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2015 Year End RIN Update

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Today's post provides the final update on Renewable Identification Number (RIN) generation in 2015 based on available data from [EPA's EMTS](#). Previous quarterly updates covered RIN generation throughout 2015 ([November 4, 2015](#), [April 29, 2015](#), and [July 23, 2015](#)).

The EPA's [final rulemaking](#) released in December 2015 made changes to the cellulosic, biodiesel, total advanced, and total renewable mandate components for 2014-2016, and to the biodiesel mandate laid out for 2017 (for more detailed discussion see the post from [December 4, 2015](#)). These changes impact the estimates of RIN stocks across all D codes available for compliance use.

With 2015 now completed, the RIN generation and retirement data from EMTS is combined with ethanol export data from the US Department of Commerce's (DOC) via the [USITC DataWeb](#), and biodiesel export data from the [Energy Information Administration](#) (EIA) to estimate changes in RIN stock levels during 2014 and 2015, and provide estimated beginning RIN stocks for 2016.

D4 and D5 RIN Generation

Figure 1 plots monthly D4 RIN generation relative to implied monthly mandate needs (annual mandate divided by 12) using data from the EMTS from July 2010 through January 2016. For 2014, the final mandate for biodiesel (D4 RINs) is set at 1.63 billion wet gallons (~2.445 billion RIN gallon). For 2015, the proposed mandate is set at 1.73 billion wet gallons (~2.595 billion RIN gallons), a slight increase from the 1.70 billion gallons in the [proposed rule](#) from June 2015.

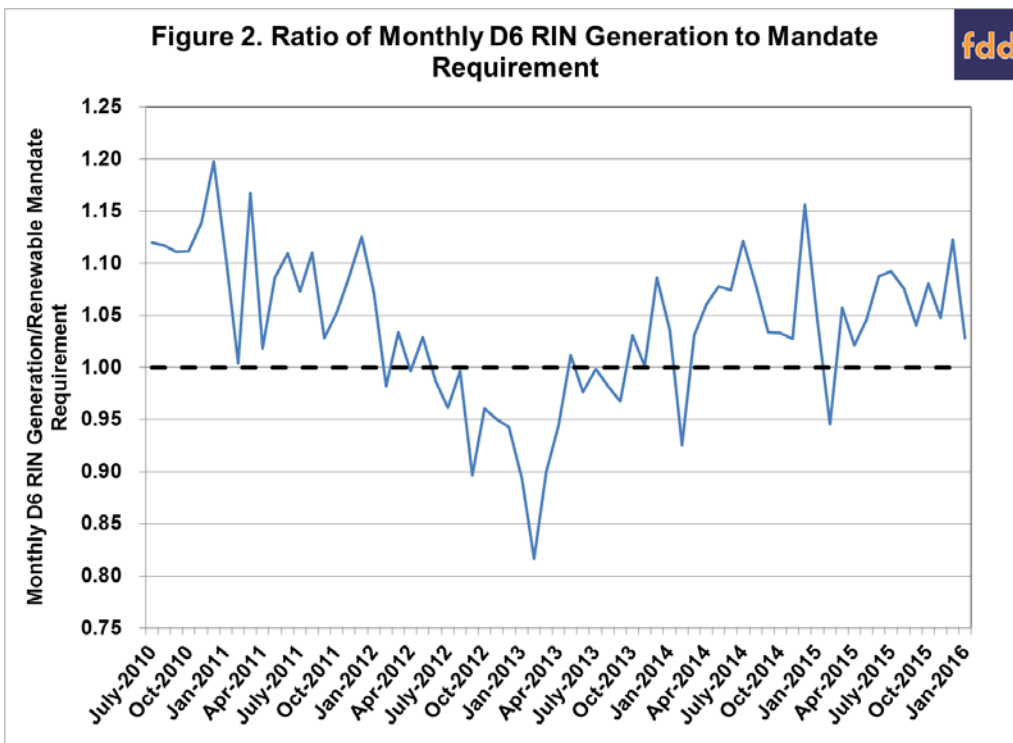
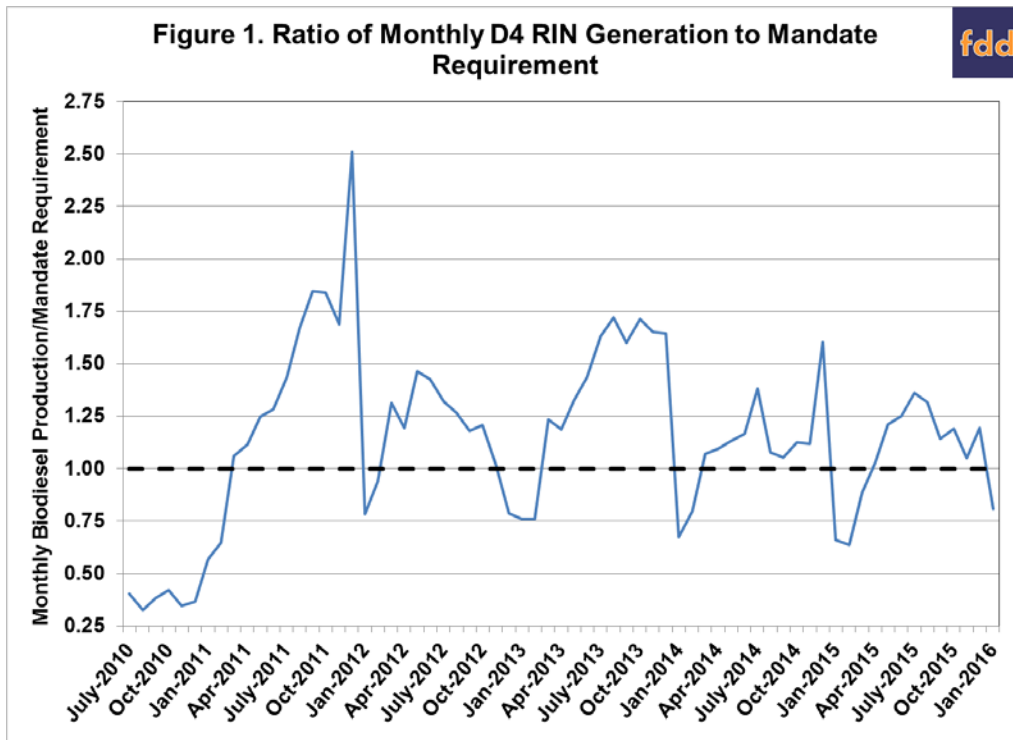
Nearly 2.8 billion D4 RINs were generated in 2015, an average generation rate of nearly 233 million RINs per month. Gross generation exceeds the 2015 mandate needs by nearly 250 million RIN gallons. In addition, just over 147 million D5 RINs were generated during 2015. Combining D4 and D5 results in total non-cellulosic advanced RIN generation for 2015 of 2.942 billion RIN gallons, compared with the non-cellulosic portion of the advanced mandate of 2.757 billion RIN gallons.

