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February 22, 2017

EPA Docket Center
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Attn: Docket ID No. EPA-HQ-OAR-2016-0544

Re: Comments for PBF Holding Company LLC
Proposed Denial of Petitions for Rulemaking to Change the RFS Point of Obligation
Docket ID No. EPA-HQ-OAR-2016-0544

PBF Holding Company LLC ("PBF") respectfully submits these comments in response to EPA's "Proposed Denial of Petitions for Rulemaking to Change the RFS Point of Obligation," 81 Fed. Reg. 83,776 (Nov. 22, 2016) (the "Proposed Denial"). PBF is a member of and acknowledges the comments submitted by the American Fuel & Petrochemical Manufacturers (the "AFPM Comment Letter"). PBF's comments are intended to complement or emphasize comments raised in the AFPM Comment Letter. In addition, these comments address the relevant issues from the unique perspective of a merchant refiner.

## I. Background and Introduction

PBF is one of the largest independent petroleum refiners and suppliers of unbranded transportation fuels, heating oil, petrochemical feedstocks, lubricants and other petroleum products in the United States. The company currently owns and operates five domestic oil refineries in five states – Delaware, New Jersey, Ohio, Louisiana and California - and related assets with a combined processing capacity of approximately 900,000 barrels per day. PBF employs more than 3,000 people nationally.

In its Proposed Denial, EPA states: "We believe that the current structure of the RFS program is working to incentivize production, distribution and use of transportation fuels in the United States, while providing obligated parties a number of options for acquiring [Renewable Identification Numbers] RINs they need to comply with the RFS standard." The agency also states that it does not believe the Renewable Fuel Standards ("RFS") program is disproportionately impacting merchant refiners nor unnaturally boosting the profits of their integrated competitors and non-obligated blenders. Furthermore, EPA suggests that changing the point of obligation would result in an unmanageable number of obligated parties without incentivizing additional biofuel production, distribution or use.

As discussed in detail below, PBF strongly disagrees with EPA's conclusions and believes that market data, financial statements, and other information demonstrate that merchant refiners are disproportionately impacted by the placement of the point of obligation on refiners



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and importers. The current structure of the RFS program clearly imposes unnecessary burdens on merchant refiners, including PBF, to the financial benefit of integrated refiners and non-obligated blenders. With no marketing or retail assets, PBF has limited capacity to introduce fuels with higher biofuel content to retail consumers, since it sells the vast majority of its fuel into the bulk market. In light of this reality, the existing point of obligation has led to several absurd results: 1) PBF and other merchant refiners are forced to buy RINs from their direct competitors or non-obligated blenders, which creates an incentive for these entities to drive up the RIN price by hoarding RINs or limiting biofuel blending and 2) PBF and other merchant refiners are forced to decrease capital spending and production or export more gasoline or diesel fuel than they otherwise would as a result of their RIN obligation. These outcomes run contrary to the program's goals of expanding renewable fuel use and enhancing energy security, while adversely impacting consumers.

To address these concerns, PBF specifically requests that EPA move the point of obligation to the "rack seller," also referred to as the "position holder," by changing the definition of "obligated party" under the RFS program (40 C.F.R. § 80.1406) to the following:

> *An obligated party is the entity that holds title to the gasoline or diesel fuel, immediately prior to the sale from the Bulk transfer/terminal system (as defined by IRS regulations) to a wholesaler, retailer or ultimate consumer and is required to report any federal excise tax liability on IRS Form 720 – Quarterly Federal Excise Tax Return. An obligated party also includes the entity that is the enterer (as defined by IRS Regulations in 40 CFR § 48.4081-1) of the gasoline or diesel fuel into the U.S. outside of the bulk transfer/terminal system and is required to report any federal excise tax liability on its Form 720.*

EPA clearly has both the legal authority, and indeed the obligation, to move the point of obligation downstream from its current location to the rack seller. Moving the point of obligation downstream to the rack seller will ensure that compliance is proportional to the amount of blending controlled by market participants. In addition, moving the point of obligation will reduce compliance and consumer costs, and better advance the objectives of the RFS program. This proposed approach will achieve these goals without leading to a proliferation of obligated parties.

## II. EPA has both clear authority and an obligation to move the point of obligation

EPA has broad authority under the Clean Air Act (CAA) to move the point of obligation downstream to the rack seller. Specifically, CAA Section 211(o)(3)(B)(ii) provides that the renewable fuel obligation shall be applicable to "refineries, blenders, and importers, as appropriate." Therefore, the statute clearly authorizes EPA to establish "blenders" as a point of obligation. Further, as explained below, the term "blenders" could reasonably be interpreted by EPA as including rack sellers.

The term "blender" is not explicitly defined in either the statute or the RFS program regulations at 40 C.F.R. Part 80, Subparts A, K, or M. In the absence of a definition, EPA has the discretion to define the term "blender" in a reasonable manner. The term "blender" could reasonably be interpreted to include any person who owns, leases, operates, or supervises



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blending equipment or any person who *controls* whether gasoline or diesel fuel is blended with renewable fuel. This definition would be similar to the definition of "ethanol blender" under 40 C.F.R. § 80.2(v), which provides that an "ethanol blender" includes any person who "owns, operates, *controls*, or supervises" an ethanol blending facility.[1] Under this proposed definition, rack sellers would be "blenders" because, as owners of gasoline or diesel at the bulk transfer/terminal system, rack sellers exercise significant "control" over whether gasoline or diesel fuel will be blended with renewable fuel.

Alternatively, EPA could reasonably interpret the terms "blender" and/or "refiner" as including any parties who act in conjunction with a "refiner" or "blender" when supplying transportation fuels to the market. EPA has already taken this approach under the RFS program to impose requirements on several parties who are not refiners, blenders, or importers.

This approach is further supported by the statutory text that instructs EPA to apply the renewable fuel obligation "as appropriate." The phrase "as appropriate" is extremely broad and gives EPA the authority and discretion to impose renewable volume obligations (RVO) in a manner that advances the goals of the RFS program. For the reasons otherwise addressed in these comments, shifting the point of obligation to the rack sellers under the RFS program would advance the statutory objectives of the program and ameliorate the perverse burdens disproportionately imposed on merchant refiners under the current system.

## III. Merchant refiners are disproportionately impacted by the current point of obligation.

### A. Market data proves that merchant refiners are not able to fully recover RIN costs and that both integrated refiners and non-obligated blenders are capturing substantial portions of the RIN value as pure "windfall profits."

Previous petitions for rulemaking provide compelling evidence regarding merchant refiners' inability to recover RIN costs. EPA asserts in the Proposed Denial that the RIN value is recovered through the pricing of gasoline and diesel blendstock. However, as both AFPM and Valero pointed out in their petitions for rulemaking, EPA's analysis is flawed because EPA applied New York Harbor crack spreads to all refining markets across the nation. Comments filed on behalf of the Small Refinery Owners Coalition in relation to the 2014-2016 Renewable Volume Obligation (RVO) also contained a detailed rebuttal of EPA's report entitled "A Preliminary Assessment of RIN Market Dynamics, RIN Prices, and Their Effect,"[2] which is the report that EPA primarily relies on to supports its claim that merchant refiners are able to recover RIN costs.[3]

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[1] EPA commonly uses "control" in determining whether an entity fits within the scope of a defined term under the fuels programs. *See, e.g.*, 40 C.F.R. §§ 80.2(i) (defining a refiner as "any person who . . . controls . . . a refinery"); 80.2(k) (defining a retailer as "any person who . . . controls . . . a retail outlet").

