

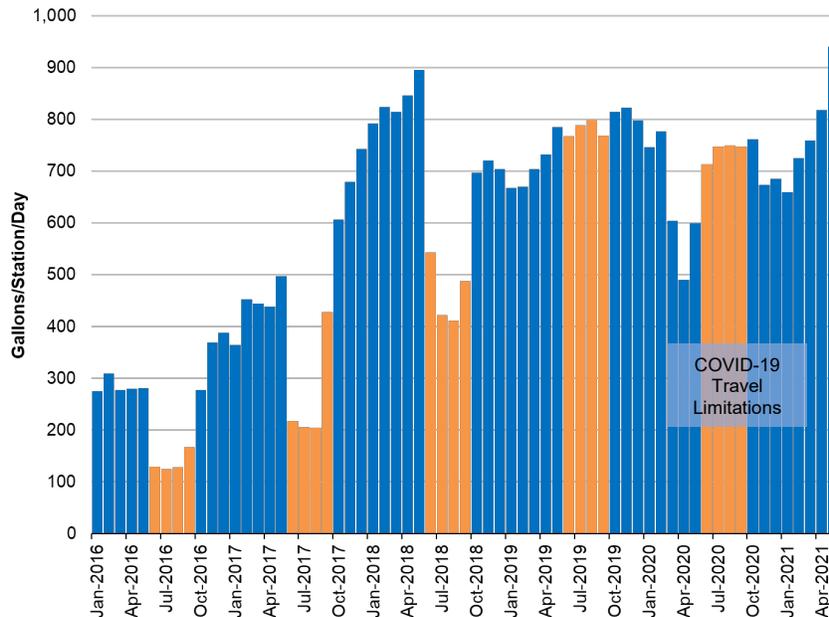
Potential Economic Impacts to the U.S. Ethanol Industry from the D.C. Circuit Court Decision on E15

August 4, 2021

Background

Sales of E15, a blend of 15% ethanol and 85% gasoline, expanded substantially after the U.S. Environmental Protection Agency finalized regulatory changes in May 2019 allowing the fuel to be sold year-round. Prior to the rule change by EPA, many fuel retailers found it difficult or impossible to offer E15 during the summer months in conventional gasoline markets, due to outdated and inequitable gasoline volatility regulations.¹ Although national statistics on E15 sales volumes are not available, government agencies in Minnesota and Iowa publish state-level statistics. It is notable that E15 sales in the two states grew by one-third in 2019 (the first year that unimpeded summertime E15 sales were allowed) compared to 2018. As shown in Exhibit 1, Minnesota E15 volumes in 2019 and 2020 did not experience the “summertime plunge” that plagued sales in prior years. Notably, E15 sales in Iowa rose 24% in 2020 (versus 2019 levels) despite the pandemic’s effect on overall gasoline demand.²

Exhibit 1: Minnesota Daily Average E15 Sales per Station



Source: RFA based on Minnesota Dept. of Commerce data
 Note: Orange bars denote June-September volatility control period

¹ EPA limits the volatility of gasoline during the “high ozone season” every summer (June 1-Sep. 15). Prior to EPA’s 2019 rule change, the practical volatility limit for E10 sold in conventional gasoline areas was 10 pounds per square inch (psi) Reid vapor pressure (RVP), but E15 was held to a 9-psi limit. EPA’s 2019 rule effectively extended the volatility limit for E15 to 10 psi, creating regulatory parity for E15 and E10.

² <https://ethanolrfa.org/2021/04/even-amidst-pandemic-iowa-e15-sales-surge-to-new-record-in-2020/>

However, on July 2, 2021, the D.C. Circuit Court of Appeals ruled that EPA's 2019 regulation allowing year-round sales of E15 should be vacated, finding that the EPA exceeded its authority by extending the existing E10 volatility waiver to E15. The Renewable Fuels Association (RFA) has indicated its intent to request a rehearing of the D.C. Circuit ruling before the deadline in late August, and the court is not expected to issue a mandate implementing its ruling until any rehearing requests are decided. Shortly after the July 2 ruling, RFA also requested that EPA exercise enforcement discretion to allow E15 sales to continue uninterrupted throughout the 2021 summer season.³ Given these developments, the court's decision is not expected to have a substantial effect on E15 sales through existing outlets this summer.

However, if the D.C. Circuit decision is allowed to stand and no other action is taken to allow continued sales of E15 in the summertime in conventional gasoline areas, the ruling could have considerable long-term impacts on the ethanol market. This paper looks at the potential economic consequences over the next few years if E15 can no longer be sold year-round.

Analysis and Findings

RFA has tracked the number of U.S. stations selling E15 over time, based on a variety of sources, including data from the e85prices.com website it maintains. The number of stations has grown from approximately 130 on average in 2015 (i.e., the average of stations selling E15 at the beginning and ending of the year) to over 2,000 in 2020. Based on trend analysis and discussions with fuel retailers, marketers, and terminal operators, the RFA forecasts that 11,000 retail stations would have offered E15 in 2024, absent the court decision. This estimate is based on the plans of several major retail chains to offer E15 (some conveyed directly to RFA staff prior to the court ruling), the funding available through USDA's Higher Blends Infrastructure Incentive Program, the likelihood of stronger renewable fuel blending requirements under the RFS (e.g., fewer small refinery exemptions and reallocation), and the E15 blending economics made possible by the rebound in the prices of renewable identification numbers (RINs) from the suppressed levels of the last few years.

