APPENDIX A

EPA's Proposed RFS Set 2 Rule

Review and Analysis

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Turner, Mason & Company
energy consulting & advisory

Acknowledgements

This study was conducted by Turner, Mason & Company (TM&C), an energy consulting firm which provides technical, commercial, and strategic consulting services to clients globally in the crude oil, midstream, refining, refined products, and biofuel industries.

This study was conducted for the American Fuel & Petrochemical Manufacturers (AFPM) association.

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Contents

AB	Advanced Biofuel
AFPM	American Fuel & Petrochemical Manufacturers
B	Billion
BBD	Biomass-Based Diesel
BD	Biodiesel
BOHO	Soybean Oil vs. ULSD
BTC	Blender's Tax Credit
CNG	Compressed Natural Gas
DCO	Distillers Corn Oil
E0	Zero Percent Ethanol Gasoline
E10	10% Ethanol Gasoline
E15	15% Ethanol Gasoline
E85	85% Ethanol Gasoline
EIA	Energy Information Administration
EIA's AEO	EIA's Annual Energy Outlook
EPA	Environmental Protection Agency
EV	Energy Equivalence Value
FOG	Fats, Oils, and Greases
ILUC	Indirect Land Use Change
LCFS	Low Carbon Fuel Standard
LNG	Liquified Natural Gas
MMGPY	Million Gallons per Year
NA	North America
NGV	Natural Gas Vehicle
OBBBA	One Big Beautiful Bill Act
OGV	Ocean-Going Vessels
PW&A	Prevailing Wage and Apprenticeship
RD	Renewable Diesel
RFS	Renewable Fuel Standard
RFV	Renewable Fuel Volume
RIN	Renewable Identification Number
RNG	Renewable Natural Gas
RVO	Renewable Volume Obligations
SAF	Sustainable Aviation Fuels
SBO	Soybean Oil
SEDS	State Energy Data System
SRE	Small Refinery Exemption
TM&C	Turner Mason & Company
ULSD	Ultra Low Sulfur Diesel
USDA	U.S. Department of Agriculture
USMCA	U.S. / Mexico / Canada

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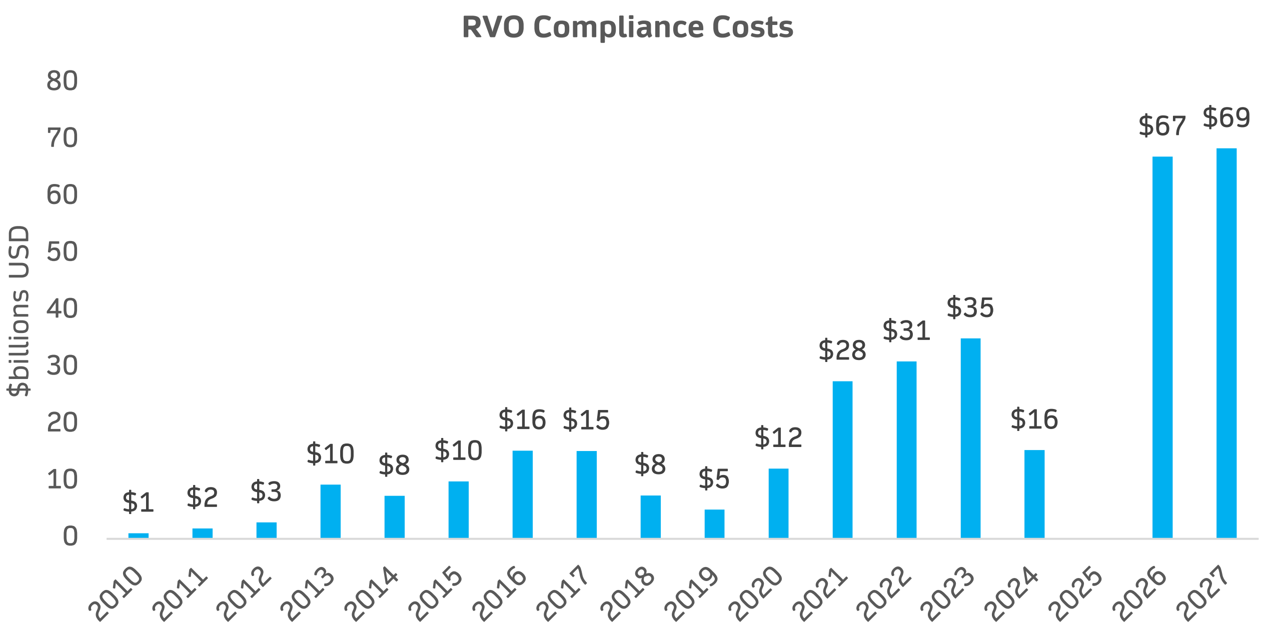
1. Executive Summary

On June 17, 2025, the Environmental Protection Agency (EPA) released a proposed rule, 90 Fed. Reg. 25784 to establish the Renewable Fuel Standard (RFS) volume requirements for compliance years 2026 and 2027 (Set 2). Compared to 2025 obligations, the proposed Renewable Volume Obligations (RVOs) represent a significant increase. EPA's methodology for setting the proposed Set 2 RVOs is discussed in detail in subsequent sections below.

To assess the implications of the proposed rule's impact on program costs, a base case, along with eight scenarios were analyzed, each varying key assumptions such as the methodology for setting RVOs, transportation fuel demand, treatment of foreign vs. domestic feedstocks, shifting where the conventional blendwall[1] is set, and the relationship between petroleum and renewable fuel feedstocks used to construct the Renewable Identification Number (RIN) supply curve.



Annual RVO compliance cost history based on TM&C Analysis. 2025 cost cannot be determined until year-end.

Findings:

The projected total cost of the RFS program under Set 2 is estimated to be $60-70 billion per year, representing a sharp increase relative to historical program costs.

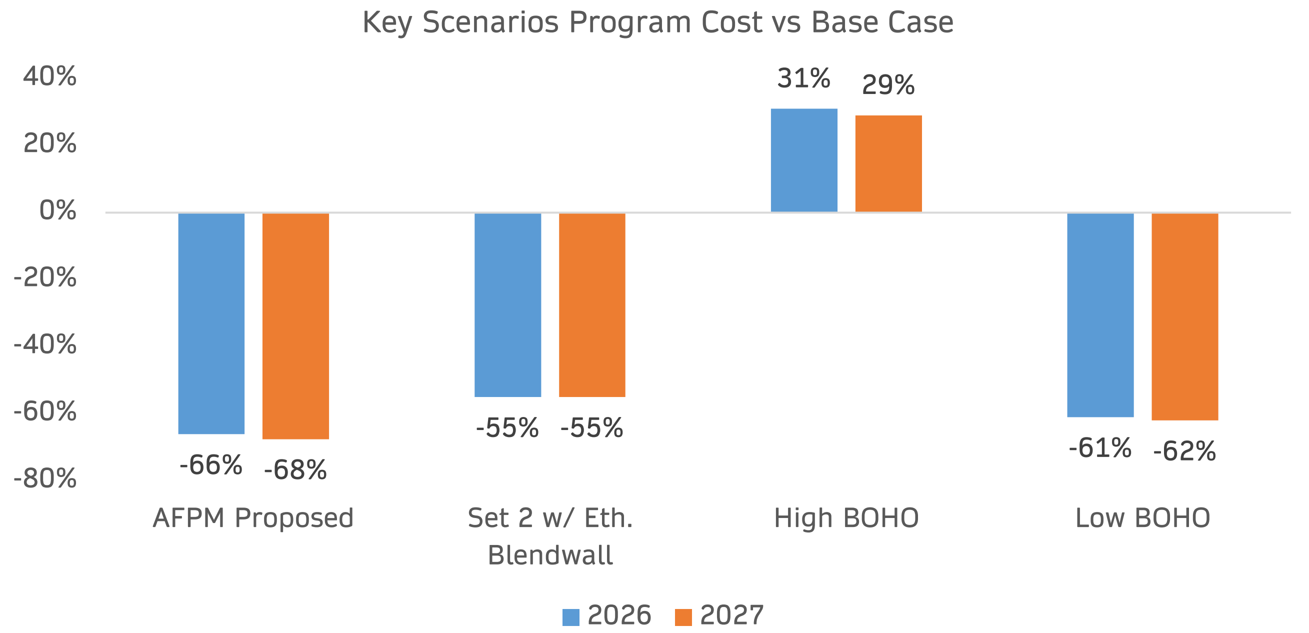
[1] The "blendwall" refers to the physical volume of ethanol that the market can consume in a given year given vehicle and infrastructure compatibility.

Setting the Implied Conventional Biofuel volume to the Ethanol blendwall has the biggest individual factor impact on program costs (55% decrease[2]) and reduces sensitivity of changes in the BOHO (Soybean oil vs. ULSD) spread to program costs.

A reduction in obligated Biomass-Based Diesel (BBD) volumes (North America (NA) Feedstock/Set 1) decreases program costs another 9-12%.

The AFPM Proposed case combines setting the Implied Conventional Biofuel volume to the Ethanol blendwall while reducing the obligated BBD volumes using the NA Feedstocks with some SBO growth decreasing the program costs 66-68%.

Shifts in BOHO price spread (high/low) generally lead to linear up/down shifts in program costs. The high variability in the BOHO spread could have an outsized impact on RFS program costs, which is not controlled by the RVO percentage standards. There may be a disconnect in RIN costs as the BOHO spread changes.



[2] Net impact takes into account the increase in Advanced by the difference between Conventional at 15 B-gal and the blendwall.

2. Proposed Standards for 2026 and 2027 - Methodology

On June 17, 2025, the EPA published a proposed rule to establish the RFS volume requirements for compliance years 2026 and 2027 (Set 2)[3]. As part of this rulemaking, the EPA proposed RVOs and the associated percentage standards for each major fuel category—Cellulosic Biofuel, Biomass-Based Diesel (BBD), Advanced Biofuel (AB), and Total Renewable Fuel.

These RVOs set the volumes of renewable fuel that must be blended into the national transportation fuel supply. In conjunction with the volumetric mandates, the EPA also established the annual percentage standards, which represent the share of total projected fuel consumption that must be met with renewable fuels under the RFS program. These percentages are calculated by dividing the applicable renewable volume2 targets by the forecasted gasoline and diesel consumption after deductions for the renewable fuels and Alaska consumption, and diesel fuel consumed in ocean-going vessels (OGVs), as predicted in the Energy Information Administration's (EIA) Annual Energy Outlook (AEO). Ultimately, the resulting percentage standards issued by the EPA are then applied to the actual volumes of petroleum fuel produced or imported by obligated parties during the respective compliance year.

Table 1 – EPA Proposed Renewable Volume Obligations

RVOs	Base Case Estimate	
B-RINs	**2026**	**2027**
Cellulosic Biofuel	1.30	1.36
Biomass-Based Diesel	7.20	7.65
Advanced Biofuel	9.09	9.61
Total Renewable Fuel	24.09	24.61
Implied Undifferentiated	*0.60*	*0.60*
Implied Conventional	*15.00*	*15.00*

EPA Proposed RVOs have been updated to use EIA's 2025 AEO Reference case

2.1. Renewable Fuel Production (Numerator)

2.1.1. Cellulosic Biofuel Volume

Cellulosic Biofuel projections under Set 2 methodology were based on two primary components: (1) Renewable Natural Gas (RNG) utilized as Compressed Natural Gas (CNG) or liquefied natural gas (LNG) for motor vehicle transportation, and (2) cellulosic ethanol derived from corn kernel fiber and blended

[3] 90 Fed. Reg. 25784 (June 17, 2025)

into gasoline. Other forms of cellulosic biofuels were excluded from the analysis due to their limited commercial-scale production.

The U.S. EPA developed a custom estimate of CNG/LNG use by motor vehicle type. This estimate integrated multiple data sources, explicitly excluding usage by trains and ships, and assumed a 97% distribution efficiency to account for energy losses in the transport and fueling infrastructure.

Projections for cellulosic ethanol production derived from corn kernel fiber were based on 90% of currently registered ethanol production facilities, operating at less than full capacity, with a conversion yield of 1% from cellulosic ethanol processes. Projected production volumes for 2026 and 2027 were calculated to be 13.78 billion gallons and 13.66 billion gallons, respectively, reflecting marginal annual differences.

2.1.2. Implied Non-Cellulosic Advanced Biofuel Volume

Implied volumes for Non-Cellulosic Advanced Biofuels were developed based on four categories: Advanced Biodiesel, Advanced Renewable Diesel (RD), Advanced Renewable Jet Fuel, and Other Advanced Biofuels.

