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# Economics of Small Refinery Exemptions under the RFS

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## Disclaimer

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## 1.    Executive Summary

Small Refinery Exemptions ("SREs") from obligations under the Renewable Fuel Standard ("RFS") are receiving a significant amount of attention in current RFS discussions. These exemptions, representing a small share of the total compliance obligations under the program, were granted in greater numbers in 2016 and 2017 than during each of the previous five years. They have coincided with a period of decreasing Renewable Identification Number ("RIN") prices. This has caused speculation about SRE impacts on ethanol demand and prices, as well as impacts on corn growers. This report shows that increased SREs and lower ethanol RIN prices have not caused ethanol demand destruction. This is supported by a review of RIN pricing economics and an analysis of ethanol blend rates, which have continued to increase after SRE announcements.

There is a significant base level of demand for ethanol blending unrelated to the annual RFS obligations. Drivers of this demand include octane enhancement and serving as oxygenate, as well as direct price competition between ethanol and refined petroleum products. If these non-RFS blending drivers lead to an ethanol blend rate above the RFS mandate, then the price of ethanol RINs ("D6 RINs") will be close to $0/RIN. This was the case prior to 2013, when the renewable fuel obligation could essentially be met by blending ethanol into E10 gasoline.

Once the RFS mandate surpassed the E10 "blend wall," mostly due to lower than expected gasoline consumption, D6 RIN prices increased significantly. This happened because the additional RINs needed to meet the RFS obligations have been provided by biodiesel blending, which has less favorable economics than ethanol blending into E10 gasoline. D6 RIN prices remained high and volatile for years. The recent decrease in D6 RIN prices have been partially driven by improved biodiesel economics, but also by a market perception that D6 RIN prices may return to ethanol blending economics.

The recent SREs, insofar as they exempt RIN obligations and thus increase the availability of D6 RINs, have contributed to this market perception. This does not mean they harm ethanol blend rates. Simply put, changes in D6 RIN prices do not impact ethanol blend rates as long as the RIN price remains above the level needed to support ethanol blending. We demonstrate that actual D6 RIN prices have been above the "needed" RIN prices for the majority of the RFS program's history. In fact, for the past several months, fuel economics have driven the "needed" RIN price below $0/RIN.

Since D6 RIN prices have remained above the "needed" D6 RIN price, there has been no change in incentives for ethanol blending. This is supported by a review of ethanol volumes and blend rates, both of which have been increasing over time. Recent EIA data shows that both fuel ethanol volumes and blend rates for the first half of 2018 were the highest ever, as shown in the chart below. Lower RIN prices have clearly not impacted ethanol demand. In the report we also show a lack of correlation between D6 RIN prices and ethanol blend rates in both shorter (weekly and monthly) and longer (annual) terms.

**Figure 1: Ethanol volumes and blend rates, first half of year (January-June), 2012-2018**
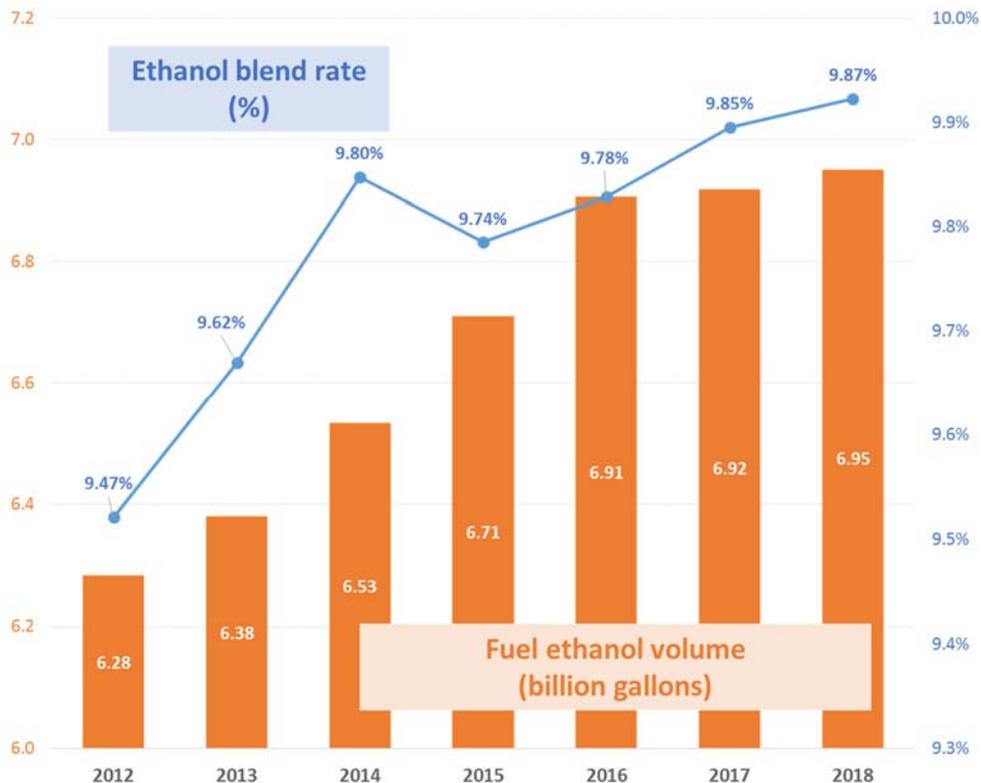
Given the many non-RFS drivers of ethanol blending, such as octane enhancement and price advantage over petroleum feedstock, year-to-year ethanol blending rates will not materially change without significant market disruptions. This is true regardless of obligations exempted through SREs. In effect, the SREs protect small refineries from high compliance costs without damaging ethanol demand.

