Low Carbon Fuel Standard

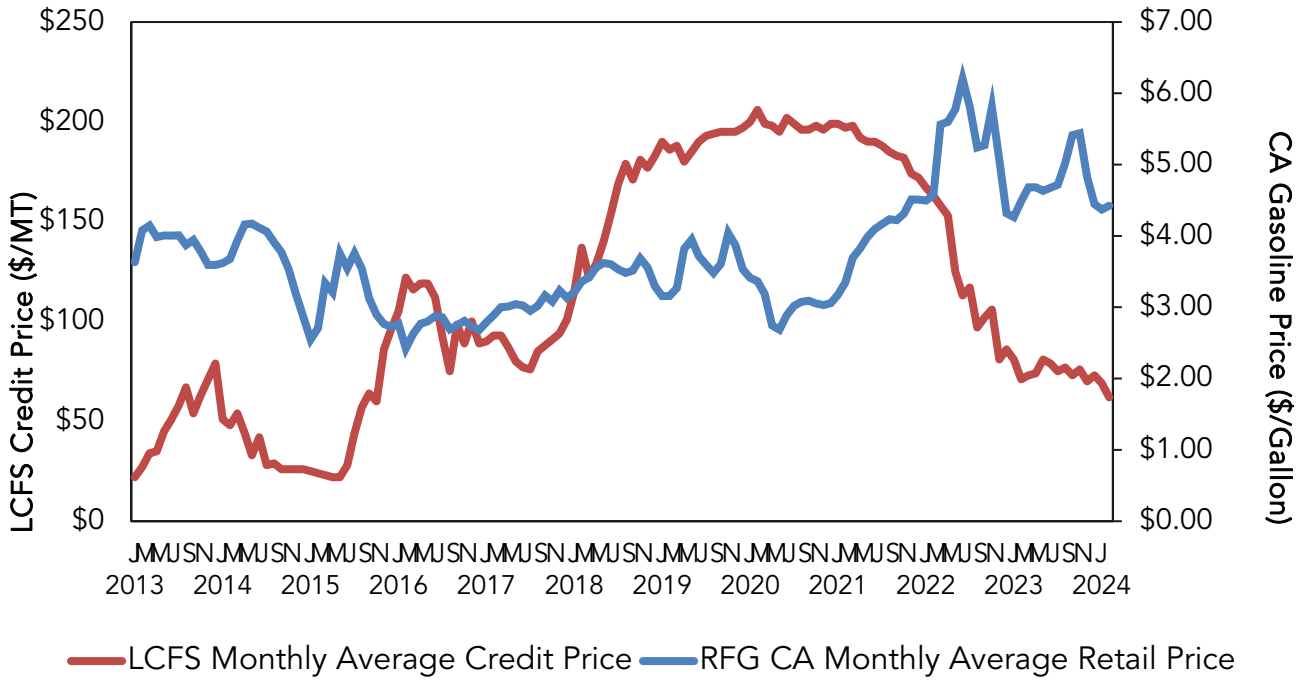
Fuel Prices

October 16, 2024

This factsheet describes the analysis conducted and relevant information regarding fuel prices and costs and benefits associated with the implementation of the Low Carbon Fuel Standard (LCFS) Program. The LCFS is currently being amended to align with the most recent AB 32 Scoping Plan which lays out a cost-effective and technologically feasible path to achieve the greenhouse gas (GHG) reduction targets in SB 32 and AB 1279. Like the Renewables Portfolio Standard (RPS) does for the electricity sector, the LCFS is aimed to diversify and decarbonize energy, here in the transportation sector. A portfolio approach that includes an RPS, LCFS, incentives, carbon pricing, vehicle and equipment mandates and other regulations ensures that every sector decarbonizes and contributes to the GHG reductions needed to achieve the state's GHG reduction targets. Similar programs are also being implemented in Washington, Oregon, New Mexico, Canada, Brazil, and the European Union.

