



Energy Policy Research Foundation, Inc.  
1031 31st Street, NW, Washington, DC 20007-4401  
www.eprinc.org

Phone: 202.944.3339  
Fax: 202.944.9830  
E-mail: contact@eprinc.org

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## **Comments Provided by the Energy Policy Research Foundation on EPA's Proposed 2014 Standards for the Renewable Fuel Standard Program**

### **Re: Docket ID No. EPA-HQ-OAR-2013-0479**

The Energy Policy Research Foundation, Inc. (EPRINC) welcomes the opportunity to provide comments on EPA's proposed rule for *2014 Standards for the Renewable Fuel Standard Program*. In addition to our comments on the rule provided in this document, EPRINC requests that the full text of the attached EPRINC publication ("The Mortar is Nearly Set: The Consequences of Exceeding the Blendwall in 2013 and 2014" July 22, 2013) be submitted to the record. EPRINC has provided a full list of our publication record on RFS in the appendix to these comments.

EPRINC was incorporated in 1944 and is a not-for-profit organization that studies the intersection of energy economics and public policy with special emphasis on petroleum and value-added downstream product markets. EPRINC researches and publishes reports on all aspects of the petroleum markets which are made available free of charge to interested organizations and individuals. We are recognized internationally for providing objective analysis of energy issues.

EPRINC has undertaken research and analysis on ethanol's role in the transportation fuels sector since 2006, including a major workshop with the Energy Information Administration (EIA) in 2008. More importantly, as early as 2007, EPRINC published detailed assessments of ethanol's role in the transportation fuels sector.

From 2006-2008 EPRINC's research on the RFS concluded that it would not be feasible to implement the RFS at levels above 10% of the gasoline pool without significant disruptions to the transportation fuel supply network and without substantial increases in the cost of gasoline for American consumers.

Our long-standing assessments of the RFS issue are now largely substantiated by work undertaken by EIA and also recent work undertaken by National Economic Research Associates (NERA).<sup>1</sup> EIA is now forecasting that the production of cellulosic and advanced biofuels will not meet the volumetric mandates under the law (36 billion gallons per year by 2022). As a result, EPA will have to compensate for the expected deficit in the required volumes by issuing credits or as has been presented in the propose 2014 RFS rule, a reduction in the required mandate for blending of ethanol and other biofuels.

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<sup>1</sup> See Economic Impacts Resulting from Implementation of RFS2 Program, National Economic Research Associates (NERA). October 2012.

EPRINC remains convinced that the fundamental problem with the program is that it relies upon a mandated volume of blending of biofuels without regard to either its technical feasibility or consumer acceptance. In the absence of fundamental changes, almost certainly requiring new legislation, EPA will now face annual requirements to waive the mandate. Given this predicament, EPRINC implores EPA to announce proposed 2015 standards as soon as possible following the implementation of final 2014 standards. Obligated parties and biofuel producers require long-term regulatory certainty in planning their operations. If obligated parties are uncertain that a waiver in 2014 will be followed by a waiver in 2015, they will have to adjust their planning and operations in the very near term in anticipation of the large RIN deficits that will undoubtedly arise in 2015.

EPA's proposed 2014 standard of 15.21 billion gallons of renewable fuel has gone a long way in reigning in expectations of large RIN deficits in 2014 and associated RIN market panic. However, at the current price of \$0.30 per gallon for a D6 RIN, prices remain about ten times higher than their pre-2013 levels. This suggests that RIN market participants expect uncertainty and tightness in 2014, perhaps driven by the need to adapt to larger 2015 mandates and associated deficits.

Of the three waiver approaches EPA presents on page 71737 of the proposed rules, EPRINC supports EPA in selecting the third approach. This approach considers both supply and demand constraints in determining a standard for 2014, rather than the method utilized by the first two approaches that only considers advanced biofuel supply constraints. It is the only listed approach capable of considering the full range of fundamental market and technology related assumptions that have proven to be inaccurate since EPACT and EISA became laws in 2005 and 2007, respectively. Many of the now obsolete assumptions, such as that U.S. gasoline consumption would continue to grow after 2008 and that next generation biofuels would arrive at scale and in a timely manner, comprise the logical foundation for the growing volumetric mandates called for by RFS II. The volumetric mandates have become increasingly untenable as the gap between the assumptions made nearly a decade ago by lawmakers and ongoing petroleum and commodity market trends continues to grow.