The SREs may also have an added benefit of mitigating unnecessarily high and volatile RIN prices. However, exempting small refineries is not sufficient to ensure D6 RIN pricing based on ethanol blending economics. If the EPA did find a long-term solution to this issue, it would not only alleviate many inefficiencies with the program and clear confusion about the impact of RIN prices on blend rates, but could also prevent the need for most SREs in the future. This report does not address the possible solutions.

We begin the report with a very brief overview of the topic of SREs in the RFS (Section 2). The main body of the report is divided into two sections that address the relationship between SREs and RIN prices (Section 3) and how the SREs impact fuel ethanol volumes and blend rates (Section 4). We also provide our conclusion (Section 5) that SREs are not causing ethanol demand destruction.

## 2.    Background on SREs

Under the RFS, each obligated party (petroleum refiners and refined product importers) must meet annual Renewable Volume Obligations ("RVOs") based on a percentage of the gallons of gasoline and diesel fuel produced or imported. The percentage is set by mandated biofuel

blending rates determined each year by the EPA. Each obligated party must demonstrate compliance by retiring RINs at the end of each compliance year. These RINs are generated by blending biofuels and can be purchased by obligated parties that do not have blending operations sufficient to meet their production levels.

RIN purchases can be quite substantial. For example, in 2016 the average sized refinery in the US (approximately 140,000 barrels per day of crude processing) without sufficient blending operations would have faced financial outlays of over $116 million for RINs ($90 million for ethanol RINs and $26 million for biodiesel RINs).[1] The original RFS was developed with the expectation that RIN purchases could have a disproportionate impact on small refineries. They were therefore exempt from compliance obligations through 2011. In the current version of the RFS, small refineries have obligations but can obtain temporary SREs by applying for and receiving approval from the EPA.[2]

The SREs are limited to refineries with average crude inputs of no greater than 75,000 barrels per day. The refinery operators must submit documentation that will support an EPA finding that the RFS obligations will result in "disproportionate economic hardship."[3] After several recent legal findings supporting the granting of SREs and a period of high RIN prices, there have been more SREs applied for and granted by EPA in both 2016 (19 SREs representing 790 million RINs) and 2017 (29 SREs representing 1.46 billion RINs, with more pending).[4]

There are two additional critical aspects of the SREs relevant to this discussion. First, the SREs are granted after the compliance year, which mitigates any possible impacts of an individual year's exemptions. Second, the exemptions are for RIN obligations of small refineries that mostly do not have blending operations. This means the only possible impact on blending is through RIN demand and prices, and blenders will continue to blend at rates dictated by ethanol blending economics regardless of SREs.

## 3.    RIN Price Impacts of SREs

In this section, we show that RIN prices are primarily, but not entirely, driven by price spreads between renewable fuels and petroleum feedstocks. Additional price drivers include EPA-determined obligation levels and a variety of market frictions, such as speculation, asymmetric or incomplete information, and possibly market manipulation. Given the nesting structure of RINs in the RFS, ethanol RIN (D6 RIN) prices are bounded on the low end by the additional cost to blend ethanol (if any) and on the high end by the added cost to blend biodiesel. Since 2013, ethanol RIN prices have been fluctuating with high volatility between ethanol blending economics and biodiesel blending economics due to the E10 blend wall and policy uncertainly.

While the recent SREs may have helped hold ethanol RIN prices slightly below biodiesel RIN prices, they have not decreased the price below the level needed to incentivize ethanol

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[1]   Not including cellulosic and advanced biofuel RIN costs. Based on 2016 average D6 RIN price of $0.823/RIN and D4 RIN price of $0.914/RIN. Outlays could have been more or less depending on timing of RIN purchases and financial arrangements with blenders.

[2]   40 CFR Part 80.1441 - Small Refinery Exemption

[3]   Section 211(o)(9) of Clean Air Act

[4]   EPA, Letter to Senator Grassley, July 12, 2018. http://www.ascension-publishing.com/EPA-RIN-Waivers-071818.pdf

blending at volumes up to the blend wall. In current market conditions, that "needed" RIN price is below $0/RIN.

## 3.1.    Price spreads between conventional fuels and renewable fuels

The key non-RFS drivers of blending ethanol include:

- ***Serving as oxygenate and enhancing octane levels*** – These drivers set a base demand for ethanol blending.[5] Given market conditions and standard industry practices, that base demand level is close to 10% of motor gasoline. Refiners currently provide a lower octane, or sub-octane, petroleum blendstock for blending with higher octane ethanol to deliver 87 or higher octane gasoline at the retail level. Ethanol is the preferred octane enhancer available in the US, as it is less expensive than high octane gasoline components, such as alkylate and toluene.[6]  If the industry wanted to decrease ethanol blending, refiners would need to increase the octane of blendstock or use other octane enhancers. Both options carry increased costs that are not economic in a time of relatively moderate ethanol prices.

- ***Competing directly on price with petroleum feedstock*** - The comparative price driver is variable, depending on ethanol and refined gasoline prices. While ethanol has a lower energy content than petroleum feedstock, the fact that most gasoline sold in the US is labeled as E10 means that consumers are likely insensitive to the small energy content differences in different ethanol blending levels below the blend wall of 10% ethanol. Therefore, in time periods when ethanol prices per gallon are lower than petroleum blendstock prices per gallon, blending up to the blend wall would be expected.

