

**Testimony before the U.S. Senate Committee
on Environment and Public Works**

**“The Environmental Protection Agency’s Renewable Fuel
Standard Program: Challenges and Opportunities”**

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Chairman Carper, Ranking Member Capito, and Members of the Committee:

Thank you for the opportunity to testify today on how the Renewable Fuel Standard helps our country decarbonize our national transportation fleet by growing the use of low-cost, low-carbon biofuels like ethanol. My name is Emily Skor, and I am the CEO of Growth Energy, the world’s largest ethanol trade association.

Growth Energy represents over half of all U.S. ethanol production, including 89 producer plants, 96 innovative businesses that support biofuels production, and tens of thousands of ethanol supporters around the country. The United States is home to 210 biorefineries across 27 states that have the capacity to produce more than 17 billion gallons of low-carbon, renewable fuel.

Ethanol is an incredible American success story, driving significant economic growth and investment in sustainable renewable energy, while supporting more than 350,000 jobs nationwide and contributing to a strong rural economy. We are committed to bringing environmentally friendly biofuels into our nation’s transportation fuel supply, helping our country diversify our energy portfolio, growing the number of clean energy jobs, sustaining family farms and rural communities, and driving down fuel costs at the pump for consumers.

As this committee and Congress look for ways to reduce the carbon intensity (CI) of America’s transportation sector, policymakers must recognize ethanol’s role in reducing emissions for light duty vehicles, as well as its potential to do the same in American aviation and shipping.

At a time where energy costs continue to rise, plant-based renewable fuels like ethanol remain the single most affordable and abundant source of low-carbon motor fuel on the planet, delivering on a new wave of demand for clean energy—on the ground and in the sky, at home and abroad, in today’s vehicles and tomorrow’s.

Research shows that there is no path to net-zero emissions by 2050 without biofuels. Even accounting for the projected growth of electric vehicles, the Energy Information Administration (EIA) indicates that the vast majority of cars on the road through 2050 will run on liquid fuels. Biofuels like ethanol are affordable and available for use in our current auto fleet and will help ensure lower emissions in legacy vehicles on the road for decades to come. Put simply, America cannot decarbonize the transportation sector without homegrown biofuels.

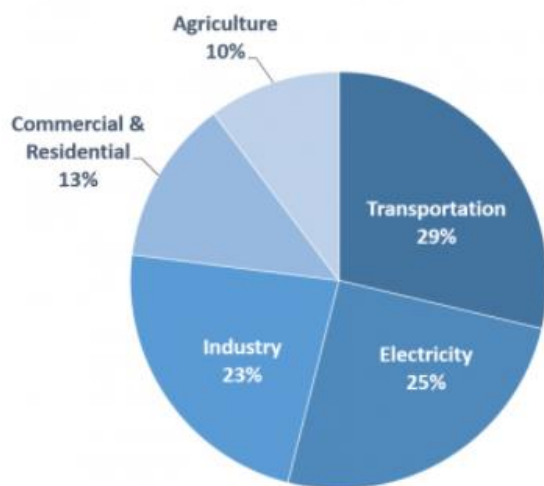
My comments today will focus on how America’s ethanol industry is leading the way in producing renewable energy, driving new economic activity, and providing environmental benefits on behalf of the nation. With consistent, predictable policy and market signals, America’s ethanol industry can realize its full ability to decarbonize American transportation. Specifically, I will explore the following areas:

- Why low-carbon, plant-based, liquid biofuels like ethanol are an essential solution to meet our climate goals;
- How a strong and growing Renewable Fuel Standard (RFS) will continue to cut carbon emissions from the transportation sector;
- How higher-level ethanol blends like E15 can drive down emissions and lower consumer fuel costs;
- How hard-to-electrify sectors of transportation—like aviation, heavy duty shipping, and marine transport—represent a vast potential new market for America’s biofuel producers; and
- How a properly crafted clean fuel standard and higher-octane levels in light duty vehicles can drive further carbon emission reductions.

Biofuels: An Essential Solution to Meet Climate Goals

Figure 1: U.S. GHG Emissions by Sector

Total U.S. Greenhouse Gas Emissions
by Economic Sector in 2019



Source: EPA

This past year our nation has increased its focus on achieving long-term, carbon reduction goals. The Biden Administration has pledged to reduce greenhouse gas (GHG) emissions by 50-52% by 2030 and make the United States carbon neutral by 2050. There is no one-size-fits-all path toward decarbonization. Meeting this challenge will require a broad array of solutions, and renewable, plant-based biofuels like ethanol are readily available today to accelerate our transition to a healthier, net-zero emission, 100% renewable energy future.

In 2019, the transportation sector accounted for 29% of all greenhouse gas emissions in the United States, the highest of any major economic sector¹. Lowering carbon emissions in transportation is paramount to

meeting the Biden Administration’s climate goals. Biofuels offer an immediate solution.

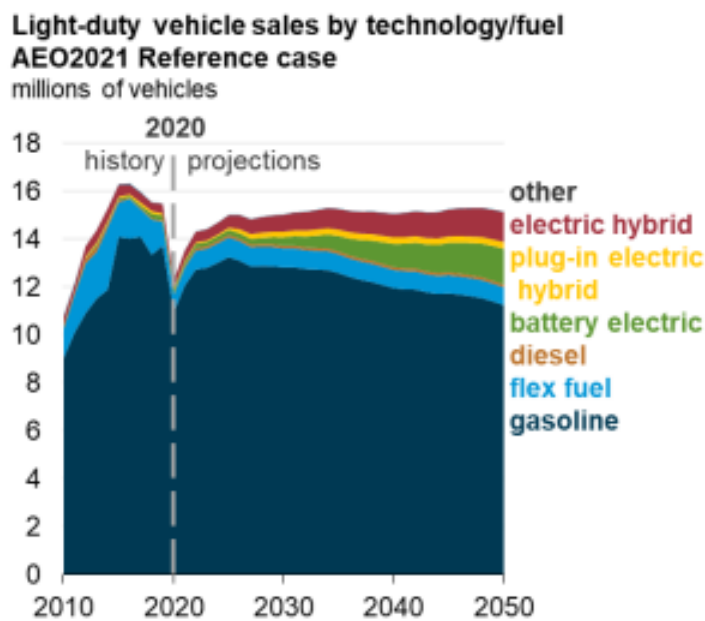
Plant-based ethanol is low-carbon and can be used in our current auto fleet. It is also affordable, keeping fuel prices lower for all drivers in all communities. Drivers today can choose fuel blended

¹ “Sources of Greenhouse Gas Emissions,” U.S. Environmental Protection Agency.
<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

with ten-percent ethanol (E10), fifteen-percent ethanol (E15), or up to eighty-five percent ethanol (E85).

A recent January 2021 study by Environmental Health & Engineering, Inc., found that ethanol reduces GHGs by 46% compared to traditional gasoline². Corn ethanol’s relative carbon benefits could reach up to 70% by the end of 2022, according to the U.S. Department of Agriculture (USDA)³. Biofuel use between 2008 and 2020 has already resulted in cumulative reductions of almost 1 billion metric tons of carbon-dioxide equivalent GHG emissions⁴. Additionally, a nationwide transition from E10 to E15 would lower GHG emissions by 17.62 million tons annually, the equivalent of removing 3.85 million vehicles from the road⁵.

Figure 2: Light-Duty Vehicle Sales by Fuel Type



Source: U.S. Energy Information Administration

Recent data from the EIA indicates that while we will see dramatic growth in the number of electric vehicles, vehicles that run on liquid fuels will dominate the light duty vehicle landscape for decades. EIA’s 2021 Annual Energy Outlook stated that gasoline and flex fuel vehicles will account for 79% of vehicles sales in 2050, down from 95% today, as referenced in Figure 2⁶. Moreover, EIA projects in its 2021 International Energy Outlook that the number of conventional light duty vehicles worldwide—those which operate on liquid fuels—will not peak until 2038⁷.

