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Summary Comments Regarding the LCFS Advisory Panel Meeting, 25th / 26th August 2011

Background

The State of California has committed to increasing targets for low carbon fuel use in adherence to the Federal Renewable Fuels Standard (RFS) and the California Low Carbon Fuel Standards (LCFS). In both of the California Energy Commission's (CEC's) low and high petroleum demand scenarios, increased ethanol use makes up a large component of compliance strategies. The largest volume pathway for ethanol is through use as a blend with CARBOB at low-level concentrations as reformulated gasoline. However, the current 10% by volume limitation necessitates another avenue for ethanol sales: increased E85 sales are at present the only available means of reaching mandated targets beyond the current blend wall.

The CEC's IEPR recognizes the importance of E85 penetration in achieving both California's fair share of the RFS and the LCFS: "Assuming a 10 percent ethanol blend wall, E85 sales in California are forecast to rise from 13.2 million gallons in 2009 to 1,741 million gallons in 2020 and 3,192 million gallons by 2030 under the Low Petroleum Demand Scenario for gasoline." The state has committed resources to overcoming supply challenges by funding thus far the installation of 85 E85 installations at a total funding level of $16.5M. Significant additional investment from industry or government will be required to reach the number of E85 dispensers needed to supply adequate volumes. According to the CEC's data, California will require between 4,800 and 36,000 E85 dispensers by 2022. It is estimated that, at a minimum, an average of 530 new E85 dispensers per year would be needed to be installed in California between 2014 and 2022, costing between $27M and $106M per year (based on a cost range of $50,000 to $200,000 per installation).

The CEC has completed an extensive analysis of other factors that will impact supply of E85, including production capacity, transport infrastructure, and FlexFuel vehicle forecasts. Each factor must be addressed to ensure both the supply of E85 and the potential for the demand necessary to achieve LCFS targets. However, a complete supply chain only addresses half of the equation: adoption of E85 in lieu of gasoline remains fully dependent upon customer demand. The ARB, along with the CEC, needs to consider how increases in E85 prices to the consumer with the elimination of VEETC will impact sales, and whether in the absence of other cost adjustments, the State's assumptions regarding E85's contribution to the RFS and LCFS need to be reevaluated.

Context

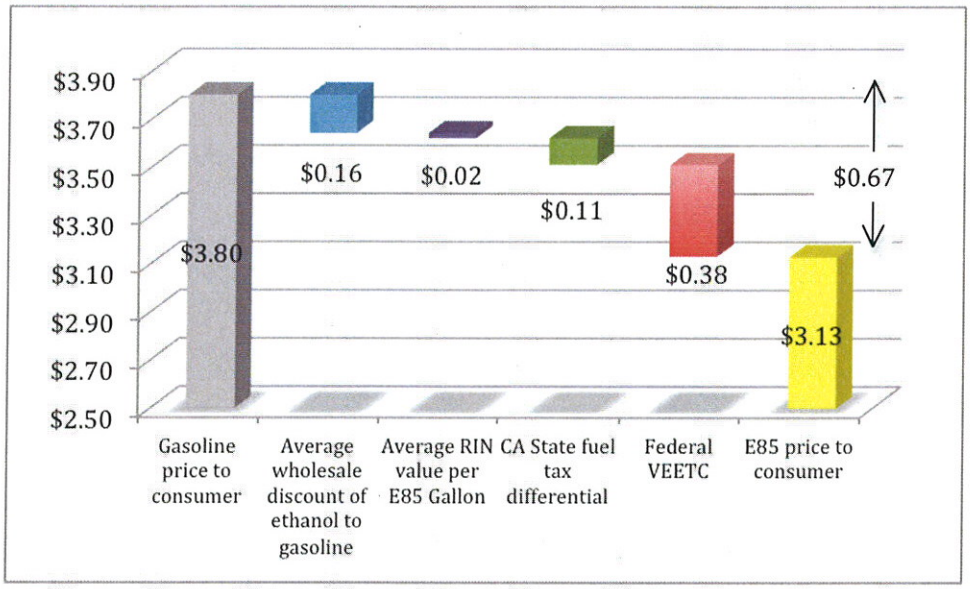
Consumer demand for E85 is driven by the perceived value of the product relative to E10 gasoline, as FlexFuel vehicles allow for either E85 or gasoline fills. Maintaining the value of E85 to consumers requires a price differential at the pump to mitigate the lower fuel economy due to the lower energy content of E85 vs. E10. According to a 2007 study by NREL, E85 has an energy differential that can reduce the number of miles traveled per gallon by from 23% to 28% percent. Actual efficiencies vary by vehicle model and

individual driving habits, but in general the retail price of E85 must be within an equivalent percentage range compared to gasoline for motorists to choose E85. In the absence of sufficient price incentive, consumers will not purchase E85.