If the non-RFS blending drivers described above lead to an ethanol blend rate above the RFS mandate, then the price of ethanol RINs will be at or near $0/RIN. This was the case for ethanol RINs prior to 2013, when prices were only a few cents, reflecting transaction costs.

If the RFS obligation requires blending above the natural non-RFS blend rate, then the RIN price should reflect the cost to blend additional renewable fuel into gasoline. Specifically, the RIN price should reflect the additional cost for the "marginal" blended gallon needed to meet the mandate.[7] If that marginal gallon is ethanol, then the RIN price is based on the price difference, or spread, between the petroleum-based blendstock (Reformulated Blendstock for Oxygenate Blending, or RBOB, in most of the country) and ethanol. If biodiesel is used for the marginal RIN, then the RIN price is based on the spread between biodiesel and diesel (generally ultra-low-sulfur diesel, or ULSD).

Figure 2 shows ethanol and petroleum blendstock prices from 2012 to mid-2018, averaged for four major US regional fuel markets (Chicago, Gulf Coast, New York Harbor, and Los Angeles). The chart also shows the ethanol-RBOB price spread, simply representing the average ethanol price minus the average petroleum blendstock price.

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[5]  Stock, James H., "Reforming the Renewable Fuel Standard," Columbia Center on Global Energy Policy, February 26, 2018.

[6]   Irwin, Scott, and Darrel Good, "On the Value of Ethanol in the Gasoline Blend," University of Illinois, farmdoc daily (7):48. March 15, 2017.

[7]   If the marginal fuel is biodiesel, then the cost is based blending 2/3 of a gallon, since each biodiesel gallon generates 1.5 RINs per gallon.

**Figure 2: Historical ethanol and petroleum blendstock prices and spread, 2012 to 2018 YTD**
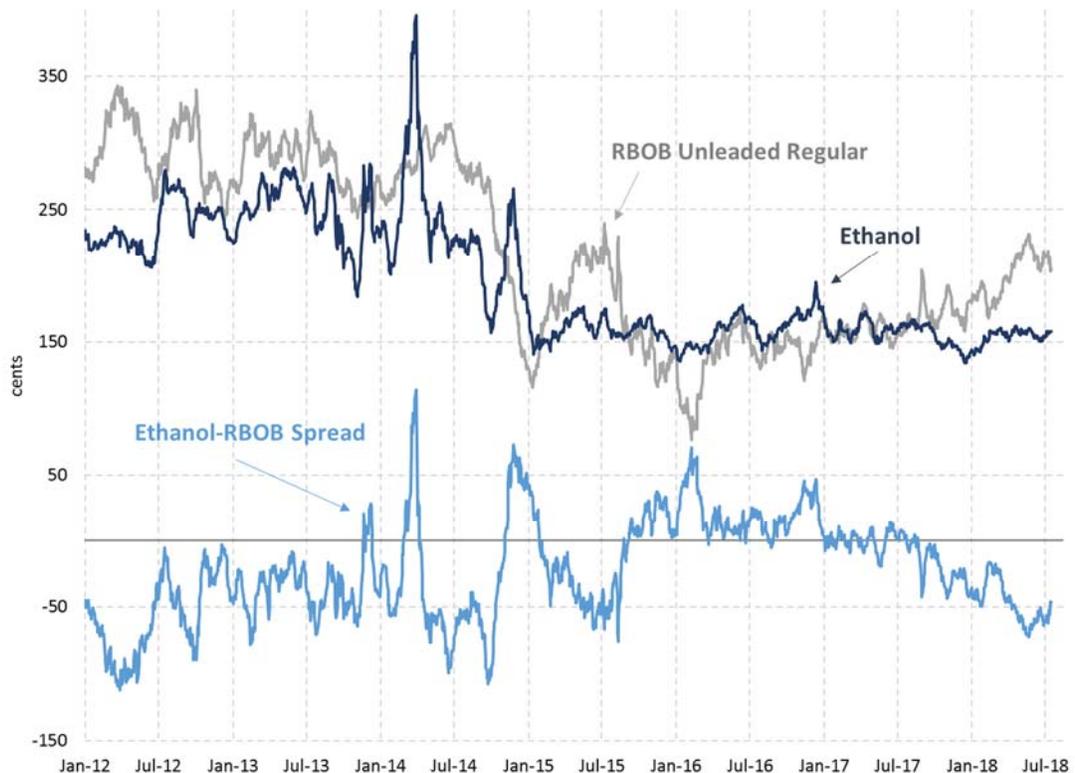
In the above chart, the price spread reflects the first-order, hypothetical prices of ethanol RINs over the past six years during periods when the mandate was (or was expected to be) above the natural ethanol blend rate. There are several reasons why the actual RIN price at any time may differ from the hypothetical RIN price:

- **Blend wall issues** - The blend wall has been well documented in many studies. It represents a volume of ethanol that can be blended into US motor gasoline as E10 (adjusted for E0 and higher blend fuels consumption). When the mandate is below the blend wall, the D6 RIN price will likely be based on ethanol blending economics, such as the price spread in the above chart. When the RFS mandate is above the blend wall, another RIN source is required. This other source has historically been biomass-based diesel (BBD, or biodiesel) RINs, or D4 RINs. These D4 RINs are priced based on biodiesel economics and can therefore be priced quite differently, usually much higher, than hypothetical D6 RINs.[8] This dynamic is further illustrated in the Appendix to this report.