While electric vehicles have a role to play in our overall portfolio of options for reducing carbon emissions, the fact

remains that internal combustion engines will continue to be prominently used for decades. No single solution will enable our transportation sector to achieve net-zero carbon emissions by 2050, and we will need every tool in our toolbox. We will see increased efforts towards electrification

² “Carbon Intensity of corn ethanol in the United States: State of the science,” *Environmental Health & Engineering, Inc.* Melissa Scully, Gregory Norris, Tania Alarcon Falconi, and David MacIntosh. March 2021. <https://iopscience.iop.org/article/10.1088/1748-9326/abde08>

³ “The greenhouse gas benefits of corn ethanol—assessing recent evidence,” *Biofuels*. Jan Lewandrowski, Jeffrey Rosenfeld, Diana Pape, Tommy Hendrickson, Kirsten Jaglo, Katrin Moffroid (2020). 11:3, 361-375, DOI: 10.1080/17597269.2018.1546488.

⁴ “Annual Energy Outlook 2021,” Energy Information Administration. February 2021. https://www.eia.gov/outlooks/aeo/pdf/AEO_Narrative_2021.pdf

⁵ “EIA projects global conventional vehicle fleet will peak in 2038,” Energy Information Administration. October 2021. <https://www.eia.gov/todayinenergy/detail.php?id=50096&src=email>

⁶ “Annual Energy Outlook 2021,” Energy Information Administration. https://www.eia.gov/outlooks/aeo/pdf/AEO_Narrative_2021.pdf

⁷ “EIA projects global conventional vehicle fleet will peak in 2038,” Energy Information Administration. <https://www.eia.gov/todayinenergy/detail.php?id=50096&src=email>

and vehicle efficiency, but we will also need more biofuels like ethanol, which have the potential to do even more to reduce the carbon intensity of transportation with the right combination of policy and marketplace certainty. An analysis by the Rhodium Group released in January 2021 underscores this reality, finding that biofuels are a mainstay for any climate strategy looking to attain net-zero emissions by 2050⁸.

A Strong and Growing RFS Will Continue to Cut Carbon Emissions from the Transportation Sector

The RFS is one of the nation's most successful renewable energy policies for reducing GHGs and providing a steady market for U.S. grain. This policy is the bedrock for the modern biofuels industry, providing a stable platform for ethanol producers to expand our nation's supply of renewable, homegrown, low-carbon liquid fuels. Given the importance of this policy, we are greatly concerned about recent proposals by the Environmental Protection Agency (EPA) on 2020 through 2022 Renewable Volume Obligations (RVOs) that, despite having some positive aspects, would, if finalized, undercut the RFS, directly contradict President Biden's strong commitment to lower-carbon emissions, and leave us further reliant on fossil fuels.

EPA's proposed RVOs for 2020-2022 show some progress but also have some significant flaws. We are pleased to see the proposal concludes that a non-advanced volume of 15 billion gallons of renewable fuel is readily achievable, includes a long overdue remedy of the unlawful 2016 general waiver, and appropriately provides needed transparency into decisions around the small refinery exemption (SRE) program. We have strong concerns, however, that certain aspects of this proposal would seriously damage the RFS program and violate EPA's legal duties, by, for example, substantially undervaluing the benefits of conventional ethanol for combatting climate change, relieving obligated parties of their failure to meet their 2020 obligations (even after accounting for the actual levels of fuel use and SREs in 2020), and nullifying the program for 2021.

In addition, because EPA has repeatedly failed to issue timely blending requirements, the agency often defaults to setting the requirements after the fact, at the actual level of renewable fuel use, which undermines the RFS' market-forcing intent to blend more renewable fuel into our fuel supply each year. The 2020-2022 RVO proposal is no exception.

The Biden Administration simply cannot meet its climate goals without a strong and growing RFS. In our comments to EPA, we urge the agency to carefully reconsider key aspects of its proposal to ensure that they accord with the goals Congress set for the RFS program and the limits Congress placed on EPA's authority. Growth Energy also urges EPA to finalize this rulemaking expeditiously.

Positive Components of the 2020-2022 RVO Proposal and Proposed SRE Denials

- 1. For the first time ever, EPA appears to provide a true, unencumbered 15 billion gallons of conventional biofuel blending.** Despite annual RVOs setting the implied conventional

⁸“Closing the Transportation Emissions Gap with Clean Fuels,” Rhodium Group. January 2021. <https://rhg.com/research/closing-the-transportation-emissions-gap-with-clean-fuels/>

biofuel blending requirement at 15 billion gallons each year since 2015, administrative negligence has resulted in this volume never actually being realized. Illegal delays, illegal interpretations of the RFS law overturned by the courts, and egregious abuse of the SRE program, also overturned by the courts, have resulted in six consecutive years (2015-2021) of RFS blending requirements that were lower than they should have been, contradicting congressional intent for a strong RFS each year. We are encouraged that EPA's proposal for the first time sets a conventional requirement that closes unjustified loopholes that drive blending lower and carbon emissions higher, and that, if properly implemented, should result in 15 billion gallons of actual blending for the first time.

2. **EPA is finally responding to a court order and re-instating 500 million RINs that it illegally waived.** After almost five years since the D.C. Circuit unanimously struck down an illegal interpretation from EPA that redefined supply as demand, EPA plans to release 250 million of these RINs in 2022 and 250 million more in 2023.
3. **Using a unanimous ruling from the 10th Circuit, EPA is proposing to deny 65 outstanding SREs as well as provide additional transparency for SRE decisions.** I will touch more on SREs later in my testimony.

Needed Fixes to the 2020-2022 RVO Proposal

1. **EPA must adopt a framework for performing a reset that is faithful to the RFS Program's statutory structure and purpose.** In proposing standards for 2020, 2021, and 2022, EPA invokes its reset authority for the first time. Contrary to EPA's proposed approach, the reset is not a valid mechanism to re-open previously finalized standards, to override congressional directives and priorities, or to engage in an amorphous balancing of factors as it sees fit. Rather, Congress intended the reset mechanism to be a targeted, prospective correction for the specific conditions that triggered the reset. In conducting a reset, EPA must still establish volume requirements that, first and foremost, further Congress's market-forcing policies and objectives, to the extent that a volume of renewable fuel use is feasible and will not cause important and severe harm of the type that would trigger another waiver. Further, EPA must always take into account the best available science when performing a reset.
2. **EPA should prioritize climate change impacts and must incorporate the best available science in its analysis.** Reducing GHG emissions from the transportation sector is a core congressional objective of the RFS—indeed the RFS is the only Clean Air Act program explicitly aimed at reducing GHG emissions—and thus, it deserves special emphasis. Congressional intent for RFS implementation to be market-forcing and achieve the fullest measure of available GHG reductions from transportation fuel aligns with EPA's and the Administration's stated climate goals and efforts to decarbonize the transportation sector. Thus, it is imperative EPA update its lifecycle GHG emissions analysis for conventional corn ethanol using the best currently available science. EPA has not updated its lifecycle analysis since 2010 and thus fails to account for improvements in GHG lifecycle emission modeling and the industry's considerable innovations and investments in sustainability in the past decade.

3. **EPA’s proposed modification of the 2020 standards undermines the RFS program, contradicts the Clean Air Act, and is irrational.** EPA proposes to retroactively reduce the 2020 volumes from a final total renewable fuel of 20.09 billion gallons down to 17.13 billion gallons. For implied conventional biofuel, the volume is lowered from 15 billion gallons down to 12.5 billion gallons, nearly 150 million gallons lower than actual ethanol consumption for the year. This is plainly unlawful. EPA has no power to relieve obligated parties of their noncompliance simply because they did not comply. Congress designed the RFS program to force the market to use increasing volumes of renewable fuel each year, and the threat of penalties for noncompliance is the mechanism by which the program implements this design. EPA’s proposed retroactive absolution creates a perverse incentive: obligated parties will have no reason to bother complying with RFS standards. When they fail, EPA will absolve them, and the more they fail, the more likely EPA is to save them. Congress did not grant EPA such a counterproductive power. Certainly, the reset provision does not grant such power.
4. **EPA should retain the standard equation as revised in the 2020 rule.** Even if EPA adopts the standards and findings of its separately proposed denial of pending SRE petitions (as it should), EPA should still retain the standard equation used for establishing individual refiners’ annual blending standards as revised by the original 2020 rule, so that the equation adjusts for projected SREs. That would enable EPA to set future standards that are rationally and reasonably calculated to ensure that the applicable volume requirements are met, as EPA is statutorily required to do.
5. **It is imperative that renewable fuel producers have flexibility to use biointermediates in fuel production in order to lower costs and drive innovation.** EPA should ensure that the final biointermediates regulations facilitate use of biointermediates, afford needed flexibility to producers, and are not unduly burdensome on potential biointermediates or renewable fuel producers. Clarity on biointermediates is essential for continued industry innovation and the production of sustainable aviation fuel and other renewable fuels.
6. **EPA should act expeditiously to approve the numerous pending registration applications for simultaneous production of starch and cellulosic ethanol from corn kernel feedstock.** EPA should expedite pathway approvals for carbon capture, utilization, and storage, and approve the pending petition to allow biodiesel and renewable diesel facilities to use corn oil produced from corn wet mills as feedstock.

