

Focus on Fuels

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TM&C Services in Fuel Regulations

TM&C provides a full range of services in its fuels regulatory practice. Some of these services are listed below.

- Preparing, reviewing and submitting fuels reports, including CDX submissions.
- Facility audits for compliance with fuels programs.
- Interaction with EPA to pose fuels-related questions.
- Industry specialist assistance for required gasoline attestations.
- Industry specialist assistance for in-line blending audits.

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Two of the great unknowns in the renewable fuel program are: How many RINs (renewable identification numbers) can be generated (or used) and from what pathways? Briefly, the overwhelmingly dominant sources of RIN generations are ethanol and biodiesel; however, when you look behind the curtain and see the great OZ, there are some pretty interesting observations in the recent developments in RIN pathways and other RFS considerations.

RIN Generation, the Next Generation

by Tom Hogan

RIN generation for the past four years and projected for 2016 is shown below.

Table 1
RIN Generation
million RIN gallons

Year	Cellulosic Biofuel (D3)	Biomass Based Diesel,	Advanced Biofuel (D5)	Renewable Fuel (D6)	Total RINs	Petroleum Gasoline & Diesel, mmg
2012	0	1,728	597	12,981	15,306	166,585
2013	0	2,731	552	13,326	16,609	172,975
2014	33	2,703	143	14,340	17,219	179,007
2015	140	2,794	147	14,826	17,907	182,567
2016 (Proj)	165	3,527	111	15,093	18,896	183,317

Source: EPA, TM&C

The number of RINs projected to be generated in 2016 is about 23% more than that generated in 2012. The total amount of petroleum gasoline and diesel projected to be supplied to the transportation pool has only increased by about 10%. On the surface, it looks like cellulosic has finally begun to make a dent; biomass based diesel is doubling and the renewable fuel (ethanol) has finally broken through the blend wall. Those "obvious" conclusions are not necessarily true, and the real story is quite a bit more complex.

The sources for RINs in 2012 and the sources for projected RINs in 2016 are broken out in the tables below.

Cellulosic

- Assistance in setting up a fuels compliance group/program.
- Personnel reviews of compliance-related groups.
- Compliance status reviews and recommendations.
- Negotiations/consultation during EPA enforcement actions.
- 3rd-Party Engineering reviews.
- Due diligence reviews of facilities and companies in RFS RINs Program.

Table 2
Cellulosic RIN Generation

million RIN gallons

	2012	2016(Proj)
Cellulosic (D3)		
Ethanol	0	4
Renewable Compressed Gas	0	95
Renewable Liquefied Gas	0	66
Total	0	165

Source: EPA

Essentially no cellulosic RINs were generated in 2012. Over 97% of the cellulosic RINs in 2016 came from the biological activity in landfills. Cellulosic renewable fuel production continues to be on the far horizon.

Biomass Based Diesel

Table 3
Biomass Based Diesel RIN Generation

million RIN gallons

Biomass Based Diesel (D4)	2012	2016(Proj)
Biodiesel	1,585	2,845
Renewable Diesel	153	681
Renewable Jet Fuel	0	2
Total	1,738	3,528

Source: EPA

RINs from renewable diesel have more than quadrupled and RINs from biodiesel increased almost 80%. Renewable diesel which has no performance limitations appears to be a fuel of the future. The robust growth in biodiesel shows that it has not yet run into any significant performance limitations, and there will be room for more growth in the future.

Renewable Biofuel

Table 4
Renewable Biofuel RIN Generation

million RIN gallons

Renewable Biofuel (D5)	2012	2016(Proj)
Ethanol	604	79
Naphtha	0	23
Heating Oil	0	1
Renewable Diesel	20	7
Biogas	3	0
Total	627	110

Source: EPA

The precipitous drop in D5 ethanol is because imports of ethanol from sugarcane feedstock have decreased significantly, partly due to the robust growth in biomass based diesel, which is nested in the renewable biofuel.

Renewable Fuel

Table 5
Renewable Fuel RIN Generation

million RIN gallons

Renewable Fuel (D6)	2012	2016(Proj)
Ethanol	12,987	14,688
Biodiesel	1	123
Renewable Diesel	0	282
Butanol	0	0
Total	12,988	15,093

Source: EPA

Renewable fuel is the largest RIN category. Ethanol from corn is the primary source of all renewable fuels (cellulosic biofuel, biomass based diesel, renewable biofuel and renewable fuel) and is over 97% of the D6 renewable fuel category; however, in 2016, biodiesel and renewable diesel have contributed slightly less than 3% of the renewable fuel. This is primarily because certain pathways for these renewable fuels have not yet been approved and until approved, they are allowed to produce D6 RINs if the plants are grandfathered.

The Ethanol Blend Wall

The largest impediment to more widespread renewable fuel use is the gasoline blend wall. Ethanol use in gasoline is generally limited to 10 volume percent of the gasoline pool. Much has been written about these limitations, so we won't address them in this article; however, it is interesting to add up all the ethanol used in the transportation pool and compare 2012 with 2016. The table below shows that comparison.

Table 6
Ethanol Usage in Transportation Pool

	2012	2016 (Proj)
Gasoline Demand		
Oxygenated, MB/D	8,682	9,419
Petroleum only ¹ , MB/D	7,814	8,477
million gallons	120,117	130,308
Ethanol, million gallons	13,590	14,771
% Ethanol of pool	10.16	10.18

Source: EPA, EIA, TM&C

¹Assumes 10% ethanol in pool

The percentage of ethanol in the gasoline pool has stayed remarkably constant over the past five years. The general conclusion is that the blend wall is still a limitation and demand for E15 and E85 has not grown significantly.

The RFS program continues to evolve with important information to be sorted out in the last quarter of 2016 and the first half of 2017 as compliance for 2015 must be determined by December 1, 2016; the 2017 obligation will be set in November 2016, and publishing the final RIN balances for 2015 and 2016 will occur in the first and second quarters of 2017. A program that has been in limbo for four years will finally take shape by July 2017. TM&C keeps track of all of the developments and can help you navigate these changing times. Give us a call for assistance on any fuels regulatory issues.

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