- **Future expectations** - Obligated parties must retire adequate RINs to meet their obligation for each compliance year by the end of the year. In addition, the RFS includes a banking provision that allows for carry-over of a certain share of RINs to the next year. These characteristics suggest that RIN prices can be based more on

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[8]  Biodiesel D4 RINs are also highly volatile, as they can be greatly impacted by commodity price fluctuations and speculation around the significant but uncertain blender tax credit in the US.

expectations for future blending economics than the prices at the time of purchase. Each RIN buyer and seller can have different RIN strategies based on their expectations and on their levels of risk aversion.

- ***Market frictions*** – There are a variety of frictions in the RINs market that can prevent RIN prices from reaching their theoretical levels based on policy and feedstock prices. For example, non-obligated speculators participate in the RINs markets and can influence RIN prices through certain buying and selling behaviors. The impact of this behavior is unclear due to limited market data, but it clearly plays a role. The market is not subject to oversight in the same way as the related fuels markets. Additionally, market participants lack information, such as trader positions, or do not receive information on a timely basis, such as blending and RIN generation/ retirement data. These and other frictions were considered in a February 2017 report.[9]

- ***Transaction costs*** - An estimate of these costs is the RIN price prior to the reaching of the blend wall in 2013, or approximately $0.02/RIN.

- ***$0/RIN minimum*** – Although the price spread has dropped significantly into negative levels, there is no reason RIN prices would drop below $0/RIN. Excess RINs do not carry a financial burden for blenders or obligated parties.

## 3.2.    RIN price history

Figure 3 shows the historical D4 and D6 RIN prices, as well as a calculated hypothetical D6 RIN prices based on the ethanol-RBOB price spread from Figure 2. There were several adjustments to the price spread to more accurately estimate hypothetical RIN prices. First, instead of a simple average of regional price spreads, we calculated the maximum regional spread for each trading day. This follows the theory that a RIN price is based on the marginal source of RINs for a given time period and leads to a higher hypothetical RIN price. Second, a minimum price of $0.02/RIN was set to reflect transaction costs and the fact that RIN prices should not fall below $0/RIN.

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[9] Charles River Associates, "RINs Market Frictions and the RFS Point of Obligation," February 2017.

**Figure 3: Historical and calculated "hypothetical" RIN prices, 2012 to 2018 YTD**
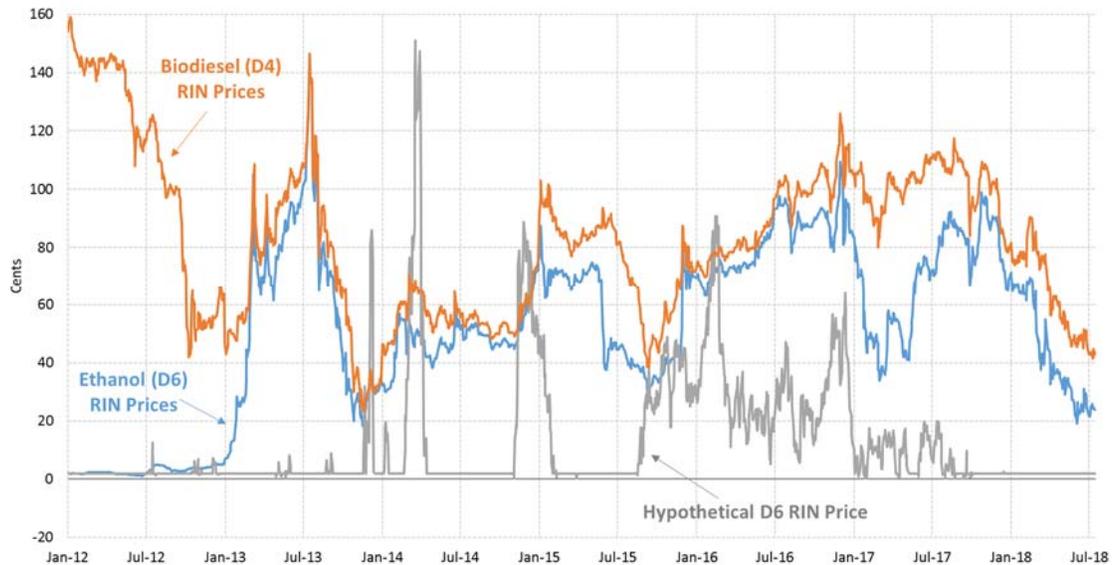


*Source: OPIS RIN and fuels prices, CRA calculation*

A key takeaway from the above chart is that, starting in early 2013 with the initial reaching of the blend wall, the actual D6 RIN price fluctuated between the hypothetical D6 RIN price, based on ethanol blending economics, and the actual D4 RIN price, based on biodiesel economics. The fluctuations were based on RIN buyers and sellers speculating on which biofuel would be the marginal RIN source. It is clear that, for the majority of the past five years, the market has seen D4 RINs as the marginal RIN source to meet ethanol RIN obligations.

While D4 RINs are clearly higher priced than RINs produced by blending ethanol into E10 gasoline, they are cheaper than the RIN price that would incentivize new D6 RINs from higher blend ethanol fuels. This has been demonstrated by the lack of penetration of higher blend fuels despite D6 RIN prices over $0.80/RIN for large portions of the past few years. There would need to be significant infrastructure buildout for RINs from higher blend fuels to displace D4 RINs as the marginal source of D6 RINs.