Small Refinery Exemptions

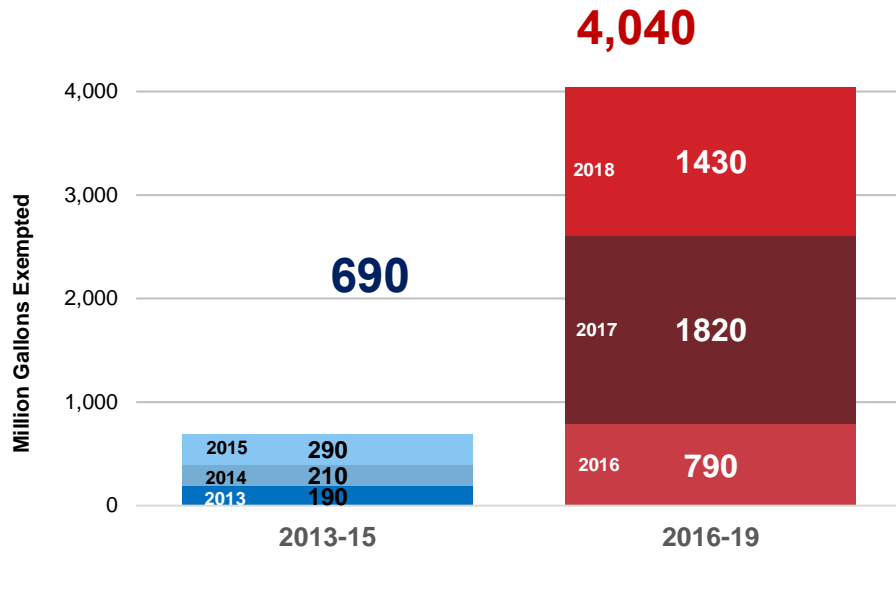
Despite the demonstrable economic, environmental, and energy security success of the RFS, the previous EPA repeatedly granted oil refiners an unprecedented number of SREs, allowing them to avoid their obligations to blend biofuels into our national fuel supply.

EPA’s authority to grant SREs was included under the Clean Air Act to provide small refineries (those with a daily input capacity of less than 75,000 barrels of crude oil) with a temporary avenue to avoid blending obligations, provided the refinery demonstrate that compliance results in disproportionate economic hardship. But in the previous administration, the number of SREs

increased six-fold with no transparency into the process or explanation as to which refineries received an exemption and why.

As shown in Figure 3, EPA granted 85 SREs over four years, which cost the ethanol industry four billion gallons of lost biofuel demand. Many of the SREs went to some of the largest, most profitable oil companies in the world.

Figure 3: SREs by Administration



Source: EPA’s SRE Dashboard

In January 2020, the 10th Circuit Court of Appeals issued a unanimous decision that invalidated SREs granted by EPA to three refineries for the 2016 and 2017 compliance years on three grounds. First, the court held that EPA could grant SRE “extensions” only to those refineries who had received SREs in all prior years. Second, the court held that it was improper for EPA to find disproportionate economic hardship on bases other than alleged hardship caused solely by compliance with the RFS. Third, the court held that EPA failed to explain why it deviated from its previous position that refineries recoup their costs of compliance through downstream pricing. The refineries successfully petitioned the U.S. Supreme Court for review of the decision solely on the first, “extension” holding of the 10th Circuit, which the Supreme Court overturned.

The Biden Administration EPA has stated that its proposed denial of the 65 pending SRE petitions is informed by the remaining portions of the 10th Circuit’s opinion, in particular, that SREs must be based solely on hardship caused by compliance with the RFS⁹. And since at least 2015, EPA has consistently found that obligated parties—big and small—do not face disproportionate economic hardships from compliance with the RFS. EPA’s proposed decision on SREs will strengthen the RFS program, reduce the nation’s emission of greenhouse gases, and support renewable, American-grown biofuels. Congress intended the RFS program to increase the nation’s

⁹ “Proposed RFS Small Refinery Exemption Decision.” U.S. Environmental Protection Agency. December 2021. <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P1013KMM.pdf>

consumption of renewable fuel and move the United States toward greater energy independence and security. However, the Trump Administration EPA's previous policies regarding extensions of exemptions for small refiners and refineries (together, "small refineries") undermined congressional intent and continues to jeopardize the RFS program as a whole. EPA's Proposed RFS Small Refinery Exemption Decision (EPA-420-D-21-001) (the "Proposed Decision") is a step forward in righting EPA's previous wrongs¹⁰. Not only will denying the 65 pending petitions for SREs increase access to renewable fuel, but such action also is necessary to bring EPA's policies in line with federal law and EPA's own long-held findings that RFS program compliance does not disproportionately harm small refineries.

EPA should also deny all other pending SRE petitions (and all future petitions) that fail to meet the criteria set forth in the Proposed Decision, including the 36 challenged 2018 SRE petitions that the U.S. Court of Appeals for the D.C. Circuit remanded to EPA for further consideration on December 8, 2021.¹¹

EPA should also adopt the proposed approach to confidential business information in its RVO proposal. We support EPA's proposal not to treat as confidential basic information relating to SRE petitions and SRE decisions for purposes of the Freedom of Information Act. EPA thwarts essential oversight and engages in secret national lawmaking when it conceals its SRE decisions. EPA's proposal accords with recent case law, Justice Department guidance, and good government practices. EPA has made similar proposals in the past; now is the time to finally adopt this important policy change.

RIN Prices

Renewable Identification Numbers (RINs) were included in the RFS to add flexibility to the compliance mechanism of the RFS. Obligated parties have the option to either blend biofuels and generate RINs or purchase RINs to meet their obligations under the RFS.

We are aware that some refiners who have chosen to purchase RINS in lieu of blending renewable fuels are seeking a waiver for their blending obligations, citing economic hardship as a result of high RIN prices. Some refineries claim this causes higher gasoline prices.

To be clear, there is no relationship between RIN prices and refinery profits, as EPA has repeatedly stated:

“We do not believe that the price paid for RINs is a valid indicator of the economic impact of the RFS program on these entities [refiners], since a narrow focus on RIN price ignores the ability for these parties to recover the cost of RINs from the sale of their petroleum products¹².”

¹⁰ “Proposed RFS Small Refinery Exemption Decision.” U.S. Environmental Protection Agency. December 2021. <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1013KMM.pdf>

¹¹ Per curiam order, *Sinclair Wyoming Refinery v. EPA*, Case No. 19-1196 (D.C. Cir., Dec. 8, 2021).