- Advanced Biodiesel: Estimated 2025 volumes were derived from projected year-end 2024 volumes. The 2026 and 2027 projections held advanced biodiesel volumes relatively constant to the 2025 estimate but with a 50% reduction in RINs generated per gallon applied to advanced biofuel volumes derived from non-U.S. feedstocks.
- Advanced Renewable Diesel: Estimated volumes for 2025 were also derived from year-end 2024 volume projections for domestic production. For 2026, advanced renewable diesel volumes were increased by approximately 1,080 million gallons from the 2025 estimate, with an additional 300 million gallons added for 2027. A 50% RIN per gallon reduction similarly applied to volumes from non-U.S. feedstocks. In addition, EPA reduced the energy equivalence value (EV) from 1.7 to 1.6 RINs/gallon to reflect the results of a study that recalculated the non-renewable content of hydrogen used in manufacturing.
- Advanced Renewable Jet Fuel: Volumes of advanced renewable jet fuel were combined with the advanced renewable diesel projections for simplicity and consistency in tracking advanced fuel volumes.
- Other Advanced Biofuels: These volumes consisted of imported sugarcane ethanol, non-biomass based diesel from co-processing, domestic advanced ethanol, and other non-cellulosic advanced fuels. The volumes were estimated based on historical weighted average of RIN generation data from 2015 through 2023, applying weighting factors higher for most recent years and lower for earlier years. The resulting figures were applied across 2026 and 2027.

2.1.3. Implied Conventional Renewable Fuel Volume

After 2022, the EPA is responsible for setting annual volumes using its “set authority” rather than relying on statutory targets. The EPA used its set authority to maintain the Implied Conventional Renewable Fuel Volume at the 15 billion gallons annually.

Total ethanol consumption was estimated using projected volumes for E0 (zero percent ethanol), E15 (15% ethanol), and E85 (85% ethanol), which were extrapolated from historical retail fueling data. Multiple new and legacy sources were used to ensure projection reliability. Projected volumes of E10 were calculated by subtracting projected E0, E15, and E85 volumes from the U.S. EIA’s AEO 2023 estimate for overall motor gasoline consumption.

Further, the conventional corn ethanol volumes were reduced by the estimated contributions from cellulosic ethanol, imported sugarcane ethanol, and domestically produced advanced ethanol.

Any shortfall between the projected consumption of conventional ethanol and the implied renewable fuel volume target (15 billion gallons) was filled by reallocating a portion of the Non-Cellulosic Advanced Biofuel Volume to the conventional biofuel category, thereby ensuring compliance with the total renewable fuel obligation.

2.1.4. Advanced Biofuel Volume

EPA calculated the Advanced Biofuel Volume to be the sum of the Cellulosic Biofuel Volume and the net available Non-Cellulosic Advanced Biofuel volume after subtracting the quantity needed to meet the Implied Conventional Biofuel Volume.

2.1.5. Biomass-Based Diesel Volume

Annual Biomass-Based Diesel (BBD) volumes for 2026 and 2027 were set using a top-down allocation approach. The total Implied Non-Cellulosic Advanced Biofuel volume was reduced by the projected Conventional Biofuel allocation. An additional 600 million RINs were subtracted to create capacity for other advanced biofuels that are not BBD, aiming to promote fuel diversity within the Advanced Biofuel category

2.1.6. Total Renewable Fuel Volume

The Total Renewable Fuel Volume is the sum of the Advanced Biofuel Volume and the Implied Conventional Renewable Fuel Volume of 15 billion gallons.

2.2. Petroleum Fuel Consumption (Denominator)

2.2.1. Petroleum Fuel Consumption – Gasoline and Diesel

EPA used the EIA AEO 2023 Reference Case[4] to calculate the gasoline consumption for the respective years. This volume then is corrected (reduced) for Alaskan gasoline consumption using the 2023 State

[4] EIA AEO – U.S. Energy Information Administration. *Annual Energy Outlook 2023*. U.S. Department of Energy., https://www.eia.gov/outlooks/aeo/tables_ref.php

Energy Data System (SEDS)[5] data as Alaska is excluded from the RFS program. The volume is then further reduced to account for the ethanol content using AEO 2023 reference ethanol consumption for the two years, as well as other biofuels blended into the gasoline pool. The EPA increased volumes by using an AEO adjustment factor estimate of 3.5% (based on the historical difference between obligated party reported gasoline and diesel fuel volumes and AEO gasoline and diesel fuel consumption estimates) in their proposed rule but commented that they may update the factor when they publish the final rule and use the AEO 2025.

In the same manner, EPA used the EIA AEO 2023 Reference Case to calculate the diesel consumption for the respective years. This volume is then corrected (reduced) for Alaskan diesel consumption using the 2023 SEDS data, and ocean-going vessel consumption from the AEO 2023. They further reduced the diesel demand to account for the biodiesel and renewable diesel estimate in the AEO 2023. Again, the EPA increased the volumes using an AEO adjustment factor estimate of 3.5%, as explained above, in their proposal but commented that they may update the factor when they publish the final rule.

EPA is also expected to adjust petroleum fuel consumption in the final rule to use the EIA 2025 AEO Reference Case.

[5] EIA - U.S. Energy Information Administration, State Energy Data System 2023, https://www.eia.gov/state/seds/seds-data-complete.php?sid=US.

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3. Model Design – TM&C RFS Compliance Cost Model

To evaluate the cost of compliance with EPA's proposed renewable fuel volumes for 2026 and 2027, TM&C developed an integrated model that incorporates supply-demand dynamics, commodity pricing, and regulatory policies. The model quantifies how key market and policy inputs impact renewable fuel production costs, RIN pricing, and overall compliance costs.

3.1. Key Inputs to Model

The TM&C model relies on a set of core inputs that collectively shape renewable fuel compliance costs. These inputs reflect the dynamic interplay between market fundamentals and regulatory mandates. By examining petroleum market trends, renewable fuel supply conditions, and policy drivers, the model simulates how these variables influence RIN pricing and overall compliance strategies under the EPA's proposed volumes for 2026 and 2027.

3.1.1. Petroleum Prices and Demand

Petroleum product prices and demand trends directly influence renewable fuel production costs and RIN prices. Higher oil prices raise the cost of renewable fuels. Demand for gasoline and diesel — shaped by consumer behavior and macroeconomic conditions — affects blending volumes and compliance obligations. TM&C utilizes projections from the EIA's AEO 2025 to inform these dynamics. TM&C included a correction factor of 3.7% increase to account for historic underestimation from the AEO data, as explained in Section 2.

3.1.2. Renewable Fuel Supply

Renewable fuel supply is influenced by feedstock availability, production capacity, and global trade. The model reflects supply-side responsiveness to RIN prices: higher prices incentivize production from higher-cost producers, while lower prices contract supply. Feedstock price changes — domestic or international — also reshape the supply curve, directly impacting production economics and compliance cost outcomes.

3.1.3. Regulatory Requirements and Incentives

Regulatory and policy drivers establish the framework for compliance obligations and significantly impact market behavior:

- RFS Obligations and Standards: EPA's RVOs and percentage standards define blending targets. Gaps between projected and actual fuel use or production levels can create market imbalances, raising RIN prices and compliance costs.
- State-Level Programs: Initiatives such as California's Low Carbon Fuel Standard (LCFS) establish carbon-intensity-based reduction targets rather than specific blending mandates. These programs increase demand for low-CI renewable fuels, which can place upward pressure on RIN prices – particularly during periods of supply constraints. However, these programs have also

generally allowed renewable fuel producers to stack credits, which could result in downward pressure on the RIN.

- Federal Tax Incentives: Programs such as the 45Z Clean Fuel Production Credit under the Inflation Reduction Act reduce net production costs. This allows renewable fuels to compete more effectively, influencing the marginal economics of both existing and new producers, and thereby affecting the RIN market. Accordingly, replacing the IRC §40B $1.00-per-gallon Blender's Tax Credit (BTC) for BBD with the Section 45Z Clean Fuels Production Credit is expected to increase overall compliance costs under the RFS, assuming all other factors remain equal.

TM&C's model captures the interaction between market conditions and regulatory drivers, offering a robust framework to assess how proposed mandates, economic factors, and incentives shape the cost of renewable fuel compliance.

4. Model Base Case – EPA Proposed Renewable Volumes

As noted earlier in Table 1, the EPA has proposed significant increases in renewable fuel volumes for 2026 and 2027 under the RFS program, aiming to boost domestic renewable fuel production and reduce reliance on imported fuels. The model was developed using these proposed volumes as the central framework. These volumes serve as the basis for calculating compliance costs and projecting the broader economic impact of the renewable fuel mandate. By integrating these volumes into the model, we can evaluate how changes in renewable fuel production and market dynamics will affect cost structures, RIN prices, and overall compliance requirements.

Table 2 – EPA Proposed Renewable Percentage Standards

% Standards	40 CFR 80	Base Case Estimate	
	2025	2026	2027
Cellulosic Biofuel	0.81%	0.72%	0.77%
Biomass-Based Diesel	3.15%	4.00%	4.29%
Advanced Biofuel	4.31%	5.06%	5.40%
Total Renewable Fuel	13.13%	13.40%	13.82%

The base case assumes full adherence to the EPA's proposed RVOs, providing a reference for evaluating market behavior under the regulatory framework. This includes understanding the potential effects of RIN price fluctuations, supply constraints, and production incentives on the renewable fuel market. The model utilizes the EIA AEO 2025 reference case pricing[6] for petroleum products, but it's important to note that AEO 2025 does not account for renewable fuel feedstock prices. To fill this gap, the model assumes a $1.72/gallon soybean oil to ULSD (BOHO) spread, based on pricing from the week ending 6/27/2025 USDA/EIA[7] data, which reflects historical price differentials between biofuels and petroleum products. This approach enables the model to project how changes in renewable fuel production, feedstock prices, and broader market conditions will influence compliance costs, RIN prices, and the overall economic landscape.

Other key assumptions integrated into the model include the proposed rule's adjustments to RIN generation and updates from the "One Big Beautiful Bill Act" (OBBBA) 45Z credit for 2026 and 2027. These assumptions are critical to accurately forecasting compliance costs and understanding the economic impact of renewable fuel mandates.

[6] EIA AEO – U.S. Energy Information Administration. *Annual Energy Outlook 2025*. U.S. Department of Energy. https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EER_EPD2F_PF4_Y35NY_DPG&f=W
[7] USDA / EIA – U.S. Department of Agriculture. 2025. https://mymarketnews.ams.usda.gov/filerepo/sites/default/files/3618/2025-06-23/1254827/ams_3618_00147.pdf

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The proposed rule makes the following changes impacting RIN generation:

- Renewable Diesel Equivalence Value: The RIN generation for renewable diesel is reduced from 1.7 to 1.6 to reflect changes in equivalence value.
- Foreign Fuels: Renewable fuels produced outside the U.S. will receive 50% fewer RINs compared to domestic fuels.
- Domestic Fuel from Foreign Feedstock: Renewable fuels produced in the U.S. using foreign feedstocks will also receive 50% fewer RINs.
- The OBBBA 45Z Clean Fuel Production Credit:
    - The credit is available exclusively to domestic renewable fuel producers using feedstocks from the U.S., Mexico, or Canada.
    - Assumed all domestic renewable fuel producers meet the Prevailing Wage and Apprenticeship (PW&A) requirements and therefore qualify for the 5x credit multiplier.
- OBBBA updates for 2026 and 2027:
    - Carbon Intensity Calculations: Carbon intensities for renewable fuels are calculated without an Indirect Land Use Change (ILUC) penalty.
    - Max Credit for Sustainable Aviation Fuels (SAF) and Non-SAF: Both SAF and Non-SAF receive the same maximum credit, set at $1.00 per gallon. Negative Carbon Intensity values are not allowed.
    - 40A Small-ag Credit for Biodiesel Producers: The 40A credit is available for biodiesel producers with a nameplate capacity of less than 60 million gallons per year (MMGPY). Producers can receive a subsidy for the first 15 million gallons, valued at $0.20 per gallon.

These assumptions ensure that the model reflects the most current regulatory frameworks and market conditions, providing a comprehensive outlook for renewable fuel compliance costs and the broader economic landscape.

The integration of RIN supply curves with RIN demand, particularly as influenced by gasoline/ethanol blendwall and other renewable fuel consumption constraints, is central to understanding renewable fuel compliance costs under the RFS program. The blending limitations imposed by the blendwall mean that the generation of D6 RINs is constrained by the maximum amount of gasoline that can be blended with renewable fuel. In the case of D6 RINs, which represent conventional renewable fuels such as ethanol, the total supply is subject to the annual blending capacity for gasoline. Similarly, D3 RNG RINs, which are generated from renewable natural gas, are potentially limited by the Natural Gas Vehicle (NGV) demand each year, further restricting the total volume of RINs available for compliance. These constraints significantly shape the overall RIN supply, influencing market behavior and pricing.

Fundamental to the economic evaluation is the principle of marginal analysis, whereby the cost of a RIN is determined by the marginal renewable fuel producer, taking into account the commodity price and the margin capture (revenue share of RIN) of producing renewable fuels. The price at which a RIN will trade is set that the marginal producer will cover their costs. Each renewable fuel category— whether it's ethanol, biodiesel, or renewable natural gas—has its own supply curve that identifies the marginal producer within that category for a given quantity demanded of renewable fuel/RINs. By calculating the cost of a RIN in each category, the model can estimate the price needed to allow the marginal producer to break even. This calculation incorporates an assumed RIN revenue share (60%), which represents the portion of the RIN price that the producer captures as revenue.