Although the proposed 2014 standards acknowledge many of the fundamental economic and technical hurdles that have prevented greater ethanol penetration of the gasoline pool, EPRINC suggests that EPA revisit a number of assumptions it has made in the proposed 2014 rulemaking regarding ethanol market size. These assumptions, in aggregate, overestimate the potential market for ethanol in the E0, E10 and E85 pools by approximately 600 million gallons and introduce costly compliance risks. The rules as proposed will likely require the drawdown of 75% of the remaining D6 RIN bank by the end of the year and spark renewed anxiety in the RIN market. By marginally reigning in these assumptions, EPA would not be capping ethanol potential. Should ethanol economics improve, E85 uptake will increase. The risk of maintaining an artificially high floor, however, could be significant.

## **E0**

Regarding E0 (gasoline with no ethanol), EPA states “We have not assumed that any gasoline would be E0 in 2014, since E10 is commonly used in nonroad engines just as it is used in cars and trucks. However, it is possible that a limited amount of E0 will be consumed if refiners are willing to provide it. If so, it would likely appear in premium gasoline, gasoline sold at marinas, or possibly unleaded motor gasoline used in light aircraft that do not require leaded aviation gasoline. There are also several states that require unblended gasoline to be provided to terminals, though the intention of these requirements is to ensure that terminals have the option to blend ethanol into that gasoline. We are not aware of any data that would provide a direct estimate of the demand for E0, and given that any ongoing demand for E0 is likely to be small, we have not included it in our calculations of the total volume of ethanol that can be consumed in 2014.”

EPA grants that E0 consumption will be greater than zero gallons in 2014, thus reducing the share of gasoline that is blended up to E10, but argues that due to a lack of direct data it will assume no E0 consumption in 2014. EPA should ideally locate E0 consumption data. If that is not possible, EPA should consider a non-zero figure for E0 consumption in 2014. By under-counting E0 consumption, EPA is making its first of several over-estimations of the potential market for ethanol.