[2] "A Preliminary Assessment of RIN Market Dynamics, RIN Prices, and Their Effect," Dallas Burkholder, Office of Transportation and Air Quality, US EPA, May 14, 2015.

[3] Small Refinery Owners Coalition, Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017: Docket ID No. EPA-HQ-OAR-2015-0111, July 27, 2015. Exhibit 1.

Even more compelling evidence highlighting the inability of merchant refiners to recover RIN costs is presented through an analysis of the RIN-adjusted bulk to wholesale rack price differential, even in New York Harbor. PBF Energy commissioned NERA Economic Consulting ("NERA") to assess the degree to which merchant refiners are able to recover their RIN costs when they sell the fuel they manufacture – known as reformulated blendstock for oxygenate blending or "RBOB" - to blenders, who mix the fuel with ethanol to produce reformulated gasoline (referred to herein as the "NERA Study"). Stated most directly, NERA found that merchant refiners are recovering very little of the increase in RIN prices in the price of RBOB, and E10 prices are not being discounted by the entire value of RINs.[4] Therefore large marketers and other blenders gain inflated margins and refiners face eroded margins when RIN prices increase, even though EPA's theory and the purpose of the RINs is to ensure a neutral effect along the value chain.

NERA's study (Appendix A) in part reviews and extends an analysis done by PBF that compares blenders' margins before and after the run-up in RIN prices in 2013. Its purpose is to evaluate EPA's suggestion in the Proposed Denial that the price of RINs is built into the price of RBOB, such that merchant refiners are made whole for any increase in the price of RINs by an equal increase in the price of RBOB. If, as EPA suggests, merchant refiners were truly able to recover the majority of their RIN costs through higher RBOB prices, then the difference between the price of reformulated gasoline, adjusted for the RIN value, and the bulk price of RBOB should have held constant since the inception of the program.

The NERA study confirms PBF's conclusion that EPA's RIN recovery theory is incorrect. Based on NERA's calculations, the average markup blenders charged at wholesale above what they paid for a gallon of RBOB was 2.3 cents per gallon (cpg) from 2008 through 2011. According to EPA's theory, from 2013-2016 blenders should have charged a wholesale price that was 4.6 cpg *below* what they paid for RBOB. With this price reduction, blenders would have maintained their prior year margins, since they were receiving a sufficiently high value of RINs during 2013-2016 to compensate for the lower wholesale price.

The data shows that blender wholesale prices were not discounted by such an amount. In fact, the data shows that the blenders' markup on RBOB only fell to minus 2.4 cpg, so that blenders retained 2.2 cpg (i.e., the difference between minus 2.4 cpg and minus 4.6 cpg equals 2.2 cpg) of the value of RINs that EPA's theory says should have been used to pay higher prices for RBOB. This value is also the increased RIN-adjusted margin that blenders received above and beyond their pre-2013 margin. Thus it is clear that EPA's theory is wrong; what remains unclear, and what examining this margin alone cannot determine, is whether it the refiner or the consumer is being short-changed.

NERA conducted an independent analysis to determine who was being harmed, specifically examining the relationships among RBOB prices, reformulated gasoline prices, RIN prices and ethanol prices more deeply, controlled for the effects of changes in crude oil prices

[4] That is, for each 10 cpg increase in RIN prices, RFG prices drop by only 0.8 cpg rather than the full 1 cpg.

during the 2013-2016 period. NERA's analysis of the data also shows that blenders' profits increase and merchant refiners' profits decrease when either RIN or ethanol prices increase.

Blenders obtain RINs with value much greater than the increased price of RBOB and do not pass all of the RIN value through to the consumer. Merchant refiners, on the other hand, are unlikely to be able to recover their full RIN cost through higher prices for their RBOB. Thus, increases in RIN prices are likely to force merchant refiners to absorb costs in excess of what they gain through increases in the price of RBOB. As a result, merchant refiners are only able to capture 15 percent of their RIN costs, while blenders margins increases. In fact, NERA's data shows blender margins nearly doubled in the 2013-2016 time period when compared to 2009-2012.

B. Financial statements of "RIN long" parties, both obligated and non-obligated, continue to confirm both the results of the NERA Study and the historical evidence highlighting that these parties are using the RIN system to bolster their profit margins.

Public statements by many market participants confirm the fact that refiners do not recover all of the RIN value. During Marathon Petroleum's third quarter 2016 earnings call, CEO Gary Heminger stated: "We believe the RIN cost is captured in part of the crack spread today, and part of it's retail, and part of it's in blending."[5]

In its Proposed Denial, EPA claims a more complete reading of Murphy USA's statements on RINs counters the Murphy data referenced in the AFPM petition. EPA suggests that this broader reading actually proves EPA's thesis, and that RINs simply offset higher RBOB prices that marketers pay due to refiners' attempt to recover RIN value. EPA, however, relies on selective data from Murphy and other marketers and theoretical arguments to buttress its theory. The NERA Study proves that RIN revenue does not simply offset higher bulk product prices. Additionally, many parties have previously submitted comments highlighting how marketers' RIN revenue has greatly exceeded revenue decreases from their operations.[6]

In its most recent earnings call, Casey's General Store Chief Financial Officer indicated that RINs boosted fuel margins by about three cents per gallon.[7] Wall Street analysts confirm the significance of RINs for padding the profits of the marketing company. In a September 2016 report, Barclays noted RINs contribute to approximately 11 percent of Casey's General Store's earnings per share on average, climbing as high 14.5 percent in the most recent fiscal quarter. Barclays highlighted that RINs have added anywhere from one to three cents per gallon to Casey's fuel margins from 2013 to the present. The following chart compares Casey's fuel margins before and after the dramatic escalation in RIN costs that has occurred since 2013, and reveals the significance of RINs to Casey's fuel margin increases:[8]

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[5] Marathon Petroleum Third Quarter Earnings Call Transcript: http://seekingalpha.com/article/4016009-marathon-petroleum-mpc-q3-2016-results-earnings-call-transcript?part=single

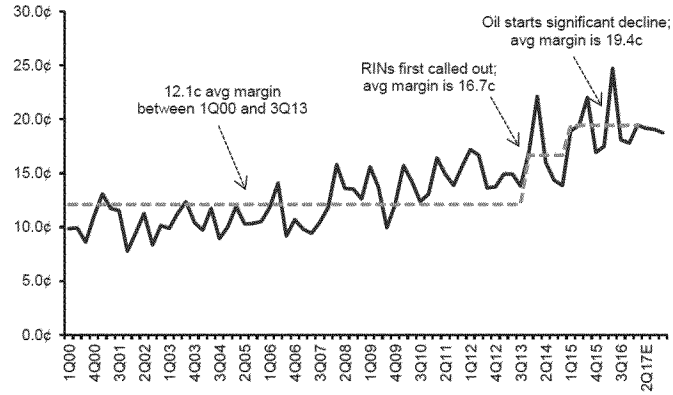
[6] Small Refinery Owners Coalition 2014-2016 RVO Comments, p. 3-6.