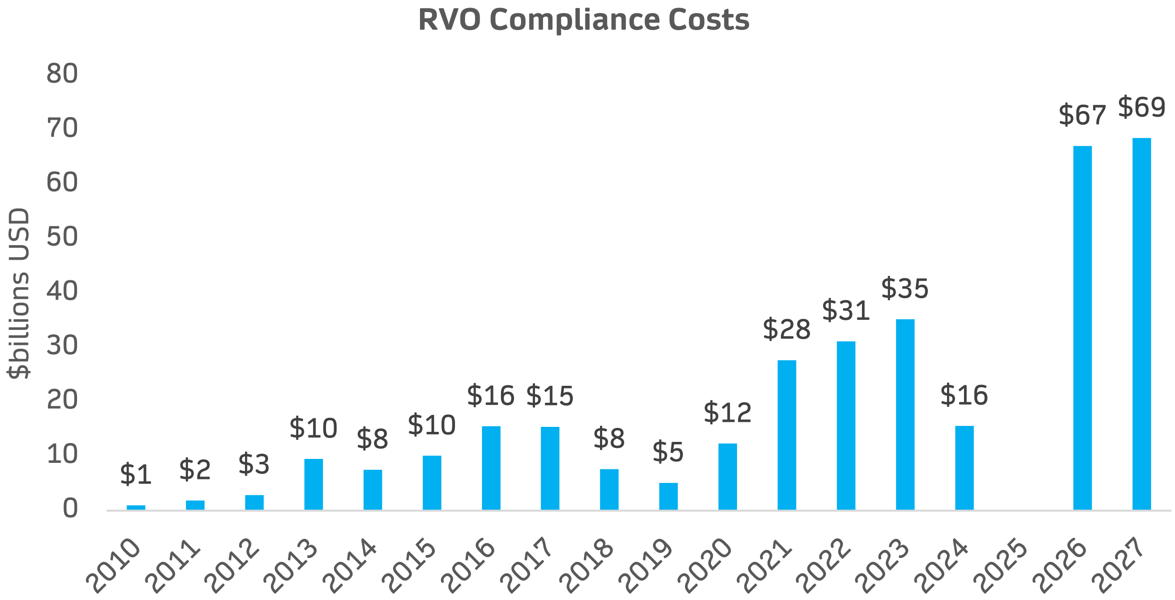
The nesting of RIN categories introduces further complexity to the RIN pricing structure. The cost of the RIN is not determined in isolation for each category but is influenced by the nesting of RIN categories, where the price of higher-value RINs (e.g., D4 RINs) can influence the pricing of lower-value RINs (e.g., D6 RINs). In this framework, the RIN price for each category is driven by the supply and demand dynamics, as well as the pricing structure imposed by the highest cost RIN within the nested categories. Each RIN producer is assumed to sell their RINs at the maximum (marginal) price available in the market, ensuring that the marginal price reflects the combined effect of all nested categories.

RIN prices are intricately linked with transportation fuel demand, as obligated parties — those producing petroleum gasoline and diesel — are required to purchase RINs in accordance with the RVO percentage standards set by the EPA. The total quantity of RINs demanded by these obligated parties drives the overall RIN price, which in turn impacts the renewable fuels market. The RIN price, influenced by the supply curves and the quantity demanded, determines the total cost of compliance for the RFS program. The total RFS program cost is therefore calculated based on the total volume of RINs purchased by obligated parties and the price at which those RINs are bought. The model assumes that all obligated parties purchase their RINs from the open market, reflecting the need for compliance and the pressure exerted by regulatory requirements.

The model output estimates RIN prices to be driven by the marginal producer's cost to produce renewable fuel and the supply-demand dynamics within the RFS program. This price reflects the necessary level for producers to break even, considering production costs, RIN revenue share, and the nesting effect of higher-value RIN categories. The projected RIN price is key to calculating the total compliance cost for obligated parties under the program.

Taking all the various inputs into consideration in the model, TM&C determined an overall estimated compliance cost of the program of $67 billion in 2026 and $69 billion in 2027.

Figure 1



Annual RVO compliance cost history based on TM&C Analysis. 2025 cost cannot be determined until year-end.

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5. Scenario Analysis

Building on the base case assumptions, eight distinct scenarios were run to analyze the impact on the cost of compliance and RIN pricing under the RFS program. These scenarios explore different combinations of economic conditions, regulatory changes, and feedstock availability. The scenarios assessed were:

1. **High AEO 2025 Economic Case** – Analyzing the impact of a higher-than-expected economic growth scenario on petroleum product prices and transportation fuel demand.
2. **Low AEO 2025 Economic Case** – Analyzing the impact of a lower-than-expected economic growth scenario on petroleum product prices and transportation fuel demand.
3. **AFPM Proposed Case** – Evaluating a scenario where implied conventional is constrained to the gasoline/ethanol blendwall, and advanced biofuel volumes are set using North American feedstocks and 2025 projected production levels, and then revised upwards to include S&P growth estimates for soybean oil feedstock production. Foreign imports of renewable fuel and feedstock receive 100% of the RIN.
4. **AFPM Alternative Case Using Set 1 and only North American Feedstocks** – Setting the RVO based on BBD feedstock from North American sources only to assess the impact on renewable fuel production and RIN pricing. However, foreign imports of renewable fuel and feedstock receive 100% of the RIN.
5. **Ethanol at the Blendwall; Increase Advanced to Accommodate Proposed Total Renewable Volume** – Adjusting the base case to set the implied conventional volume to reflect the ethanol blendwall level. The BBD that was assumed to fill the implied conventional gap to 15 billion gallons was added to the BBD RVO.
6. **High BOHO Spread** – Modifying the spread between renewable feedstocks and petroleum products, based on a higher differential between the two.
7. **Low BOHO Spread** – Adjusting the spread to reflect a lower differential between biofuels and petroleum products.
8. **Full Small Refinery Exemption (SRE) Reallocation** – Analyzing the effects of proactively reallocating the estimated full volume of SREs on RVO%s (i.e. all small refineries would be exempt from having to comply with their 2026 and 2027 RFS obligations).

These scenarios provide insights into how varying economic conditions, policy decisions, and feedstock constraints influence the renewable fuel market and its cost structure. By evaluating these different situations, the model helps forecast potential outcomes under different regulatory and market dynamics.

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5.1. Scenario 1 & 2 – High & Low AEO 2025 Economic Case

Scenario Description

In the High AEO 2025 Economic Case, economic growth is projected to be higher than expected, leading to increased gasoline and diesel demand. This, in turn, drives a corresponding increase in RIN demand for each renewable fuel category. Conversely, in the Low AEO 2025 Economic Case, lower economic growth results in decreased gasoline and diesel demand, causing a reduction in RIN demand across all categories. These changes in price and fuel demand impact the overall RIN market dynamics.

Output

Despite the changes in gasoline and diesel demand in both economic cases, the impact on RVO compliance costs is modest. The shifts in supply and demand primarily cause slight movements up or down the supply curves for each renewable fuel category. As a result, the RIN price fluctuates minimally within both scenarios. Specifically, the cost of compliance sees less than 5% change, reflecting the minor shifts in the supply and demand balance. The overall effect on compliance costs is moderate, with only slight adjustments to the RIN price based on the economic growth scenarios.

5.2. Scenario 3 – AFPM Proposed Case

Scenario Description

In the AFPM Proposed Case, advanced biofuel volumes are set to match the 2025 projected production levels using North American feedstocks with increased soybean oil production growth across 2026 and 2027 per S&P's projection[8]. Foreign imports of renewable fuel and feedstock receive 100% of the RIN. In addition, ethanol is constrained to the blendwall, limiting the implied conventional volume to actual blending rates. This results in lower RVOs, as the conventional category does not need to be filled with higher priced BBD and advanced biofuels RVOs are limited volumes that can be supplied from BBD produced from North American feedstocks.

Output

The updated RVOs lead to a reduction in RINs demanded across the program. With conventional constrained to the ethanol blendwall, the implied conventional tier is met with conventional ethanol, meaning that biomass-based diesel is not needed to fulfill the conventional tier requirements. As a result, fewer RINs are needed, particularly for D6 (ethanol) and D4 (biomass-based diesel) categories. This leads to decreased RIN prices as the demand for RINs falls. The D6 price is no longer set by the D4 price, contributing to further price reductions.

Overall, the RVO program cost sees a significant decrease, driven primarily by the reduction in D6 RIN prices. The model estimates a 66-68% reduction in overall program costs compared to the base case, due to fewer RINs being demanded and the decrease in RIN prices.

[8] S&P Global Commodity Insights, Availability to Meet Biodistillate RVOs (S&P Analysis), see Appendix.

5.3. Scenario 4 – AFPM Alternative Case Using Set 1 Methodology and only NA Feedstocks

Scenario Description

In the Set 1 (North American Feedstocks Only) case, the RVO is set based on feedstocks from North American sources only (similar to Set 1). This restriction reduces the overall RVOs as the availability of feedstocks is constrained by the projected supply of North American resources. In addition, this case removes the 50% RIN reduction on foreign fuel imports or feedstocks. Specifically, the volumes for biomass-based diesel are reduced due to the limited availability of feedstocks within North America, as projected by the EPA, but the implied undifferentiated is unchanged which in turn reduced advanced biofuels.

Output

The limitation to North American feedstocks results in lower RVOs across both advanced biofuels and biomass-based diesel categories. As a consequence, RINs demanded decreases, leading to a modest reduction in program costs. This reduction is primarily driven by the lower RIN price resulting from fewer RINs being demanded, and the marginal cost of RINs moving down the supply curve as supply tightens. The model estimates that the overall program cost experiences an 9-12% reduction, reflecting the reduced volumes of renewable fuels that need to be blended due to the feedstock limitation.

5.4. Scenario 5 – Ethanol at the Blendwall; Increase Advanced Volumes to Accommodate Proposed Total Renewable Fuel Volumes

Scenario Description

In the Ethanol at the blendwall scenario, the ethanol blendwall constraint is applied. As a result, the implied conventional tier is set to the ethanol blendwall level, but BBD and advanced biofuels AB volumes are increased to accommodate the same total renewable fuel volume. This adjustment leads to an increase in the BBD/AB RVO percentage standard, while the total renewable fuel standard remains unchanged.

Output

The application of the ethanol blendwall results in decreased implied conventional RINs. However, this is offset by an increase in BBD RINs demanded, as the growth of the BBD industry contributes to a higher proportion of the obligated volumes. This shift results in a significant reduction in the RVO program cost, driven by the lower D6 RIN price. In this scenario, the D6 price is no longer set by the higher D4 price, as seen in the base case, due to the reduced demand for conventional RINs. The overall RVO program cost decreases by approximately 55%, reflecting the reduced cost associated with the lower D6 price.

5.5. Scenario 6 & 7 – High & Low BOHO Spread

Scenario Description

In this scenario, the BOHO is adjusted to analyze its impact on the RIN price and overall program costs. In the Base Case, the BOHO spread is set at $1.72 per gallon. The high ($2.25/gallon) and low ($0.66/gallon) cases were determined based on an analysis of historical quarterly averages over the last 5 years.

- **High BOHO Spread Case:**

  In the High BOHO Spread Case, the spread is increased to $2.25 per gallon, causing the entire supply curve to shift upward. This shift requires the RIN price to increase in order to incentivize more production of renewable fuels. Higher feedstock costs lead to higher production costs, which in turn drives up the RIN price.

- **Low BOHO Spread Case:**

  In the Low BOHO Spread Case, the spread is reduced to $0.66 per gallon, causing the entire supply curve to shift downward. This decrease reduces the need for higher RIN prices, as the cost to produce renewable fuels becomes lower, requiring less financial incentive to maintain supply.

Output

While the RVO standards and RINs demanded remain unchanged from the base case, the shift in the supply curve has a direct effect on the overall RVO program costs. In the High BOHO Spread Case, the increased feedstock costs push up the supply curve, leading to higher RIN prices and a significant increase in program costs, driven primarily by higher biomass feedstock costs. This effect is particularly pronounced when the D6 RIN price is set by the D4 price, as the higher cost of biomass-based diesel drives up the price of the conventional ethanol RIN. In the Low BOHO Spread Case, the lower feedstock costs reduce the supply curve, leading to lower RIN prices and a decrease in program costs. The overall RVO program cost is expected to increase by 29-31% in the high BOHO spread case and decrease by 61-62% in the low BOHO spread case.

5.6. Scenario 8 – Full Small Refinery Exemption (SRE) Reallocation

Scenario Description

In the Full SRE Reallocation case, there is no change to the renewable fuel volumes, but the RVO percentage standards are updated to reflect the reallocation of the 18 billion-gallon SRE gasoline and diesel relieved obligation. The SRE volume is applied to the denominator (composed of 13 billion gallons of gasoline and 5 billion gallons of diesel), which results in an increase in the RVO percentage standards. As a consequence, the percentage of renewable fuel that must be blended into gasoline and diesel increases for each obligated party.

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Output

While the RVO standards are adjusted upward, the total obligated gasoline and diesel volumes decrease, leading to a nominally unchanged number of RINs required. Since the number of RINs of each category is nearly the same, the total overall compliance cost remains essentially the same. Obligated parties would incur a higher RIN demand due to the SRE exemption, so are expected to bear a higher cost per gallon of obligated fuel. The model estimates this to be 10-11% higher.