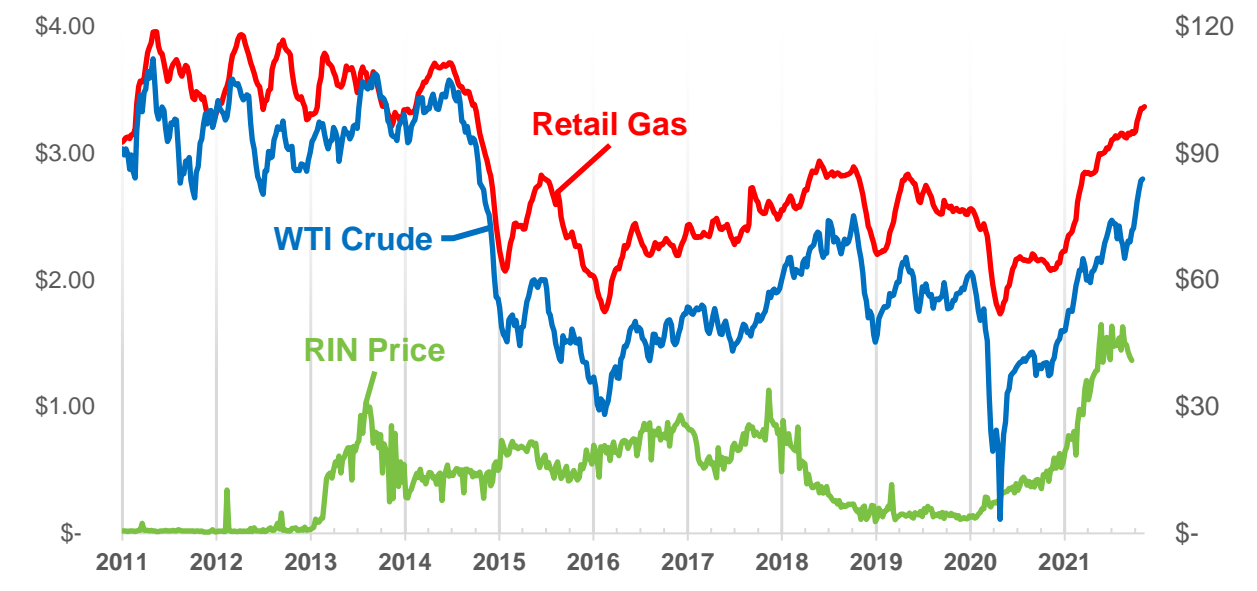
¹² “Renewable Fuel Standard Program- Standards for 2019 and Biomass-Based Diesel Volume for 2020: Response to Comments.” Environmental Protection Agency. November 2018. <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100VU6V.pdf>

First, as EPA wrote in November 2018, refiners recoup the cost of RIN purchases when they sell petroleum products on the market. Any RIN cost is incorporated into the sell price, so refineries account for this during their transactions.

Others have also echoed the EPA analysis on RIN prices, including petroleum firms and liquid fuel economic analysts:

- “Chevron’s market experience is consistent with the conclusion from several economic studies: the obligated party’s RIN acquisition cost is nearly all recovered by the refiner in the gasoline and diesel fuel wholesale markets¹³.”
- “RIN values represent neither windfalls for blenders nor out-of-pocket costs for refiners. Notwithstanding the fact that some companies report RIN expenses or RIN revenues as distinct line items in their financial statements, the overall impacts of RIN generation and sales (for nonintegrated blenders) and RIN acquisitions (for merchant refiners) are largely or perhaps completely offset by countervailing costs or revenues experienced by the companies in their transactions of component fuels. This conclusion has been supported by the findings of multiple academic researchers and is consistent with economic theory. Moreover, an analysis of the margins earned by merchant refiners since RIN prices began to escalate in 2013 demonstrates no adverse impact¹⁴.”

Figure 4: Price of Retail Gas, WTI Crude, and D6 RINs



Source EIA, EPA

¹³ “Comments on Petitions for Rulemaking to Change the RFS Point of Obligation; Proposed Denials.” Chevron. Docket No.: EPA-HQ-OAR-2016-0544, Comment ID No. EPA-HQ-OAR-2016-0544-0209. February 2017. <https://www.regulations.gov/document?D=EPA-HQ-OAR-2016-0544-0209>.

¹⁴ “Economic Issues Associated with a Change of the RFS Point of Obligation.” Edgeworth Economics. February 2017.

Second, obligated parties have had more than 14 years to comply with the RFS, a law enacted to encourage an increasing scale of biofuel blending. Supply and demand ultimately dictate price, so blending more biofuels creates more RINs, which in turn pushes RIN prices down. The easiest way to lower RIN prices is to blend more biofuels.

As shown in Figure 4, gas prices directly correlate with the price of crude oil, not RINs. According to the EIA, crude oil is the most impactful contributor, accounting for 56% of the price of gasoline¹⁵. The RIN market is independent from gas prices and instead reflects the blending decisions by obligated parties.

The RFS works best when it is implemented in accordance with congressional intent. We encourage members of this committee to urge the EPA to maintain the integrity of the RFS.

Breaking Down Barriers to Biofuels: Marketplace Hurdles for Higher Blends

Currently, more than 96% of cars on the road are compatible with E15 and consumers have driven more than 28 billion miles on E15¹⁶. As stated earlier, a nationwide transition from E10 to E15 would lower GHGs by 17.62 million tons annually, the equivalent of removing 3.85 million vehicles from the road. Further, an ABF Economics study from June 2021¹⁷ shows that moving to a nationwide E15 standard would offer even further economic benefits:

- Add \$17.8 billion to the U.S. Gross Domestic Product;
- Create an additional 182,700 jobs;
- Generate \$10.5 billion in new household income; and
- Save consumers \$12.2 billion fuel costs annually, as E15 costs typically up to \$0.10 less than E10.

However, the pathway to these higher-level, ethanol-blended fuels has regulatory hurdles and outdated policy assumptions. To fully realize these potential gains in economic growth and emissions reductions, we strongly recommend Congress pass legislation, the Consumer and Fuel Retailer Choice Act (S. 2339), or EPA take relevant regulatory action to restore summer sales for E15 and complete a pending rulemaking that would simplify pump labeling and broaden the use of existing fueling infrastructure for E15. In the absence of enactment of S. 2339, we would encourage the committee to support a one-year extension of the regulatory treatment of E15 that was present in the summers of 2019, 2020, and 2021, so the more than 2,500 retail stations currently selling E15 can continue to do so. Providing uninterrupted access to E15 for all Americans continues to be a top priority, and we are willing to engage with this committee and Congress to identify potential paths forward that will permanently fix this restriction in a timely manner.

¹⁵ “Gasoline explained – Factors affecting gasoline prices.” U.S. Energy Information Administration. <https://www.eia.gov/energyexplained/gasoline/factors-affecting-gasoline-prices.php>

¹⁶ “Analysis of Ethanol Compatible Fleet for Calendar Year 2021,” Air Improvement Resources, Inc. November 2020. <https://growthenergy.org/wp-content/uploads/2020/11/Analysis-of-Ethanol-Compatible-Fleet-for-Calendar-Year-2021-Final.pdf>

¹⁷ “Economic Impact of Nationwide E15 Use,” ABF Economics. June 2021. <https://growthenergy.org/wp-content/uploads/2021/06/Nationwide-E15-Use-Economic-Impact-Final.pdf>

