The biofuels market in the United States continues to expand, with nearly every gallon of gasoline sold in 2015 containing 10% ethanol. Supported in part by the federal Renewable Fuel Standard (RFS), the ethanol and biodiesel industry have continued to increase production and market penetration. The targets established by the RFS, however, cannot be satisfied without increasing biofuel blends beyond the traditional 10% for ethanol and the 2%–5% for biodiesel. One option for contributing additional volumes towards compliance is the alternative fuel E85. However, because E85 delivers less energy per gallon than unleaded, its price is a critical factor in driving consumer demand.

The Fuels Institute issued its first analysis of the E85 retail market in 2014 which found that the most successful E85 retailers in that sample were pricing E85 about $0.45 per gallon below unleaded and E85 sales volume was averaging about 2.9% of unleaded volume. During that analytical period, unleaded was selling for an average of $3.49 per gallon at retail. Following the report’s release, retail gasoline prices tumbled, prompting many to ask what effect the drop in retail gasoline prices had on E85 sales. This latest Fuels Institute analysis of the E85 retail market evaluates daily sales data over a 13-month period collected from 620 E85 retail locations during a period in which unleaded averaged $2.50 per gallon. The following are some key findings from this report.

**Price of unleaded seems to have little effect on E85 sales.**

The two sample sets analyzed (this report and the 2014 Fuels Institute report) indicate that E85 continued to be priced at a level close to $0.50 below unleaded and E85 sales volume increased in the second time-period to reflect an average store volume of 4.77% of unleaded sales compared with 2.9% in the prior report. Despite the decline in unleaded price between the two analyses, the data indicates that the price of unleaded has limited influence on the sale of E85.

**Linear predictions that seek to forecast E85 sales volumes based on price relative to unleaded are not reliable.**

The data indicates that the conditions that affect a store's overall sales of E85 may not be related directly to the pricing strategy of the facility. While volume and price are correlated, as evidenced in the sample set, the correlation is far from consistent. Furthermore, the data set does not yield evidence that a linear trend line could effectively predict sales performance in relation to certain pricing strategies. The R2 value (which predicts how well a data set fits a model) for this data set is 0.1583, far below the 1.0 value which would indicate the data fits a predictive model.

**Energy parity does not seem to factor significantly in E85 pricing decisions.**

The data shows that very few retail stations post E85 prices that averaged near 23% below unleaded prices. The most successful stores (top quartile) averaged 19.6% below unleaded and generated E85 sales that matched 9.8% of the store’s unleaded volume. The E85 price for this quartile was $0.521 per gallon below unleaded. If stations were to price
E85 at or greater than 23% below unleaded, it is unclear whether they would generate greater volumes. There is evidence, however, that when E85 prices drop significantly below unleaded, even for one day, E85 volumes have the potential to spike. But sustained, average prices at the 23% or greater level presented inconsistent results across the data set.

Lower volume stores reported stronger E85 sales in both gallons and percent volume.

In every method of data analysis used in this report, it was evident that stores with lower throughput volumes of unleaded tend to report higher E85 volumes, both in terms of real gallons and as a percent of unleaded volume. Because store identifications were eliminated to protect propriety information, it is impossible to definitively explain why this may be the case, but the relationship between the two is unmistakable.

Ultimately, consumers are influenced by numerous factors when deciding to purchase E85. Finding the right conditions to attract the 20 million flexible fuel vehicle drivers on the road to opt for E85 instead of unleaded requires careful study of prevailing market conditions, consumer behavior and localized strategies to maximize the return on investment for the fuel. Relying upon price experience alone will not necessarily yield predictable results.

Conclusion

The data presented in this report indicates that retail facility analysis is necessary to fully understand why consumers choose to purchase or not purchase E85, and dispels the assumption that price alone will determine the success of an E85 retail fuel offer.

About the Fuels Institute

Founded by NACS in 2013, the Fuels Institute is a nonprofit tax-exempt social welfare organization under section 501 (c) (4) of the Internal Revenue Code. We are dedicated to evaluating issues affecting the vehicles and fuels markets. We commission comprehensive, fact-based research projects that are designed to answer questions, not advocate a specific outcome. Our reports address the interests of industry stakeholders—from business owners making long-term investment decisions to policy-makers considering legislation and regulations that affect these markets.

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