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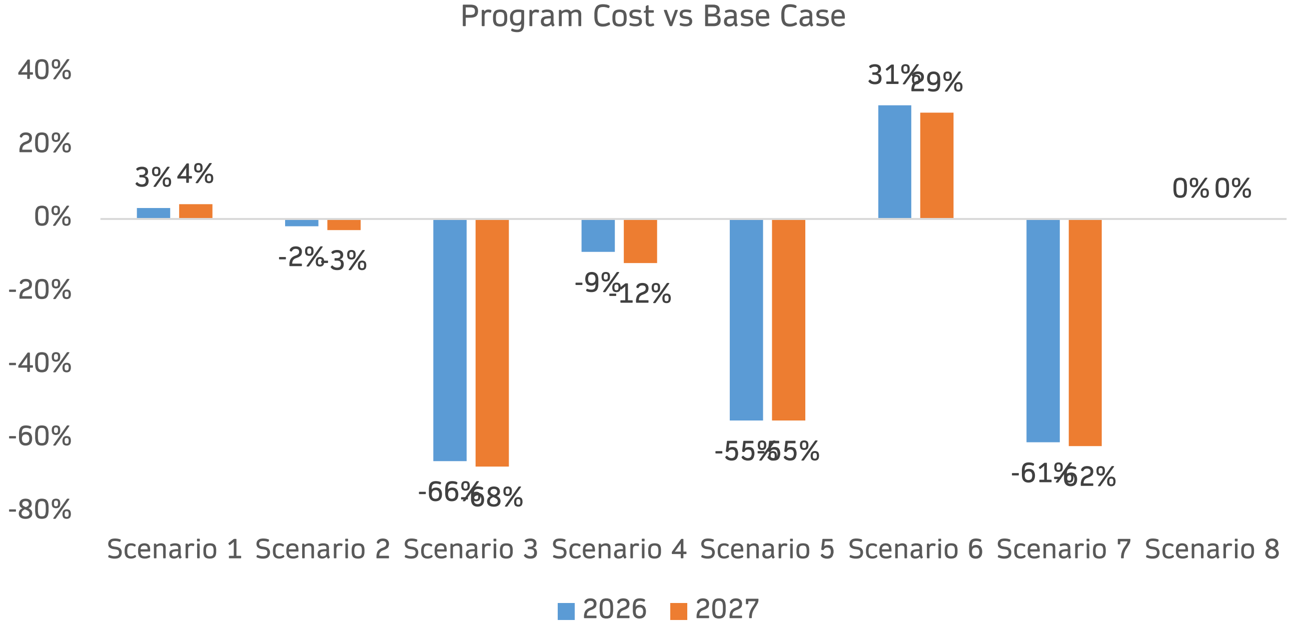
6. Conclusion



- Setting the Implied Conventional to the blendwall has the biggest impact on program costs (55% decrease[2]) and could reduce sensitivity of changes in the BOHO spread to program costs.
- A reduction in obligated BBD volumes (NA Feedstock/Set 1) decreases program costs another 9-12%.
- The AFPM Proposed case combines setting the Implied Conventional Biofuel volume to the Ethanol blendwall while Advanced Biofuel volumes are set to match the 2025 projected production levels using North American feedstocks with some increased Soybean Oil production growth across 2026 and 2027 per S&P's projection. This case is expected to decrease the program costs 66-68%.
- Shifts BOHO price spread (high/low) generally lead to linear up/down shifts in program costs. The high variability in the BOHO spread could have an outsized impact on RFS program costs, which is not controlled by the RVO percentage standards. There may be a disconnect in RIN costs as the BOHO spread changes.
- Changes in demanded volumes move you up/down the supply curve but aren't a big driver of the program costs (High/Low Economic Cases). These cases only changed the RINs demanded by about 400-800 MM-RINs (out of 23,000 MM-RINs). A 2-4% change in RINs demand leading to a ~2-4% change in program cost.
- If BOHO spread remains, current proposed Set 2 standards are expected to double the cost of the RFS program due to increased RIN obligations, 50% reduction in RINs on foreign feedstocks, and the Implied Conventional exceeding the Ethanol blendwall.

Scenarios RVO % Standards (2026)						
% Standards	40 CFR 80 (2025)	Base Case	Scenario 3	Scenario 4	Scenario 5	Scenario 8
Cellulosic Biofuel	0.81%	0.72%	0.72%	0.72%	0.72%	0.80%
Biomass Based Diesel	3.15%	4.00%	3.68%	3.49%	4.64%	4.45%
Advanced Biofuel	4.31%	5.06%	4.73%	4.54%	5.69%	5.62%
Total Renewable Fuel	13.13%	13.40%	12.44%	12.88%	13.40%	14.89%

7. Appendices

2026-2027 SET 2 PROPOSED RENEWABLE VOLUME OBLIGATIONS (RVOs): THE BASE CASE

AFPM RFS Sub-Committee Meeting

June 19, 2025 (updated 7/24/25)

Turner, Mason & Company
energy consulting & advisory

THE BASE CASE: EPA PROPOSED RVOs

Comparison against RFS Set 1

- Major differences related to EPA changes in methodology for Cellulosic Biofuel and BBD
  - Lower CNG/LNG consumption & Cellulosic Ethanol yield
  - Includes imported feedstocks for BBD & Advanced Biofuel volume projection
- Lower Ethanol consumption requires larger "spill-over" of Advanced to Conventional Biofuel bucket to support 15 billion gallon per year Implied Conventional Biofuel volume requirement
- Proposes to include SREs in "denominator" without adjustment to RFVs in the "numerator".

	TM&C Original Base Case (1)		EPA Proposed Rule	
B-RINs	**2026**	**2027**	**2026**	**2027**
Cellulosic Biofuel	1.61	1.61	1.30	1.36
Biomass-Based Diesel	5.61	5.86	7.12	7.50
Advanced Biofuel	7.81	8.06	9.02	9.46
Total Renewable Fuel	22.81	23.06	24.02	24.46

(1) Methodology: EPA methodology from RFS Set 1 used to calculate the estimates for 2026 – 2027.

THE BASE CASE: EPA PROPOSED RVOs

Comparison against RFS Set 1

Key Differences:

- Cellulosic Biofuel
    - Limited by CNG/LNG consumption based on vehicle fleet estimate instead of AEO estimate
    - Lowered cellulosic ethanol yield from corn kernel fiber from 1.5% to 1% and based on lower ethanol production estimate
- Advanced Biofuel – Non-Cellulosic
    - Increased BBD RINs by 500 million per year, based on 2025 production projection and increased domestic feedstock production of 275 million gallons per year
    - Reduced RINs/gal by 50% for foreign feedstocks & lowered RD EV from 1.7 to 1.6 RINs/gal
- Biomass-Based Diesel
    - Determined from Available Advanced Biofuel – Non-Cellulosic minus 600 million RINs providing growth opportunity for non-BBD Advanced Biofuels instead of annual increase
- Conventional Biofuel
    - Lower ethanol volumes and blend % from extrapolated E0, E15 and E85 retail volumes and E10 by difference from AEO instead of E15 & E85 retail fueling data least square regression

THE BASE CASE: EPA PROPOSED RVOs

Comparison against RFS Set 1 – No Foreign Feedstocks Sensitivity

- Removed EPA's foreign feedstock component from BBD production and RIN generation projection
- Provides volumes lower than TM&C Original Base Case
- Lower RD Equivalency Value from 1.7 to 1.6 also has an impact

	TM&C Original Base Case (1)		EPA Proposed Rule w/o Foreign Feedstocks	
B-RINs	**2026**	**2027**	**2026**	**2027**
Cellulosic Biofuel	1.61	1.61	1.30	1.36
Biomass-Based Diesel	5.61	5.86	5.10	5.46
Advanced Biofuel	7.81	8.06	6.99	7.42
Total Renewable Fuel	22.81	23.06	21.99	22.42

(1) Methodology: EPA methodology from RFS Set 1 used to calculate the estimates for 2026 – 2027.

THE BASE CASE: CELLULOSIC BIOFUEL RFV

Set 2 Base Case – EPA Proposed Methodology

- Two components: RNG used as CNG/LNG and Cellulosic Ethanol from Corn Kernel Fiber.
- EPA custom estimate of CNG/LNG use by vehicle type using multiple sources; excludes trains & ships; 97% distribution efficiency
- Cellulosic Ethanol estimated based on projection of **90% registered Ethanol plants and <100% capacity, and 1% Cellulosic Ethanol yield**. (13.78 & 13.66 B-gal)
- Other Cellulosic Biofuels not included due to limited production.

		TM&C Original Base Case (1)		EPA Proposed Set 2 Methodology	
B-RINs	2025	2026	2027	2026	2027
RNG	1.11	1.34	1.34	1.17	1.24
Ethanol	0.08	0.26	0.27	0.12	0.12
Total	**1.19**	**1.61**	**1.61**	**1.30**	**1.36**

(1) Methodology: EPA methodology from RFS Set 1 used to calculate the estimates for 2026 – 2027.

THE BASE CASE: IMPLIED NON-CELLULOSIC ADVANCED BIOFUEL VOLUME

Set 2 Base Case – EPA Proposed Methodology

- Four components: Advanced Biodiesel, Advanced Renewable Diesel, Advanced Renewable Jet Fuel, and Other Advanced Biofuels.
- Advanced Biodiesel volume derived from projected volumes for 2025 based upon projected year-end 2024 data; Held BD volume projection relatively constant; Reduced RIN/gallon 50% for Foreign Feedstocks.
- Advanced Renewable Diesel volume derived from projected volumes for 2025 based upon projected year-end 2024 data; Increased RD volume projections by ~1,800 million for 2026 & increased 2027 by 300 million gallons; Reduced RIN/gallon 50% for foreign feedstocks; EV=1.6
- Renewable Jet Fuel volume was combined with Renewable Diesel
- Other Advanced Biofuel volume based on past generation data and weighting factors and equally applied to all 3 years. Data set 2015-2023.

THE BASE CASE: IMPLIED NON-CELLULOSIC ADVANCED BIOFUEL VOLUME

Set 2 Base Case – EPA Proposed Methodology

		TM&C Original Base Case (1)		EPA Proposed Set 2 Methodology	
B-RINs	2025	2026	2027	2026	2027
Advanced BD	3.15	2.40	2.34	2.60	2.62
Advanced RD	5.01	4.23	4.59	6.09	6.57
Advanced Renewable Jet	0.02	0.18	0.18	0.00	0.00
Imported Sugarcane	0.10	0.03	0.03	0.06	0.06
Non-BBD Advanced (coprocessed)	0.10	0.11	0.11	0.11	0.11
Domestic Advanced Ethanol	0.03	0.03	0.03	0.03	0.03
Other Non-Cellulosic Advanced	0.06	0.09	0.09	0.05	0.05
Total Non-Cellulosic Advanced	8.47	7.07	7.37	8.94	9.44
Allocated to Implied Conventional	1.06	0.87	0.92	1.22	1.34
Total Advanced	**8.60**	**7.81**	**8.06**	**9.02**	**9.46**

(1) Methodology: EPA methodology from RFS Set 1 used to calculate the estimates for 2026 – 2027.

THE BASE CASE: BIOMASS-BASED DIESEL RFV

Set 2 Base Case – EPA Proposed Methodology

- Set annual volume for 2026 and 2027 based upon Non-Cellulosic Advanced Biofuel minus the Conventional Biofuel Allocation minus 600 million RIN to provide opportunity for Advanced Biofuel other than Biomass-based Diesel

		TM&C Original Base Case (1)		EPA Proposed Set 2 Methodology	
B-RINs	2025	2026	2027	2026	2027
Net Implied Non-Cellulosic Advanced Candidate Volume	5.95	6.20	6.45	7.72	8.10
Annual Increase Opportunity for Non-Differentiated Advanced Biofuel	0.59	0.59	0.59	0.60	0.60
Biomass-Based Diesel	5.36	5.61	5.86	7.12	7.50
Biomass Based Diesel (gallons) @ 1.6 RINs/gal	**3.35**	**3.51**	**3.66**	**4.45**	**4.69**

(1) Methodology: EPA methodology from RFS Set 1 used to calculate the estimates for 2026 – 2027.

THE BASE CASE: IMPLIED CONVENTIONAL RENEWABLE FUEL VOLUME

Set 2 Base Case – EPA Proposed Methodology

- Maintained the Implied Conventional Renewable Fuel volume at 15 billion gallons.
- Total Ethanol consumption determined using E0, E15 and E85 projected volumes extrapolated from historical retail fueling data using various/new sources; E10 Projected Volume by Difference from AEO 2023 Overall Motor Gasoline Consumption Minus E0, E15 and E85 Projected Volumes.
- Reduced Conventional Corn Ethanol Consumption by Cellulosic Ethanol, Imported Sugarcane Ethanol & Domestic Advanced Ethanol.
- Filled the gap between the expected Conventional Ethanol consumption and the Implied Conventional Renewable Fuel volume of 15 billion gallons by allocating a portion of Non-Cellulosic Advanced Biofuel volume to this category.