Figure 5: E15 Locations Nationwide – 2570 in 31 states



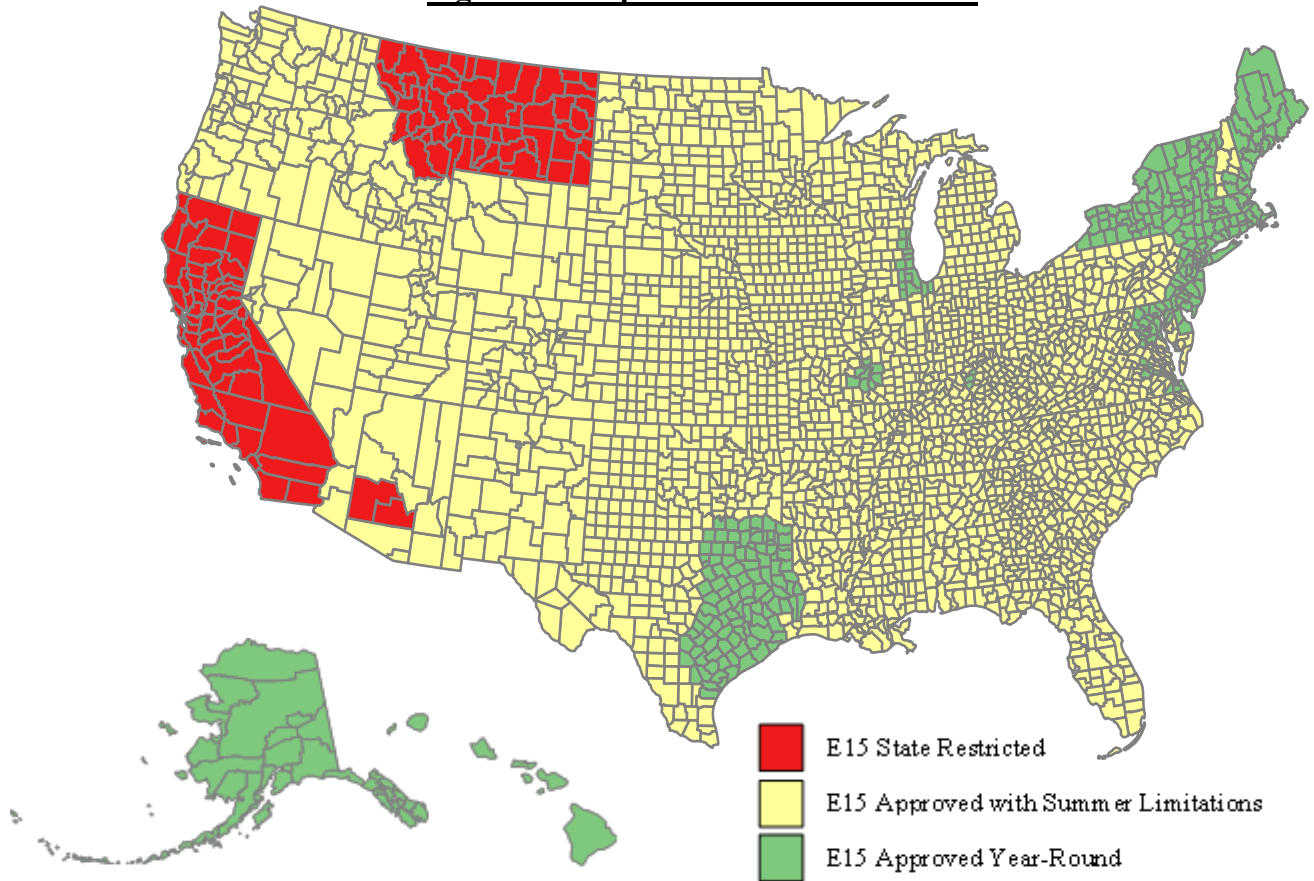
Source: Growth Energy Station Data

Summer E15 Sales Restriction

The Clean Air Act includes seasonal fuel vapor pressure provisions intended to reduce evaporative emissions in the summer months (June 1 to September 15). In the 1990 amendments to the Clean Air Act, Congress limited allowable fuel vapor pressure during the summer months to nine-pounds-per-square-inch (psi) Reid Vapor Pressure (RVP) in certain areas of the country. Congress also specified, however, that fuel blends containing 10% ethanol would receive a 1.0 psi RVP waiver from the seasonal RVP limit to encourage use of ethanol-blended fuels, which provide significant reductions in tailpipe emissions. This RVP waiver made the sale of E10 and lower ethanol blended fuels possible year-round throughout the country. However, the waiver predates the introduction of higher blends of ethanol like E15, which have a lower RVP than E10.

In May 2019, EPA clarified that E15 could be sold in the summer months, resolving ambiguity in the 1990 statute that arose because there was no 15% ethanol fuel at the time. The oil industry swiftly challenged this rulemaking in court. In a July 2021 D.C. Circuit Court of Appeals ruling, the court reversed EPA’s interpretation. This ruling will have the effect of denying the majority of American drivers access to a cleaner, more affordable, biofuel blend during the summer months, starting on June 1, 2022. This move threatens the expansion of clean, homegrown, renewable energy.

Figure 6 – Map of E15 Sales Limitations



The D.C. Circuit RVP ruling affects nearly 85% of retailers currently selling E15 across 31 states and creates needless uncertainty across the marketplace. We urge the members of this committee to move swiftly to ensure uninterrupted access to lower-cost E15 for the 2022 summer and beyond, particularly as consumers seek relief from rising gasoline prices. If not addressed, the court’s decision would require E15 retailers to change out fuels twice a year (on June 1 and September 15), a costly and burdensome process that increases GHG emissions, counter to congressional intent for the RFS to provide cleaner fuel choices at the pump.

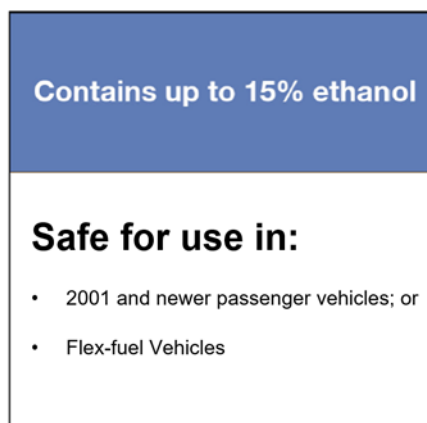
This decision impacts all non-reformulated gasoline markets throughout 33 states—conventional markets outside of urban areas that are not required to participate in our nation’s reformulated gasoline program. In these areas, summer sales of E15 in retail sites could fall by 85%, and the new restrictions on E15 sales would also cut overall ethanol consumption and increase greenhouse

gas emissions nationwide as more petroleum products would be used. This decision has no impact on long-standing rules that permit sales of E15 in reformulated gasoline (RFG) and other markets, which are found in 17 states. However, the largest concentration of RFG markets is in California and the Northeast, where the availability of E15 is limited.

Labeling and Equipment Compatibility



Current EPA Label



Growth Energy Proposed Label

In order to remove unnecessary barriers that prevent consumers from utilizing E15, Growth Energy supports EPA finalizing its proposed rule to address E15 fuel dispenser labeling and compatibility with underground storage tanks (UST) that would erase market hurdles for E15 adoption. We support modifying the E15 label requirement to increase clarity and ensure it clearly advises consumers of appropriate uses of the fuel, while not unnecessarily dissuading the vast majority of consumers whose vehicles can refuel with E15¹⁸. Either modification of EPA’s E15 label or removal of the E15 label requirement entirely would expressly preempt and conflict-preempt any state or local government E15 label requirement.

In addition, Growth Energy strongly supports EPA’s proposal to modify the underground storage tank compatibility requirements applicable to E15 and other fuel blends. There is ample evidence that a wide variety of fuel storage equipment, including USTs and related piping, may store E15 if it is suitable for use with E10. Removing unnecessary impediments to retailers’ use of such existing equipment is imperative to providing E15 equal footing in the fuels marketplace.

Fixing these outdated and confusing barriers is critical to ensuring we can capture the emissions reduction, farm income, and lower prices that come with E15 expansion. As our nation faces the challenges of climate change, it is imperative that EPA act quickly to support greater access to cleaner renewable fuel blends for all Americans. E15 and higher ethanol-blended fuels will deliver immediate benefits for our environment and are a critical piece of our nation’s efforts to reduce carbon emissions. Clearing hurdles to the sale of E15 and growing markets of biofuels would also

¹⁸ Growth Energy Comment on EPA’s NPRM “E15 Fuel Dispenser Labeling and Compatibility with Underground Storage Tanks” (Docket ID No. EPA-HQ-OAR-2020-0448). April 2021. <https://www.regulations.gov/comment/EPA-HQ-OAR-2020-0448-0051>

provide an economic lifeline for rural communities as they continue to rebuild in the wake of the COVID-19 pandemic.

The Future of Biofuels: Decarbonizing Land, Air, and Sea Transportation

As carbon reduction becomes more important to the transportation sector, ethanol is poised to play a greater role in decarbonizing all forms of transportation—whether on land, in the air, or in the seas—and we are energized by the potential opportunity to expand our role in reducing our nation’s carbon emissions. In addition to our current light duty vehicle market, we see promise in new and emerging low-carbon fuel markets in hard-to-electrify sectors such as aviation, marine, and heavy-duty vehicles. U.S.-based airlines used more than 18 billion gallons of jet fuel in 2019¹⁹. Accessing the aviation market through ethanol to sustainable aviation fuel (SAF), along with new technologies that allow ethanol to be used in marine and heavy-duty applications, provide America’s ethanol industry the opportunity to be utilized in more than just light duty cars and trucks.