Motor fuel retailers, especially the independent operators that make up the majority of the fueling industry, have historically thin margins in California averaging between 2009 to 2011 an estimated 16 to 24 cents per gallon after credit card costs (Oil Price Information Service, Propel analysis). This limited income pool is needed to cover operations and capital recovery on their existing site, and can make investment in new E85-compatible infrastructure unattractive.

Today when the discount of ethanol vs. gasoline becomes too tight, E85 retailers must choose between raising their price to maintain margins, reducing consumers' incentive to switch from gasoline, or eliminate their margins. While the refiners, importers, and blenders of petroleum products are required to introduce renewable fuels into the market under the RFS, retail station owners have no such obligation. Without confidence in an adequate consumer demand and a reasonable profit margin retailers are unlikely to make the investment needed to deploy the dispensers required to meet the forecast E85 penetration levels.

Given the need for a material price discount to gasoline, retailers are sensitive to all elements of E85 price. The following chart highlights key elements between the price of regular unleaded gasoline to consumers and the price of E85. In this scenario, the price to consumers of 87 octane unleaded is taken to be $3.80 per gallon and E85 is priced at a discount of $0.67/gallon or roughly 18%. It is recognized to be less than NREL's findings regarding the mileage differential between the two motor fuels.



Notes: LA OPIS CARFG3 vs. LA OPIS 98.1 Ethanol, Jan 2009-June 2011
2011 average ethanol RIN value of 3.2 cents per RIN
CA tax differential reflecting July, 2011 regulations
Federal VEETC of $0.45 per gallon X 85%
Values above rounded

Currently, four elements broadly make up E85's price differential to consumers: the wholesale cost differential between ethanol and gasoline, the value of ethanol RINs in the market, the lower per-gallon CA State taxes on E85 vs. gasoline, and the Federal VEETC. In this scenario shown in the above chart, E85 consumers are provided a price incentive to purchase E85 in lieu of gasoline according to their own experience with relative fuel economy. Also in this scenario, E85 marketers are able to earn a fuel margin consistent with that earned on petroleum motor fuels, providing marketers incentive to invest in and operate E85 infrastructure.

All other things equal, in the absence of VEETC, the cost of E85 to marketers and hence consumers will rise. Marketers will earn less margin per gallon sold (if any), eliminating their incentive to make further investment, and will reduce the discount of E85 vs. gasoline to consumers. Consumers will find it substantially less economic to continue purchasing E85 and demand is likely to fall.

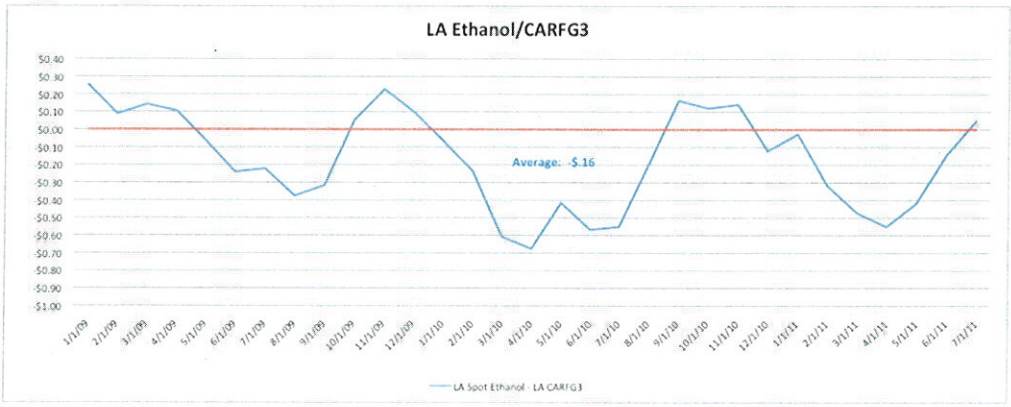
Conclusions

Between domestic production, available import capacity, and forecasts of second-generation ethanol production, there is sufficient supply available to meet volume projections under the LCFS and RFS. Vehicle projections indicate that the number of FlexFuel vehicles will be sufficient to use those volumes. To a more limited degree, there is investment support for the retail infrastructure to dispense the fuel.

These are necessary but insufficient. Consumer demand for E85 must be maintained, through appropriate retail price differentials in order to achieve ethanol's targeted contribution to the RFS and the LCFS. Additionally retailers, for whom the sale of E85 is discretionary, must find sufficient margin in the price of E85 to continue to offer it to consumers at a rate competitive to gasoline on a cost-per-mile basis. Without these margins, infrastructure investment will not be made and consumer value to purchase E85 will not exist.

