



2017 Year End RIN Update

Nick Paulson

Department of Agricultural and Consumer Economics
University of Illinois

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Today's article provides the annual summary update on Renewable Identification Number (RIN) generation in 2017 based on available data from EPA's EMTS. Previous quarterly updates covered RIN generation through the first three quarters of 2017 ([October 27, 2017](#); [August 3, 2017](#); [May 17, 2017](#)).

The RIN generation figures are combined with RIN retirement data from EMTS, ethanol export data from the US Department of Commerce (DOC) via the [USITC DataWeb](#), and biodiesel export data from the [Energy Information Administration](#) (EIA) to compare estimated net RIN generation to targeted RFS mandate needs based on EPA's [final rulemaking](#) for 2017.

Advanced RIN Generation

Table 1 summarizes gross RIN generation, exports, and non-compliance retirement exports across all D-code categories for 2017. These values are then used to provide estimates of net RIN generation available for 2017 mandate compliance, which are compared with the 2017 mandate levels outlined in EPA's final rulemaking to estimate a surplus (deficit) for 2017. Generation activity within each D-code category is discussed individually below.

The pace of monthly D3 RIN generation increased throughout 2017, with just over 227 million D3 RINs generated during the year. Total generation includes just over 10 million RIN gallons of cellulosic ethanol, and the balance of 217 million D3 RINs from compressed and liquefied renewable natural gas. Non-compliance retirements of D3 RINs currently reported total 0.4 million RINs. This puts net generation at just under 227 million for 2017, or 84 million short of the 311 million RIN mandate for cellulosic.

Since the cellulosic mandate category can only be met with cellulosic RINs (D3 and D7), this deficit will need to be met by the purchase of cellulosic waiver credits. Compliance with the cellulosic mandate has required the purchase of these credits by obligated parties for every compliance period which has passed.

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Table 1. Summary of Estimated RIN Generation and Use in 2017 (million RIN gallons)

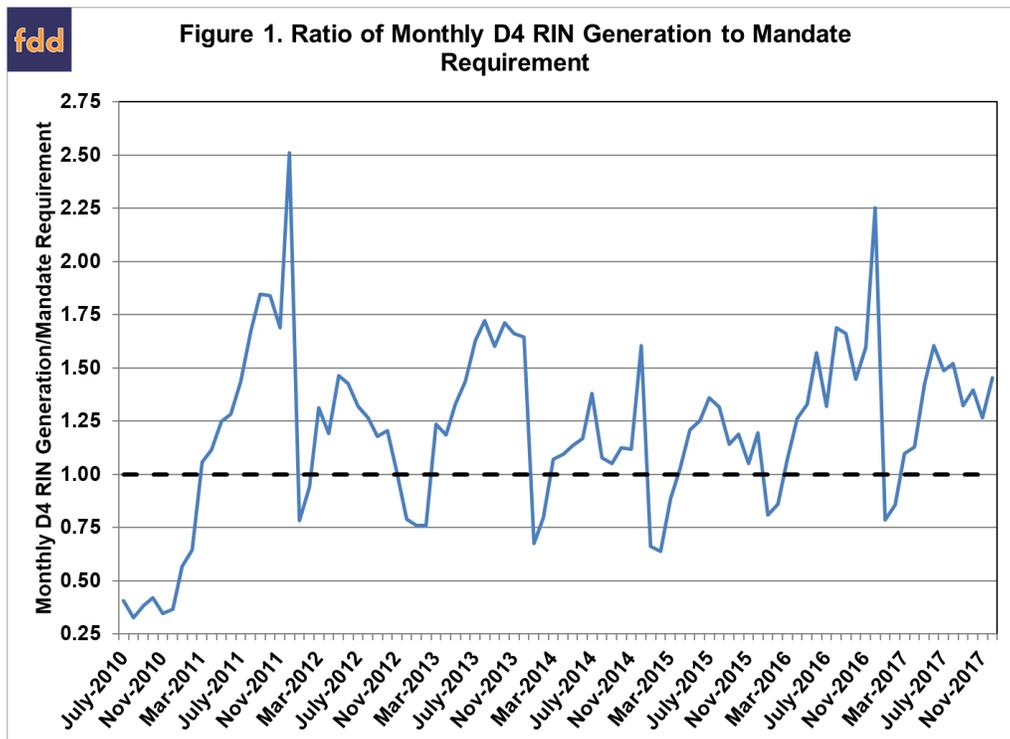
	EMTS Gross Generation	Exports ¹	EMTS Other Use ²	Estimated Net Generation	RFS Mandate	Surplus / (Deficit)
D3	227.4	0.0	0.4	227	311	(84)
D4	3,846	150	25.7	3,670	3,000	670
D5	143.4	0.0	0.1	143.3	969	(826)
Total Advanced ³	4,218	150	26.2	4,042	4,280	(238)
D6	15,106	442	200	14,463	15,000	(537)
All Renewable Fuels	19,325	592	227	18,506	19,280	(774)