The fact that the actual D6 RIN price moves somewhat independent of the price spreads at times is mostly driven by policy and market uncertainty. This adds additional volatility beyond changes in price spreads. The combination of high prices and high volatility have been cited as "the worst of both worlds."[10]

## 3.3.    Recent RIN price decline

As seen in Figure 3 above, in early 2017 the actual D6 RIN price moved well below the actual D4 RIN price for the first time since mid-2015. It reached the hypothetical D6 RIN price level for a short time period. This was likely based on expectation of reforms to the RFS that would lead to D6 RIN pricing based on ethanol blending economics. Later in the year, after no significant reforms were announced, the D6 RIN price climbed back to the D4 RIN price. The

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10   Stock, James H., "Reforming the Renewable Fuel Standard," Columbia Center on Global Energy Policy, February 26, 2018.

actual D6 RIN price reached $0.99/RIN in October 2017. This was during a time period in which the hypothetical RIN price suggested the same ethanol blend rate could be met with a $0.02/RIN price.

Since the October 2017 peak, the actual D6 RIN price has followed the D4 RIN price in a downward trajectory. The actual D6 RIN price has recently separated more from the D4 RIN price, suggesting market skepticism of biodiesel providing the marginal RINs to meet the D6 obligations. However, more importantly, the actual D6 price has remained well above the hypothetical D6 RIN price. This has remained true throughout the past 18 months, during which more SREs have been approved. Therefore, even if the SREs are partially responsible for the RIN price decrease, they have not driven RIN prices below levels sufficient for ethanol blending.

## 4.    Ethanol Blending Impacts of SREs

In the previous section, we showed how D6 RIN prices are driven by spreads in feedstock prices and market expectations for which biofuel's economics (ethanol or biodiesel) will set the price. It was shown that even as RIN prices decreased significantly, the prices have remained above the levels needed to incentive ethanol blending up to the blend wall. In this section, we verify this conclusion with an analysis of actual ethanol blend rates over time and their relationship to RIN prices. Empirical evidence suggests that RIN prices do not drive ethanol blending rates and volumes. This is an important point as it suggests that the attention placed on RIN prices is misguided. It also suggests that policies designed to simply prop up RIN prices will not have a material benefit for ethanol producers and their feedstock suppliers (corn growers).
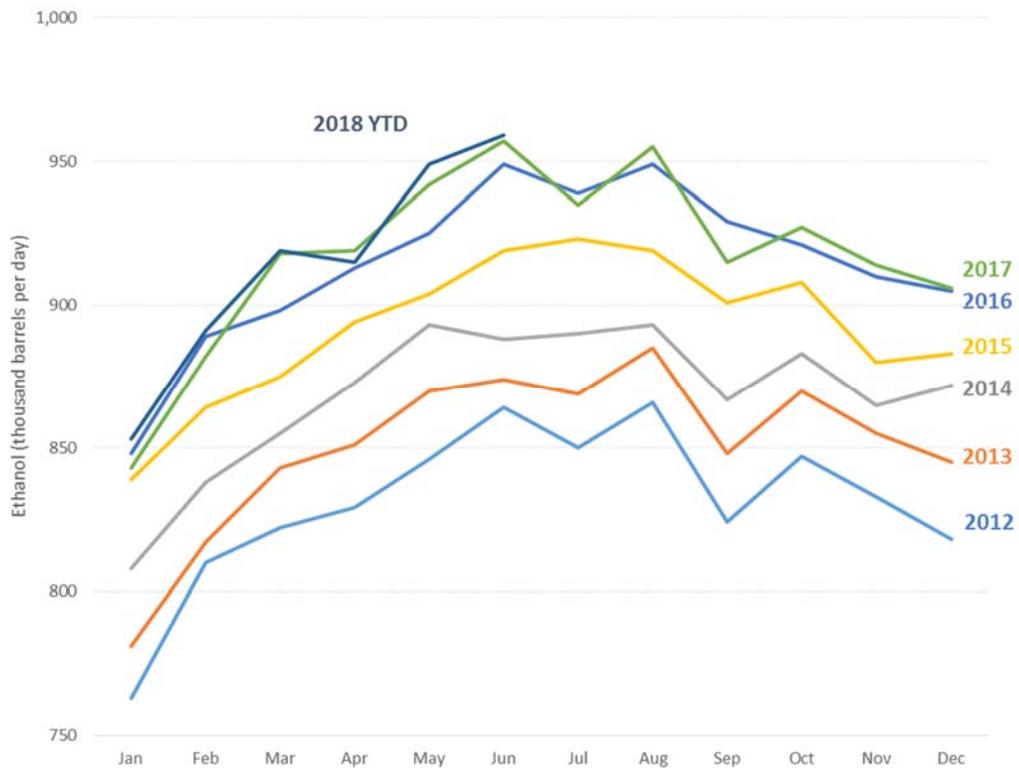
### 4.1.   Historical ethanol consumption

Fuel ethanol consumption in the U.S. has increased each year since the RFS was enacted. For the first six years, it grew extremely quickly, from under 5 billion gallons in 2005 to 12.8 billion gallons in 2011 (over 250% increase).[11] This rapid growth occurred as the ethanol industry added significant capacity, partially in response to non-RFS drivers of ethanol consumption, such as the shift from MTBE to ethanol as oxygenate.

