

Update: Estimated GHG Increase from Obama Administration Inaction on the 2014 RFS

- **The “blend wall” should not be a consideration for setting the RFS, because the United States is using more transportation fuel in 2014 than previously projected.**
- **Inaction on the 2014 RFS regulatory rule will lead to increased GHG emissions of 21 million metric tons CO2 equivalent.**
- **The increased GHG emissions are equal to putting an additional 4.4 million cars on the road or opening 5.5 new coal-fired power plants.**

In November 2013, the U.S. Environmental Protection Agency (EPA) proposed waiving a substantial portion of the Renewable Fuel Standard (RFS) mandated volumes for 2014 and reducing the use of biofuels in U.S. transportation compared to 2013.¹ The Obama administration has not finalized the rule as of mid-September 2014, leaving obligated parties with the proposed reduction as guidance for the year.

Based on new transportation fuel demand data, the Biotechnology Industry Organization (BIO) is updating a study of the increase in greenhouse gas (GHG) emissions resulting from EPA’s proposed reduction in biofuel use, comparing it with potential biofuel use under the RFS methodology established in prior years.² BIO’s March 2014 published analysis demonstrated that if the United States reduced biofuel use when transportation fuel use was projected to increase, Americans would automatically use more petroleum and emit increased GHGs as a result.

Recent Energy Information Administration (EIA) estimates indicate that U.S. transportation fuel demand in 2014 did in fact increase and is already 2.5 billion gallons higher than projected in November 2013, when EPA’s proposal

¹ Fed. Reg. 78(230), Friday, Nov. 29, 2013.

² Erickson, B., Carr, M., and Winters, P. Estimating Greenhouse Gas Emissions from Proposed Changes to the Renewable Fuel Standard Through 2022. *Industrial Biotechnology*. April 2014, 10(2): 57-63. doi:10.1089/ind.2014.1508.

was issued.³ Because biofuel use is expected to increase only slightly in 2014 compared to 2013, the United States has missed the opportunity to achieve GHG emission reductions in 2014 through consistent RFS regulatory policy.

Increasing Transportation Fuel Demand

The United States used 2 billion gallons more gasoline in both 2013 and 2014 than expected. On-road diesel use in 2014 is now projected to be half-a-billion gallons higher than previously expected, while 2013 diesel use fell almost 1 billion gallons below last year's estimates. A comparison of November 2013 and September 2014 projections from EIA's Short-Term Energy Outlook, in Table 1, demonstrates the changes in expected use.

Table 1: EIA Transportation Fuel Use Projections for 2013 and 2014 (billion gallons)

	November 2013 Projection		September 2014 Projection	
	2013	2014	2013	2014
Gasoline	133.83	133.22	135.52	135.21
Diesel	54.57	55.2	53.66	55.80
Ethanol	12.72	13.03	13.21	13.32
Biomass-based Diesel	1.38	1.38	1.59	1.47

Source: EIA Short-Term Energy Outlook.

EIA continues to project a downturn in gasoline demand and uptick in diesel demand through the second half of 2014, due to fuel efficiency standards. However, at the end of the third quarter of the year, gasoline production remains higher than the same period in 2013 while diesel production

³ U.S. Energy Information Administration, [Short-Term Energy Outlook \(STEO\)](#), September 2014.

remains lower.⁴ And four-week average demand for gasoline remains higher than the same period in 2013.⁵

The increased demand for transportation fuels has also prompted EIA to raise its projections for ethanol and biodiesel use. However, it should be noted that EIA's projection of biomass-based diesel for 2014 is lower than the estimate of actual use in 2013. It should also be noted that EIA's recent estimates are considerably higher than those used by EPA in establishing the 2013 RFS rules, where they projected 132.8 gallons of gasoline and 51.76 gallons of diesel use for 2013.⁶ At that time, EPA concluded that the E10 blendwall was not a barrier to compliance with the full statutory volumes of conventional and advanced biofuel called for in the RFS.

GHG Impact of EPA Inaction on the Final Rule

Considering the increased estimates for transportation fuel (including biofuel) use, BIO reexamined its earlier conclusion that EPA's proposed cut to biofuel use in 2014 would raise GHG emission levels above 2013 levels as well as forego a significant achievable cut in emissions. EPA has not issued a final rule for 2014, leaving oil refiners and biofuel producers to follow the proposed rule as guidance and effectively guaranteeing that biofuel use in 2014 will fall to near the levels EPA proposed.