¹Equal to total biodiesel exports reported by EIA, adjusted to RIN equivalent using a 1.5 EV for D4. Equal to total denatured ethanol for fuel use exports reported by DOC for D6. Assumed to be zero for other advanced biofuel categories (D3, D5 and D7).

²Includes all retirements reported in EMTS for non-compliance purposes.

³Gross generation and EMTS other use also include data on D7 RINs

Figure 1 plots monthly D4 RIN generation relative to implied biomass-based diesel monthly mandate needs (annual mandate divided by 12) using data from the EMTS through December 2017. Gross generation of D4 RINs averaged 229 million per month during the first quarter, increased to 346 million per month in the second quarter and 361 million per month during the third quarter. Generation of D4 RINs fell slightly during the fourth quarter of the year to an average of more than 343 million per month. Total generation of D4 RINs is reported at 3.846 billion RIN gallons, down from more than 4 billion D4 RINs generated during 2016.



Non-compliance retirements of 2017 D4 RINs are currently at 25.7 million. The EIA reports a total of 100 million gallons of biodiesel exports, which translates to 150 million RINs. This results in net generation of 3.67 billion RINs or 670 million more than the 3 billion RIN (2 billion volumetric) mandate for 2017.

Gross generation of D5 RINs averaged 5.2 million per month over the first quarter, increased to average 14.4 million per month over the second and third quarters, and finished the year averaging 13.7 million per month over the fourth quarter to total 143.4 million for the year. After accounting for approximately 100,000 non-compliance retirements, net generation of D5 RINs stands at 143.3 million for the year. Net generation of D5 RINs falls well short of the undifferentiated advanced mandate gap of 969 million

gallons. The undifferentiated advanced gap represents the difference between the total advanced mandate (4.28 billion RINs), and the biodiesel and cellulosic mandate levels (3 billion and 311 million RINs, respectively). Note that this advanced gap can be filled with any advanced RIN category (D3, D4, D5, or D7).