Is there a relationship between the Low Carbon Fuel Standard credit prices and retail gas prices?

No. The graphic below shows the changes in the LCFS credit prices and fuel prices for gasoline. It shows no relationship between the two. Most notably, retail gas prices have been at historic highs, steadily climbing since 2020 (blue line). While LCFS credit prices have been on a steady decline during that same time (red line).



Is the $0.47 per gallon cost included in the Standardized Regulatory Impact Assessment (SRIA) what drivers should expect to pay at the pump?

No. While the LCFS SRIA included estimated LCFS credit prices based on various scenarios modeled via the California Transportation Supply model (CATS), these should not be misconstrued as a prediction of the future credit price nor as a direct impact on prices at the pump. The attachment to this FAQ includes the statements that were included in the SRIA to put the estimated compliance costs into context.

The SRIA is an early step in the rulemaking process by which all regulatory agencies with major regulations evaluate preliminary scenarios for very specific cost impacts to help inform and shape a formal regulatory proposal. None of the proposals analyzed in the LCFS SRIA are the ones the Board will consider at its November 8th public hearing. To comply with the requirements of the SRIA, CARB used an internally developed model called CATS.

The CATS model is a cost and compliance optimization model developed to help estimate fuel supply that may be delivered to California under different policy scenarios. The focus of the model is how the fuel mix may change under different policy scenarios. The model was not designed to predict the future, nor was it designed to simulate the complexities of the broader California transportation fuel market, which includes a wide diversity of transportation fuel producers, marketers, and retailers. The model is not designed to predict future credit prices and cannot assess any cost pass-through by compliance entities. To CARB's knowledge, no model currently available can accurately predict future credit prices for the LCFS, future transportation fuel prices, or pass-through cost for retail gasoline or diesel costs.

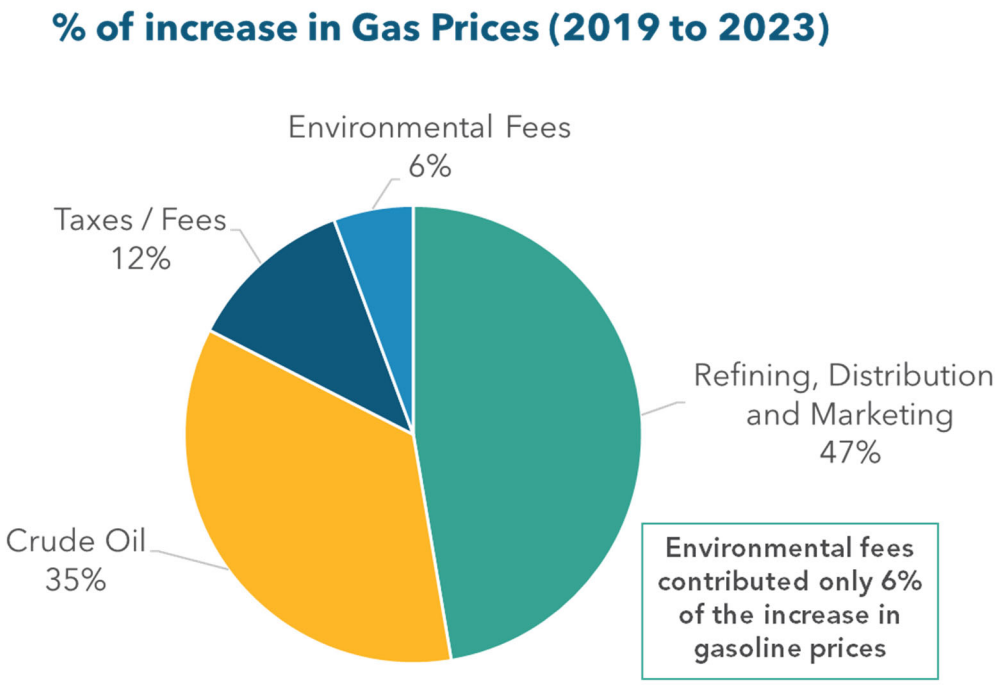
Do we know what cost is being passed through to consumers in retail gas prices due to the Low Carbon Fuel Standard?