[7] Casey's General Store Q2 2017 Earnings Call Transcript: http://seekingalpha.com/article/4029330-caseys-casy-ceo-terry-handley-q2-2017-results-earnings-call-transcript?part=single

[8] Short, Karen. *U.S. Food & Staples Retailing: The Storm Before the Calm.* Barclays Equity Research, September 22, 2016. p. 95-96.

FIGURE 137

Quarterly Fuel Margins – Significantly Increased Due to Higher RINs and Lower Oil




Source: Company Reports, Barclays Research

Market data also reveals integrated oil companies that blend more fuel than they refine also profit from RINs at the expense of merchant refiners. Analysis from Baker & O'Brien shows integrated companies with larger marketing presences than refining operations have the potential to generate significantly more RINs than their RFS obligation requires.

As a result, companies that are "long" do not have to buy RINs; they can sell them. This situation provides these companies with a $2.33 per barrel cost advantage over the merchant refiners that must buy RINs from them and other market participants. The net impact is a wealth transfer from merchant refiners to RIN-long companies, leading to regulatory driven windfall profits for integrated refiners with excess RINs and lower margins for their merchant competitors. This is an economically unsustainable relationship that unfairly and unnaturally picks winners and losers in the marketplace.[9]

The Baker & O'Brien data supports NERA's conclusion that integrated refiners blending more than they refine see similar benefits as those of non-obligated blenders. This analysis, when combined with the previously mentioned data, contradicts EPA's assertion that the existing point of obligation does not disproportionately impact merchant refiners, while providing windfall profits to their RIN-long competitors and non-obligated blenders.

C. Higher RIN costs are forcing merchant refiners to export more gasoline and cut capital spending. Failure to address these issues works contrary to the statute's goal of advancing energy independence and security.

Contrary to EPA's statements in the Proposed Denial, exorbitant RIN costs are forcing companies to export more finished petroleum products and cut capital spending. Last year, PBF spent approximately $350 million on purchased RINs. This amount represented more than 66

[9] Baker & O'Brien for CVR Energy. *Impact of RINs on Merchant and Integrated Refiners.* October 28, 2016.

percent of PBF's $527 million 2016 capital budget. To avoid or mitigate these excessive RIN costs, PBF expects to continue and even increase the amount of finished petroleum product exports. As PBF Chairman and Chief Executive Officer Tom Nimbley stated in the company's Q3 2016 investor call:

> In the third quarter, we increased our level of product exports and are continuing to debottleneck our logistics to further increase our (export) capability. This should increase our presence in a new market for PBF and at the same time provide some relief from the crushing burden of RINs. Exports are not something that PBF has done a lot of in the past and with the current market on RINs we feel that this is something PBF frankly needs and will expand upon.[10]

In 2016, PBF exported 4.5 million barrels of gasoline and diesel fuel from its Chalmette, Louisiana, refinery. The company is currently building a storage tank to allow it to export significantly more product. Given extensive RIN costs, exporting is the most economic option, since there is no RVO obligation associated with fuel exports. Additionally, PBF exported gasoline from its Delaware City, Delaware, refinery for the first time ever this year. In PBF's most recent investor call, Mr. Nimbley elaborated on the company's new emphasis on exports:

> Exporting products is something we are focused on at all of our facilities. On previous calls, we have mentioned our capabilities at Chalmette and we continued to export about 22,000 barrels a day during the fourth quarter, which is about 16% of our total clean product yields. We continue to expand this activity and with the mentioned improvements at our docks, we should be able to increase export volumes.
>
> We are also taking advantage of opportunities to export in all of our other regions. We have exported to Latin America markets from Torrance, to Canada from Toledo, and we have recently exported finished gasoline from the East Coast, which has traditionally, due to logistic constraints and lack of economic incentives not been a major export market for PBF.[11]

While some exports would certainly occur in the absence of the RFS, RIN costs have become a significant factor in the economics of merchant refiners and are a large driver in expanding finished petroleum product exports.

Other merchant refiners are also being forced to take extraordinary measures to combat overly burdensome RIN costs. In September 2016, Philadelphia Energy Solutions (PES) informed its employees that the company incurred approximately $250 million in RIN costs year-to-date, an amount totaling twice the annual payroll for all PES employees. In the face of such costs, PES announced it was cutting capital spending, seeking volunteers for voluntary

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[10] Nimbley, Thomas. PBF Energy Q3 2016 Earnings Call Transcript. http://seekingalpha.com/article/4016607-pbf-energy-pbf-ceo-tom-nimbley-q3-2016-results-earnings-call-transcript?part=single

[11] Nimbley, Thomas. PBF Energy Q4 2016 Earnings Call Transcript. http://seekingalpha.com/article/4046852-pbf-energy-pbf-q4-2016-results-earnings-call-transcript?part=single



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employee separation plans, curtailing medical benefits, and cutting back on company cash contributions to tax-deferred employee savings accounts.[12]

Refinery closures due to escalating RIN costs would have devastating effects on the local economy. A 2012 Center for Workforce Information & Analysis report the State of Pennsylvania commissioned indicated that over 36,000 greater Philadelphia regional jobs were at risk if both PES and Monroe Energy's Trainer refineries closed, resulting in a $560 million economic loss for the area.[13] Another 2012 report from EnSys Energy noted the closure of these refineries, in addition to the mothballing of other East Coast refineries over the last decade, would have resulted in a total annual East Coast refined product domestic supply loss of 800,000 barrels per day.[14]

Other merchant refiners have also highlighted the need to similarly address excessive RIN costs through exports or reduced capital spending. In 2016, merchant refiners spent billions of dollars to buy RINs from competitors.[15] If left unaddressed, this situation will result in lost American manufacturing jobs, less competition, greater reliance on foreign petroleum products imports and higher consumer costs. Such results run contrary to the Energy Independence and Security Act's twin policy goals of enhancing energy independence and security. These results also directly conflict with the desires of the new Congress and Administration to revitalize and strengthen American manufacturing. Given this reality, EPA has a responsibility to address these issues. Moving the point of obligation is the best immediate measure available to EPA to fix the RFS program in a manner that advances the goals of the statute and corrects an unsustainable economic dilemma.

## IV. EPA ignores quantitative evidence that shows moving the point of obligation to the "rack seller" will NOT increase the number of obligated parties.

EPA concluded that moving the point of obligation to the "rack seller" will lead to a "significant increase in the number of obligated parties" based primarily on two factors. The first is the Agency's assessment that the analysis in Valero's petition is, "…flawed, due principally to their reliance on an incomplete data set" (obtained from the Oil Price Information Service (OPIS))." EPA cites conversations with OPIS that allegedly call into question the use of the data Valero submitted in support of this conclusion.[16]

The second element EPA relies on to develop its conclusion is a series of conversations with terminal operators and associations, although the Agency concedes these parties did not

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[12] Rinaldi, Phillip. Philadelphia Energy Solutions Memo to All Employees. September 7, 2016.

[13] Center for Workforce Information & Analysis for the State of Philadelphia. *Reemployment Assessment and Economic Impact of ConocoPhillips and Sunoco Closings*. January 9, 2012.