The rate of growth slowed in the following years as the blend wall capped consumption at about 10% of motor gasoline. However, volumes still increased to over 14 billion gallons in 2017. The industry appears to be continuing the growth trend in 2018, with four of the first six months showing record fuel ethanol consumption for those respective months (monthly data only available through June 2018 at the time of this report) and the six month total setting a record. A recent crop report supports this year-over-year increase.[12]

Figure 4 below shows monthly fuel ethanol product supplied from January 2012 through June 2018, as reported by EIA. It is presented in barrels per day to better display monthly production patterns without distortion of number of production days in each month.

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[11]   EIA Refinery and Blender Net Input, available at: https://www.eia.gov/dnav/pet/pet_pnp_inpt_dc_nus_mbblpd_m.htm

[12]   "Corn for fuel alcohol, at 463 million bushels, was down 2 percent from May 2018 but up 6 percent from June 2017". From USDA, "Grain Crushings and Co-Products Production," August 2018.

**Figure 4:  U.S. Fuel Ethanol Consumption, monthly, 2012 to 2018 YTD**

Considering fuel ethanol consumption in long time series, as above, is important since monthly or weekly changes can lead to distorted views of trends. There is also obvious seasonality in the volumes consumed, which should be taken into account in any shorter term analysis. The seasonality tracks the seasonality in motor gasoline consumption.

## 4.2.    RIN prices vs ethanol blend rates

In the chart above, the line for 2018 year-to-date is trending above the previous year. This suggests that increased SREs and lower RIN prices have not led to a decrease in fuel ethanol consumption. However, critics of the SREs will note that motor gasoline consumption has increased during that time period, so the potential for ethanol consumption has also increased. Therefore, attention is placed on blend rates, rather than volumes of consumption. In this section, we consider blend rates over time and the impact of RIN prices on the blend rates.

Given the annual compliance requirements of RFS obligated parties, the blend rates of most importance are the annual blend rates calculated at the end of compliance years. Weekly and

monthly blend rates are less important and can fluctuate more.[13] However, given the lack of a statistically significant number of compliance years, as well as the interest in spotting sub-yearly trends in blending rates, we evaluated blend rates on weekly and monthly levels. We also include weekly blend rates to be responsive to several critics of SREs that have focused on these rates, as well as to include the most recent data available.[14] However, for time periods in which monthly data is available, they are preferred as they include additional information not available in the weekly data collected by EIA.

In Figure 5 below, we show a comparison of D6 RIN prices and blend rates from 2012 through present. The bars are annual averages and the lighter lines show weekly data.

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[13]  Since the blend wall was reached, weekly blend rates have fluctuated +/- 0.27% on average (representing a 2.8% weekly change to the blend rate) and monthly blend rates have fluctuated +/- 0.11% on average (representing a 1.2% monthly change to the blend rate).

[14]  As of this report date, monthly data only extended through June 2018, while weekly data included July though mid-August 2018.

**Figure 5: Comparison of D6 RIN prices to ethanol blend rates, 2012 to 2018 YTD**
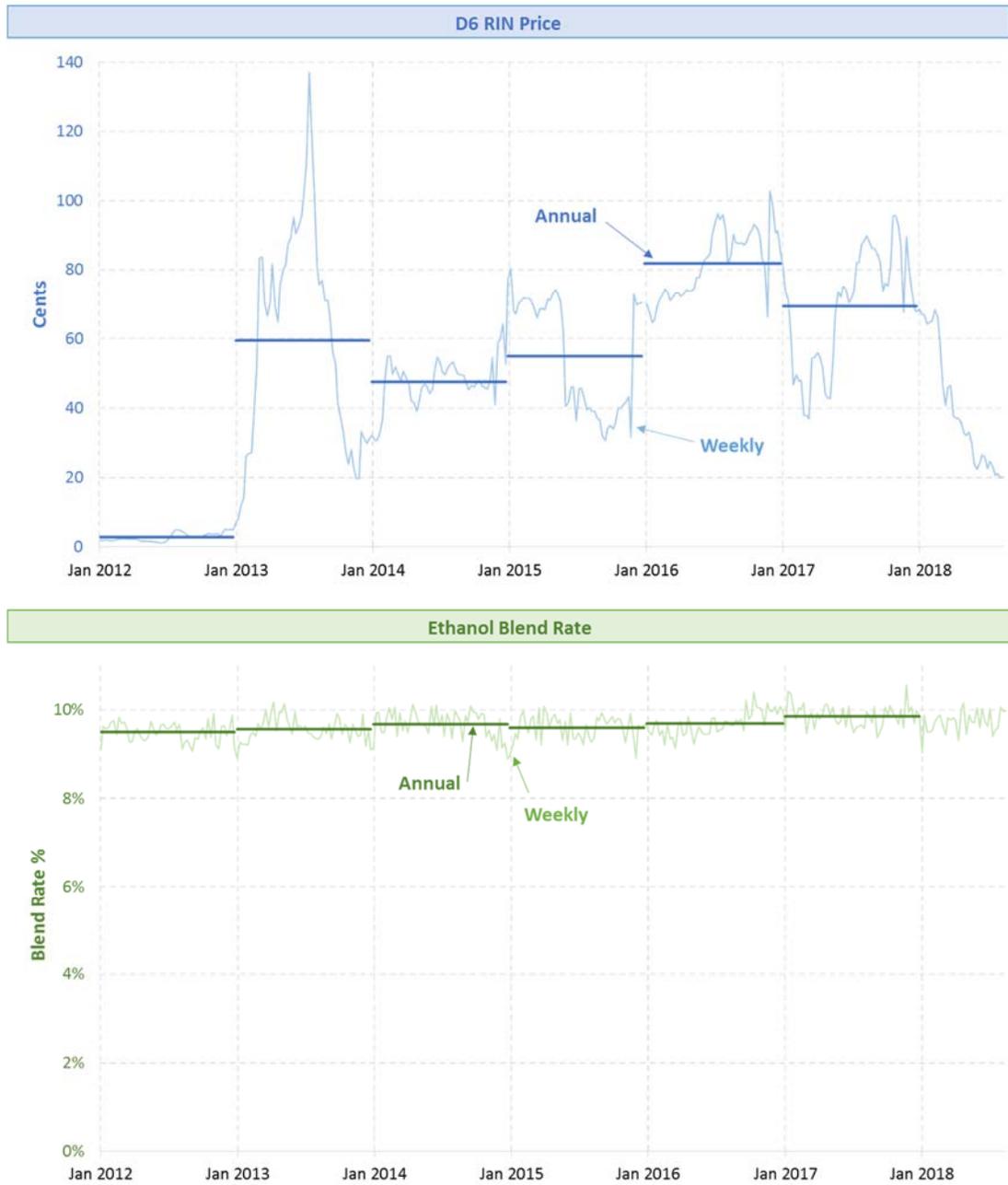