With the appropriate investment in critical research and development and the right policy environment, our industry can continue to decarbonize our transportation sector—from passenger vehicles to our aircraft fleet. However, in order to achieve the Biden Administration’s goal of 3 billion gallons of SAF production by 2030, and 35 billion gallons by 2050 to achieve net-zero GHG emissions in aviation, we need game-changing solutions. For that, we must have a healthy and thriving corn ethanol industry and rural economy. That starts with a strong RFS, E15 as the nation’s standard fuel, and accurate carbon modeling.

Legislation before Congress proposes enacting several important incentives that will help ethanol producers further reduce the CI of their fuels and explore new markets outside of light duty vehicles. We appreciate and support the inclusion of the following items:

1. **The establishment of the Clean Fuel Production Credit (CFPC, or 45CC), which provides an incentive to produce low-carbon biofuels.**

This credit provides a producer-based tax incentive to encourage the adoption and deployment of low-carbon fuel technologies. The size of the incentive is based on the percentage of carbon reduction relative to a fixed baseline, re-orienting our biofuels tax policy toward carbon reductions instead of producing specific types of fuel.

2. **The extension and increase of the 45Q tax incentive for the capture, utilization, and storage of carbon dioxide.**

Roughly half of our member plants either capture carbon for food and beverage use, expect to transport carbon dioxide by a carbon pipeline for permanent geologic storage, or expect to store carbon nearby for geologic storage. With 99.9% pure, clean, fermentation carbon from an ethanol plant being relatively easy to capture, our facilities provide a good opportunity to deploy carbon capture technology and appreciably lower emissions. For the average U.S. ethanol plant, carbon capture can cut the carbon intensity of their fuel in half.

¹⁹ “Airline Fuel Cost and Consumption (U.S. Carriers - Scheduled),” Bureau of Transportation Statistics. <https://www.transtats.bts.gov/fuel.asp>.

3. **A credit for the blending or production of sustainable aviation fuel (SAF).**

We support enacting a new incentive that will allow low-carbon biofuels like ethanol to help decarbonize the aviation sector. We note, however, that lifecycle carbon modeling should be comprehensive and based on the best available U.S. science. We strongly recommend that the Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET) Model by the Argonne National Laboratory be used for this purpose. Lastly, we recommend that incentives for SAF and carbon capture be allowed to exist side-by-side as they target different problems—reducing carbon emissions and ensuring the affordability of low-carbon SAF.

Examining a Low Carbon Fuel Standard

States like California, Oregon, and Washington are all placing an emphasis on incorporating more carbon-friendly fuel into their transportation supply through Low Carbon Fuel Standard (LCFS) and Clean Fuel Standard (CFS) programs. The LCFS and CFS place a premium on fuel sources which have lower CI scores to act as an incentive to fuel producers.

Growth Energy supports, in concept, policies like as an LCFS or CFS to incent greater use of low-carbon renewable fuel, with an express focus on getting the details of the program right, specifically how lifecycle GHG emissions are modeled and whether the program allows greater concentrations of low-carbon biofuels into the liquid fuel mix. Without an accurate accounting for lifecycle greenhouse gas emissions that reflects the latest science or an ability to grow our share of a liquid-fuel gallon with our lower-carbon product, the pathway for our industry to help meet the goals of a LCFS or CFS becomes less clear.

Several of the most compelling demonstrations of the essential role biofuels play in meeting climate goals are California’s LCFS and Oregon’s CFS. As an example, the goal of the California LCFS is to, “encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector²⁰.”

According to data by the California Air Resources Board (CARB), biofuels are responsible for nearly 80% of all carbon reductions credited under the LCFS, with the recorded carbon intensity (CI) of ethanol declining 33% since 2011²¹.

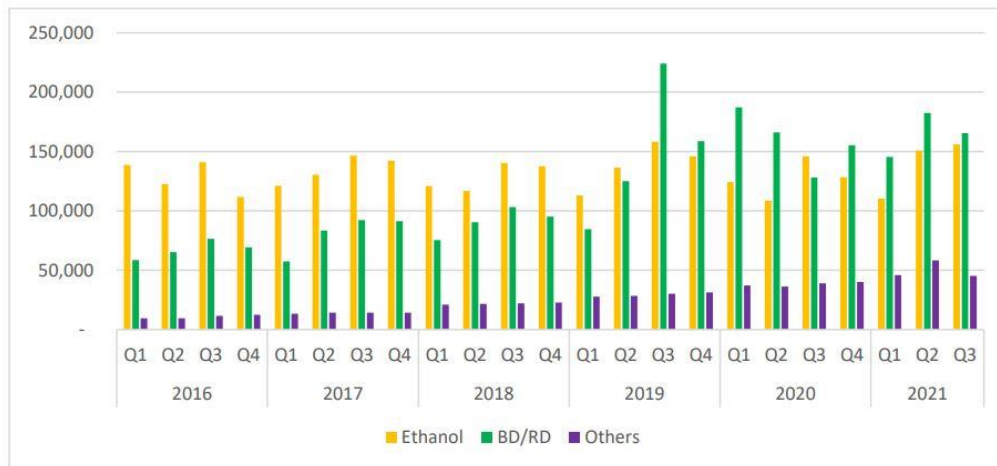
Similarly, in Oregon, since the inception of the CFS in 2016, the carbon intensity of ethanol has decreased 20% (from 65 g/MJ to an expected to 52 g/MJ in 2022) and is expected to decrease another 3% by 2024, while the carbon intensity of gasoline blendstock remains constant until 2035 (100.14 g/MJ) and by 2024 will be more than double than that which is expected for ethanol²².

²⁰ California Air Resources Board. <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/about>

²¹ “Data Dashboard: Low Carbon Fuel Standard.” California Air Resources Board. May 2020. <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>.

²² “2021 Illustrative Compliance Scenarios.” ICF for the Oregon Department of Environmental Quality. July 2021. <https://www.oregon.gov/deq/ghgp/Documents/cfpIlluCompScenD.pdf>

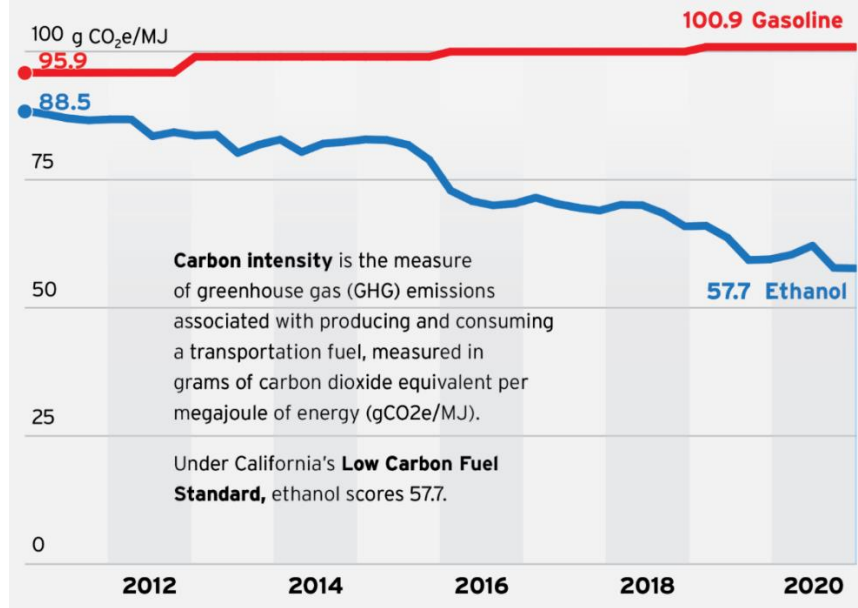
Figure 7: Oregon Department of Environmental Quality Clean Fuel Standard Credits Generated by Fuel Type (Q12016-Q32021)



Source: Oregon Department of Environmental Quality

CARB tracks the CI of a variety of fuel options and has updated the CI scores annually since the state’s LCFS was adopted in January 2011. Figure 8 shows the steady decline in the CI score for ethanol and the uptick in CI score for gasoline over the same period.