[14] EnsysEnergy for the American Petroleum Institute. *Impacts of East Coast Refining Closures*. June 9, 2012. p. 8. http://www.api.org/~/media/Files/Oil-and-Natural-Gas/Refining/EnSys-API-East-Coast-Refs-White-Paper.pdf

[15] Blewitt, Laura. *Oil Refiners Cry Foul as "RINsanity" Returns Amid Margin Squeeze.* August 4, 2016. https://www.bloomberg.com/news/articles/2016-08-04/oil-refiners-cry-foul-as-rinsanity-returns-amid-margin-squeeze

[16] "Proposed Denial of Petitions for Rulemaking to Change the RFS Point of Obligation," 81 Fed. Reg. 83,776 (Nov. 22, 2016)



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provide comprehensive data.[17] In reaching a decision based on these criteria, EPA both mischaracterizes its conversations with OPIS and ignores other significant data sets that were submitted with or in support of petitions to move the point of obligation. Additionally, the Agency's use of unsubstantiated information from parties who profit from the existing point of obligation is arbitrary and capricious.

The OPIS information was not the only data set submitted with petitions to move the point of obligation. AFPM submitted an extensive IHS report that analyzed OPIS data *in addition to* EPA information. Valero's 2016 petition also included federal tax and other data sets. All the data submitted showed that moving the point of obligation to the rack seller, as previously defined, would not increase the number of RFS obligated parties.

In relation to EPA's characterization of the OPIS data submitted as an "incomplete data set," OPIS's own comments on the Proposed Denial state the following:

> EPA's depiction … is a complete misreading of OPIS' communications. The statement published by EPA was taken completely out of context and presented by EPA as a standalone fact, without addressing the actual data or methodologies utilized by IHS and Valero. As previously indicated, OPIS' parent company IHS did in fact complete an independent analysis of both the current number of obligated parties as well as the number of obligated parties that would result from moving the point of obligation to position-holders at the terminal rack. While the report was not intended as a verification of Valero's analysis, the results were entirely consistent with Valero's findings as published in their petition (Attachment D - Master List of Rack Sellers). Consequently, both the IHS and Valero analysis yielded obligated party counts below the current number of obligated parties as indicated by EPA.
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> … EPA limited the data requested of OPIS, both in terms of the fuels covered and the type of data requested (count of client list only). This is in stark contrast to the much broader criteria and multiple data sets requested and utilized by IHS and Valero in their analyses. In addition to the OPIS data utilized in the analyses done by IHS and Valero, OPIS is aware that these parties used several additional data sources to analyze the potential numbers of obligated parties if the point of obligation were moved as petitioned.[18]

OPIS' comments reinforce the previously mentioned fact that EPA failed to appropriately consider the data submitted in the AFPM and Valero petitions to move the point of obligation. Basing a decision on such insufficient review, while simultaneously bolstering a conclusion based on admittedly unsubstantiated information from stakeholders who have a financial interest in the status quo, is arbitrary and capricious. The record is very clear in concluding that making rack sellers obligated parties for the RFS will NOT significantly expand the number of obligated parties.

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[17] Ibid.

[18] Oil Price Information Service (OPIS) comments to EPA "Proposed Denial of Petitions for Rulemaking to Change the RFS Point of Obligation" (February 21, 2017)

Additionally, as noted in the AFPM Comment Letter:

> "…..despite EPA's stated desire to place the RFS obligation on large entities that have the resources to ensure compliance with the RFS, EPA criticizes Valero's data for failing to include some entities that break bulk, including some of the largest companies (e.g. Costco, Walmart) in the U.S., if not the world. It bears noting that Valero did identify many of these companies in their data. However, the more important point is that these companies employ accountants and lawyers to ensure they are paying the IRS their federal excise tax for fuel. Contrary to EPA's discussion of the matter, these are sophisticated companies with the resources and abilities to track obligations and create annual reports. To the extent that some companies purchasing bulk fuel for their own use will be newly obligated, they are engaged in introducing transportation fuel into the market."[19]

PBF Energy's market capitalization is under $3 billion. Walmart's market capitalization exceeds $215 billion and Costco's is more than $75 billion. Not only are these big box stores large multinational companies with significantly greater resources than PBF or other merchant refiners, many of them are also significant motor fuel retailers. NACS notes there are over 5,000 "hypermarkets" run by Costco, Walmart, Kroger, Sam's Club and Safeway that collectively represent nearly 14 percent of U.S. gasoline sales.[20] Requiring such entities to be obligated parties would provide greater incentive for more biofuel blending without dramatically increasing the number of parties responsible for compliance. Data indicates the current point of obligation is NOT providing incentive for these mega-retailers, other integrated refiners or non-obligated blenders to offer fuel with higher biofuel content.

## V. Market data indicates moving the point of obligation will support the program's goal of maximizing the potential for biofuel blending.

EPA dismisses petitioners' arguments that moving the point of obligation will increase biofuel production, distribution, and use by better aligning the compliance requirement with entities who have the ability to introduce blended fuel into commerce. PBF recognizes that the RFS is a severely flawed mandate that unnaturally attempts to force consumers to purchase uneconomic fuels in quantities larger than the fuel supply is meant to handle. The legislation establishing the program was passed during a time when the nation was facing a significantly different energy landscape, both in terms of domestic oil production prospects and future fuel consumption projections. So-called "advanced" biofuels have also failed to materialize in quantities the law's framers envisioned, despite the billions of dollars both the government and

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[19] American Fuel & Petrochemical Manufacturers (AFPM) comments on EPA's "Proposed Denial of Petitions for Rulemaking to Change the RFS Point of Obligation" (February 22, 2017)

[20] NACS 2015 Retail Fuels Report, p. 30: http://www.nacsonline.com/YourBusiness/FuelsReports/2015/Documents/2015-NACS-Fuels-Report_full.pdf

private sector have spent attempting to develop such fuels. For these reasons, PBF is urging Congress to repeal or significantly reform the program.

Until Congressional acts, PBF recognizes EPA has a responsibility to advance the goals of the statute. We agree with EPA's recognition of the E10 blendwall and support the Agency using its broad waiver authority to reduce volumes from the statutory requirements to prevent a breach of the blendwall. However, despite this recognition, EPA still finalized an RVO that threatens to exceed the blendwall, partially on the justification that it felt compelled to force "opportunities that exist for pushing the market to overcome those constraints."[21] PBF disagrees this was the intent of the original statute. However, given EPA's action to push the mandate past the blendwall, it has a duty to move the point of obligation to fully explore the potential "opportunities" for the market to consume biofuel volumes in excess of the blendwall.

Despite this responsibility, EPA claims in the Proposed Denial 1) the introduction of biofuel into the fuel supply is not limited by blending infrastructure, 2) changing the point of obligation is not expected to impact pricing of fuel blends with higher renewable content, 3) the point of obligation does not significantly impact the availability of higher biofuel blends to consumers and 4) the existing structure of the RFS provides sufficient incentives for investment to increase biofuel blending. EPA bases its assessment on unsupported general statements from blenders currently profiting from RINs and an analysis of the E85 market. In addition to reaching such a conclusion without any quantitative evidence on blending infrastructure, EPA also ignores the potential for enhanced biofuel distribution and use through E15. A thorough assessment of E15 retail offerings and station ownership indicates moving the point of obligation could enhance biofuel distribution and use.

First, drawing a conclusion about the adequacy of biofuel blending and infrastructure through general conversations with terminal operators and marketers, without citing any supporting data, is arbitrary and capricious. EPA took the word of the parties, despite the fact they have a vested interested in continuing to profit from the existing, broken RIN system. In addition, EPA states that the entities that could become obligated parties if the point of compliance is changed "are already investing in blending infrastructure," without providing any supporting data or analysis.