Yes, data published by third party commodities markets experts indicates about a $0.10 LCFS cost pass through per gallon of gasoline that is consistent with the self-reported data by the fuel producers under Senate Bill (SB) 1322 that also reflects an LCFS cost pass through of $0.08 to $0.10 per gallon of gasoline. Senate Bill 1322 requires all refiners of gasoline products in the state to provide monthly data about various price and volume information. The California Energy Commission (CEC) must publish aggregated, volume weighted reports of these data, within 45 days of the end of each calendar month. The data also show that there is a price difference between branded and unbranded gasoline. LCFS applies to both equally, indicating other factors are inducing differences in prices even for the same fuel, subject to the same regulation, depending on the way it is marketed to consumers.

Is there an expected impact of the Low Carbon Fuel Standard on retail gas prices?

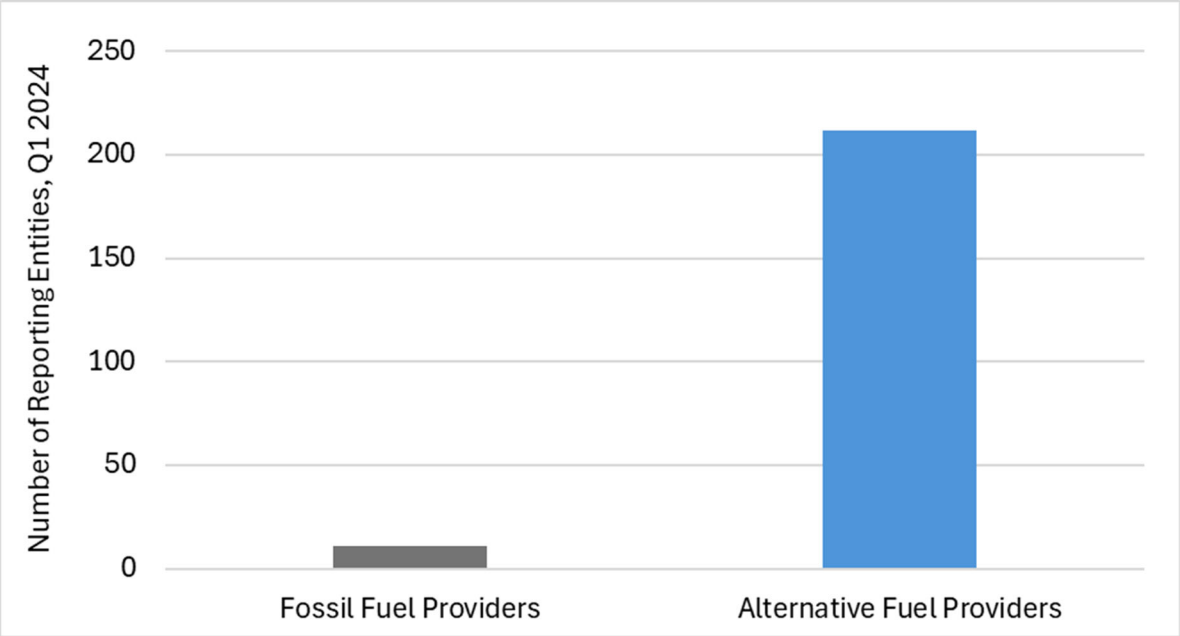
Yes, all climate action will have impacts to the cost of pollution sources, but the exact cost is unknown due to a variety of factors. For retail gas prices, there is nothing to prohibit fuel producers from passing on any costs for any regulation and what is ultimately passed on to consumers is determined by each company. In examining data for the recent years on retail gasoline prices, over 80% of the increase in prices is due to pricing policies by oil refiners. Federal, State and local taxes and fees account for 12%, and environmental requirements are the smallest fraction (6%) of the total. At the same time the LCFS program has not been updated and credit prices have been on the decline.