THE BASE CASE: IMPLIED CONVENTIONAL RENEWABLE FUEL VOLUME

Set 2 Base Case – EPA Proposed Methodology

		TM&C Original Base Case [1]		EPA Proposed Set 2 Methodology	
B-RINs	2025	2026	2027	2026	2027
Total Ethanol blended into Gasoline	13.98	14.45	14.41	13.99	13.87
Total Ethanol concentration (vol%)	10.51%	10.54%	10.58%	10.27%	10.29%
Corn Ethanol	13.78	14.13	14.08	13.78	13.66
Other Ethanol	0.20	0.32	0.33	0.21	0.21
Advanced Biofuel allocation	1.22	0.87	0.92	1.22	1.34
Total Implied Conventional Renewable Fuel	**15.00**	**15.00**	**15.00**	**15.00**	**15.00**

(1) Methodology: EPA methodology from RFS Set 1 used to calculate the estimates for 2026 – 2027.

THE BASE CASE: PETROLEUM FUEL VOLUMES

Set 2 Base Case – EPA Proposed Methodology

- Gasoline and Diesel fuel projected consumption and deductions for renewable fuels and Alaska consumption were derived using data from EIA's 2025 Annual Energy Outlook (AEO) and 2023 State Energy Data System (SEDS).
- Anticipated that the interpretations and analysis from the April and June 2022 Small Refinery Exemption (SRE) Denial Actions to apply to future SRE projections. As a result, did not provide an amount of Gasoline or Diesel Fuel to be exempted, and the value for these variables were set at zero (0).
- Determined that EIA had historically understated Gasoline and Diesel fuel consumption in the U.S. and created a 3.7% adjustment factor, based on the weighted average of the percent differences between past AEO forecasts to actual volumes reported to EPA by obligated parties.

THE BASE CASE: PETROLEUM FUEL VOLUMES

Set 2 Base Case – EPA Proposed Methodology

B-Gallons	EPA Final 2025	2026	2027
AEO Adjustment Factor	3.5	3.7	3.7
Total Adj. Gasoline Consumption (minus AK)	137.49	141.85	140.95
Total Adj. Renewables in Gasoline (minus AK)	14.77	15.23	15.56
Total Adj. Diesel Consumption (minus AK)	52.04	58.75	58.02
Total Adj. Renewables in Diesel (minus AK)	4.73	5.55	5.40
Denominator	170.03	179.82	178.01

EIA's 2025 Annual Energy Outlook (AEO) and 2023 State Energy Data System (SEDS)

THE BASE CASE: RVO PERCENTAGE STANDARDS

Equations for Calculating the RVO Percentage Standards in 40 CFR 80.1405(c)

$$Std_{CB,i} = 100 * \frac{RFV_{CB,i}}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

$$Std_{BBD,i} = 100 * \frac{RFV_{BBD,i} \times 1.6}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

$$Std_{AB,i} = 100 * \frac{RFV_{AB,i}}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

$$Std_{RF,i} = 100 * \frac{RFV_{RF,i}}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

2026-2027 SET 2 BASE CASE AND SCENARIOS

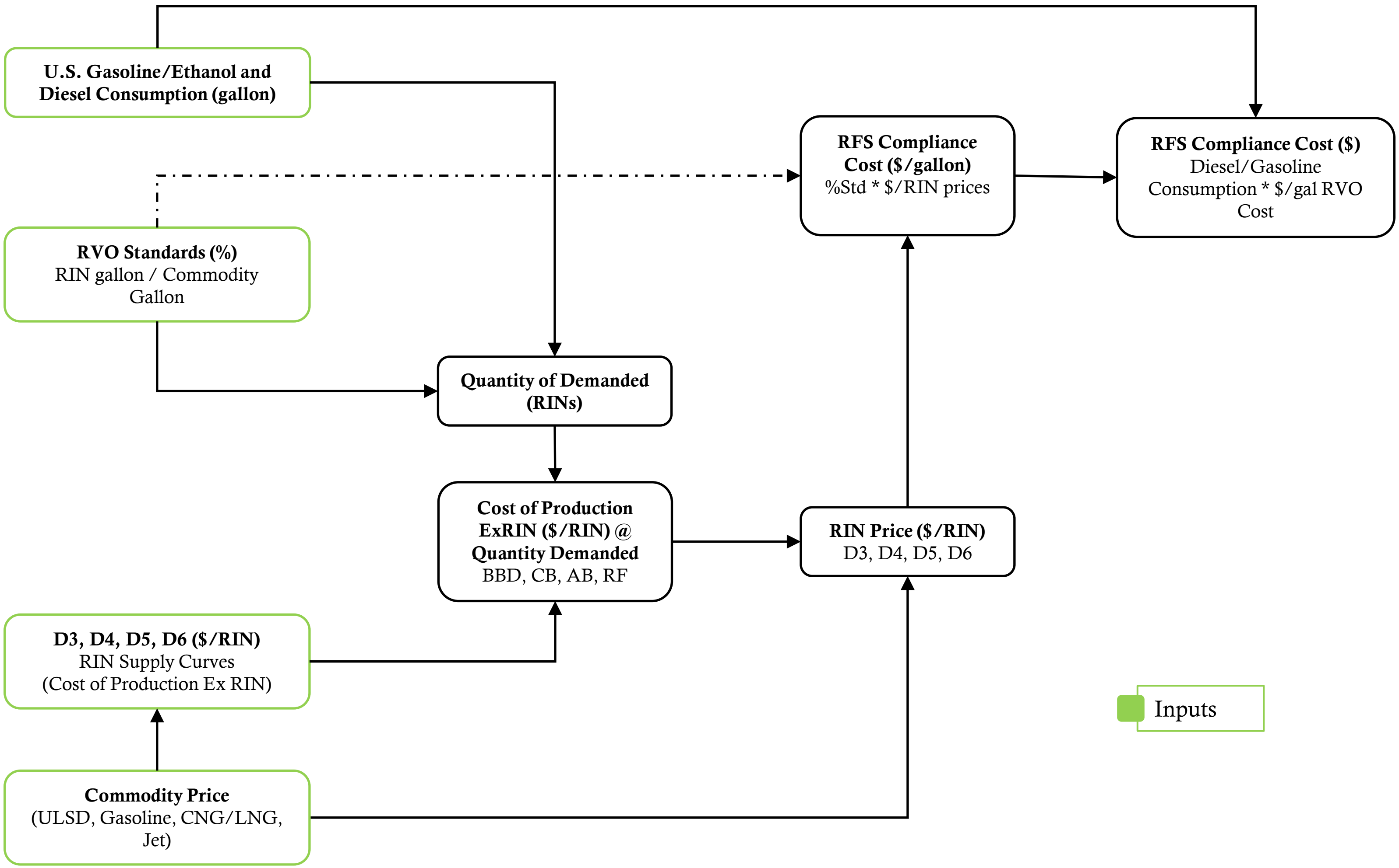
COMPARING THE BASE CASE AND SCENARIOS

AFPM – Update meeting

July 24, 2025 (Updated Aug 8, 2025)

Turner, Mason & Company
energy consulting & advisory

RFS MODEL OVERVIEW



BASE CASE RVO ESTIMATES USING EPA METHODOLOGY WITH EIA 2025 REFERENCE CASE

Set 2 Base Case Proposed RVO Standards

- EPA proposed RVOs for 2026/2027 only
- Continue to include Implied Conventional mandate of 15 B-gal RINs
- All RVOs now reported as RINs, not volumes
- Estimated Percentage Standards

RVOs	Base Case Estimate	
B-RINs	**2026**	**2027**
Cellulosic Biofuel	1.30	1.36
Biomass Based Diesel	7.20	7.65
Advanced Biofuel	9.09	9.61
Total Renewable Fuel	24.09	24.61
Implied Undifferentiated	*0.60*	*0.60*
Implied Conventional	*15.00*	*15.00*

% Standards	40 CFR 80	Base Case Estimate	
	2025	**2026**	**2027**
Cellulosic Biofuel	0.81%	0.72%	0.77%
Biomass Based Diesel	3.15%	4.00%	4.29%
Advanced Biofuel	4.31%	5.06%	5.40%
Total Renewable Fuel	13.13%	13.40%	13.82%

SET 2 BASE CASE – VOLUMES AND PRICING

EIA 2025 AEO Reference Case volumes and pricing

- Reference Case Obligated Produced Gasoline and Diesel decreasing in 2027

MM-gal	2026	2027
Gasoline	122,109	120,921
Diesel	51,298	50,735

- EIA 2025 AEO Reference Case Pricing

$/gal	2026	2027
Gasoline	3.06	3.00
Diesel	3.43	3.43
Jet	2.17	2.23
NGV	0.26	0.26
WTI ($/B)	79.11	78.23
321-Cracked Spread ($/B)	54.42	53.70

- EIA 2025 AEO Reference Case does not provide biomass feedstock prices. $1.72/gallon 'BOHO' spread assumed based on recent USDA/EIA data

SET 2 BASE CASE – RINS DEMANDED

Calculated RINs demanded using obligated transportation volumes and RVO %

- Calculated Demanded RINs

MM-RINs	2026	2027
Cellulosic Biofuels	1,252	1,313
Biomass Based Diesel	6,939	7,373
Advanced Biofuels	8,769	9,264
Total Renewable Fuels	23,234	23,729
Implied Undifferentiated	*579*	*579*
Implied Conventional	*14,465*	*14,465*

- Implied conventional not 15 B-RIN because consumption in EIA 2025 AEO Reference Case doesn't include a 3.7% adjustment factor used in the methodology for calculating the RVO

RIN SUPPLY CURVES – SET 2 BASE CASE

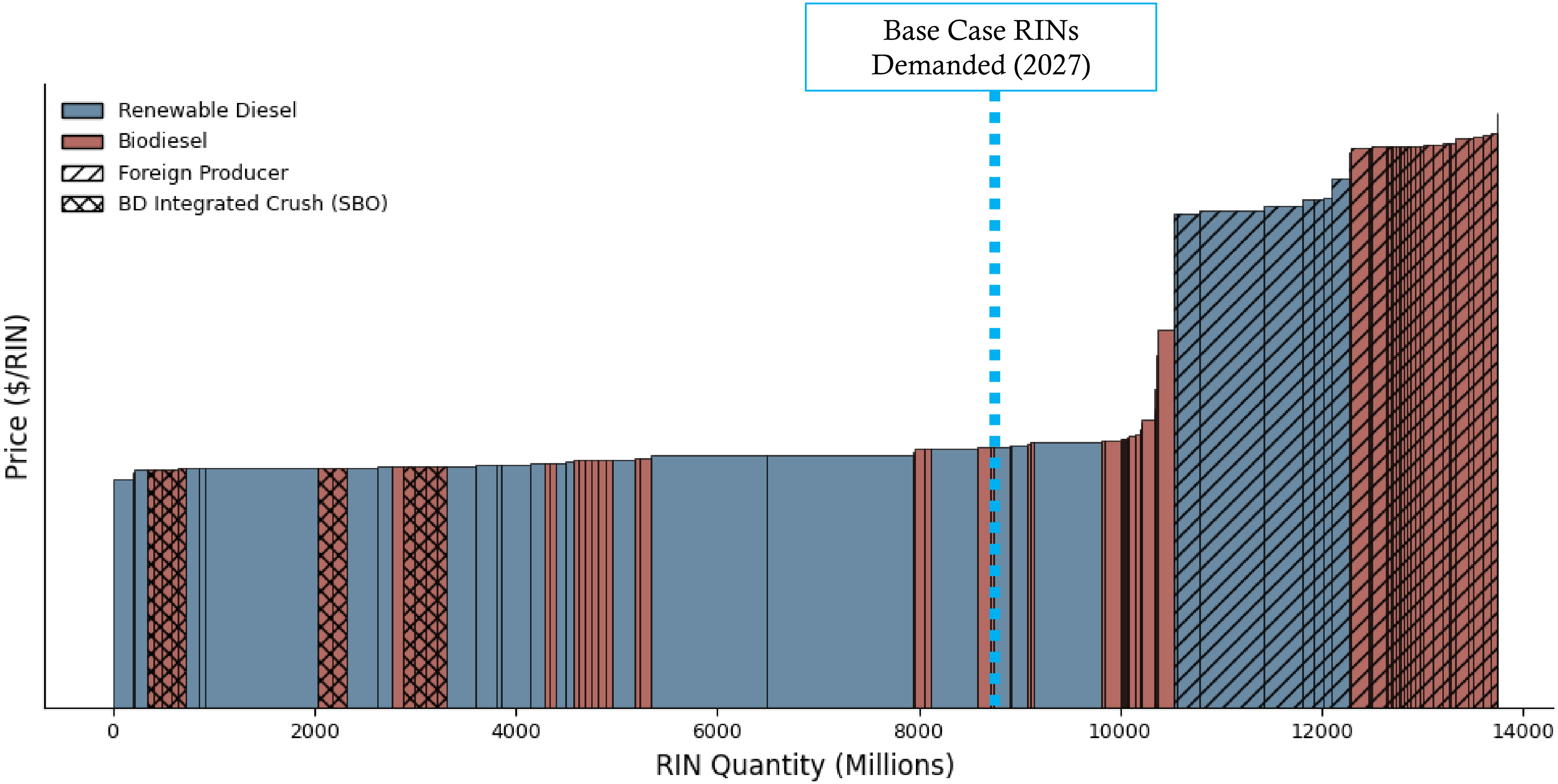
Implementing the Proposed Rule and 45Z

- **Set 2 RIN Generation Changes**
  - RD EV from 1.7 to 1.6
  - Foreign Fuel (Outside U.S.) gets 50% less RINs
  - Domestic Fuel produced from Foreign feedstock (Outside U.S.) get 50% less RINs

- **45Z – New Language (OBBBA)**
  - Credit available in 2026 and 2027
  - Available only to domestic (U.S.) renewable producers that use North American Feedstocks (USMCA)
  - All domestic (U.S.) renewable fuel producers meet the PW&A requirements
  - Carbon intensities are calculated without an ILUC Penalty
  - SAF and Non-SAF receive same max credit ($1.00/gal)
  - "40A" available to BD smaller than 60 MMGPY name-plate capacity (can get subsidy for first 15 million gallons) - value is $0.20/gallon.