*Source: EIA Refiner & Blender Net Input, EIA Product Supplied, OPIS RIN prices*

There are several interesting points suggested by comparing the charts above:

-   Increasing annual blend rates over time – The annual average blend rate increased in all years except 2015. We do not have sufficient data to estimate the annual blend

rate for 2018. That said, the blend rate for the first six months of 2018 (9.87%) is higher than any previous year through six months.[15]

- Short term weekly blend rate trends can be deceiving – After the first eight months of 2016, one might have concluded that the annual blend rate was going to be significantly lower than the previous few years. Then blend rates increased through the end of the year and the average blend rate became the highest ever. This should be considered when reviewing the 2018 blend rates to-date, even though they are already higher than ever.

- Blend rates do not move with RIN prices - The first clear sign that RIN prices are not the key driver of ethanol blend rates can be found in the time periods before and after the blend wall was reached in early 2013. RIN prices jumped very substantially from 2012 to 2013 (several thousand percent), yet the blend rate barely moved (from 9.5% to 9.6%). The following year, the RIN price dropped, while the blend rate increased. This also happened in 2017, as the average RIN price fell and the average blend rate increased compared to 2016. In only one year since 2012 has the average RIN price moved in the same direction as the blend rate.

   Further, the year-to-date 2018 RIN prices have fallen significantly, yet the weekly blend rates have remained in their historic range of about 9.5% to 10% in most weeks. We again caution against drawing conclusions from weekly blend rates, but there is no visual evidence in the chart that blend rates are being pulled down by the RIN price decline.

To further illustrate the lack of relationship, Figure 6 is a scatter plot of weekly (blue dots) and monthly (orange triangles) RIN prices and ethanol blend rates during the period after the market realized the blend wall (from February 2013 through present). There is no discernable correlation.

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[15] This estimate is based on EIA monthly data, which is more complete than weekly data. Weekly data presented in Figure 5.

**Figure 6: RIN prices vs. ethanol blend rates, 2013-2018**
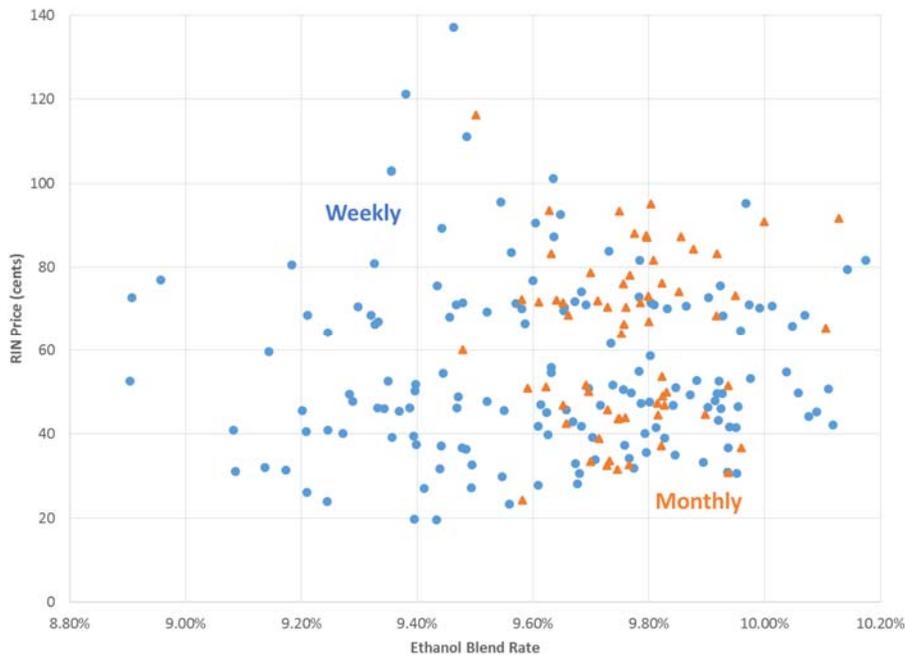
## 5.    Conclusions

The main concerns with the recently reported increase in SREs have been the impacts on RIN prices and on ethanol demand. We showed that RIN prices are primarily driven by relative spreads in feedstock prices. Ethanol (D6) RIN prices have largely been set by biodiesel blending economics ever since the blend wall was reached in 2013, when it became necessary to blend additional biodiesel to meet D6 RIN targets. These higher RIN prices are not necessary to incentivize blending ethanol at historical rates.

