

DOCKETED

Docket Number:	23-SB-02
Project Title:	SB X1-2 Implementation
TN #:	271425
Document Title:	Growth Energy Comments - Growth Energy Comments on TFTP
Description:	N/A
Filer:	System
Organization:	Growth Energy
Submitter Role:	Public
Submission Date:	7/14/2026 11:25:38 AM
Docketed Date:	7/14/2026

*Comment Received From: Growth Energy
Submitted On: 7/14/2026
Docket Number: 23-SB-02*

Growth Energy Comments on TFTP

Additional submitted attachment is included below.

July 7, 2026

David Hochschild
Chair
California Energy Commission
715 P Street
Sacramento, CA 95814

Lauren Sanchez
Chair
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Re: Draft Transportation Fuels Transition Plan

Chairs Hochschild and Sanchez:

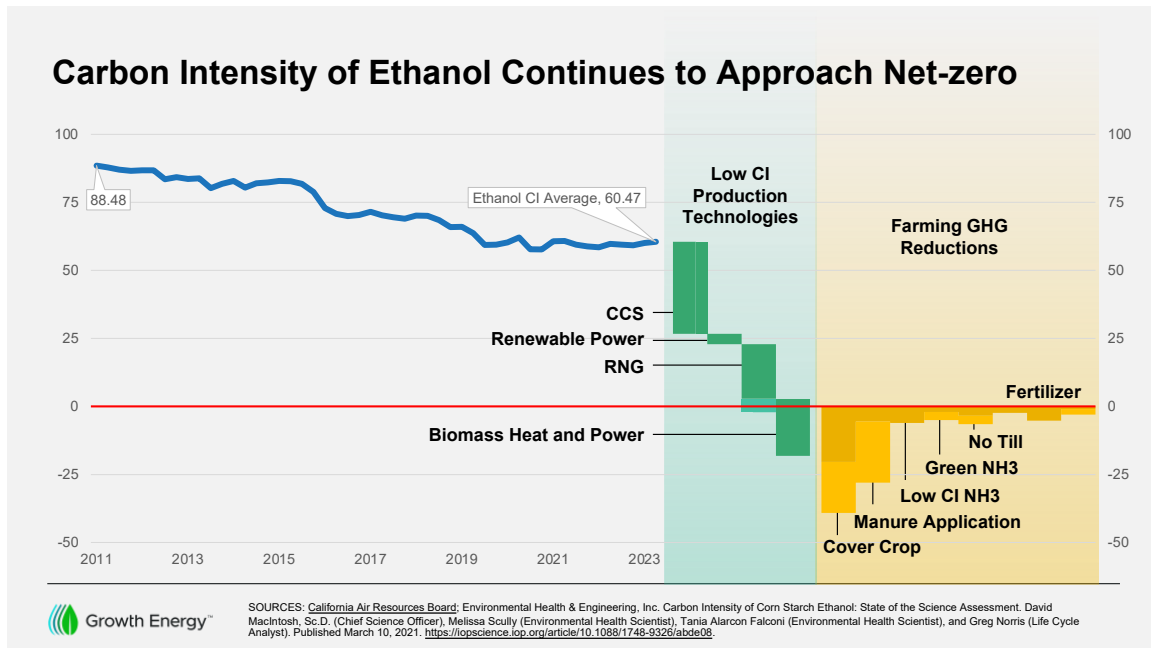
Thank you for the opportunity to provide written comments on California Energy Commission's (CEC) and California Air Resources Board's (CARB) draft Transportation Fuels Transition Plan (TFTP). Growth Energy is the world's largest association of biofuel producers, representing 98 U.S. plants that each year produce more than 9.5 billion gallons of renewable fuel; 129 businesses associated with the production process; and tens of thousands of biofuel supporters around the country. Together, we are working to bring better and more affordable choices at the fuel pump to consumers, improve air quality, and protect the environment for future generations. We remain committed to helping our country diversify our energy portfolio in order to grow more green energy jobs, decarbonize our nation's energy mix, sustain family farms, and drive down the costs of transportation fuels for consumers.