For our current analysis of the GHG impact, we utilize the estimate of gasoline, diesel, ethanol and biodiesel use in 2013 and projections for 2014 in EIA's September 2014 Short-Term Energy Outlook. We developed two scenarios for 2014, the first based on EPA's proposal from November 2013 and the second with estimated volumes based on a waiver of cellulosic biofuel and a corresponding increase in advanced biofuels. For the second scenario, we further assumed that biodiesel would be used to meet a portion of the unspecified advanced biofuel mandate, over and above the biomass-based diesel mandate. Based on the EIA estimates, our scenarios for petroleum and biofuel use for 2013 and 2014 are presented in Table 2.

⁴ U.S. Energy Information Administration, Weekly Petroleum Status Report, September 17, 2014. <http://www.eia.gov/petroleum/supply/weekly/>.

⁵ U.S. Energy Information Administration, This Week in Petroleum, September 17, 2014. <http://www.eia.gov/oog/info/twip/twip.asp>.

⁶ Fed. Reg. 78(58) Thursday, Aug. 15, 2013, p.49826.

Table 2: Projected blendstock consumption in 2013 and under two scenarios in 2014 (billion gallons)

	2013	2014, with proposed RFS mandate	2014, with legislated RFS mandate
Gasoline Blendstock	122.3	121.9	119.6
Petroleum diesel	52.1	54.5	54.1
Conventional Biofuel	12.4	13.0	14.4
Biomass-based Diesel	1.6	1.3	1.7
Unspecified advanced biofuel	0.83	0.27	1.18
Cellulosic biofuel	0.00	0.02	0.02

Using the scenarios above, we modeled GHG emissions using the GREET1.2013 model. Table 3 presents estimates of GHG emissions for 2013 and 2014 based on the projected consumption in Table 2.

Table 3: Estimated Changes in GHG Emissions from 2013 to 2014 (thousand metric tons CO₂e)

	2013	2014 Proposed RFS mandate	2014 Legislated RFS mandate
Gasoline blendstock	1,415,033	1,410,611	1,383,885
Petroleum diesel	678,531	710,601	705,127
Ethanol/Conventional Biofuel	64,617	67,829	75,134
Biomass-based Diesel	4,680	3,757	4,990
Unspecified advanced biofuel	2,344	772	3,344
Cellulosic biofuel	1	18	18
Total	2,165,206	2,193,588	2,172,497

Newly modeled estimates of GHG emissions are higher across the board than in BIO's published March 2014 analysis, due to the estimated changes in transportation fuel use for both 2013 and 2014. It appears that it is no longer possible to achieve a year-over-year reduction in GHG emissions. The reduced estimate of petroleum diesel use and increased biodiesel use for 2013 created a larger reduction in GHG emissions in 2013 than can now be achieved in 2014. And while gasoline and diesel use have been rising in

2014, in the absence of a final rule oil refiners have blended ethanol and biodiesel only at rates consistent with EPA's November 2013 proposal. They cannot now go back and blend at higher rates.

Unless actual fuel use again changes from current estimates, the United States will see an increase in GHG emissions from 2013 to 2014.

Conclusion

EPA must assess the GHG emissions impact of its regulatory decisions – or in this case, indecision. The difference between the levels of modeled GHG emissions that result from EPA's proposed volume obligations and those achievable through consistent enforcement of the RFS is more than 21 million metric tons of CO₂ equivalent. This amount of emissions is equal to putting an additional 4.4 million cars on the road or having current cars drive an additional 50.2 billion miles. It is also equal to the emissions of 5.5 new coal-fired electricity plants.⁷

In its RFS rule for 2013, EPA concluded that the refining industry would not encounter the blend wall until 2014 and enforced the statutory RFS volumes for advanced and conventional biofuels, even while waiving the cellulosic requirement. EPA subsequently proposed a reduction of the RFS for 2014 in consideration of the blend wall. It is now clear that gasoline demand was higher in 2013 and 2014 than EPA projected when it issued both the 2013 rule and the 2014 proposal. The United States is no closer to the so-called blend wall in 2014 than it was in 2013. In 2014, EPA could have maintained the RFS methodology it used in 2013 and previous years.

To achieve future reductions in greenhouse gas emissions from transportation, the United States must continue to displace petroleum fuels with advanced and cellulosic biofuels. Building advanced biofuel capacity requires investment and the assurance that the market will be open to these fuels. Maintaining a consistent, stable methodology for the RFS will pressure industry to find constructive solutions to the blend wall and achieve greenhouse gas emission reductions.

⁷ EPA, Greenhouse Gas Equivalency Calculator, <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>. Accessed Sept. 19, 2014.