 availability. Where E85 is attractively priced, demand should increase. Where demand is increasing, we would expect infrastructure investments to follow, thus enabling retailers to respond to rising demand for a fuel that can also deliver higher marginal profits.

Examining E85 retail behavior by region – or even by state – masks the most compelling retail information. As the data displayed below indicate, to gain an accurate understanding of the potential for E85 growth, EPA must look at market trends segregated by the commercial brand identity of the retail station within an area.

## AVAILABILITY

Roughly half of all retail fueling stations in the United States operate under a canopy bearing the brand of a major petroleum or refining company. The other half operate under what we loosely refer to as “independent” brands and logos. Of the 3,297 retail stations offering E85, 80% are offered under an independent canopy as compared to the 20% offered under a major canopy. Put another way, of the 152,995 retail fuel stations in the United States,

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2.2% offer E85, but less than .005% offer E85 under a major-brand canopy. It is not clear from the available data why this trend exists, and this paper attempts only to describe – not explain – what is taking place in the market.

### PRICING

In addition to considerable differences in the availability of E85 by station brand, there appears to be a sustained difference in pricing of E85 at major-brand and independent retail stations.

During the recent period of high RIN prices, the same-station discount for E85 relative to E10 was consistently steeper at independent stations than at major-brand stations. As the chart below illustrates, since RIN prices began to rise in 2013, the nationwide average discount for E85 (vs. E10) at independent stations has been 14% or greater for all but one month. During the same period, the nationwide average discount for E85 at major-branded stations reached 14% only once. This discount is purely a price comparison and does not factor in the relative energy content of the fuels. As long as there is limited availability and unattractive pricing at *major-branded stations*, low E85 demand likely will persist among consumers using those stations.

The data source for these comparisons is the archives of E85prices.com. We would prefer to have had more robust and complete data. That said, the data revealed a national trend that persisted every month since RIN prices began to rise in early 2013. The trend was evident and consistent at the national and the state level. The constancy of these results leads us to believe that the trend reflects a marketplace reality, and is not a byproduct of the limitations of the data found on www.E85prices.com.