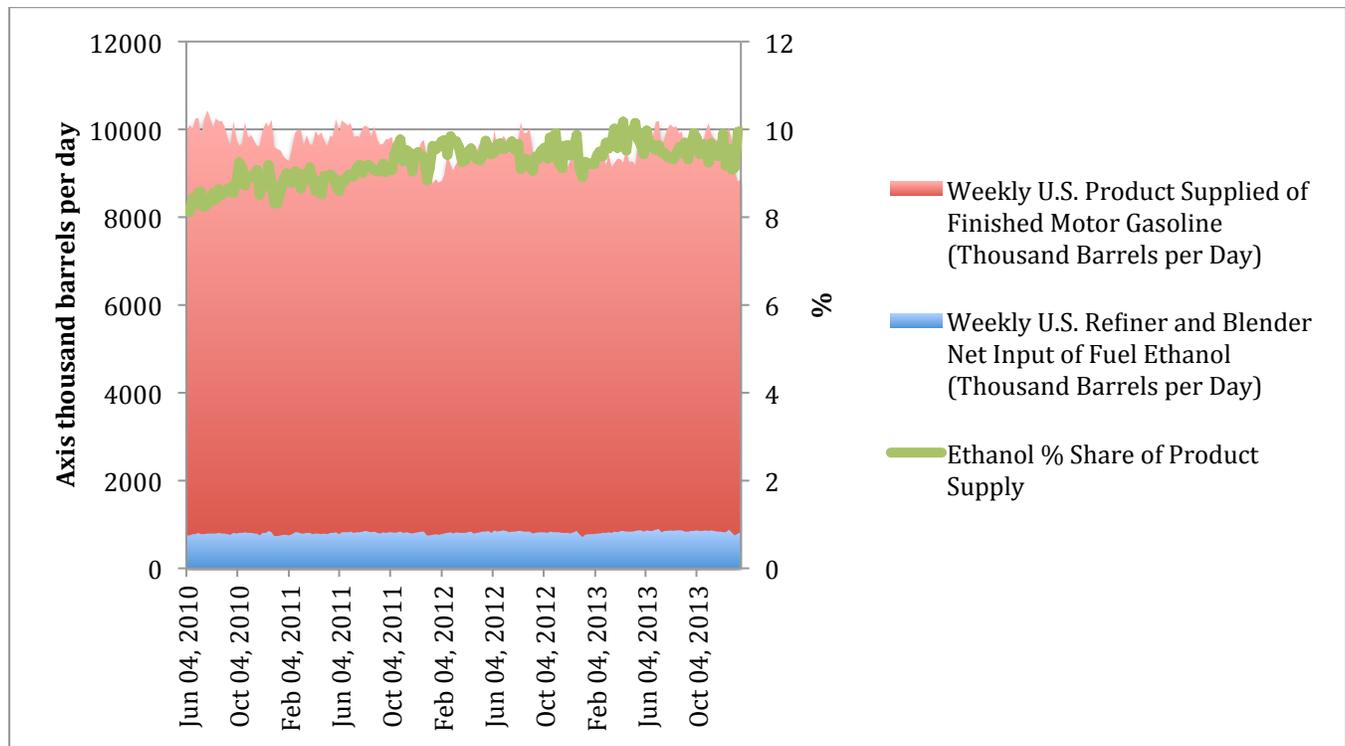
## **E10**

EPA states, “Aside from the volume of E85 that could reasonably be consumed in 2014, discussed in more detail in the next section, the gasoline pool would be comprised of E10. We have assumed that gasoline contains 10.0% denatured ethanol. This is consistent with survey data collected by the Alliance of Automobile Manufacturers indicating that the average ethanol content of all gasoline containing at least 5vol% ethanol is about 9.74%.”

The extrapolation of this AAM data across the entire E10 pool is flawed in that AAM only surveyed gasoline with over 5% ethanol. Therefore, any gasoline with less than 5% ethanol is automatically excluded from the data set, including E0. This has the effect of inflating the actual concentration of ethanol in the E10 pool.

EIA blending and gasoline supply data supports EPRINC’s conclusion that EPA is overestimating E10 blending. Figure 1 below shows weekly fuel ethanol blending by refiners and blenders as well as weekly finished motor gasoline product supplied on the left axis. On the right axis, fuel ethanol blending is divided by gasoline product supplied to show ethanol’s share of gasoline product supplied (EIA’s analogue to consumption), denoted by the green line.

**Figure 1. Ethanol's Share of U.S. Gasoline Supply**



Source: EIA Data

Ethanol's share of the U.S. product supply plateaus at slightly under 10%. For the weeks of January 4, 2013 through January 17, 2014 ethanol averages a 9.6% share of the finished motor gasoline pool.<sup>2</sup> Granted, a barrel of blended gasoline would not be supplied immediately to market, but incorporating several years of data should smooth any lag out. Also, the ethanol blending shown in Figure 1 is not necessarily limited to gasoline supplied to U.S. E10 consumers. It could be blended into gasoline bound for exports or blended into E85. Therefore, the actual concentration of domestically supplied gasoline could be lower. In any case, EPRINC suggests that EPA consider the above EIA data, the flaws associated with extrapolating the AAM data set, and the logistical constraints associated with blending exactly 10% ethanol, no more and no less, in every gallon of gasoline in the lower-48 states and Hawaii, when estimating ethanol penetration of the E10 pool. To assume a precisely 10% concentration is both unrealistic and overestimates the market for ethanol. A figure closer to 9.6% is both more accurate and more attainable.

<sup>2</sup> Removing Alaskan gasoline consumption increases ethanol concentration by 2 basis points (from 9.57% to 9.59%).