Figure 8: CARB’s Carbon Intensity Scores for Ethanol and Gasoline



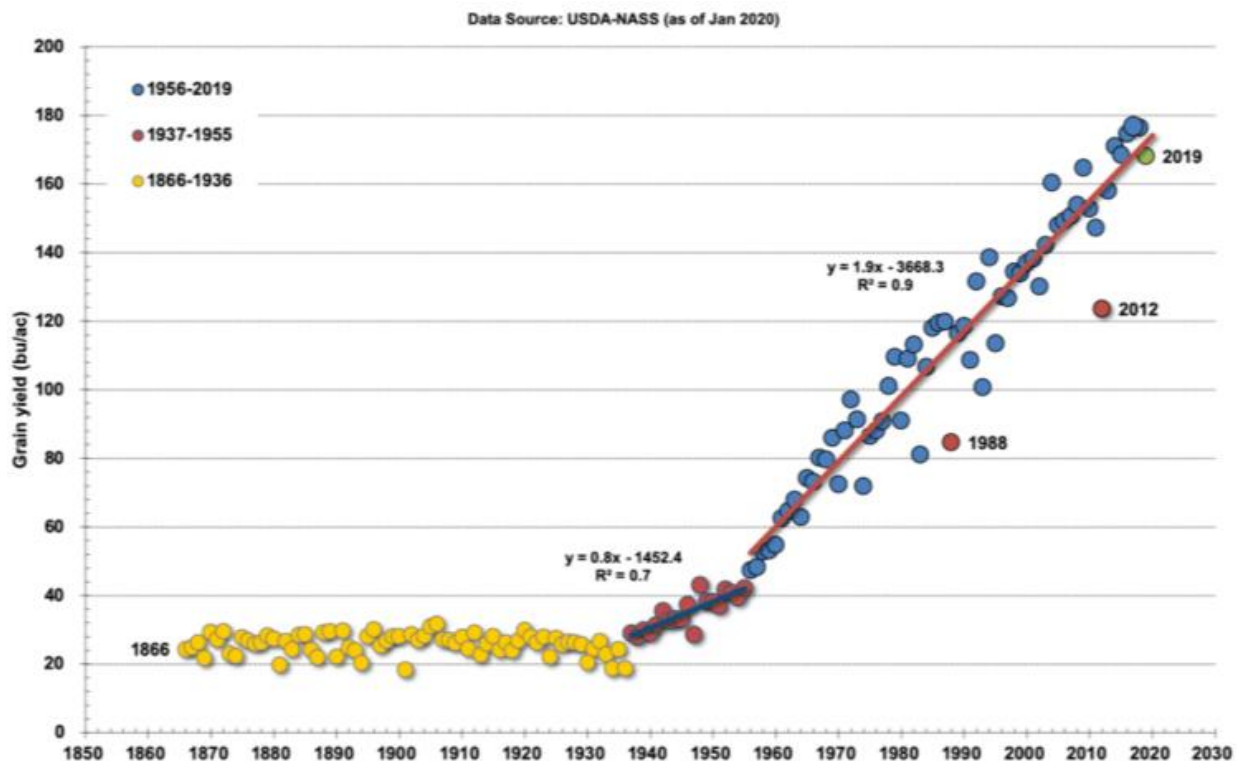
Source: California Air Resources Board

Improvements in ethanol’s CI scores can be attributed to the biofuel industry’s increased manufacturing efficiency through less energy-intensive energy usage, more effective biotechnology, lower water usage, and increased efficiencies in the amount of land used for biofuel feedstock production. America’s corn growers are producing stronger yields with less acreage, and

biorefineries can manufacture more gallons of ethanol per bushel of corn. Total cropland acreage has fallen from 470.8 million acres in 1978 to 391.9 million acres in 2012²³.

Moreover, corn yields have increased dramatically over the last 50 years, increasing from 72.4 bushels per acre in 1970 to 172 bushels per acre in 2020. Over the last ten years, corn yield has increased by 20%²⁴, while land planted for corn has remained steady. Figure 9 demonstrates the improvements in corn yields over the last 150 years.

Figure 9: Corn Crop Yields 1866-2019



Source: USDA-NASS and [Historical Corn Grain Yields in the U.S. \(Purdue University\)](#)

America’s biorefineries have deployed a number of low-carbon practices to reduce the carbon intensity of our fuel, including wind energy, solar energy, carbon capture, combined heat and power, and more. In fact, almost all capital expenditures at ethanol biorefineries today are aimed at reducing their carbon footprint to take advantage of low-carbon fuel markets like those in the western United States and abroad.

Even with significant innovation at our members’ plants, farming practices still account for roughly 50-65% of the lifecycle carbon emissions of these fuels. Farmers have already responded

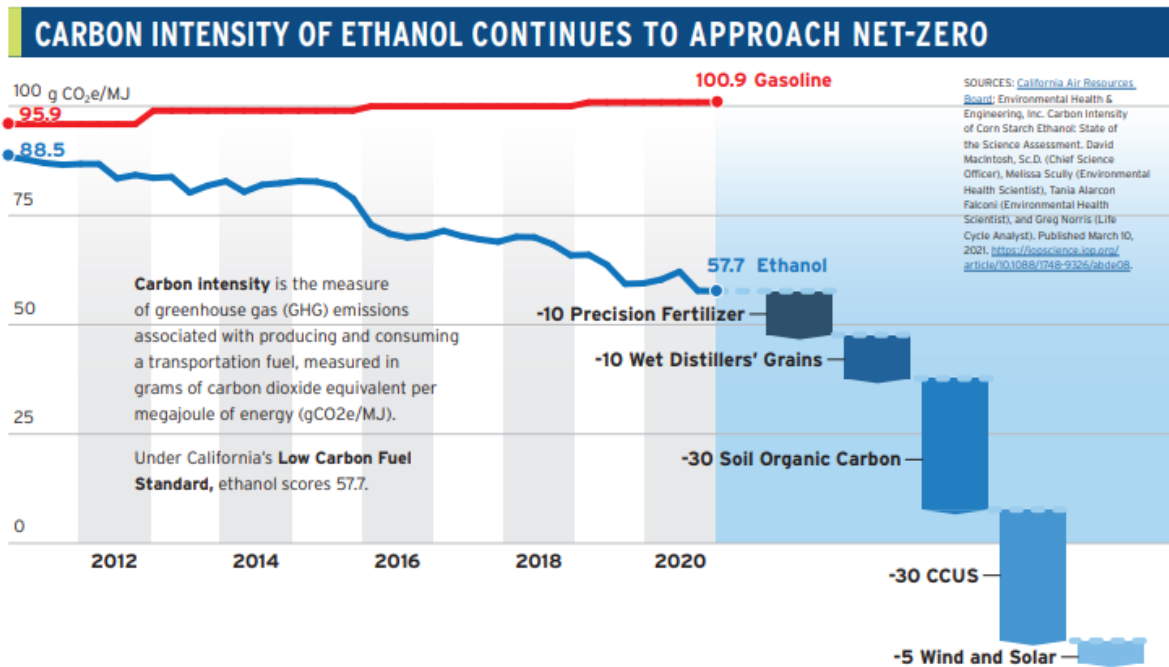
²³ “Cropland, 1945-2012, by State: The sum of cropland used for crops, cropland idled, and cropland used for pasture,” U.S. Department of Agriculture’s Economic Research Service. August 2017. <https://www.ers.usda.gov/data-products/major-land-uses/>

²⁴ “Crop Production Historical Track Records,” National Agricultural Statistics Service. April 2021. https://www.nass.usda.gov/Publications/Todays_Reports/reports/croptr21.pdf

to the call for improved sustainability, using fewer inputs and increasing efficiencies in their farming practices. These improved practices have already helped reduce the CI of farming, and therefore the overall carbon intensity of biofuels.