In the absence of VEETC, the price discount to consumers must be made up by other elements of the price differential of E85. A combination of market and State policy factors could offset this change in Federal support for E85.

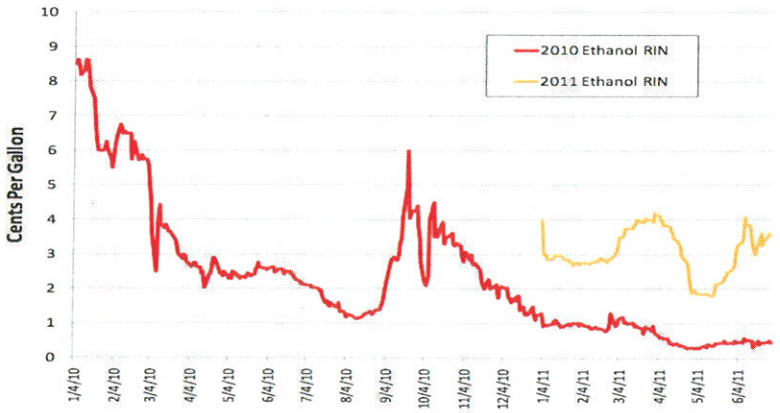
The market price differential between ethanol and gasoline fluctuates considerably, broadly driven by oil and corn prices, by regional supply imbalances and global trade movements.



Source: OPIS

The emergence of substantial quantities of second-generation ethanol production and reduction in corn and sugar cane prices in future growing seasons could increase the average discount of ethanol vs. gasoline. The elimination of the current import tariff may encourage additional supplies of ethanol to move to the US imported placing downward price pressure on ethanol. Additionally, regional investments in rail trans-loading and in waterborne may reduce the premium that California pays for its ethanol imports.

Ethanol RINs could become more valuable over time. Provided that this benefit is passed from producer to marketer, this can then be shared with the consumer. During 2010 and 2011 ethanol RINs have had an average market value of 3.1 cents per RIN (2.6cpg/gal of E85). Unlike biodiesel RINs, for which there is more demand than supply leading to a high value for their RINs, there is such a large inventory of conventional ethanol RINs today that ethanol RIN values are not likely to rise to sufficient levels to cover the elimination of VEETC.



Source: OPIS; CEC

The value of CI credits created by the LCFS is another possible source of value to provide the necessary incentive. Similar to RINs, provided that this benefit is transferred from producer to marketer, this can be used to create the necessary incentives for investment and fuel switching. There may be however a significant time lag before those credits have any real monetary value.

Other hydrocarbon sources besides CARBOB or CARFG3 such as the natural gasoline that is used as a denaturant by most ethanol producers today could be used to create an acceptable E85 finished product. The benefit of such a product would allow producers of E85 to reduce the cost of the product to retailers. The ARB and the CEC could support the development and approval of these alternative E85 blendstocks thus helping bridge this price differential.

Additionally, the State could materially accelerate its approval of the use of mid-level ethanol blends. Doing so would enable marketers to offer consumers a choice of fuel blends with lower fuel mileage penalties during those times when the market prices of ethanol make E85 unattractive. This would result in higher consumption of ethanol blends than if E85 were the only choice available to consumers. The State would need to coordinate with the State BOE to eliminate the tax penalty for ethanol blends below 85% that exists today.

Lastly, the State has the option to provide direct consumer support via an at-the-pump incentive that allowed retailers to bridge the remaining price differential. This is an important opportunity to continue and increase sales of E85, allowing the fuel to achieve the projections issued by the CEC.

Clearly each of these potential value generation sources has challenges and **none currently provide any degree of certainty** to retailers considering future investment in E85 infrastructure.

Summary options for ARB and CA

To offset the uncertainty due to the potential market forces the State has options that it should consider to encourage ethanol blends to continue to contribute to the RFS and LCFS goals:

- **Lower cost to marketers of E85 though approval of lower cost blend stocks such as 'natural gasoline'**
- **Accelerate approval for mid-level blends to maintain demand during unfavorable economics:** Mid-level blends do not have the same mileage penalty as E85 and can be marketed without the same degree of price discount, continuing to provide consumers switching incentive
- **Eliminate CA BOE penalty for below 85% blends that still meet future CA E85 spec**
- **Exempt ethanol blends above 15% from other sales, excise or fuel related taxes**
- **Develop a 'Fuel Ethanol Reserve' or other credit targeting mid and high level ethanol blends**

Propel's experience has demonstrated that with appropriate price support, consumer demand for E85 is strong and it is possible for E85 to be the leading fuel in meeting the LCFS. However, in the absence of moves to address the demand side of E85 economics, the State's assumptions regarding the role of E85 as a source of LCFS compliance must be reevaluated.

With best regards,

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