## E85

EPA makes several generous assumptions regarding potential demand for E85. One argument is that the number of FFVs (Flex-fuel vehicles) on the road will grow and therefore demand for E85 will as well. There has not been a direct 1:1 relationship between the number of FFVs on the road and E85 uptake. The vast majority of FFV owners do not use E85. Fueling infrastructure constraints aside, this assumption also ignores the fact that despite a recent drop in corn prices relative to crude oil, nationwide average E85 prices remain more expensive, when adjusted for energy content, than regular gasoline. Consumers simply do not have an incentive to purchase E85 at current prices (nor have they for over a decade).<sup>3</sup>

The following chart was taken from AAA’s fuel gauge report on January 27, 2014.

*Figure 2. AAA Fuel Prices*

### National Average Prices

	Regular	Mid	Premium	Diesel	E85	**E85 MPG/BTU adjusted price
Current Avg.	\$3.282	\$3.465	\$3.633	\$3.868	\$2.786	\$3.667
Yesterday Avg.	\$3.285	\$3.467	\$3.636	\$3.869	\$2.801	\$3.687
Week Ago Avg.	\$3.284	\$3.464	\$3.633	\$3.853	\$2.788	\$3.669
Month Ago Avg.	\$3.302	\$3.476	\$3.648	\$3.861	\$2.911	\$3.831
Year Ago Avg.	\$3.347	\$3.502	\$3.657	\$3.908	\$3.075	\$4.047
Highest Recorded Average Price:						
	Regular Unl.		\$4.114	7/17/2008		
	DSL.		\$4.845	7/17/2008		

Source: AAA

In attempting to forecast E85 demand in 2014, EPA makes the following statement on page 71759, “At this time, available information regarding the volume of E85 production in 2013 is limited to the first half of the year. Using the same two sources of information described above—EIA survey data for E85

<sup>3</sup> See page 6 of EPRINC’s report, “The Mortar is Nearly Set”, July 22, 2013, <http://eprinc.org/pdf/EPRINC-RFS2014.pdf>

production by refineries and blenders, and EMTS data to estimate E85 production at ethanol facilities—we have estimated that total E85 production for the first half of 2013 was about 36 mill gal. However, both of these data sources demonstrate a strongly increasing trend over this timeframe. If this trend continues through the end of 2013, total E85 production could reach 100 mill gal in 2013. Furthermore, if this trend continued throughout 2014, total E85 production would reach 240 mill gal in 2014.” The following table is also provided to help illustrate the Q1 to Q2 2013 trend:

**Figure 3. EPA Table showing E85 trends in two states**

TABLE IV.B.1.C-2—E85 PRODUCTION IN 2013  
[Mill gal]

	First quarter	Second quarter	% change
Minnesota .....	1.9	3.0	+58%
Iowa .....	1.8	2.6	+44%

The second quarter of 2013 was not business as usual for E85. D6 RIN prices crossed above \$1 dollar in the spring. This provided an incentive to ethanol producers and other parties to sell E85 directly and at a discount and in order to generate and collect RINs. This is precisely what happened (and was a necessary, albeit insufficient, response to alleviate RIN deficits).<sup>4</sup> Regardless, isolating two quarters of the year, particularly without providing context of the turbulent RIN market, and limiting the geographic area covered to two major corn producing states does not make for a robust trend. The second quarter of 2013 would be more accurately deemed an anomaly. Given \$0.30 RINs and a \$0.40 E85-gasoline BTU adjusted spread, the incentive to discount E85 in order to collect RINs has largely passed and it is likely that E85 production growth has as well.

EPA concludes its E85 assessment with “The proposed mean volume of 180 mill gal for E85 is consistent with the recent upward trend in E85 production described above, where E85 is estimated to have been about 70 mill gal in 2012 and could reach and potentially exceed 100 mill gal in 2013. With regard to 2013, the increase is also consistent with available state-specific data on E85 production increases in the first two quarters.” Again, EPRINC asserts that EPA has identified an anomaly rather than a trend. However, given the decoupling between corn and oil prices 100 million gallons for E85 in 2013 and again in 2014 is not unreasonable. 180 million gallons in 2014, when one considers the collapse of the E85-RIN arbitrage, is probably too optimistic. It should be noted that the volumetric mandates are not a ceiling for ethanol consumption but a floor. Should the economics be in its favor, E85 production could surpass EPA estimates.