D6 RIN Generation

Figure 2 plots D6 RIN generation relative to implied mandate needs from July 2010 through January 2016. The final mandate levels used for 2014 and 2015 are 13.61 and 14.05 billion RIN gallons, respectively.

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These represent fairly sizeable increases from the proposed mandate levels of 13.25 billion gallons for 2014 and 13.4 billion gallons for 2015. Generation of D6 RINs totaled more than 14.83 billion gallons in 2015, averaging 1.235 billion gallons per month, exceeding implied mandate needs for the year by nearly 800 million gallons.



RIN Stock Estimates

Tables 1 through 3 outline RIN generation and estimated use for 2013, 2014, and 2015, respectively. For each year, gross RIN generation and retirements for non-compliance purposes are taken from the EMTS system. Exports for D4 RINs are taken from biodiesel export volumes reported by EIA, adjusted for an assumed average equivalence value of 1.5 RINs per gallon. Exports for D6 RINs are based on DOC

exports of denatured ethanol intended for fuel use. Exports of biofuels associated with D3 and D5 RINs are assumed to be zero in all years. The RFS mandate levels are taken from EPA's final rulemaking for the corresponding year. Finally, the stock change column represents the change in RIN stock values for the year, which is equal to net generation (gross generation less exports and retirements for non-compliance use) less RFS mandate use for that D code.

As shown in table 1, RIN stocks were depleted in 2013 due mainly to the slowdown in ethanol production from high corn prices driven by the 2012 drought. Total advanced stocks were estimated to grow by 145 million RINs in 2013 due to relatively high generation of biodiesel RINs, while a 965 million gallon D6 RIN deficit was created.

Table 1. Summary of RIN Generation and Estimated Use in 2013 (million RIN gallons)

	EMTS Gross Generation	Exports ¹	EMTS Other Use ²	Estimated Net Generation	RFS Mandate	Stock Change
D3	-	-	-	-	6	-
D4	2,739	295	101	2,343	1,920	423
D5	558	0	6	552	824	(272)
Total Advanced	3,297	295	107	2,895	2,750	145
D6	13,351	407	108	12,835	13,800	(965)
All Renewable Fuels	16,647	702	216	15,730	16,550	(820)

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 D3 and D5.