The draft TFTP correctly recognizes the opportunities for bioethanol to contribute to the state's goals for air and climate pollution across a range of industries. From on-road transportation for light-duty vehicles that can utilize higher bioethanol blends of gasoline, to sustainable aviation fuel, to maritime applications in which ethanol can serve as a "drop-in" fuel to lower marine engine emissions, ethanol can provide the carbon reduction opportunities, becoming an integral part in California's fuel transition. As detailed below, higher ethanol blends of gasoline like E15 also typically come with significant cost savings for drivers.

Environmental Value of Bioethanol

According to recent data from Environmental Health and Engineering, today's bioethanol reduces GHG by nearly 50 percent compared to gasoline and can provide even further GHG reductions with additional readily available technologies.¹

¹ <https://iopscience.iop.org/article/10.1088/1748-9326/abde08/pdf>



Bioethanol's other environmental benefits are also noteworthy. As has been researched by the University of California, Riverside and the University of Illinois at Chicago, the use of more bioethanol and bioethanol-blended fuel reduces harmful particulates and air toxics such as carbon monoxide, and benzene.²

Bioethanol has played a key role in the state's Low Carbon Fuel Standard, leading all biofuels to have been among the largest contributors to the success of the program's GHG reductions, according to the Transportation Energy Institute.³ The California Air Resources Board (CARB) has previously recognized the contributions bioethanol can make to carbon reductions. In 2011, CARB reported the average carbon intensity (CI) for ethanol at 88 g/MJ. Through the end of 2022, the average recorded CI for bioethanol has decreased to 59.21 g/MJ, a 33 percent reduction in CI.⁴ Additional CI reductions are anticipated as projects of diverse technological variety at ethanol biorefineries come on-line starting this year.

Expanded use of higher bioethanol blends will allow the millions of internal combustion engine (ICE) vehicles remaining on the road over the coming decades to play a role in achieving the state's GHG and emissions reduction goals while alternative technologies are further developed.

² [Comparison of Exhaust Emissions Between E10 CaRFG and Splash Blended E15](https://www.fixourfuel.com/wp-content/uploads/2018/04/UC-Riverside-Study.pdf), <https://www.fixourfuel.com/wp-content/uploads/2018/04/UC-Riverside-Study.pdf>

³ https://www.transportationenergy.org/wp-content/uploads/2023/07/Decarbonizing-Combustion-Vehicles_FINAL.pdf

⁴ <https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities>

E15: A More Affordable Fuel with Lower Emissions

Today, nearly all gasoline in California—and across the U.S.—is blended with 10 percent bioethanol. E15, a blend consisting of 15 percent bioethanol. In states where E15 is available, consumers regularly saved 10-30 cents per gallon this spring. In some cases, those savings were more than \$1/gallon.



