

June 03, 2019

Impact of E15 Gasoline Usage on US Refining

Stratas Advisors

On March 12, 2019, the U.S. Environmental Protection Agency (EPA) proposed a regulatory change to allow gasoline to be blended with up to 15% v/v ethanol (E15) to take advantage of the 1-psi Reid Vapor Pressure (RVP) waiver, which currently applies to E10 during the summer months. On May 31, 2019, the EPA approved the 1-psi RVP waiver for the summer months for E15, which has historically been applied only to E10. This change would allow E15 to be sold year-round without additional RVP control, rather than just eight months during the year.

E15 growth will depend on following factors:

- **Growth of E15-warranted vehicles:** In 2018, E15-warranted vehicles were 40% of the total US light duty vehicle fleet.
- **Growth of retailers carrying E15:** In 2018, retail stations carrying E15 accounted for 1% of total use.
- **Retailers' ability to discount E15 to alternatives:** Retailers discount E15 by 5-10 cents (2-3% or more) below E10 prices, making E15 fully economical or more economical compared to E10 — even after accounting for E15's ~1.5% lower energy content — and enabling stores to attract more customers and increase total fuel and merchandise sales. Retailers have been able to provide this discount primarily because of RIN prices and partly due to ethanol discount to gasoline.

Considering the regulatory change, we estimate the demand for AKI 88 E15 to increase from 38 Mbpd in 2018 to 87 Mbpd in 2022 (CAGR 23%). Gasoline demand during the same period is expected to increase from 9,331 Mbpd in 2018 to 9,356 MBPD in 2022 (CAGR 0.1%).

Demand	2018	2022	CAGR
Conventional AKI 93 E0	0	1	22.3%
Conventional AKI 91 E0	0	0	20.5%
Conventional AKI 87 E0	3	6	19.1%
Conventional AKI 93 E10	723	807	2.8%
Conventional AKI 91 E10	128	132	0.8%
Conventional AKI 87 E10	5366	5377	0.1%
RFG AKI 93 E0	14	9	-9.5%
RFG AKI 91 E0	0	0	19.3%
RFG AKI 87 E0	1	3	17.9%
RFG AKI 93 E10	340	357	1.3%
RFG AKI 91 E10	62	61	-0.2%

RFG AKI 87 E10	2629	2484	-1.4%
AKI 88 E15	38	87	23.1%
E85	27	30	3.1%
Total	9331	9356	0.1%

Source: Stratas Advisors

With demand growth for E15, supply is expected to increase from 29 Mbpd in 2018 to 108 Mbpd in 2022 (CAGR 39%).

Supply	2018	2022	CAGR
Conventional AKI 93 E0	4	3	-1.7%
Conventional AKI 91 E0	1	1	-1.2%
Conventional AKI 87 E0	29	27	-2.4%
Conventional AKI 93 E10	760	891	4.1%
Conventional AKI 91 E10	137	143	1.2%
Conventional AKI 87 E10	5717	5886	0.7%
RFG AKI 93 E0	135	65	-16.7%
RFG AKI 91 E0	0	0	-2.2%
RFG AKI 87 E0	14	12	-3.3%
RFG AKI 93 E10	357	395	2.6%
RFG AKI 91 E10	66	66	0.2%
RFG AKI 87 E10	2801	2719	-0.7%
AKI 88 E15	29	108	39.4%
E85	23	39	14.0%
Total	10071	10356	0.7%

Source: Stratas Advisors

With the growth of the E15 grade, non-refinery components' share in gasoline is expected to grow from 10.1% in 2018 to 10.3% in 2022. The growth will replace the refinery component by same amount.

Supply	2018	2022	Delta
Gasoline	10071	10356	
Refinery Components	89.9%	89.7%	-0.2%
Non Refinery Components	10.1%	10.3%	0.2%

Source: Stratas Advisors

The ethanol share in gasoline will increase from 10% to 10.3%. Ethanol is expected to replace reformates from gasoline, where the reformate share is expected to decline from 15.1% to 14.9%.

Supply	2018	2022	Delta
Gasoline	10071	10356	
Ethanol	10.0%	10.3%	0.3%

Reformat	15.1%	14.9%	-0.2%
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Source: *Stratas Advisors*

A detailed report with regional-level analysis is available to subscribers of our [Global Transportation Fuels Outlook](#) service. Complete data for the analysis can be found on [Stratas Advisors' Data Tool](#). Not a subscriber? [Create an account](#).