Second, EPA dismisses the opportunity for E85 to appreciably boost biofuel distribution or use based on today's low consumption volumes and the Agency's conclusion that the market for the fuel is uncompetitive. EPA's analysis fails to explore the potential for greater E15 penetration to advance renewable fuel distribution and use. A review of publicly available data indicates that despite significant opportunity for greater E15 consumption, the existing point of obligation is not incentivizing large retailers who have both the means and ability to expand the fuel's offerings. Moving the point of obligation could advance E15 distribution and use.

The ethanol trade association Growth Energy indicates EPA's approval of E15 use in vehicles model year 2001 and newer enables 200 million vehicles – 87 percent of those on the

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[21] Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018, 81 Fed. Reg. 89,746 (Dec. 12, 2016).

road today – to fill up with the fuel.[22] Since the average American vehicle consumed 546 gallons of gasoline in 2015,[23] the theoretical market potential for additional ethanol distribution and use through E15 is 5.46 billion gallons.[24] This potential will only increase in the coming years, as the vehicle fleet turns over and more new cars capable of consuming higher ethanol blends are introduced into commerce.

PBF recognizes there are significant challenges with actually using such significantly greater quantities of ethanol and, as a matter of policy, questions the wisdom of forcing such action on consumers. Many of the 200 million cars technically approved for E15 are not warranted for such fuel. There are also other consumer barriers, such as the lower fuel efficiency of E15, cost effectiveness and lack of availability. However, given EPA's RVO, the misalignment of the current RFS point of obligation does not incentivize parties who control consumer fuel distribution to maximize availability of fuels like E15, because doing so would erode their RIN profit. A review of the marketplace highlights this reality.

PBF conducted a comprehensive assessment of retail outlets offering E15 to determine if non-obligated blenders with large retail presences were maximizing offerings of the fuel. These large retailers control a substantial portion of the nation's fuel distribution to consumers. While the majority of the nation's retail fuel businesses are single store operators, approximately 40 percent of them own multiple stores. In fact, NACS notes that 36.7 percent of motor fuel retailers own 11 or more stores, with 22.3 percent owning greater than 200 fueling outlets.[25]

Detailed data on stations selling E15 can be found on the Growth Energy supported website, getethanol.com, along with the site E85prices.com, which lists stations reporting E15 sales and prices. In many cases, it was possible to successfully search for aggregated statewide data on E15 retail offerings. When such options were unavailable, searches of the top five metropolitan areas in each state were conducted, as these areas represent the greatest opportunity for fuel consumption. Of the 124,000 retail motor fuel stations in the country,[26] PBF identified 564 selling E15, or 0.4 percent of all fueling stations. In relation to the large retailers referenced in EPA's Proposed Denial, very few of them have significant E15 offerings. For example, only 1.4 percent of Murphy USA's 1200 stores, 2.5 percent of RaceTrac's 670 stores, and none of QuickTrip's 700 stores offer E15. None of Casey's General Stores' 1900 locations carries E15, despite the Iowa Renewable Fuels Association spearheading a consumer petition calling on the business to offer consumers the fuel.[27] Additionally, *none* of the "hypermarkets" mentioned in the previous section – which are responsible for nearly 14 percent of U.S. gasoline sales - were listed as offering E15.

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[22] http://www.ethanolretailer.com/frequently-asked-questions/for-consumers#44

[23] 2016 NACS Retail Fuels Report, p. 14: http://www.nacsonline.com/YourBusiness/FuelsCenter/Documents/2016/2016-Retail-Fuels-Report.pdf

[24] Based on vehicle compatibility, the assumption that 2015 gallons were all E10 and the assumption that an additional 5 percent ethanol is included in each of the 546 gallons the fleet's 200 milllion E15 capable cars could possibly consume.

[25] 2016 NACS Retail Fuels Report. p. 3.

[26] 2016 NACS Report. p. 3

[27] http://www.ethanolnetworks.com/ask-caseys-general-stores-to-add-e15/



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The greater market potential for E15, coupled with the lack of retail offerings and the RIN profits of non-obligated blenders reinforces two facts: 1) the current point of obligation is not incentivizing greater distribution and use of biofuel and 2) moving the point of obligation downstream will better incentivize entities controlling fuel distribution to consumers to expand offerings of fuels with higher ethanol content. Only then will policymakers be able to determine the true extent to which consumers want and the market can handle volumes of ethanol in excess of the blendwall.

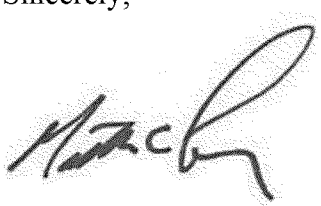
## VI. Conclusion

In light of the facts presented in these comments, PBF requests that EPA grant the previously submitted petitions to move the RFS point of obligation to the rack seller and start the process of developing a notice of proposed rulemaking in pursuit of such action. The record is clear that doing so will not lead to a proliferation of obligated parties and is the best path to determining how much more biofuel the fuel supply can absorb. Doing so is also necessary to address the disproportionate impact the current point of obligation imposes on merchant refiners like PBF, which could ultimately lead to reductions in U.S. refining capacity and dependence on overseas fuel sources. By moving the point of obligation, EPA will help both ensure the maintenance of a robust and competitive American fuel manufacturing sector and advance the statutory goals of the RFS program.

Finally, EPA should consider the arguments of parties on both sides of the issue. PBF and other proponents of moving the point of obligation have presented clear evidence regarding the potential for exorbitant RIN costs to result in lost jobs, diminished energy security and adverse consumer impacts. Alternatively, many RIN long integrated refiners are publicly saying during investor calls and in other forums that they will not be impacted by moving the point of obligation, but are opposing the measure and spending millions of lobbying dollars to prevent action. A simple assessment of the motivations on both sides of the debate makes the right policy choice clear. We urge the agency to make the right choice and act on moving the point of obligation.

Thank you for considering PBF's comments.

Sincerely,



Matthew C. Lucey
President

**APPENDIX A**

# An Analysis of the Pass Through of RINs Costs into Prices for Gasoline Blendstock Sold by Merchant Refiners

**By**
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**NERA Economic Consulting**
**February 22, 2017**

## Executive Summary

PBF Energy commissioned NERA Economic Consulting to assess whether merchant refiners are able to recover Renewable Identification Number (RIN) costs when they sell base gasoline blend stock, known as Reformulated Blendstock for Oxygenate Blending ("RBOB"), to blenders who mix the RBOB with ethanol and then sell the blended fuel (E-10 with a mix of about 90 percent RBOB and about 10 percent ethanol) to retailers. If merchant refiners are truly able to recover the balance of their RIN costs by charging higher RBOB prices, as EPA suggests in its proposed petition denial for moving the Renewable Fuel Standard (RFS) point of obligation (POOB), then the price difference between bulk gasoline blendstock (i.e., RBOB before blending) and crude oil should increase as RIN prices increase, so that the merchant refiner's margin remains the same. In other words, under EPA's theory the price of RBOB will increase to reflect the cost to merchant refiners of purchasing RINs to meet their Renewable Volume Obligation ("RVO"). By selling RINs obtained by blending ethanol with RBOB back to the merchant refiner, EPA asserts the blender will be fully compensated for the higher cost of RBOB and the price of E10 will be unaffected by changes in the price of RINs.