Since approximately one-third of total U.S. stations offering E15 are located in Minnesota and Iowa, historical E15 sales volumes and station statistics in the two states can be used to estimate trends at the national level. Prior to the court ruling, we estimate E15 sales were on a trajectory to reach 7.4 billion gallons (BG) in 2024, the ethanol content of which would have been 1.1 BG (Exhibit 2). However, if E15 cannot be sold year-round as a consequence of the court decision, E15 sales volumes in 2024 would be expected to reach only 700 million gallons (MG), containing 105 MG of ethanol. Thus, if a remedy to the D.C. Circuit Court's decision is not implemented in a timely manner, it is forecast that E15 sales would be reduced by 91%, with 1.0 BG less ethanol sold in this form in 2024. Since E15 would most likely substitute for sales of the more common E10 blend, the net impact would be 336 MG of lost ethanol sales in 2024 alone. The cumulative volume of lost ethanol sales from 2021 to 2024 is 630 MG. At today's prices, foregone ethanol sales revenues through 2024 would be \$1.3 billion.

These potential losses stem from the combination of fewer stations selling E15 and lower E15 sales volumes per station. Some major fuel retailers and marketers who have expressed interest in offering E15 have indicated to RFA that they are much less likely to invest in E15 if they aren't able to sell the fuel year-round. In addition, if the court ruling stands, E15 sales volumes per station would likely return to pre-2019 levels, as retailers would again be forced to forgo E15 sales during the busy summer driving season and consumers may be confused about fuel offerings.

³ <http://www.ethanolproducer.com/articles/18426/rfa-signals-intent-to-fight-courtundefineds-decision-on-epaundefineds-e15-rule>

Exhibit 2: Impact of the DC Court Decision on E15 (Gallons, Except as Noted)

	2018	2019	2020	2021	2022	2023	2024
<u>Previous Trajectory (Year-Round E15)</u>							
Average Number of Stations Selling E15	1,410	1,800	2,100	3,300	6,000	8,500	11,000
Average E15 Volume per Station	205,713	239,122	247,113	317,700	408,400	525,000	675,000
E15 Sales Volume	290,055,600	430,418,800	518,937,600	1,048,410,000	2,450,400,000	4,462,500,000	7,425,000,000
Ethanol Content of E15	43,508,340	64,562,820	77,840,640	157,261,500	367,560,000	669,375,000	1,113,750,000
<u>Post-DC Court Trajectory (Assuming E15 Not Sold Year-Round)</u>							
Average Number of Stations Selling E15	1,410	1,800	2,100	2,900	3,200	3,300	3,400
Average E15 Volume per Station	205,713	239,122	247,113	260,000	206,000	206,000	206,000
E15 Sales Volume	290,055,600	430,418,800	518,937,600	754,000,000	659,200,000	679,800,000	700,400,000
Ethanol Content of E15	43,508,340	64,562,820	77,840,640	113,100,000	98,880,000	101,970,000	105,060,000
<u>Volume Impact of Court Decision</u>							
E15 Sales Volume				(294,410,000)	(1,791,200,000)	(3,782,700,000)	(6,724,600,000)
Ethanol Sold as E15				(44,161,500)	(268,680,000)	(567,405,000)	(1,008,690,000)
Incremental Ethanol Content Over E10				(14,720,500)	(89,560,000)	(189,135,000)	(336,230,000)
Equivalent Volume of Corn as Feedstock				(5,165,100)	(31,424,600)	(66,363,200)	(117,975,400)

Source: RFA

As a result of the reduction in E15 sales, the amount of corn processed into ethanol would be reduced by 221 million bushels cumulatively from 2021 to 2024. This would result in a loss of more than \$1 billion in gross revenues for farmers over the same period, valued at today's prices.

These estimates likely understate the true economic impact of returning to the summertime prohibition on E15 sales. In addition to the lost sales revenues described above, the reduction in overall corn and ethanol demand resulting from the court decision would also act to repress the prices of both commodities across the entire volume produced. Moreover, the potential economic losses over the longer term (i.e., 2025-2030) would be substantially larger, as it was generally expected that E15 expansion would continue to accelerate and E15 could fully, or mostly, replace E10 as "standard gasoline" by the end of the decade.

While this paper is primarily focused on the potential economic impacts of the court decision, there are environmental impacts as well. Consuming E10 in lieu of E15 results in greater greenhouse gas (GHG) emissions, because E10 contains more petroleum-based gasoline than E15. Since ethanol's carbon intensity is nearly 50% lower than that of gasoline, a return to the summertime prohibition on E15 sales would cause GHG emissions from gasoline consumption to increase by 2.3 million metric tons of carbon dioxide equivalent between 2021 and 2024. That is an amount equal to the annual GHG emissions from nearly 500,000 cars.