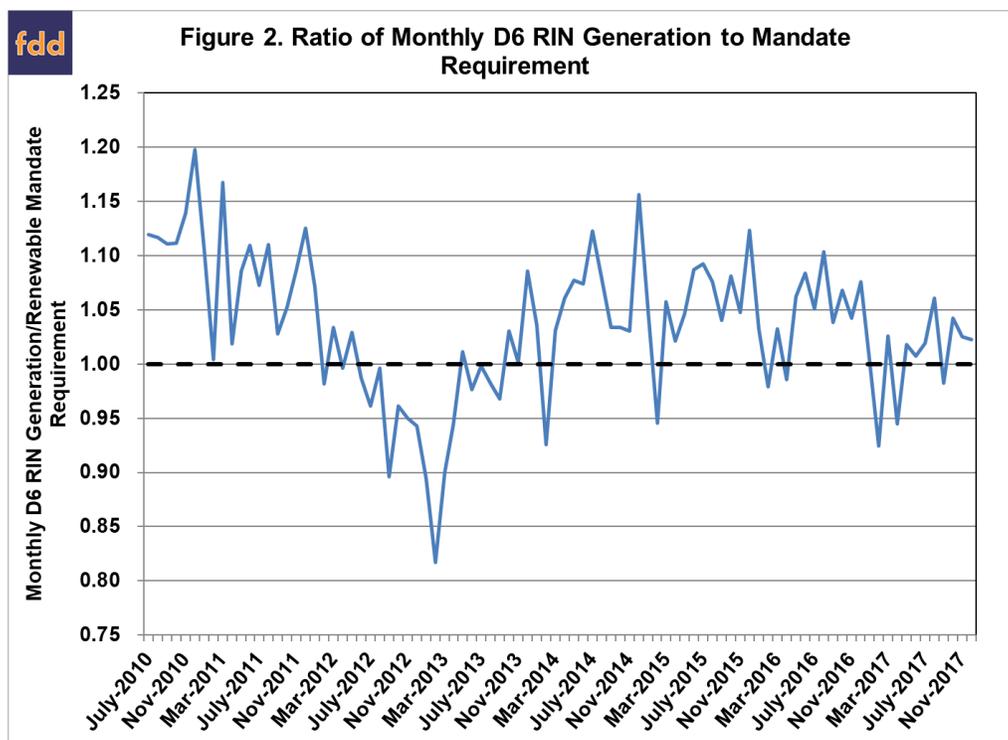
Combining RIN generation and non-compliance retirement data across all advanced categories (D3, D4, D5, and D7), and accounting for biodiesel exports results in net generation of 4.042 billion advanced RINs in 2017. This falls 238 million RINs short of the 2017 total advanced mandate of 4.28 billion RINs, and 155 million gallons short of the non-cellulosic advanced mandate level of 3.969 billion RINs.

D6 RIN Generation

Figure 2 plots D6 RIN generation relative to implied mandate needs through December 2017. Monthly gross generation was relatively stable through the year, averaging close to 1.26 billion, resulting in total generation of just over 15.1 billion D6 RINs in 2017.

To account for D6 RINs which are retired and unavailable due to export of the biofuel, data from the Department of Commerce for denatured exports for fuel use are subtracted from gross D6 generation. The DOC reports ethanol exports for both undenatured and denatured ethanol. Undenatured ethanol exports are assumed to be produced specifically for export and thus never generate a RIN.

Denatured ethanol exports averaged nearly 37 million gallons per month to total 442 million gallons in 2017. Non-compliance retirements of D6 RINs are currently reported at 200 million. Thus, net generation of D6 RINs is estimated at 14.463 billion, more than 500 million short of the 15 billion gallon conventional portion of the total mandate for 2017 towards which D6 RINs can be applied for compliance.



Summary

Despite consistent increases in overall RIN generation throughout the year, particularly in the advanced RIN categories, the previous quarterly updates during 2017 suggested a deficit relative to 2017 mandate levels. Based on all RIN generation, non-compliance retirement, and export data available at this time, net generation did fall 774 million RINs short of the 19.28 billion mandate level for 2017. In the advanced categories, a surplus of nearly 670 million D4 RINs looks to be insufficient to cover the 800 million RIN deficit in the undifferentiated advanced (D5) category, and obligated parties are expected to once again purchase cellulosic waiver credits to cover the estimated deficit of 84 million cellulosic RINs. For the 15

billion RIN implied conventional mandate gap, net generation of D6 RINs is currently estimated to fall short by more than 500 million RIN gallons.

Previous RIN stock estimates indicated the potential for more than 1.8 billion in available carryover for 2017. This included roughly 850 million advanced RINs and 975 million D6 RINs (see the daily post from [November 8, 2017](#)). Thus, there is likely sufficient carryover from previous years to meet the 2017 mandate levels despite the estimated net generation deficits. The upcoming RIN update post will provide more current RIN stock estimates which account for compliance data now available for the 2016 compliance period as well as the net generation estimates for 2017 presented and discussed in today's post.

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