50¢ Penn.
Apr. 20, 2026



46¢ Minnesota
Apr. 29, 2026



30¢ Maryland
Apr. 17, 2026



88¢ Wisconsin
Apr. 12, 2026



\$1.10 Illinois
Apr. 6, 2026



50¢ Virginia
Apr. 19, 2026

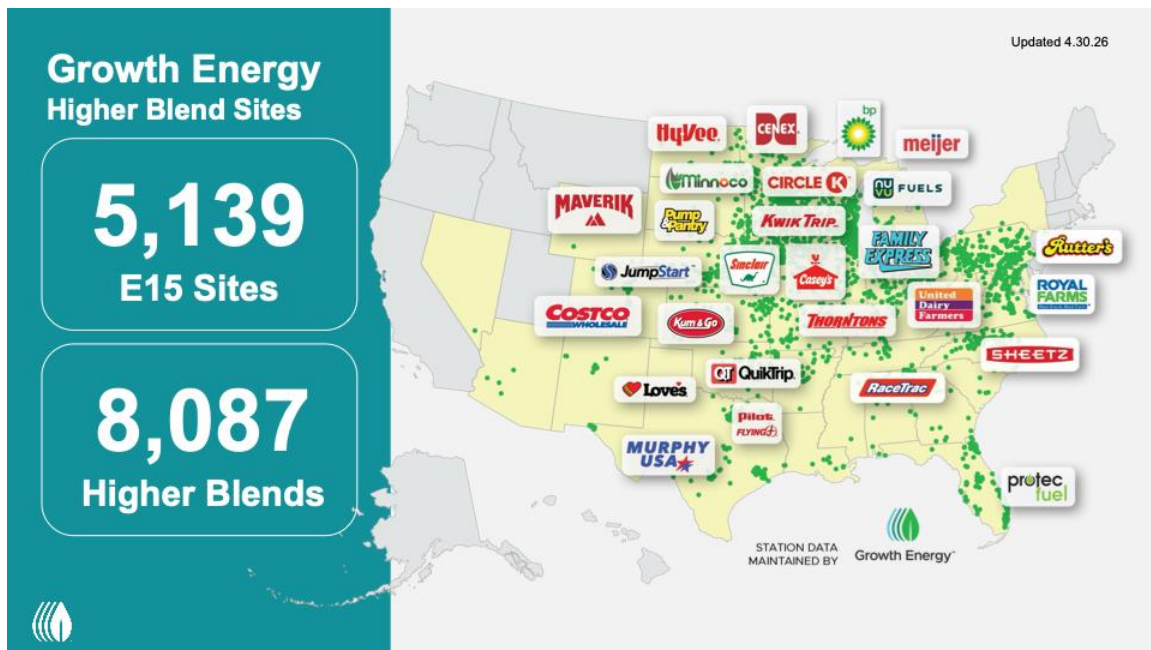


75¢ Iowa
Mar. 3, 2026



50¢ Ohio
Mar. 14, 2026

Consumers have embraced E15's reputation as a more environmentally beneficial, more affordable fuel. This rapid expansion of retailers offering E15 began in 2012, shortly after the EPA approved it, at which time there were zero retailers offering it. E15 is now available in 35 states at more than 5,100 retail locations and drivers in America have relied on E15 to drive 230 billion miles.



As mentioned in the CEC's Draft TFTP, California's 2025 legislative session saw the passage of AB 30, which allowed the sale of E15 in the state. Unfortunately, to date, no retailer has been able to offer this lower cost, lower emission fuel. Unnecessary regulatory hurdles are preventing the approval of dispensing equipment currently being utilized in the state to dispense E15.

Expanded E15 use in California can also help the state weather price and supply volatility in the global petroleum market like those we have seen in recent months. Increasing the percentage of low-carbon domestic energy in the state's transportation fuel matrix can help soften the impact of price spikes.

Ethanol's Maritime and Aviation Opportunities

The maritime and aviation industries are at the beginning of their transitions to lower-emission fuels, both of which offer tremendous potential for the use of bioethanol. The nation's bioethanol production capacity and potential for expansion makes it a prime opportunity for alcohol to jet sustainable aviation fuel (SAF). But federal and state policies must consider and encourage a wide range of regenerative agriculture practices American farmers employ to reduce carbon emissions when calculating CI scores for crop-based biofuels.

A recent study conducted by the Energy Futures Initiative Foundation studied the decarbonization potential of bioethanol and identified a variety of on-farm practices that can be employed in the near-

and mid-term to reduce carbon emissions.⁵ For instance, the use of cover crops could reduce CI for cornstarch bioethanol by as much as 45%. Based on the 2025 default CI for bioethanol in the state's LCFS, 60.05 gCO₂e/MJ, cover crops *alone* would reduce the average CI of bioethanol to 33.03 gCO₂e/MJ.⁶

On-Farm Decarbonization Measures					
		CI Reduction Potential	Cost	Feasibility	
				Widespread Adoption	Readiness for Adoption
Climate Smart Ag Practices	Corn Yield Improvement	.7%	< zero	High	Near Term
	No-Till Farming	6%	< zero	High	Near Term
	4R Nitrogen Management	4%	< zero	High	Near Term
	Enhanced Efficiency Fertilizers	4%	< zero	Medium	Near Term
	Cover Crops	45%	\$24 to \$64/tCO ₂	Medium	Near Term
Use Low-Carbon Fertilizers	Blue Ammonia-Based Fertilizers	10%	\$29 (with 45Q) to \$100/tCO ₂	Medium	Mid Term
	Green Ammonia-Based Fertilizers	10%	\$0 (with 45Z) to \$526/tCO ₂	Medium	Mid Term
Use Renewable Diesel in Farm Machinery		<4%	\$127 to 139/tCO ₂	Medium	Near Term
Use Renewable Diesel for Corn Transport		<2%	\$127 to 139/tCO ₂	Medium	Near Term

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We encourage California to continue to work with SAF producers, biofuel feedstock producers, and airlines to seek ways to accelerate use of SAF and the decarbonization of the aviation sector. We urge the CEC, CARB, and any other relevant state agencies to consider incentives and regulations for SAF that are feedstock neutral, encourage domestic feedstock and SAF production, and recognize the multitude of regenerative agricultural practices farmers employ.