Further voluntary incentives like cover crops, nutrient management, buffers, and incentives for locally led conservation efforts that will help reduce the CI of agriculture even further, helping biofuel producers provide an even lower-carbon liquid fuel at a time of rising demand for low-carbon fuels. As biofuel producers benefit from low-carbon farming practices, farmers also benefit in the form of premium prices for their commodities.

Figure 10: Achieving Net-Zero Ethanol



Source: Environmental Health & Engineering and California Air Resource Board

Biofuels continue to provide the foundation towards reaching goals set in both California’s LCFS and Oregon’s CFS, but the American farm economy could further benefit with improved modeling. For example, the LCFS does not currently account for low-carbon farming practices when rating the CI for various biofuels. Using less fertilizer through precision agriculture technologies lowers nitrogen use and would improve ethanol’s CI score. Further improvements also include adopting farming techniques like no-till and planting cover crops that keep nutrients in soil. The CI score can also be lowered significantly through the use of updated modeling that accurately reflects the carbon sequestered with the planting of corn, a natural carbon sink. Accounting for the CI benefits brought by these techniques and more would provide a greater premium for ethanol producers and the farmers they support.

Biorefineries are researching and implementing technological improvements to further reduce the carbon intensity of ethanol. As demonstrated in Figure 10, biorefineries have the potential to reach

net-zero ethanol and even achieve negative carbon emissions using today's technology. Some examples include installing more renewable sources of energy including wind and solar and installing carbon capture and sequestration equipment.

Sustainable farming practices can also have an impact on reducing a biorefinery's carbon intensity score. Precision fertilizer and accurately accounting for the carbon sequestered with the planting of corn are other examples of methods to further reduce carbon intensity.

Higher Octane Fuels Help to Drive Lower Vehicle Greenhouse Gas Standards and Better Fuel Economy

It is imperative to consider the benefits of using high-octane, low-carbon fuels to make engines more efficient. Beyond E15, Growth Energy has been a leader on highlighting the need for higher-octane, mid-level ethanol blends, first submitting a proposal for a 100 research octane number (RON), E30 fuel nearly a decade ago. By moving towards higher-octane, lower-carbon mid-level blends, automakers can optimize engines to further improve efficiency and further reduce both greenhouse gas and tailpipe emissions.

The science supporting the benefits of a high-octane, low-carbon midlevel blend in conjunction with a high compression ratio engine is not new, and has been well-explored by the national labs, automobile manufacturers, and other scientific institutions²⁵. Ethanol has a very high-octane number, a lower-carbon content than the gasoline components it replaces, and myriad of other benefits that assist in combustion to increase engine efficiency and reduce both greenhouse gas and tailpipe criteria pollutant emissions.

We urge the committee to work with USDA, EPA, and the Department of Transportation to move quickly to require a minimum octane standard, as well as to approve a high-octane, mid-level, ethanol blend such as that first proposed by Growth Energy for vehicle certification as well as for consumer use. Additionally, we strongly support the Next Generation Fuels Act (H.R. 5089) introduced by Congresswoman Bustos. This important legislation would increase the use of high-octane, low-carbon biofuels while limiting the use of harmful petroleum additives. We urge Congress to consider and enact this key legislation.

America's Ethanol Industry is an Important Economic Driver

America's ethanol industry is also the second-largest customer to 300,000 U.S. corn growers, with roughly one-third of the field corn crop used to produce fuel ethanol each year²⁶. In a particularly unusual year of depressed demand in 2020, the ethanol industry purchased 4.78 billion bushels of corn to produce nearly 14 billion gallons of biofuels and more than 36.4 million tons of dried

²⁵ "Summary of High-Octane, Mid-Level Ethanol Blends Study." Oak Ridge National Laboratory. July 2016. <https://info.ornl.gov/sites/publications/Files/Pub61169.pdf>.

²⁶ National Corn Growers Association. <https://www.ncga.com/key-issues/current-priorities/ethanol>

distillers' grains²⁷. Also in 2020, 26.6% of field corn went into fuel ethanol²⁸. In 2021, our industry purchased nearly 30 billion dollars of corn to produce ethanol and co-products such as high-protein animal feed and corn oil.

Rural communities are eager to lead this charge, and the benefits to our economy are significant, especially as the cost of oil surges. With this homegrown energy comes homegrown jobs, from farmers to union professionals. As Daniel Duncan, Executive Secretary-Treasurer of the Maritime Trades Department, AFL-CIO, stated, “[u]nion members are not just on the production side of the American biofuel industry, but also build, operate, and maintain the infrastructure that keeps homegrown fuels like ethanol and biodiesel flowing. This sector is an important source of strength for union jobs, especially when it comes to growth in agricultural regions of the nation²⁹.”

Figure 11: Contribution of Ethanol Production to Individual State Economies, 2019

	Production (Mil Gal)	Production Share	GDP ((Mil \$)	Employment Jobs	Income (Mil \$)
IA	4,126	26.0%	\$9,096	82,294	\$4,910
NE	2,176	13.7%	\$4,797	43,401	\$2,589
IL	1,833	11.5%	\$4,041	36,560	\$2,181
MN	1,315	8.3%	\$2,900	26,232	\$1,565
IN	1,083	6.8%	\$2,388	21,601	\$1,289
SD	1,002	6.3%	\$2,209	19,985	\$1,192
WI	648	4.1%	\$1,429	12,924	\$771
ND	487	3.1%	\$1,074	9,713	\$579
KS	518	3.3%	\$1,142	10,332	\$616
OH	408	2.6%	\$900	8,138	\$485
TX	335	2.1%	\$739	6,682	\$399
MI	283	1.8%	\$624	5,644	\$337
TN	230	1.4%	\$507	4,587	\$274
MO	165	1.0%	\$364	3,291	\$196
NY	165	1.0%	\$364	3,291	\$196
CA	158	1.0%	\$348	3,151	\$188
CO	125	0.8%	\$276	2,493	\$149
GA	120	0.8%	\$265	2,393	\$143
PA	110	0.7%	\$243	2,194	\$131

*Excludes construction, exports and R&D

Source: ABF Economics

In a February 2020 study, ABF Economics broke down the economic impact ethanol production brought to each state in 2019 which is shown in Figure 11³⁰.

²⁷ “Grain Crushings and Co-Products Production- 2020 Summary.” U.S. Department of Agriculture. March 2021. <https://downloads.usda.library.cornell.edu/usda-esmis/files/v979v304g/jh344m06h/1j92h279h/cagcan21.pdf>

²⁸ “Corn Usage by Segment 2020.” National Corn Growers Association. April 2021. <https://www.worldofcorn.com/#corn-usage-by-segment>

²⁹ “Biofuel Industry Boosts Union Jobs.” Seafarers International Union. November 2021. <https://www.seafarers.org/biofuel-industry-boosts-union-jobs/>

³⁰ “Contribution of the Ethanol Industry to the Economy of the United States in 2019.” Urbanchuk, John M., Managing Partner. February 2020. <https://files.constantcontact.com/a8800d13601/9e769376-3aef-4699-b31f-3c6415b8fa63.pdf>

Conclusion

The biofuel industry stands ready to work with this committee, Congress, and the Biden Administration to meet our national commitments to attaining aggressive climate goals by mid-century while supporting economic development, working families, and renewable energy. With forward-leaning policies that support innovation and access to markets, our industry will continue to reduce our carbon footprint, create more clean energy jobs, spur economic activity in rural communities, and provide drivers across the country with affordable, clean fuel choices today.

Congress can help accelerate our transition to a clean energy future with a strong RFS, consumer access to high-concentration ethanol blends, and incentives to allow biofuels to reduce the carbon footprint of transportation, especially hard-to-decarbonize sectors like aviation, marine, and heavy-duty shipping. Ensuring the RFS is administered as intended by Congress will guarantee that we blend more low-carbon renewable fuel in our transportation sector each year.

In short, we have ample opportunity to achieve our renewable energy goals while supporting an industry that has supported rural America and clean energy for decades. I appreciate the opportunity to participate in this important hearing on how the RFS improves the American economy and helps our country reach its climate goals.

Thank you and I look forward to answering your questions.