The SREs announced in the past 18 months may have contributed to the RIN price decline, but they have not impacted the incentive to blend ethanol up to the blend wall and therefore have not eroded ethanol demand. We verified this finding with an analysis of historical and recent blend rates, which have not shown the drop cited by opponents of SREs. Therefore, SREs have provided relief to small refineries while not impacting ethanol volumes blended into motor gasoline. In fact, the volume of ethanol blended continues to rise.

While the SREs potentially have a secondary benefit of moderating overall compliance costs, they do not perform the function of a price containment mechanism, such as waiver credits. They also do not have the advantages that other price containment mechanisms have, such as recycling waiver credit revenues into infrastructure investments to support higher blend fuels.[16]

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[16]   Charles River Associates, "Ethanol RIN Waiver Credits," March 2018.

Finally, we note that the need for SREs would significantly diminish if ethanol RINs were actually priced based on ethanol blending economics, rather than biodiesel blending. To illustrate the compliance cost impact of unnecessarily high RIN prices, we can revisit the situation of the average sized refinery without blending capabilities, as presented in Section 2. With D6 RIN prices based on biodiesel economics, the estimated D6 RIN expenditure for 2016 was $90 million. If D6 RINs priced off ethanol blending economics, fuel ethanol consumption would have been the same, but the refiner's D6 RIN expenditures would have been about $2 million.

## Appendix: Additional RIN Pricing Economics

The EPA's setting of Renewable Volume Obligations (RVOs) can determine which biofuel types set RIN prices. Given the blend wall, a very small change in RIN demand can cause a large change in RIN price, even though volumes of renewable fuels may not change much. This is illustrated with the supply curve in the figure below.

**Figure 7: Illustrative D6 RIN supply curve**
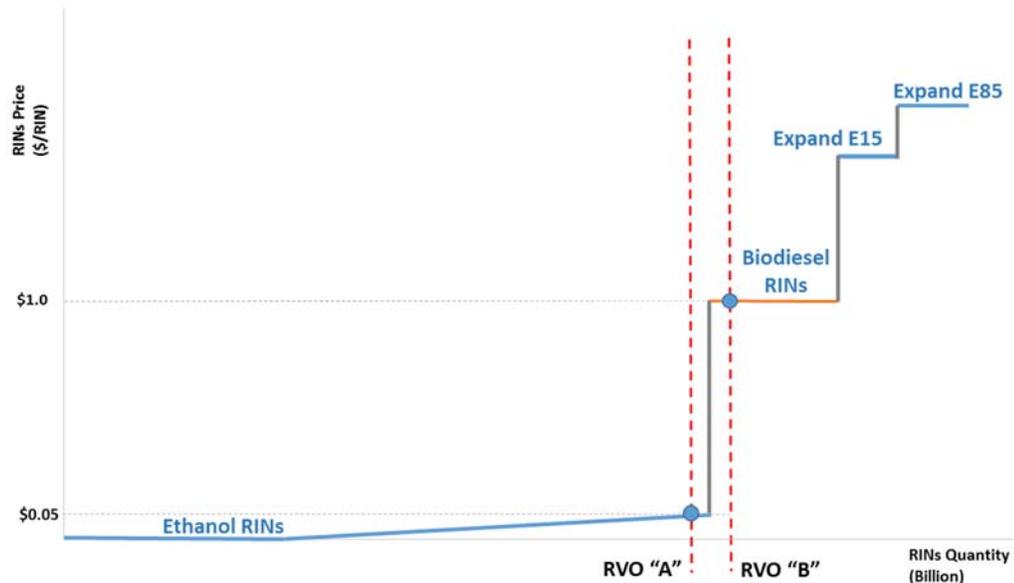


As discussed in Section 3, within each biofuel "tier" (ethanol or biodiesel), the RIN price is almost entirely driven by the feedstock price spreads. Given the relatively homogenous production and blending costs across the U.S., the steps in the above supply curve are relatively flat. The first step represents RINs generated by blending ethanol into gasoline. The majority of these RINs have no cost, since the majority of ethanol is blended for several reasons beyond simply comparative cost with gasoline. The price level of this step moves with the spread of petroleum feedstock prices versus ethanol prices, as discussed in Section 3. The end of the step is the blend wall at about 10% of motor gasoline consumption.

After the blend wall, the next RINs are generated by biodiesel blending. This is due to the nesting structure of RFS obligations, where biodiesel (D4) RINs can be used for ethanol (D6) RIN compliance. The last steps are the price levels that would incentivize expanded infrastructure for higher ethanol blend fuels. The levels of these steps have not been discovered in the market despite high RIN prices, and therefore these steps could be quite high.

The red vertical lines represent two different levels of RFS volume obligations (RVOs), "A" and "B". The volume difference may be only a few percent, but the price impact is enormous. A move in RVO from A to B causes a RIN price increase from $0.05/RIN to $1.00/RIN. While this is a hypothetical example, it is based on historical outcomes in the RFS over the past six years.

In the context of SREs, if the volume exempted for small refineries causes a move from RVO "B" to "A", there may in fact be a significant D6 RIN price impact but only a minor, if any, change in ethanol volume blended. In reality, the ethanol volume has been held at the far right of the ethanol "tier" due to non-RFS drivers and the SREs have shown no impact.