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

Table 2 shows that RIN stocks were estimated to hold stable during 2014, with fairly negligible stock changes across all D codes and in aggregate. This is a direct result of the EPA's approach to setting the 2014 mandate levels at "actual use" levels after the 2014 year had ended. Note that while total advanced RIN stocks remain relatively unchanged, D4 stocks increased while D5 stocks were estimated to run a deficit.

Table 2. Summary of RIN Generation and Estimated Use in 2014 (million RIN gallons)

	EMTS Gross Generation	Exports ¹	EMTS Other Use ²	Estimated Net Generation	RFS Mandate	Stock Change
D3	33	0	0	33	33	0
D4	2,710	124	93	2,492	2,445	47
D5	144	0	0	143	192	(49)
Total Advanced	2,887	124	94	2,669	2,670	(1)
D6	14,354	457	288	13,609	13,610	(1)
All Renewable Fuels	17,241	581	381	16,278	16,280	(2)

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 D3 and D5.

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

Table 3 shows a slight increase in total RIN stocks of about 261 million gallons, coming mainly from an increase in D6 stocks of 225 million gallons estimated for 2015. Similar to 2014, stocks of D4 RINs

increased while D5 RINs were estimated to run a deficit, with the overall change to advanced stocks being slightly positive at an estimated 36 million RIN gallons.

Table 3. Summary of RIN Generation and Estimated Use in 2015 (million RIN gallons)

	EMTS Gross Generation	Exports ¹	EMTS Other Use ²	Estimated Net Generation	RFS Mandate	Stock Change
D3	141	0.0	0.8	140	123	17
D4	2,796	135	31	2,630	2,595	35
D5	147	0.0	0.3	147	162	(15)
Total Advanced	3,083	135	32	2,916	2,880	36
D6	14,830	392	163	14,275	14,050	225
All Renewable Fuels	17,913	527	195	17,191	16,930	261

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 D3 and D5.

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

Table 4 provides estimates of beginning RIN stock levels across D-codes from 2013 to 2016. The 2013 beginning stock values were taken from EPA's stock estimates (carryover RINs) in their [final rulemaking for 2013](#). Beginning stocks for 2014, 2015, and 2016 were estimated using the stock change estimates for each year, accounting for the 20% rollover limit provision. Note that this leads to some advanced RINs (D4 and D5) being rolled over for use as D6 RINs from 2013 to 2014. In addition, while a cellulosic mandate level has been in place each year and D3 RINs have been generated in 2014 and 2015, they were ignored in estimated total RIN stock levels.

Table 4. Estimated Beginning RIN Stock Values (million gallons) by D-code, 2013-2016

D-code	2013 ¹	2014	2015	2016
3	-	-	-	0
4	353	489	519	554
5	196	45	14	-
Advanced	549	534	533	554
6	2,117	1,318	1,317	1,542
Total	2,666	1,852	1,850	2,096

¹Values taken from EPA's 2013 final rulemaking

Total stocks declined from 2.666 billion in 2013 to 1.852 billion in 2014. With the estimates of negligible change in 2014 and a buildup of stocks in 2015, the estimated carry-in number for 2016 is 2.096 billion RINs. This includes just over 550 million D4 RINs, with the remaining 1.542 billion qualifying for use as D6 RINs.

The estimated level of carry-in for 2016 provides flexibility in how obligated parties meet 2016 and future mandate needs. The more than 2 billion RIN gallons available in stocks represent portions of current and future RFS mandate volumes which could be met with purchased or held RINs as an alternative to physical blending of ethanol.

Summary

Data from EPA's EMTS system, the EIA, and the DOC suggest that RIN stocks held steady in 2014 and were built up by about 260 million gallons during 2015. The estimated carryover or RIN stock value at the beginning of 2016 is 2.096 billion RIN gallons. This includes 554 million D4 RINs available for use in

compliance towards the biodiesel, total advanced, or overall mandate, and 1.542 billion D6 RINs available for use in complying with the renewable component of the mandate.

These RIN stocks represent the portion of the RFS mandate volumes that could be met with RINs associated with biofuels produced and blended in previous years, rather than compliance through new blending. Therefore, these RIN stocks can be viewed as providing obligated parties with a buffer against difficulties in meeting 2016 or future mandate needs through physical blending. Examples where use of existing RIN stocks may be preferred for compliance include blend wall issues limiting the physical blending of biofuels, or a change in the economics associated with the physical blending of biofuels such as in increase in the prices of ethanol (biodiesel) relative to gasoline (diesel) and other blending alternatives.

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