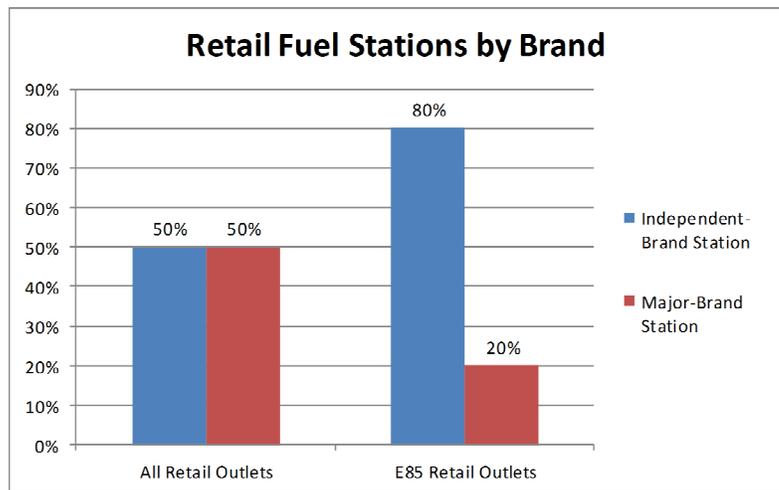


Fig. 1: E85 Is More Likely to Be Found at an Independent Retail Outlet

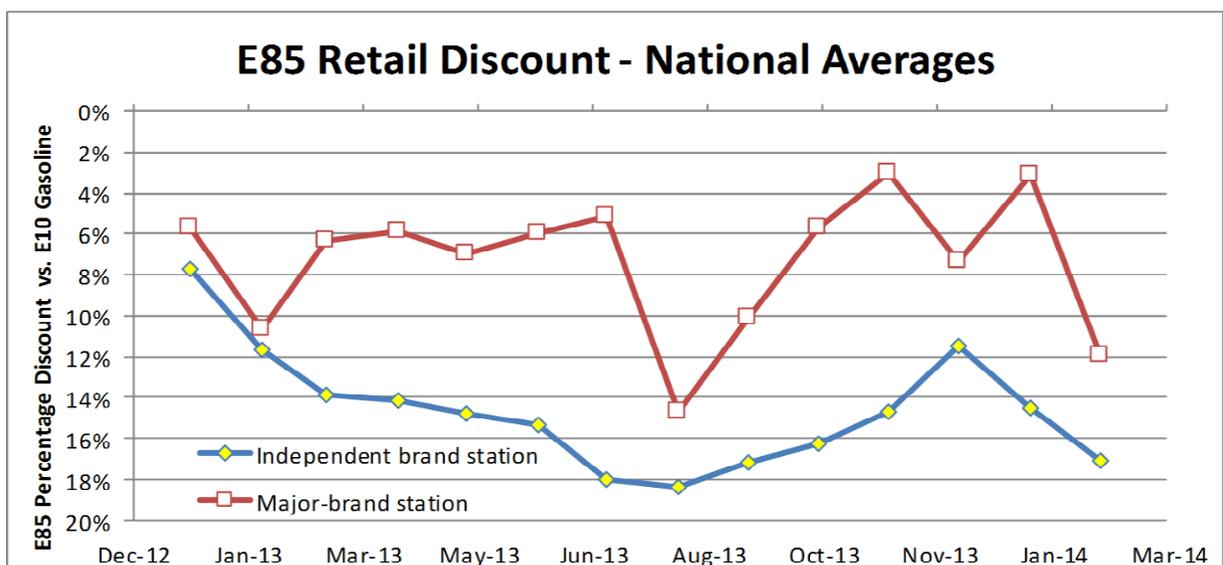


Fig. 2: Discounts for E85 Are Consistently Steeper at Independent Retail Stations

## IMPLICATIONS FOR EPA’S ANALYSIS OF E85 MARKET POTENTIAL

Given that consumer demand and acceptance of E85 are central issues for EPA when considering the RVOs for 2014, 2015, and beyond, we believe that this two-tiered E85 market should be examined as a potentially important factor in future E85 consumption. High prices and limited availability, whatever their cause, will surely limit consumer demand for the fuel. EPA ought to consider refining its assessment of the growth potential for E85 in a manner that separates its forecasts into discrete projections for “independent” and “major” retail outlets. Assuming the persistence of stark differences in availability and price among major and independent stations, the growth in E85 consumption could follow entirely separate trajectories in these two distinct markets.

Working with nationwide averages of price and availability will skew EPA’s assessments by giving an impression of less attractive pricing overall. Consumers make their purchasing decisions at specific retail stations, without regard to national pricing averages. EPA should not overlook the probability that motorists with flex fuel vehicles will choose E85 when at an independent station more often than when at a major-branded station.

EPA may be in a position to analyze more complete data, and in doing so, consider the past sales volume increases or decreases according to retail station identity. Assuming normal consumer response to prices and availability, we would expect EPA will find that, as E85 prices fall at independent retail stations, demand rises accordingly. If EPA limits itself to observing changes in consumer demand on a national or state level, without regard to retailer brand category, it is likely that the consumer response to increasing RIN prices would appear far more muted. Currently, we do not possess the data or the resources to undertake an analysis of this scope. However we believe such an analysis is essential to EPA’s understanding of the interactions of E85 and RIN pricing.

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### STATE-SPECIFIC DATA

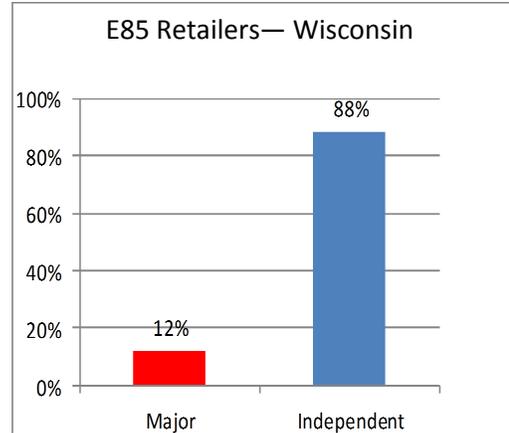
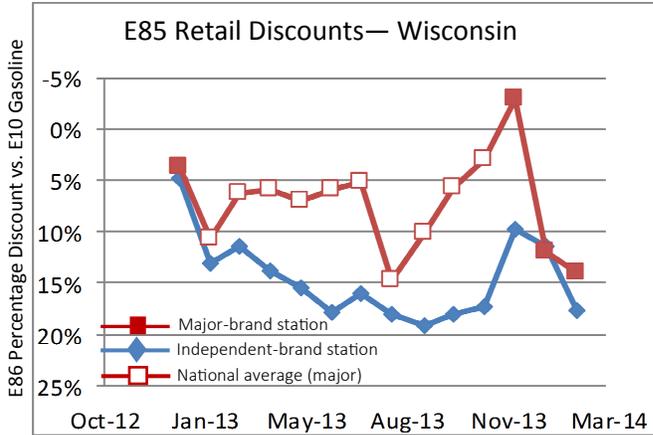
Using data for individual states, the gap persists between E85 prices at major and Independent stations. The following charts represent the states for which a reasonable amount of data was available. To address some gaps in the data, national averages are used when state-specific data was not available or was insufficient. White data points on the red line indicate national averages at major -branded stations. Yellow data points on the blue line indicate the national average for that month for independent-branded stations.