RIN SUPPLY CURVES

Base Case BBD Supply Curve

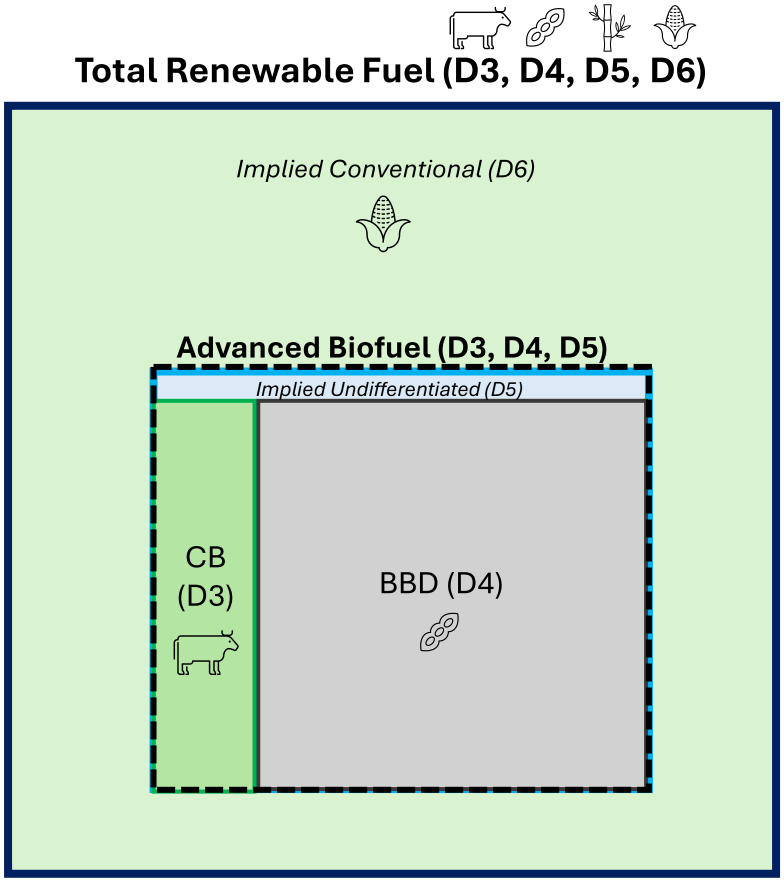


RIN NESTING DYNAMICS

This graphic is set close to scale (on a %Std basis)

The RFS program's four renewable fuel standards are nested within each other. For example, advanced biofuel RINs (e.g., biodiesel or sugarcane ethanol) can be used to meet both the advanced biofuel and total renewable fuel standards, and cellulosic biofuel and biomass-based diesel RINs can both be used to meet the advanced biofuel standard.

% Standards	40 CFR 80
	2025
Cellulosic Biofuel	0.81%
Biomass Based Diesel	3.15%
Advanced Biofuel	4.31%
Total Renewable Fuel	13.13%



RINS CONSUMPTION – SET 2 BASE CASE

Combining RIN Supply Curves, with RINs Demanded, subject to the Blendwalls

Available RINs generated based on estimated produced RINs of each type, while subjected to any Blendwall limits

- D6 RINs generated, limited by gasoline blending maximums
- D3 RNG RINs generated, potentially limited by NGV demand each year

Calculate RINs consumed into each category, while considering nesting

D3 (MM-RINs)	2026	2027
Cellulosic Biofuels	1,252	1,313
Biomass Based Diesel		
Advanced Biofuels	345	344
Total Renewable Fuels	0	0

D4 (MM-RINs)	2026	2027
Cellulosic Biofuels		
Biomass Based Diesel	6,939	7,373
Advanced Biofuels	113	114
Total Renewable Fuels	767	862

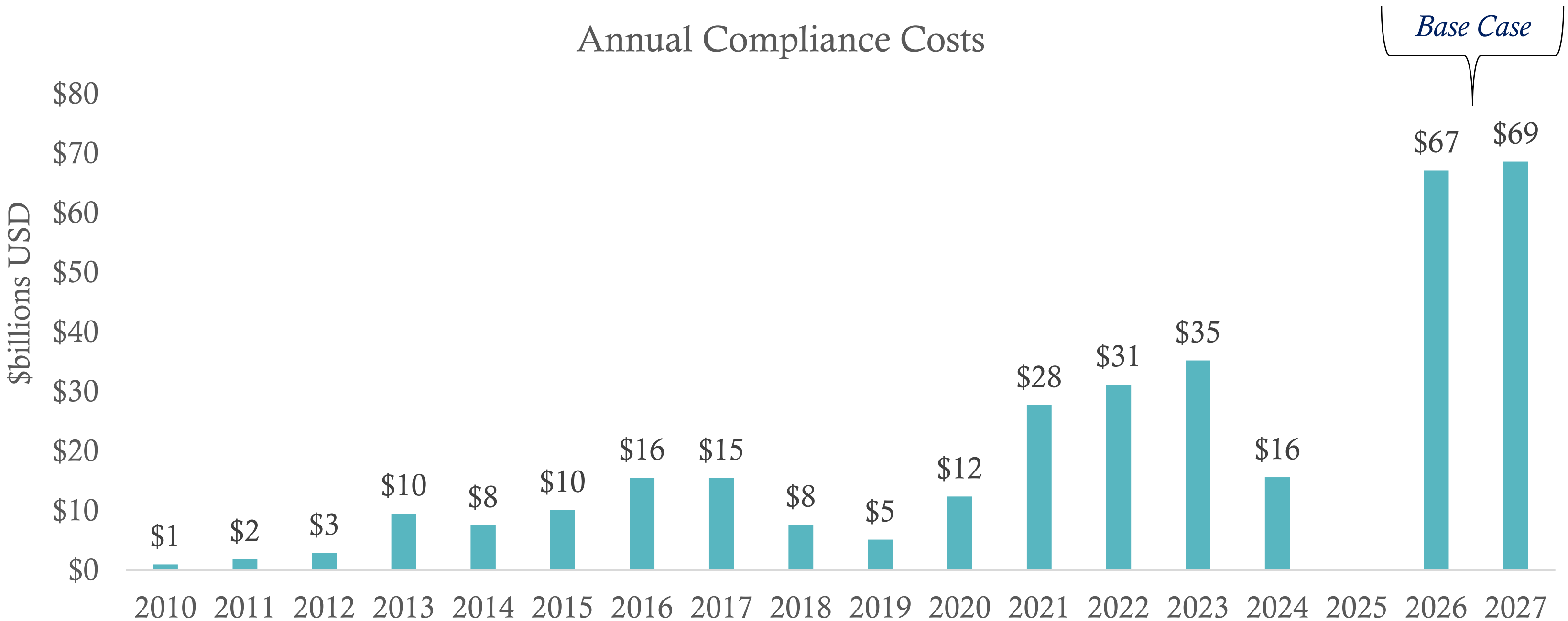
D5 (MM-RINs)	2026	2027
Cellulosic Biofuels		
Biomass Based Diesel		
Advanced Biofuels	120	121
Total Renewable Fuels	0	0

D6 (MM-RINs)	2026	2027
Cellulosic Biofuels		
Biomass Based Diesel		
Advanced Biofuels		
Total Renewable Fuels	13,698	13,603

RFS PROGRAM COMPLIANCE COST

Base Case

RFS Program Cost for the Base Case based on total RINs demanded and each D-code RIN price. The RIN prices are established based on a combination of renewable fuel production costs, RIN revenue sharing assumptions, petroleum commodity prices, and RFS RIN nesting dynamics.



*Note the total compliance cost for 2025 cannot be determined until year-end.

SCENARIO SUMMARY

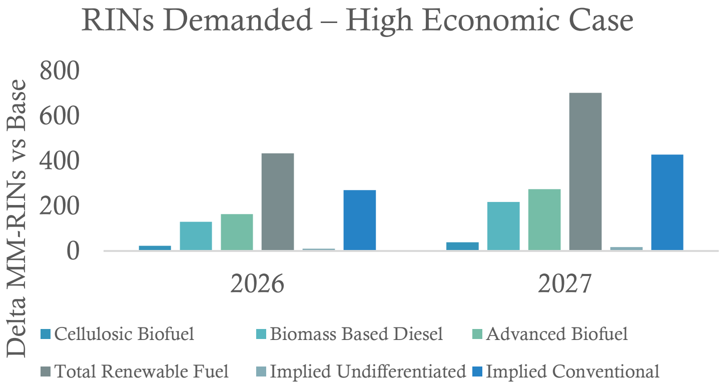
Focus on major impacts

Scenario	RVO Standards	Supply Curve	Demand/Prices	RVO Cost (vs Base) 2026/2027
High/Low Economic Cases	Base Case	Base Case	AEO 2025 High/Low BOHO - $1.72/gal	• +3/+4% (High), • -2/-3% (Low)
AFPM Proposed	Ethanol at blendwall 2026/2027 AB equal to • 2025 projected production w/USMCA feedstocks • SBO increases per S&P's projection	Remove 50% RIN reduction on Non-US imports + feed	AEO 2025 Ref BOHO - $1.72/gal	-66% / -68%
AFPM Alternative Case Using Set 1 Methodology & only NA Feedstocks	NA Feedstock Only	Remove 50% RIN reduction on Non-US imports + feed	AEO 2025 Ref BOHO - $1.72/gal	-9% / -12%
Ethanol at Blendwall Increase Advanced to Accommodate Proposed Total Renewable Volume	Set 2 w/ blendwall	Base Case	AEO 2025 Ref BOHO - $1.72/gal	-55% / -55%
High/Low BOHO Spread	Base Case	High/Low BOHO supply curves	AEO 2025 Ref High BOHO - $2.25/gal Low BOHO – $0.66/gallon	• +31%/+29% (High) • -61%/-62% (Low)
Full SRE Reallocation	Reallocate 18B gal SREs	Base Case	AEO 2025 Ref with same 18B gal lower demand BOHO - $1.72/gal	+ 0% / +0%

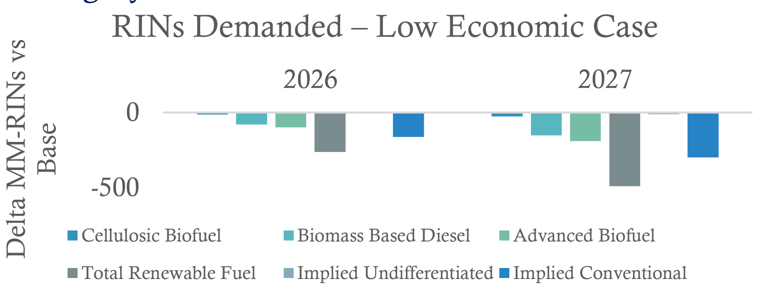
SCENARIOS 1 & 2: HIGH/LOW ECONOMICS

EIA 2025 High and Low Economic cases change gasoline/diesel demands and prices

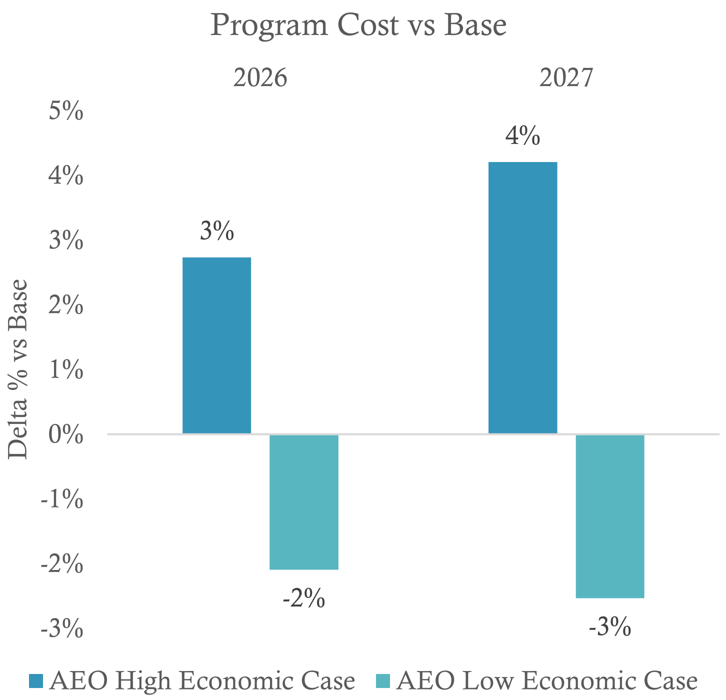
- Increased gasoline and diesel demand results in increased RINs demand for each category.



- Decreased gasoline and diesel demand in the Low Economic case decreases RINs demanded in each category.



- Only modest RVO Cost impacts due to slightly moving up or down supply curves in either economic case.