NERA's analysis shows EPA's premise is false, based on NERA's review of a study conducted by PBF and NERA's independent statistical analysis. These studies used prices for barge loads of RBOB and Ethanol in New York Harbor, E10 sales at a Newark, NJ truck rack, and Brent crude oil[2] from 2008 to 2016. New York Harbor was chosen because it is one of the most liquid gasoline markets in the world, and having all price series from a single location and market minimizes extraneous factors that might affect the relationship between RINs and other prices.

After reviewing PBF's work and performing our own calculations, NERA concluded that the blender kept as profits from 16 percent to 39 percent of any increase in the price of RINs, primarily because the price of RBOB rose by less than the cost of RINs needed to meet the RVO. To probe deeper, NERA conducted a detailed statistical analysis using methods that EPA has itself adopted, and found that the New York Harbor data refute

[1] The opinions expressed herein are those of the authors and do not necessarily represent the views of NERA Economic Consulting or any other NERA consultants.
[2] Brent is the price index most relevant for crude oil imports into the Mid Atlantic states.

EPA's theory that merchant refiners are unharmed by increases in RIN prices. The analysis also confirmed NERA's initial review of PBF's work. Specifically, the results of NERA's analysis calls into question three predictions of the EPA theory:

1. It is unlikely that RBOB prices increase sufficiently to cover increases in the cost of RINS needed to meet the RVO, contradicting EPA's claim of a 1 for 1 relationship that fully reimburses merchant refiners for RIN costs;
2. Blender's margins shrink by significantly less than the increase in the value of a RIN, contradicting EPA's claim that increases in RIN prices have no effect on retail prices and only compensate the blender for higher RBOB costs;
3. The price of RBOB declines significantly when the price of ethanol rises, contradicting EPA's assumption that changes in ethanol prices have no effect on RBOB prices;
4. A part of any increase in the price of ethanol is passed through by blenders in higher prices for wholesale gasoline.

Taken together, these findings invalidate EPA's claim that the RIN system does not harm merchant refiners. As defined for this study, merchant refiners have limited to no blending capabilities and no retail systems.

## Methodology and Findings

### PBF Analysis

NERA reviewed an analysis started by PBF, which provided suggestive evidence that the RINs market is not working as EPA has claimed. Figure 1 shows that the rack-bulk margin that is claimed by blenders was erratic from 2009 – 2012, and negative in the last year before the RIN price run-up. Then from 2013 – 2016 the margin was higher on average than in the prior period, and close to or above the highest margin from 2009-2012 in every year but one. This should not happen if EPA's theory that the refiner increases RBOB prices by the exact same amount that the blender gains in RINs value from blending, so that when the blender sells those RINs to refiners the rack – bulk margin remains unchanged. In Figure 1, the rack – bulk margin equals the difference between E10 and RBOB prices plus the value of the RIN obtained by the blender per gallon of E10 produced.



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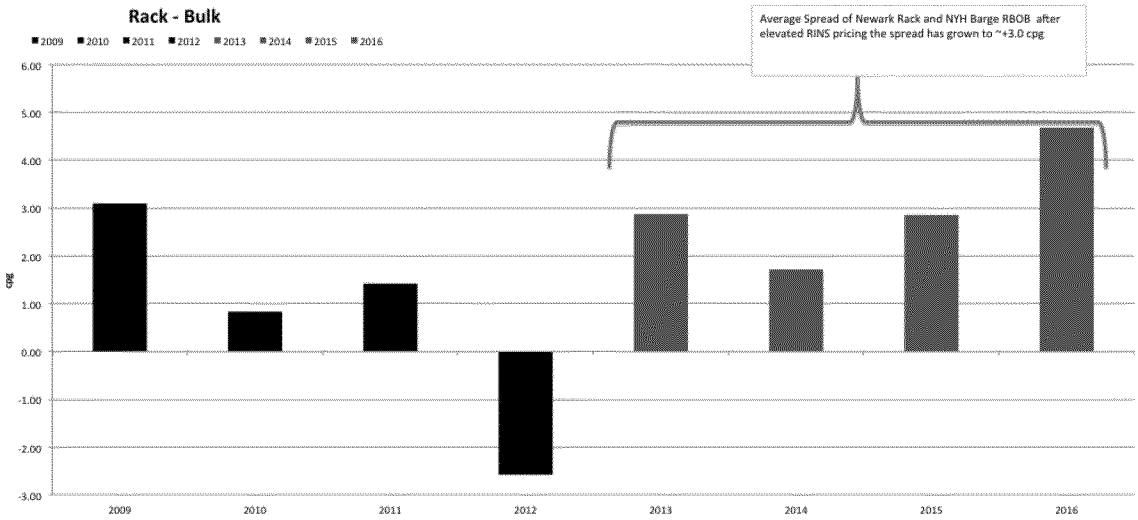
Figure 1: Comparison of Blender's margin before and after RIN price run-up




We extended the PBF analysis by using daily data to assess how increases in the RIN price after 2012 affected the wholesale markup blenders charge over their cost for RBOB (the rack – bulk margin). To estimate the average share of the RIN cost that appeared in the rack-bulk margin during the 2013 to 2016 time period, we compared the difference between the rack and bulk price to that of the theoretical difference if there were 100 percent pass through of the cost. To compute the amount the blender marked up the hydrocarbon component of E10, we subtracted the value of ethanol in a gallon of E10 from the E10 rack price. This gave us the value of the hydrocarbon contained in one gallon of E10, which we converted to a full gallon by dividing by 0.9. Subtracting the bulk price from the value gave us the blenders markup on RBOB:

(1) Rack – Bulk observed = (Rack– 0.1*Ethanol)/0.9 – Bulk[3]

If there were 100 percent pass through, equation (1) should equal the terminal charge minus the RIN price multiplied by 0.1/0.9 to convert to number of RINs generated per gallon of bulk:

(2) Rack – Bulk with 100% pass through = Terminal Charge – 0.1/0.9 * RIN

where the Terminal Charge is the terminal operator's cost including profit margin to blend ethanol with RBOB (bulk) to produce E10 at the rack where it is delivered to distributors tank trucks.

[3] Data sources are as follows: Rack prices -- OPIS; Bulk (RBOB) prices - Argus Gasoline reg RBOB NYH barge fob prompt continuous Prmpt - Houston close (USC); Ethanol - Platts Ethanol NYH Barge Mo01 (USC); and RIN prices - Argus RIN renewable fuel (Ethanol) current year - Houston close (USC).

To estimate the terminal charge, we computed the average differential given in (1) for a periods of no RIN or very low RIN prices, namely from 2008 to 2011. The average of rack – bulk in equation (1) during this time period is 2.3 cents per gallon (cpg).

To compute the average percentage of the RIN price that is passed through in the form of a lower price of E10 (the pass through), we computed the average value of RINs generated by a blender per gallon of RBOB and evaluated equations (1) and (2). The average percentage pass through is given by the following:

[Average of (1) – Average of (2)] / Average RIN Value

The average value of equation (1) over the 2013-2016 time period was -2.4cpg

The average value of equation (2) over the 2013-2016 time period was -4.6 cpg

Therefore, 2.2 cpg of the RIN price is not being used to reduce the price of E10 (–2.4 minus –4.6). The average value of RIN generated by blender over the 2013 to 2016 time period was 6.8 cpg so the 31 percent (2.2/6.8) of the benefit to the blender of the RIN is not passed through as a lower price of E10.