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<sup>4</sup> See **Biofuels Digest**, May 27, 2013 <http://www.biofuelsdigest.com/bdigest/2013/05/27/absolute-energy-launches-direct-e85-distribution-to-retailers-at-1-93-per-gallon/> and <http://domesticfuel.com/2013/08/30/fast-stops-e85-sales-soar/>

## Conclusion

While EPRINC's criticism of EPA's ethanol market optimism may appear trivial, in aggregate these generous assumptions represent a sizable overestimation of ethanol's market potential by over half of a billion gallons.<sup>5</sup> It can be expected that the RIN bank will decline by approximately 600 million RINs by the end of 2014 compared to beginning of year levels should the proposed standards remain unchanged.

EPA has proposed a 2014 standard that requires exactly 10% ethanol (after biodiesel is excluded) in the gasoline pool. This is a massive improvement over the 2014 statutory standards. But because EPA has proposed overly optimistic standards with no margin for error, any underperformance, which is likely, will result in a RIN deficit for the year. This would nearly deplete the carryover RIN bank, which declined significantly in 2013, going into 2015, a year in which volumetric mandates grow to 20.5 billion gallons. Uncertainty given 2015 waiver action and a shrinking RIN bank will renew anxiety in a RIN market that has yet to completely exhale.

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<sup>5</sup> E0 difference (100\*.1=10 million gallons) + E10 difference (0.004\*132,000,000,000=528 million) + E85 difference (80 million gallons) = 618 million gallons

## **APPENDIX (Selected EPRINC Publications on Ethanol and the RFS)**

Montalbano, Ben. "The Mortar is Nearly Set: The Consequences of Exceeding the Blendwall in 2013 and 2014." 22 July 2013. Web. <http://eprinc.org/wp-content/uploads/2013/07/EPRINC-RFS20141.pdf>

Pugliaresi, Lucian. "Time to Rethink Renewable Fuel Rules." www.cnbc.com. N.p., 18 Apr. 2013. Web. <http://www.cnbc.com/id/100653882>

Montalbano, Ben. "Comments on White Paper 1, Blend Wall/Fuel Compatibility Issues, by the House Energy and Commerce Committee." 6 Apr. 2013. Web. <http://eprinc.org/wp-content/uploads/2013/04/Comments.pdf>

Pugliaresi, Lucian. "Ethanol's Hidden Gasoline Tax." Www.washingtontimes.com. N.p., 7 May 2012. Web. <http://www.washingtontimes.com/news/2012/may/7/ethanols-hidden-gasoline-tax/?page=all>

Montalbano, Ben. Ethanol's Lost Promise: An Assessment of the Economic Consequences of Renewable Fuels Mandate. 14 Sept. 2012. <http://eprinc.org/pdf/EPRINC-ETHANOL-LOSTPROMISE-2012.pdf>

Montalbano, Ben. Implementation Issues for the Renewable Fuel Standard. Publication. N.p.: n.p., n.d. Web. 28 Apr. 2011. <http://eprinc.org/pdf/EPRINC-CornLimitsEthanol.pdf>

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A Report on the EPRINC-EIA Ethanol Roundtable Discussion That Took Place on April 15th. Publication. N.p.: n.p., n.d. Web. June 2008. <http://eprinc.org/pdf/ReonEPRINCEIAEthRtDis.pdf>

Kumins, Larry. "Energy System Limits Future Ethanol Growth." Oil & Gas Journal (2007) 2-5. 26 Nov. 2007. Web. <http://eprinc.org/pdf/ETHANOLUPDATEOGJ.pdf>

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Goldstein, Larry, and Ron Gold. Update on Ethanol. Publication. N.p.: n.p., n.d. Web. July 2006. <http://eprinc.org/download/UpdateOnEthanol.pdf>

MTBE, Ethanol - Sorting Through the Oxygenate Issues. Publication. N.p.: n.p., n.d. Web Dec. 2001. <http://eprinc.org/download/oxyissues.pdf>