SCENARIO 3: AFPM PROPOSED

Updating RVO Standards using USMCA feedstocks with an ethanol blendwall

RVOs	Base Case		AFPM Proposed	
B-RINs	**2026**	**2027**	**2026**	**2027**
Cellulosic Biofuel	1.30	1.36	1.30	1.36
Biomass Based Diesel	7.20	7.65	6.63	6.71
Advanced Biofuel	9.09	9.61	8.51	8.67
Total Renewable Fuel	24.09	24.61	22.37	22.47
Implied Undifferentiated	*0.60*	*0.60*	*0.59*	*0.59*
Implied Conventional	*15.00*	*15.00*	*13.86*	*13.81*

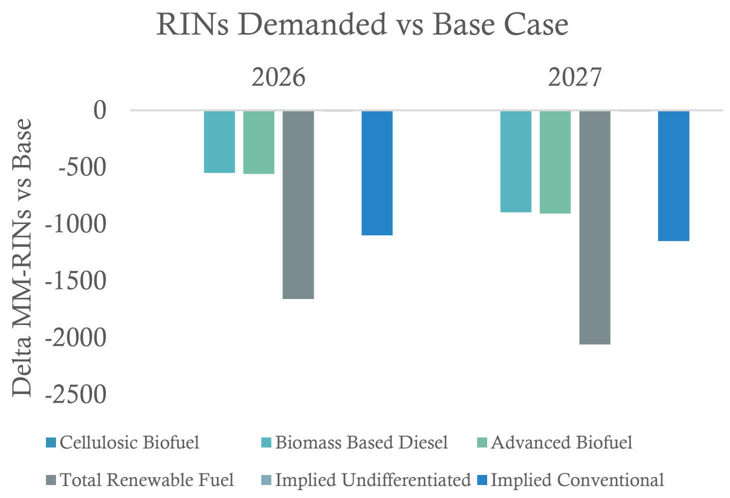
- Ethanol at blendwall
- 2026/2027 advanced equal to EPA 2025 projected production with increased soybean oil production growth per S&P's projection
- Decrease RVO % Standards
- Remove 50% RIN reduction on Non-US imports + feed

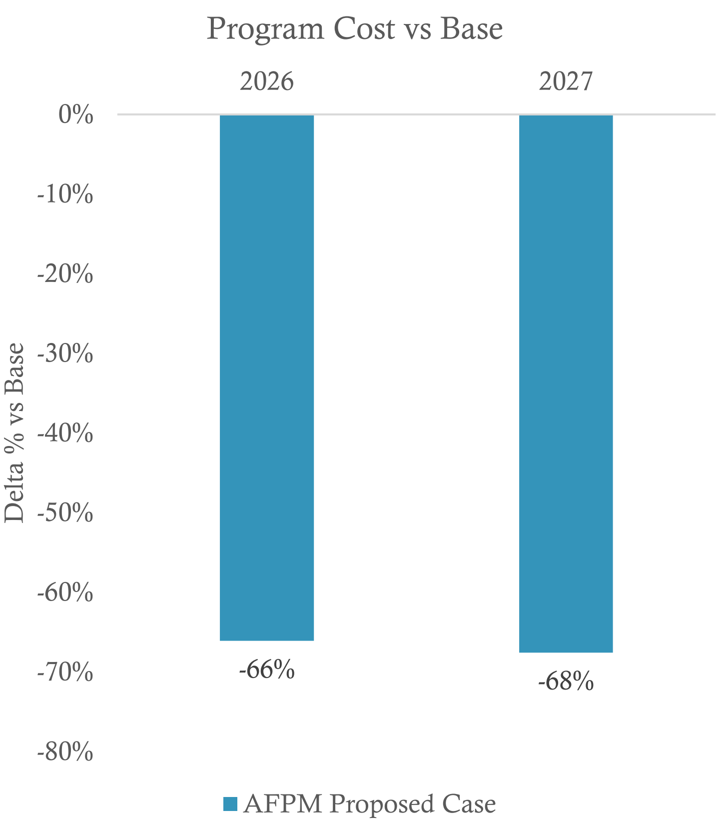
% Standards	Base Case		AFPM Proposed	
	2026	**2027**	**2026**	**2027**
Cellulosic Biofuel	0.72%	0.77%	0.72%	0.77%
Biomass Based Diesel	4.00%	4.29%	3.68%	3.77%
Advanced Biofuel	5.06%	5.40%	4.73%	4.87%
Total Renewable Fuel	13.40%	13.82%	12.44%	12.62%

SCENARIO 3: OUTPUT

Significantly decreasing RVO Standards will lead to lower RINs demand / RIN prices

- Significant reduction in RINs demanded. Implied conventional tier met with conventional ethanol and does require BBD to fill tier.
- See decreased RIN prices due to few RINs demanded, and D6 price not being set by D4 price. Overall significant decrease in RVO program cost, driven by decrease in D6 price.





SCENARIO 4: AFPM ALTERNATIVE CASE USING SET 1 METHODOLOGY AND ONLY NA FEEDSTOCKS

- AB and BBD volumes reduced
- Volumes based on EPA projected availability of North American FOG, SBO, DCO & Canola Oil feedstock

- Results in lower RVO % Standards
- Remove 50% RIN reduction on Non-US imports + feed

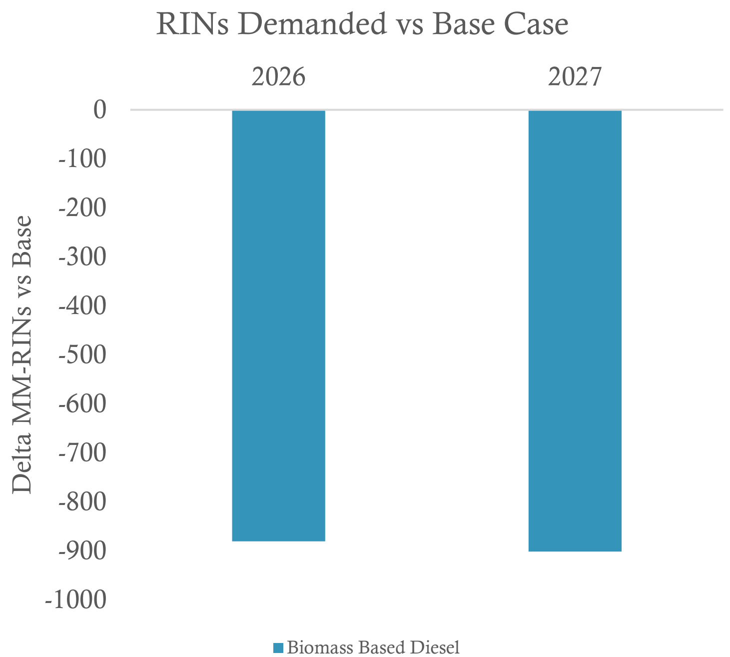
RVOs	Base Case	Set 1
B-RINs	**2026**	**2026**
Cellulosic Biofuel	1.30	1.30
Biomass Based Diesel	7.20	6.28
Advanced Biofuel	9.09	8.17
Total Renewable Fuel	24.09	23.17
Implied Undifferentiated	*0.60*	*0.59*
Implied Conventional	*15.00*	*15.00*

% Standards	Base Case	Set 1
	2026	**2026**
Cellulosic Biofuel	0.72%	0.72%
Biomass Based Diesel	4.00%	3.49%
Advanced Biofuel	5.06%	4.54%
Total Renewable Fuel	13.40%	12.88%

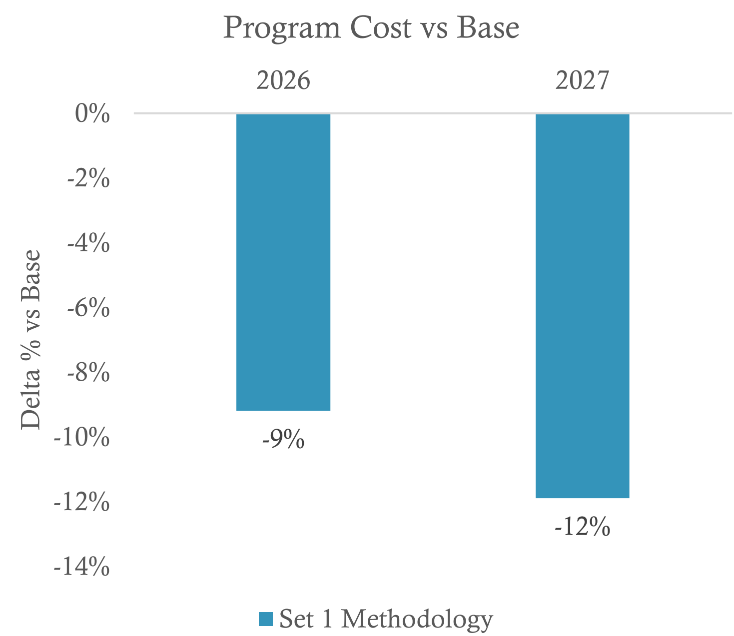
SCENARIO 4: OUTPUT

Increased BBD Obligations, but reduced Implied Conventional Volumes

- Decreased BBD RINs demanded, cascades to other tiers



- Modest decrease in program costs due to lower RINs demanded, decreasing marginal cost of RIN from Supply Curve



SCENARIO 5: ETHANOL AT BLENDWALL; INCREASE ADVANCED TO ACCOMMODATE PROPOSED TOTAL RENEWABLE VOLUME

Ethanol blendwall should lower program costs by reducing D6 RIN price

- Set Implied Conventional to Ethanol blendwall, but increase BBD/AB to accommodate the same total volume

- Results in increased BBD/AB RVO % Standards
- Total Renewable Fuel % Standard unchanged

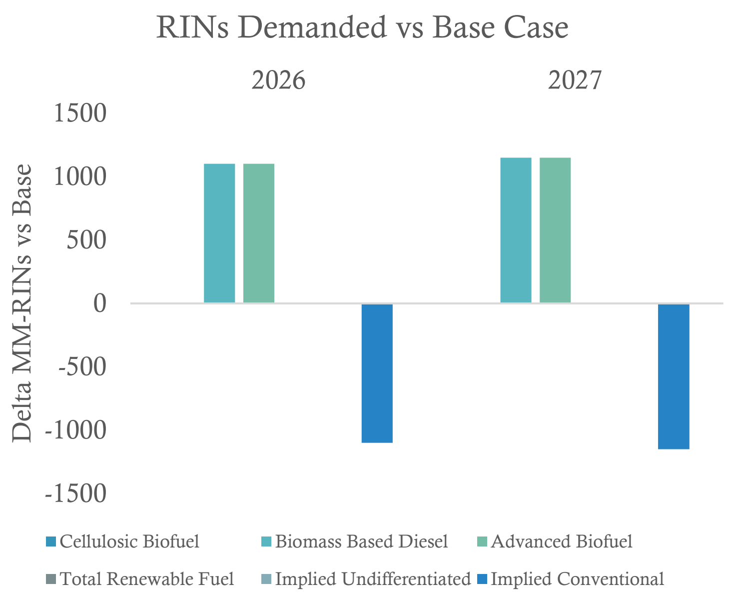
RVOs	Base Case	Set 2 with Ethanol Blendwall
B-RINs	**2026**	**2026**
Cellulosic Biofuel	1.30	1.30
Biomass Based Diesel	7.20	8.34
Advanced Biofuel	9.09	10.23
Total Renewable Fuel	24.09	24.09
Implied Undifferentiated	*0.60*	*0.60*
Implied Conventional	*15.00*	*13.86*

% Standards	Base Case	Set 2 with Ethanol Blendwall
	2026	**2026**
Cellulosic Biofuel	0.72%	0.72%
Biomass Based Diesel	4.00%	4.64%
Advanced Biofuel	5.06%	5.69%
Total Renewable Fuel	13.40%	13.40%

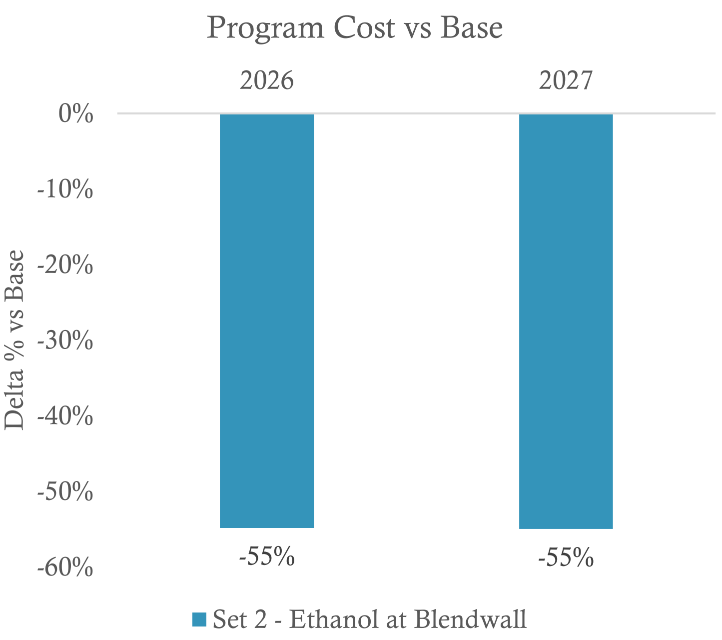
SCENARIO 5: OUTPUT

Increased BBD Obligations, but reduced Implied Conventional Volumes

- Decreased Implied Conventional RINs due to blendwall, but increased BBD RINs demanded, particularly as BBD industry growth is reflected in obligated volumes.