NOTE ON DATA  
Much of the information in the following charts was culled from the website, E85Prices.com. Information from other sources was used as well, including Department of Energy, U.S. Census, and The National Association for Convenience and Fuel Retailing. We chose to rely on the data from E85Prices.com because it was the most complete and current available to the public. Because the site’s primary function is to provide retail consumers with real-time price and availability information, their data can be updated on a daily basis, thereby providing a current database from which to work. Many other sites listing price and availability information had yet to publish data from the previous year or even earlier.



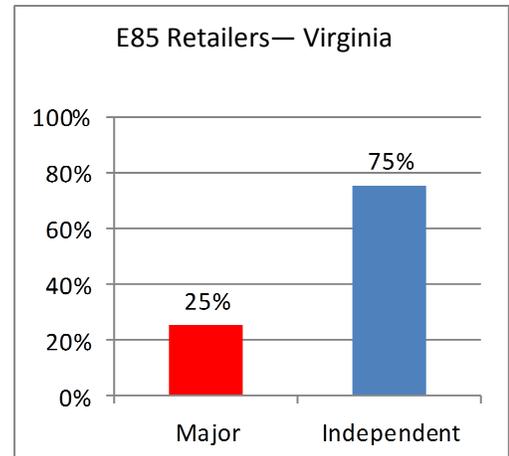
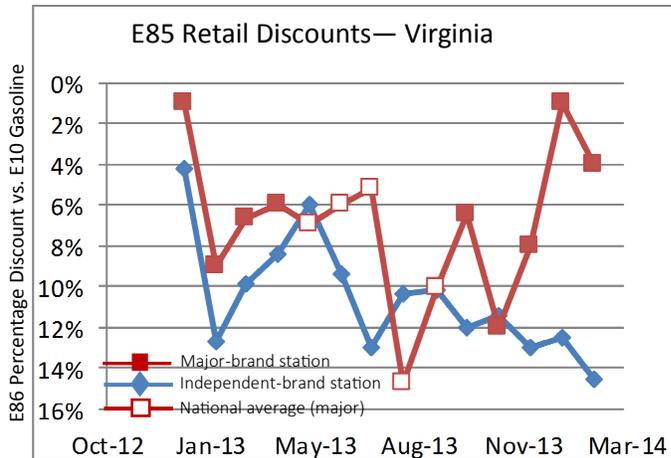
## WISCONSIN

There were relatively few months for which data was available for major-branded station prices in Wisconsin. This may be partly due to the limited number of major-branded stations selling E85. Across the state, 155 independent retail stations offer E85 vs. 22 major-branded stations with E85 pumps.



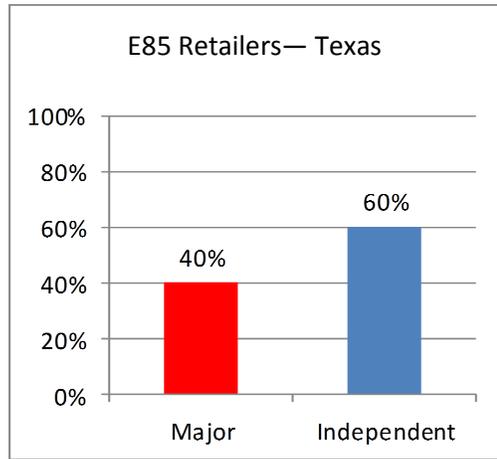
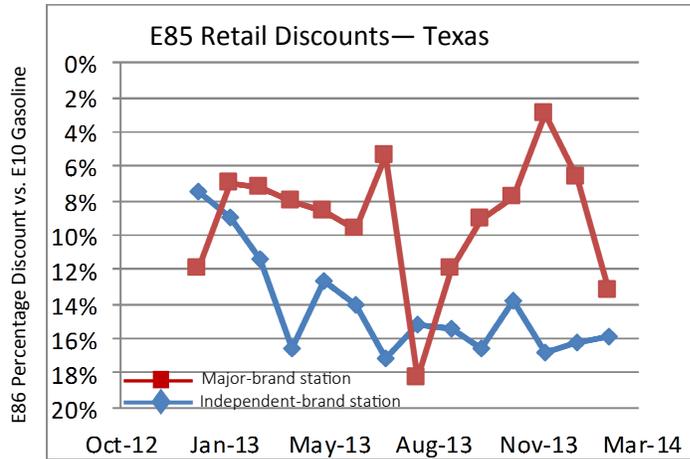
## VIRGINIA

While pricing discrepancies in Virginia were often smaller than in other states, the trend of larger discounts for E85 at independent stations still held. The state's availability of E85 by station brand was close to the national average.