This estimate of the average pass through of the RIN cost depends critically on the value of the terminal charge, which can only be estimated. Using different time periods for estimating the terminal charge leads to a range in the estimated RIN pass through of 16 percent to 39 percent, but the low is estimated by using only data from the year 2012, which did have measurable RIN prices that muddy this computation.

Clearly something is wrong here. According to EPA's theory, the blender neither gains nor loses when the price of RINs changes, because selling RINs gives back to the blender exactly the same amount that it paid in a higher RBOB price. Since the blender actually benefits by from 16 percent to 39 percent of an increase in the price of RINs, either the price of RBOB rises by less than the cost of RINs needed to meet the RVO or the price of E10 rises with the RIN price when in theory it should be unaffected.

**Time Series Data Test of EPA Theory on RBOB and RIN Pricing**

To understand the impact of the RIN market on merchant refiners, NERA also directly tested the hypothesis that changes in RIN prices are passed through 100 percent into RBOB prices, as EPA claims, using the same statistical methods applied in a study that EPA has cited as a basis for assuming 100 percent pass through.[4] NERA used daily data on RBOB and E10 prices in New York Harbor, exchange traded RIN prices, and the Brent crude oil price, the most representative index for the cost of crude oil in New York Harbor. NERA examined how the spread between (1) RBOB and Crude prices; (2) E10

[4] https://www.epa.gov/sites/production/files/2016-11/documents/420d16004.pdf

and Crude prices; and (3) RBOB and E10 prices varied with changes in the prices of ethanol and RINs. Including crude oil and ethanol prices in this way allowed NERA to control for the effects of changes in those variables on the prices of RBOB and E10 and gave more statistically significant results than other formulations.

*RIN Price Increases Not Captured in RBOB Price*

Far from confirming EPA's conclusion, NERA finds that the pass through of RIN prices into RBOB prices is not significantly different from zero. The most likely, though highly uncertain, estimate is that merchant refiners are only able to recapture about 15 percent of the RIN price in the price they receive for RBOB. On balance, NERA concludes that it is unlikely that the full RIN cost is incorporated in the spread between crude and RBOB prices.

Our analysis finds that blenders retain a significant portion of the value of RINs they obtain from blending. Since independent blenders are non-obligated parties without any RVO obligation, they gain additional revenue from selling the RINs they acquire by blending.[5] EPA's theory implies that the blender's markup – the difference between the E10 price and RBOB price – should fall penny for penny with an increase in the value of the RINs generated by blending. This is because the additional revenue obtained by the blender from RINs sales will, according EPA's theory, exactly offset the hypothetical increase in the price of RBOB. NERA finds the difference between E10 prices and the price blenders pay for RBOB reflects only 78 percent of the RIN price.[6] Therefore, the blender retains 22 percent of the value of the RIN for itself as additional profit.

The impacts of RIN price increases prices at each point in the value chain estimated by NERA are shown in Table 1 and discussed below.

[5] Since a blender obtains one-tenth of a RIN for each one-tenth of a gallon of ethanol that it uses to make a gallon of E10, the value of RINs generated with a gallon of E10 is 0.1*price of RINs.
[6] Note this 80% figure falls in between our estimate of the 61% to 84% pass through of RIN costs.



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**Table 1: Impacts of RIN Price Increases on Prices and Margins**

Change in merchant refiners margin due to $1 increase in RIN price

| | Change in Crude Price | Change in RBOB price | RIN cost | Change in margin |
|---|---|---|---|---|
| Theory | 0 | $0.097 | $0.097 | 0 |
| Estimated | 0 | $0.015 | $0.097 | ($0.082) |

Change in blenders margin due to $1 increase in RIN price

| | Change in RBOB Price | Change in E10 price | RIN Benefit | Change in margin |
|---|---|---|---|---|
| Theory | $0.100 | 0 | $0.100 | 0 |
| Estimated | $0.015 | ($0.061) | $0.100 | $0.024 |

*Ethanol Price Increases Reduce Merchant Refiners Margin*

The merchant refiner's profits are based on the spread between RBOB and crude prices, as well as the price it pays for RINs. The data indicate that when the price of ethanol increases, the spread between RBOB and crude actually shrinks, by about 7 to 8 cents per gallon for every $1.00 increase in the cost of ethanol that must be blended to make E10. In other words, when the price of ethanol increases, blenders obtain a reduction in the price of RBOB. This relationship is estimated with high confidence. Thus the merchant refiner bears a large share of changes in the cost of ethanol going into E10, while getting little to compensate for the cost of requisite RIN purchases. The drop in the price of RBOB matches the gain in the blender's margin, so that the blender is enriched at the expense of the merchant refiner.

The seven to eight cents per gallon reduction in the spread between RBOB and crude for each $1 increase in the price of ethanol is consistent with blenders decreasing their willingness to pay for RBOB when ethanol costs rise. The combination of the value of the RIN and this reduction in the price of RBOB is shared between retailers of E10 and the blender. The blender keeps 24 percent of the value of the RIN as increased profits while the retailer gets 61 percent. Only 15 percent of the RIN price gets to the merchant refiner in compensation for its paying 100 percent of the RIN price to satisfy its RVO.

*Merchant Refiners Profits Decrease with RINs or Ethanol Price Increases*

NERA finds that blenders benefit in two ways from receiving RINs without an RVO:

1. When ethanol prices rise, blenders shift some of this cost back onto refiners.
2. When RIN prices rise blenders are able to keep a share of the RIN price increase.



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Thus, blenders' profits significantly increase when either RIN or ethanol prices increase.

Integrated refiners

Integrated refiners who operate terminals and retail systems occupy a middle position. Their profits come from the spread between E10 and crude prices, and if that spread stays constant their profits are reduced when the price of ethanol increases, because they perform blending themselves. Our statistical analysis cannot rule out the possibility that an increase in RIN prices results in no change in the spread between E10 and crude oil prices, but the most likely estimate is that the spread declines by about 6 cpg for each dollar increase in the price of RINs. Thus, integrated refiners actually receive a smaller profit on producing E10 when the RIN price increases *if* the RVO requires that all the RINs generated from blending must be turned in to EPA for compliance. However, if their RVO allows integrated refiners to retain some of the RINs generated during blending beyond their RVO obligation, then they can sell excess RINs to other obligated parties to help offset the lower markup of RFG over crude that is associated with higher RIN prices. The more fuel integrated refiners blend above and beyond their RVO obligation, the more their RIN profit capture resembles non-obligated blenders.

In contrast, we do find a statistically significant relationship between ethanol prices and the difference between E10 and crude prices. When ethanol prices increase by $1.00, the price of E10 should increase by $.10 per gallon, to reflect the increased cost of the one-tenth of a gallon of ethanol contained in a gallon of E10. Instead, we find with a high degree of confidence that the price of E10 rises by only $.06 per gallon. Like merchant refiners, integrated refiners are forced accept lower prices for their product when ethanol prices increase.

The integrated refiner may be able to offset at least some of the costs associated with higher ethanol prices with the sale of RINs depending upon the RVO requirement. But the merchant refiner has nothing to offset the inadequate response of RBOB prices to RIN prices and the unexpected drop in RBOB prices when ethanol prices rise.