Additionally, bioethanol uses as marine fuel, while nascent, shows considerable potential. Shipping companies are already testing methanol-powered vessels using 100% ethanol, including Maersk.⁷ Further research is being conducted on the use of ethanol as a marine fuel. This research, both technical and emissions calculations, will be particularly important in low-carbon markets both domestically and globally given the International Maritime Organization's efforts to establish a carbon reduction framework, the goal of which is to create "a global system

⁵ <https://efi.foundation.org/reports/a-strategic-roadmap-for-decarbonizing-ethanol-in-the-united-states/>

⁶ <https://ww2.arb.ca.gov/resources/documents/substitute-pathways-and-default-blend-levels-lcfs-reporting-specific-fuel>

⁷ <https://shipandbunker.com/news/world/124090-maersk-completes-first-sailing-on-100-ethanol-marine-fuel>

where ships, regardless of their flag, must use cleaner fuels or technologies” via a credit and deficit system very similar to the LCFS.⁸

With current technologies, farm-based feedstocks—including ethanol and corn oil—are the primary source of clean, renewable energy that can be used to produce volumes large enough to meet the demand. As a result, harnessing the U.S. ethanol industry—which at 17.4 billion gallons per year accounts for over 80% of biofuel production in the U.S.—will be necessary to make sure American farmers benefit from the decarbonization of the aviation and maritime fuel sectors.