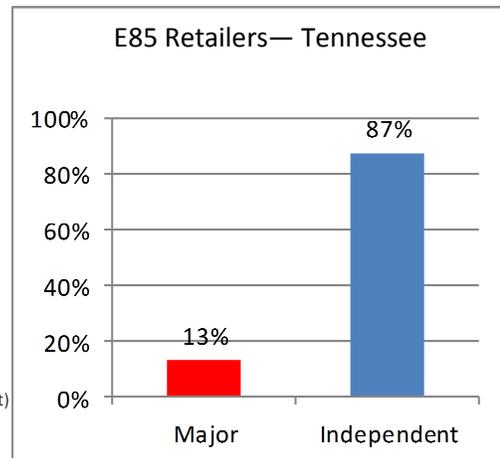
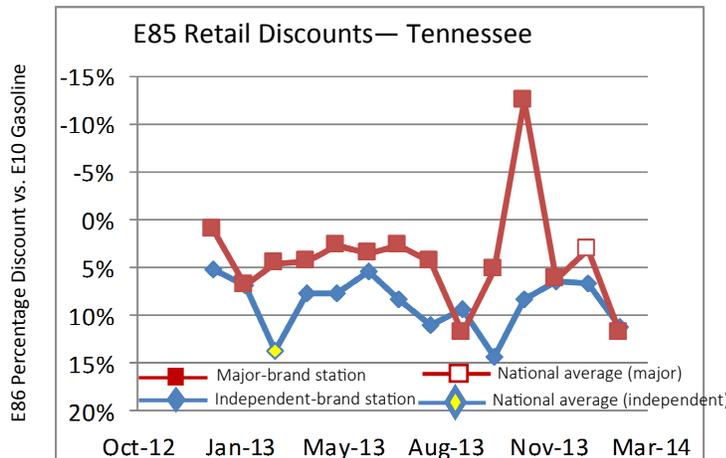
## TEXAS

Before the run-up in RIN prices, Texas E85 prices at independent stations were actually less favorable for E85 than those at the major-branded stations. As RIN prices rose, E85 quickly came to be far more attractively priced at the few independent retail stations in Texas. Texas and Georgia have the smallest discrepancy of E85 availability by brand.



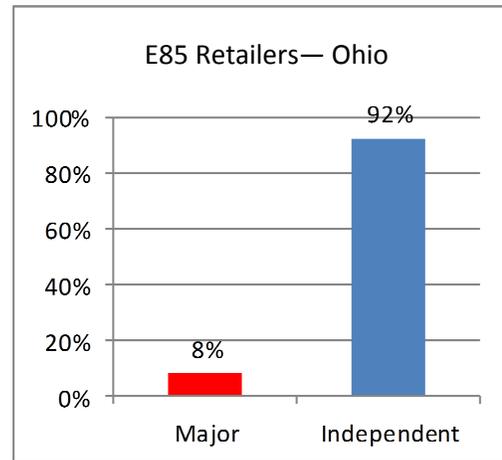
## TENNESSEE

While the discount offered for E85 at major-branded stations in Tennessee was often close to that at independent stations, only once was the price discount at major stations better than that offered at the independent stations.



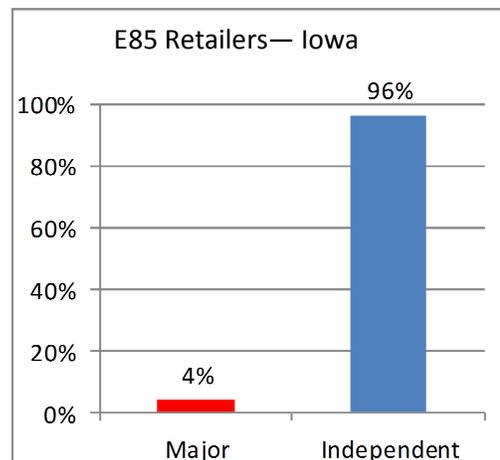
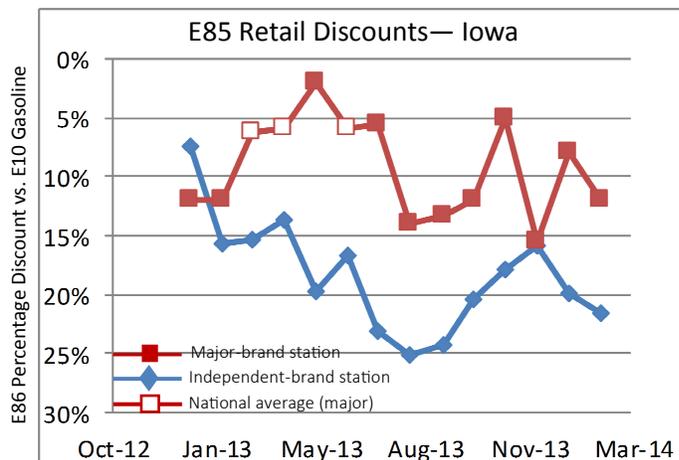
## OHIO