**Summary of Findings**

Table 2 summarizes what the data have to tell us about the validity of EPA's theory of the relationship between crude, RBOB, E10, and RIN prices.[7]

[7] Complete statistical results including the STATA log and data series are available/provided separately

**Table 2: Comparison of predicted and estimated values of passthrough**

| | **Merchant Refiner** Spread(RBOB, CRUDE)$_t$ | | **Integrated Refiner** Spread(RFG, CRUDE)$_t$ | | **Blender** Spread(RFG, RBOB)$_t$ | |
|---|---|---|---|---|---|---|
| | Predicted | Estimated | Predicted | Estimated | Predicted | Estimated |
| RIN ($\beta_1$) | 9.7% | 1.5% | -1.2% | -6.6% | -10% | -7.9%* |
| Ethanol ($\beta_2$) | 0 | -7.4%** | 0.1 | 5.7%** | 10% | 12.4%** |

*Significantly different from predicted value at 10% level
**Significantly different from predicted value at 5% level

The results in Table 2 show the pass through of RINs (first row) and Ethanol (second row) price changes into the different spreads that provide profits for independent refiners, integrated refiners, and blenders respectively (the three column headings). For each type of spread, we compare the pass through predicted by EPA's theory to the pass through actually observed in the data. We find that EPA's theory is rejected in 4 out of the 6 possible cases, using standard hypothesis tests, and the results make it unlikely EPA's theory is true in the other two.

*Findings about Merchant Refiners*

For merchant refiners, the relevant spread is between the price of crude and the bulk price of RBOB. EPA's theory predicts if the RVO is 9.7 percent (as it was on average in our data period), then the pass through percentage should be 9.7 percent. Instead, we estimate that the pass through rate was only 1.5 percent. These numbers are very different, but there is a great deal of unexplained variation in the spread so that we cannot reject the hypothesis that the estimated value and the predicted value are the same. However, in cases like this, a standard hypothesis test may not provide the most useful information to decision-makers. A more decision-oriented approach is to put a confidence band around the pass through estimate. Using the same estimate of the standard error of the estimated RIN pass through into the price of RBOB, we can calculate that there is approximately a 70 percent probability that the true pass through rate is less than 50 percent and only a 30 percent probability that it is above 50%.

In the second row, we find that EPA's theory predicts that there should be zero effect of ethanol prices on the effect of RBOB, but the data show that RBOB prices actually decrease by 7.4 percent of any increase in ethanol prices. This relationship is significant at the .05 level, and we can reject EPA's theory with only a 5 percent chance of being wrong.



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*Findings about Blenders*

Turning to the last column, the spread between reformulated gasoline (RFG), which is what blenders sell at wholesale, and RBOB (without RINs) is the metric that indicates how blenders make their profits. EPA's theory predicts that this spread will narrow by 10 percent of any increase in RINs prices, because that is what a blender earns by selling the RIN that it obtains by blending. The data show that the spread decreases by only 7.9 percent and this estimate is significantly different from EPA's predicted 10 percent at the .10 level. Therefore, we can reject EPA's theory with only a 10 percent chance of being wrong. These estimates imply that the blender on average keeps 21 percent of any increase in the price of RINs as an increase in profit margin.

The relation between the blenders margin and the price of ethanol is consistent with the effect of ethanol price increases on merchant refiners. According to EPA's theory, ethanol prices should be passed through into the margin on a dollar per dollar basis, implying that the margin on E10 would increase by 10 percent of the increase in ethanol prices. Instead we find that E10 prices increase by 12.4 percent of the increase in the price of ethanol, and this relationship is significant at the .05 level, so that there is no more than a 5 percent chance that EPA's theory is correct. The gain in the blender's margin mirrors the drop in the independent refiners margin, as the blender keeps 24 percent of any increase in ethanol prices while the independent refiner loses 26 percent of any increase in ethanol prices.

*Findings about Integrated Refiners*

For an integrated refiner, EPA's theory predicts that the spread between E10 and crude prices should decline as the RIN price increases during the period studied. Theoretically, this narrowing over the study period should be the result of the integrated refiner gaining more RINs from blending ethanol into E10 than its RVO, and this gain should be passed through as a lower price for E10. We find that the estimated decline in the integrated refiners margin is 6.6 percent of the increase in RINs prices rather than the predicted 1.2%. We cannot reject the hypothesis that the theory and prediction are the same at the .1 level, but as in the case of merchant refiners, it is more likely than not that the integrated refiner loses when the price of RINs increases. However, if the integrated refiner produces RINs in excess of its RVO, the revenue it obtains from selling the excess could offset or reverse this. Integrated refiners occupy an intermediate position between merchant refiners and blenders, and the net effect on integrated refiners will depend on whether and to what extent they blend more or less than the RBOB they produce.

The integrated refiner also fails to obtain the 10 percent pass through of ethanol prices into the spread between crude and E10 that EPA's theory predicts. Instead, the integrated refiner regains in its margin only 5.7 percent of the increase in ethanol cost,

rather than the full 10%, and the difference is significant at the 5 percent level.

*EPA's Theory Fails in Four out of Six Cases*

In summary, the spread between RFG and RBOB reacts to changes in both RINs and ethanol prices in amounts that are significantly different from EPA's predictions. There is only a 10 percent chance given these data that EPA's theory about the effect of RINs on the price of E10 is correct.

An increase in the price of ethanol has an effect on margins earned by the three different market participants – merchant refiners, integrated refiners and blenders. Merchant refiners are harmed because RBOB prices decline, integrated refiners benefit because E10 prices increase, and blenders profit because their margin (E10-RBOB) increases by more than the increase in the price of ethanol. This is significantly different from EPA's prediction that ethanol price increases do not impact the any stakeholders. There is no more than a 5 percent chance that EPA's theory is correct.

We find that the pass through of RINs into RBOB prices is not significantly different from zero at the 1 percent level, meaning merchant refiners recover very little of their RIN costs. However, estimates of the pass through of RIN prices into the RBOB price are very uncertain, and a standard hypothesis test, even at the 10 percent confidence level, cannot reject the possibility that EPA is correct. In cases like this, a standard hypothesis test may not provide the most useful information to decision makers. A more decision oriented approach is to put a confidence band around the pass through estimate. Using the same estimate of the standard error of the estimated RIN pass through into the price of RBOB, we can calculate that there is approximately a 70 percent probability that the true pass through rate is less than 50 percent and only a 30 percent probably that it is above 50 percent. Thus the data implies a distinct likelihood that there is less than full RIN pass through, creating a competitive disadvantage that harms merchant refiners to the benefit of non-obligated blenders and, in many cases, refining competitors that are long RINs.

**Conclusions**

Our review of the PBF work and our own analysis supports the following conclusions:

1. Merchant refiners are harmed by increases in RIN prices because it is unlikely that they can recover their RIN costs in the sale of higher priced RBOB. They are also harmed by increases in ethanol prices that drive down the price of RBOB.
2. Integrated refiners could be harmed by higher RIN prices unless they are able to generate and sell sufficient excess RINs. In the excess RIN situation, the integrated refiner may benefit.
3. Blenders unambiguously benefit from either higher RIN or higher ethanol prices. They retain a portion of the RIN's value as profit when RIN prices increase, and

they are able to increase the E10 – RBOB margin by more than an increase in ethanol price.

4. These findings contradict EPA's theory and the policy objective that the RINs system be neutral in its effect on different participants in the gasoline value chain.