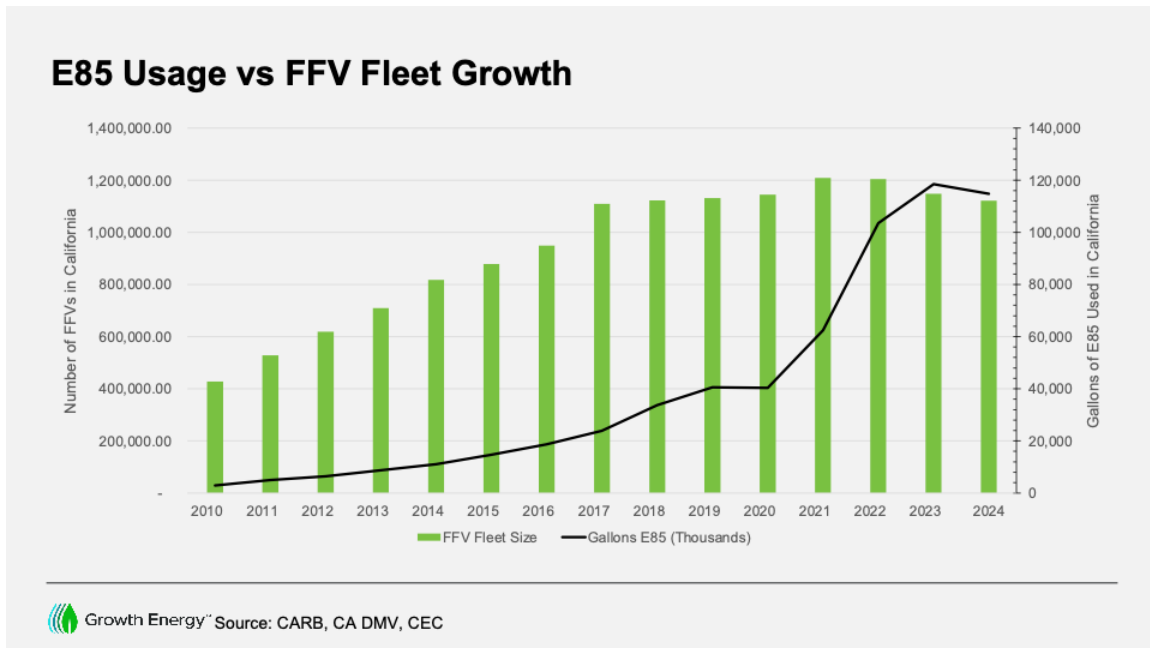
E85 and Flex-Fuel Vehicles

Additionally, California’s existing approval of E85 has resulted in significant growth of it being used in flex-fuel vehicles (FFVs): more than 118 million gallons have been sold at 375 locations across the state in 2023 alone⁹. Additionally, the current size of California’s FFV fleet stands at more than 1.14 million vehicles.¹⁰ Despite the size of California’s FFV fleet flattening, E85 usage continues to grow. There is a clear appetite and market for this environmentally beneficial fuel. The use of E85 will promote even greater reductions in GHG emissions and reductions of air toxics. We would continue to encourage CARB to implement policies that strongly incentivize and as necessary, require the production and use of flex-fuel vehicles, as well as continued investment in infrastructure for expanded access to E85 in the state. In doing so, the Board will be achieving multiple goals: improving air quality and GHG emissions, reducing the state’s dependence on fossil fuels, and providing consumers with an affordable choice to power their vehicles.

⁸ <https://www.imo.org/en/mediacentre/hottopics/pages/faqs-the-imo-net-zero-framework.aspx>

⁹ https://ww2.arb.ca.gov/sites/default/files/2024-03/Annual_E85_Volumes_Chart_3-8-2024.pdf

¹⁰ <https://data.ca.gov/dataset/vehicle-fuel-type-count-by-zip-code>



High Octane/Midlevel Bioethanol Blends

As CARB considers the future fleet, it is important to consider the benefits of using higher octane fuels such as bioethanol in conjunction with more efficient engines. Growth Energy has been an industry leader in advocacy in this area, first commenting to both CARB and EPA about the need for higher octane, midlevel bioethanol blends when the GHG standards for vehicles were being first developed in 2012. At that time, we submitted a proposal for a 100 Research Octane Number (RON), E30 (30 percent bioethanol) fuel blend for both vehicle certification and for consumer use. The science supporting the benefits of a high-octane fuel -- specifically a midlevel ethanol blend in the E20 to E30 range in conjunction with a high compression ratio engine -- is not new and has been well explored by several national laboratories including Oak Ridge National Laboratory, National Renewable Energy Laboratory, and Argonne National Laboratory as well as automobile manufacturers and other scientific institutions. Bioethanol has a very high-octane number relative to other gasoline hydrocarbons, has a lower carbon content than the gasoline components it generally replaces, and has many other benefits that assist in combustion to increase engine efficiency and reduce both tailpipe GHG and criteria pollutant emissions.

To briefly summarize, multiple studies have shown that a high RON, midlevel bioethanol blend (e.g., 96-RON E20 or 100-RON E30) when paired with various higher compression ratio engines yield tailpipe CO₂ emissions reductions of at least 5 percent, which in most instances were also coupled with efficiency gains. Some studies also showed significant volumetric miles per gallon savings associated with the higher efficiency engines and a high-octane fuel. One study that was submitted to EPA in response to their Draft Technical Assessment Report (TAR) by Air Improvement Resources, "Evaluation of Costs of EPA's 2022-2025 GHG Standards with High

Octane Fuels and Optimized High Efficiency Engines,” showed that the use of a 98 RON, E25 would reduce the cost of a MY 2025 vehicle by \$400 and a popular crossover SUV by as much as \$873. Not only are the benefits of midlevel bioethanol blends well understood by the scientific community, but the automobile industry has for years acknowledged the importance of affordable, high-octane fuels coupled with high-compression ratio engines as important to attaining regulatory compliance and improving vehicle performance in the most economical manner possible.

When you examine the data, there are clear benefits of moving to a high-octane, midlevel bioethanol blend, such as E30, including vehicle engine efficiency, lower tailpipe emissions, and increased use of renewable fuel. We believe that the use of midlevel bioethanol blends will continue to drive investment in more efficient vehicles, as well as lower carbon biofuels.

More broadly, we look forward to working as you work through the regulatory process to ensure the role of biofuels in making California’s fuel mix more sustainable and help the state achieve its climate goals through the expanded use of bioethanol.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "Christopher D. Bliley". The signature is fluid and cursive, with a large, stylized "B" at the end.

Chris Bliley
Senior Vice President of Regulatory Affairs
Growth Energy