The gap in discounts offered in Ohio was truly stark at times. Major-branded stations offered *almost no discount* for E85 on several occasions when the independent stations were selling E85 at more than a *20 percent discount* to their prices for E10.



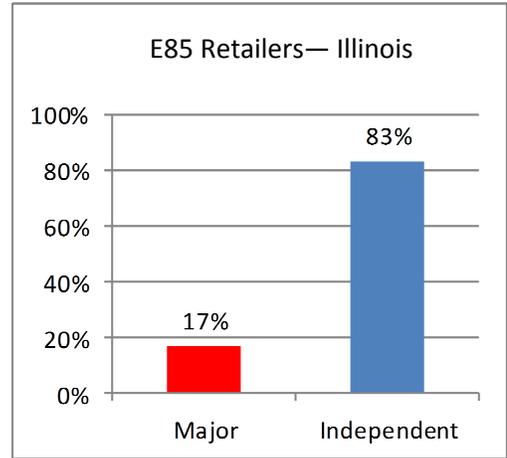
## IOWA

At times, the discount for E85 at Iowa's independent stations was *three times* that offered at its major-branded stations. The discounts offered at major-branded and independent stations converged only one time since RIN prices began to rise in 2013, and at no time since January 2013 was E85 less expensive at major-branded stations.



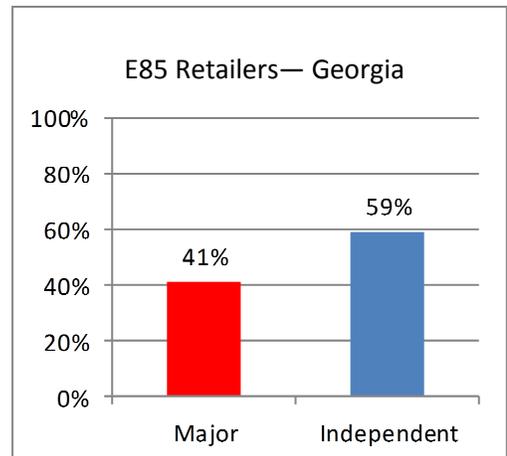
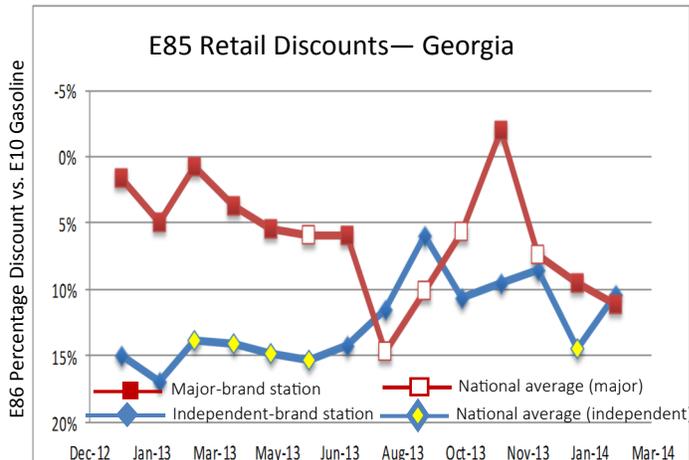
## ILLINOIS

The discount offered for E85 at major-branded stations in Illinois has moved mostly in a fairly narrow range between 5 and 10 percent. Meanwhile, the discount offered for E85 at independent stations in the state seemed to closely track the movements of RIN prices, creating discounts greater than 25% for a period of time.



## GEORGIA

The price data available for Georgia was spotty, but sufficient to include in this document. It is worth noting that, of the states included, Georgia has the smallest discrepancy of availability between major and independent stations. Still, for those months where state E85 data is available for both independent and major-branded stations, the pricing trend appears to hold.



AJW's work focuses on enhancing market opportunities and removing market barriers for innovative technologies.

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