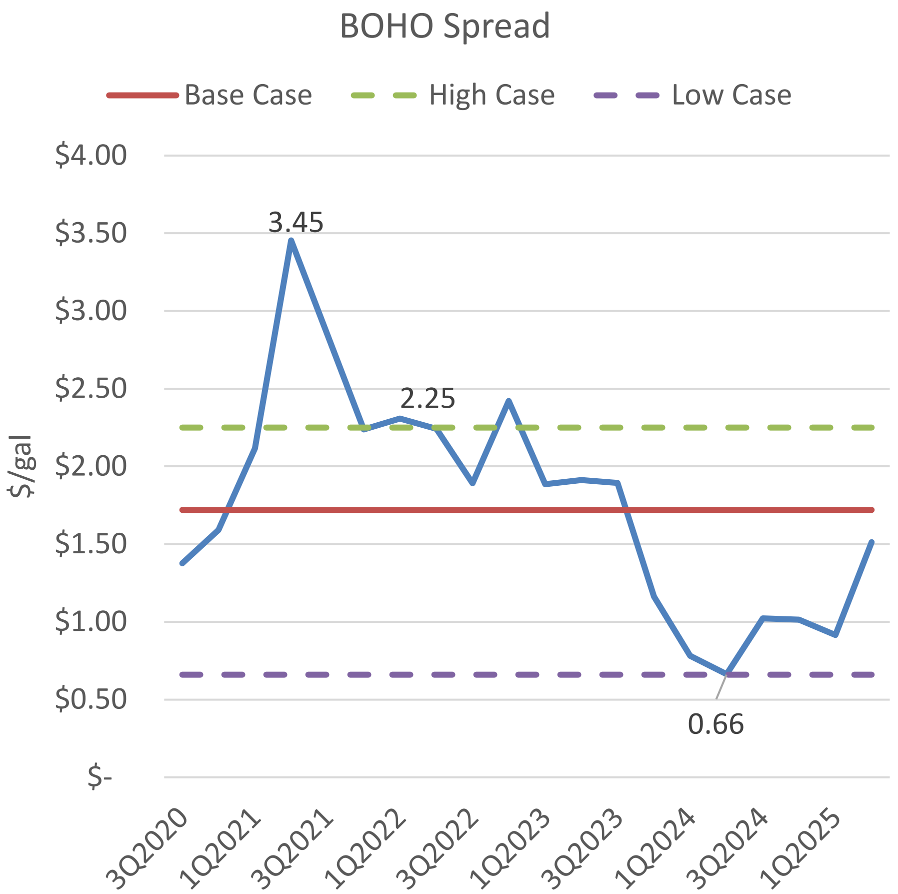
- Significant reduction in RVO Program Cost due to Implied Convention at blendwall, so D6 price is not set the by higher D4 price as in the base case.



SCENARIOS 6 & 7: HIGH/LOW BOHO SPREAD

Base Case BOHO of $1.72/gallon

- High BOHO Spread
  - SBO-ULSD spread set to $2.25/gallon
  - Entire supply curve shifts up (RIN needs to do more work)
- Low BOHO Spread
  - SBO-ULSD spread set to $0.66/gallon
  - Entire supply curve shifts down (RIN does less work)



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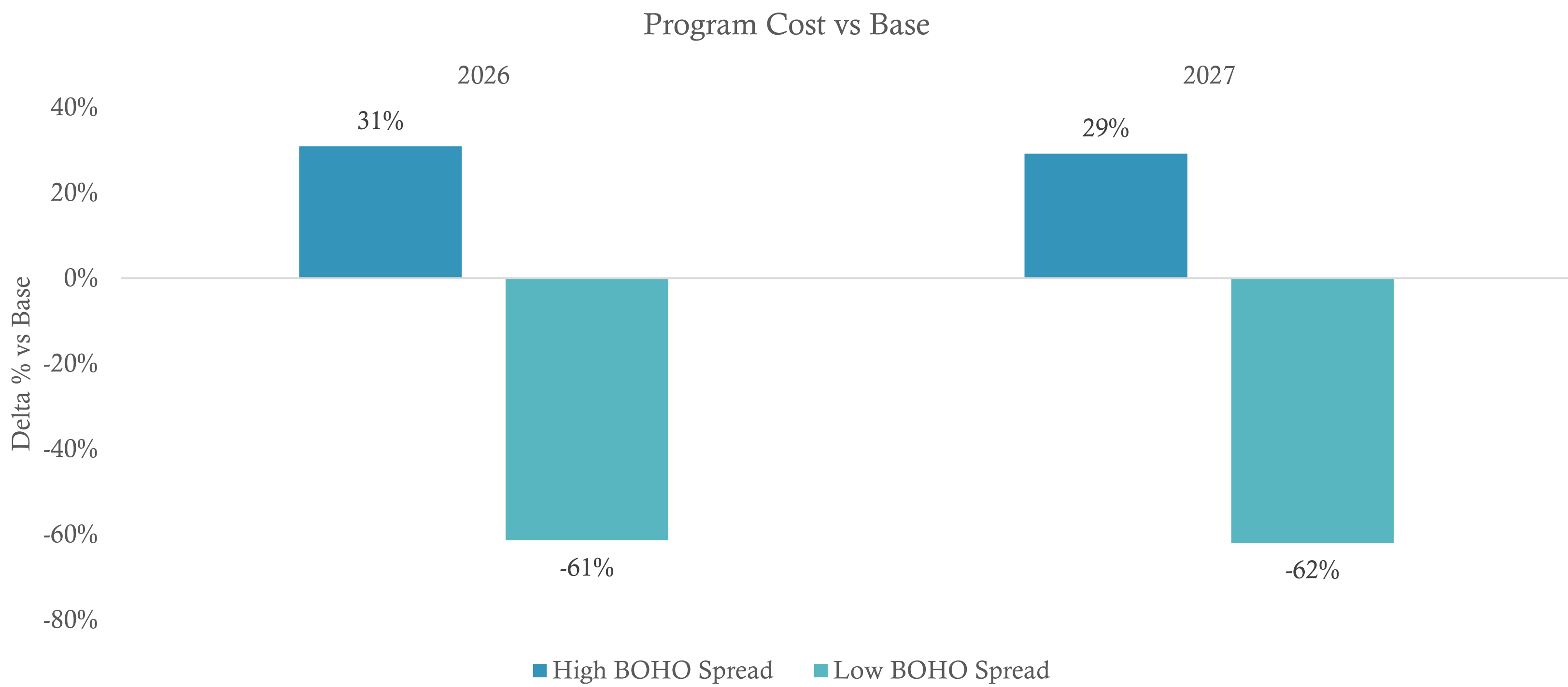
HIGH/LOW BOHO SPREAD OUTPUT

No changes in RVO standards or RINs demanded, all changes made to supply curve

- Biomass feedstock costs have a significant impact on the overall program cost, as represented by the BOHO spread. A wider BOHO spread results in increased supply curve costs and thus increase RVO program costs relative to the Base case by 31% in 2026 and 29% in 2027. This is even more pronounced when the D6 RIN price is set by the D4. Conversely, a low BOHO spread will bring down overall program costs.



SCENARIO 8: FULL SRE REALLOCATION

Updating RVO Standards to include SRE Reallocated

- No change in the RVOs.
- Total overall compliance cost remains essentially the same though obligated parties are expected to see increased per gallon RIN costs

- Increased RVO % Standards because 18 B-gal SRE applied to denominator (13 B-gal gasoline/5 B-gal diesel)

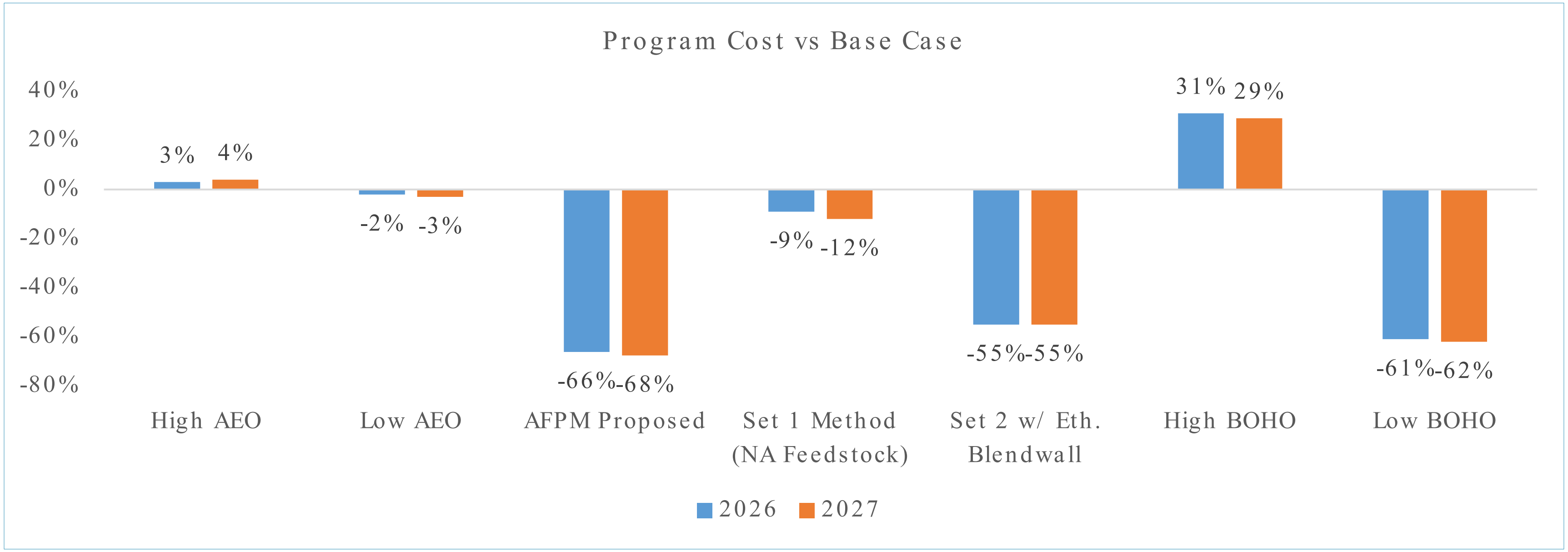
RVOs	Base Case	Full SRE Reallocation
B-RINs	**2026**	**2026**
Cellulosic Biofuel	1.30	1.30
Biomass Based Diesel	7.20	7.20
Advanced Biofuel	9.09	9.09
Total Renewable Fuel	24.09	24.09
Implied Undifferentiated	*0.60*	*0.60*
Implied Conventional	*15.00*	*15.00*

% Standards	Base Case	Full SRE Reallocation
	2026	**2026**
Cellulosic Biofuel	0.72%	0.80%
Biomass Based Diesel	4.00%	4.45%
Advanced Biofuel	5.06%	5.62%
Total Renewable Fuel	13.40%	14.89%

INSIGHTS

Program costs significantly impacted by the Implied Conventional obligation and the BOHO Spread

- Setting the Implied Conventional obligation at the Ethanol blendwall can reduce program costs by more than 50% because the D6 RIN price is no longer tied to the higher RIN prices of the other categories.
- The methodology for setting the other obligated volumes can have a moderate impact.
- Market uncertainty of the BOHO spread can also lead to major program costs shifts but are not entirely controlled by the RVO program (i.e. crop yields, weather, etc.). Other smaller market uncertainties around obligated transportation fuel demand have lesser impact. Yet impacts on feedstock pricing can impact compliance costs.



INSIGHTS

The Set 2 Proposed Base Case significantly raises obligated volumes and costs

- The Set 2 Proposed Base Case increases BBD obligations significantly by incorporating foreign feedstocks / fuels, but at a lowered EV.
- As shown in Scenario 5, alternative approaches that set the Implied Conventional at the Ethanol blendwall can still increase obligated volumes, but limit cost increases by aligning obligations to feedstock production.
- The AFPM Proposed methodology limits BBD growth to North American feedstocks and 2025 projected production levels that are revised upwards to account for feedstock growth estimates, and limits Implied Conventional to the Ethanol blendwall, representing the lowest cost approach while still growing the RFS program.
- Proactively including SREs in setting the RVO standards raises the % obligations for the remaining obligated producers, which may increase the per gallon RIN price for those producers, but is not expected to increase the cost of the overall RFS program.

		Scenarios RVO % Standards (2026)				
% Standards	**40 CFR 80 (2025)**	**Base Case**	**AFPM Proposed**	**Set 1 Method & NA Feedstock**	**Ethanol Blendwall & same Total RF**	**Full SRE Reallocation**
Cellulosic Biofuel	0.81%	0.72%	0.72%	0.72%	0.72%	0.80%
Biomass-Based Diesel	3.15%	4.00%	3.68%	3.49%	4.64%	4.45%
Advanced Biofuel	4.31%	5.06%	4.73%	4.54%	5.69%	5.62%
Total Renewable Fuel	13.13%	13.40%	12.44%	12.88%	13.40%	14.89%