Importantly, the LCFS program includes a price cap on credit prices to ensure compliance costs do not increase unchecked. But the costs of inaction are also becoming known. The Fifth National Climate Assessment released in 2023 ranks California among the top five states suffering economic effects from climate-related natural disasters. Climate impacts are happening with more frequency and intensity than expected and will continue to pose health and economic impacts to the state.



Will the LCFS reduce energy costs for consumers?

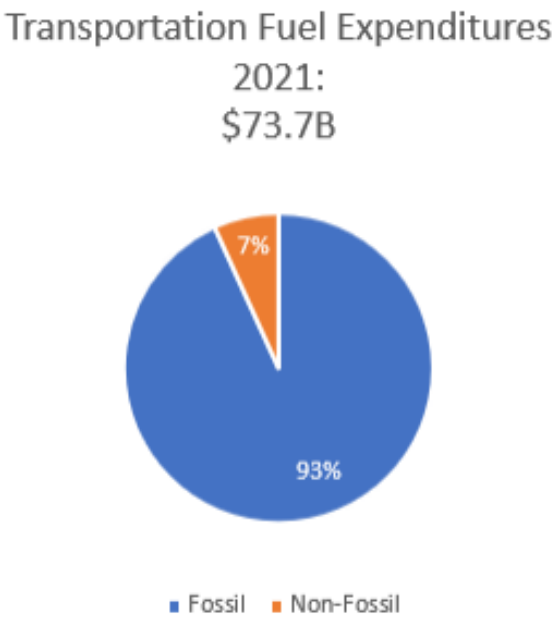
Yes, there are several ways in which the LCFS will reduce energy costs for consumers. The LCFS creates price-mitigating effects by inducing diversification and expansion of fuel supply. For example, electricity, renewable diesel, and ethanol currently provide affordable alternatives to petroleum diesel and gasoline. Just as importantly, the LCFS provides a market for a significantly greater number of clean fuel producers, allowing for greater competition and lower fuel rates when compared to the significantly smaller number of petroleum fuel producers today, thus increasing competition and putting downward pressure on prices.

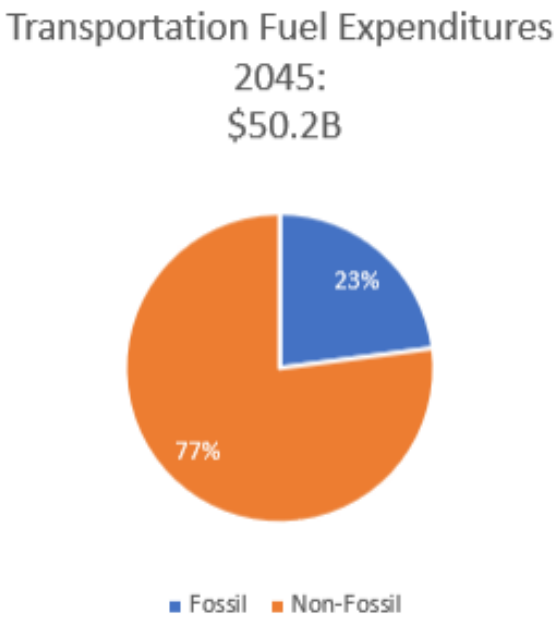


Data show that renewable fuels induced under the LCFS program currently provide cost savings relative to petroleum fuels. This same outcome is being realized on the gasoline fuels side as consumers switch to cleaner fuels such as electricity where the LCFS will provide incentives for the production and deployment of clean fuels.

Is LCFS helping lower the cost of driving?

Yes, transportation fuel expenditures will continue to decline over time. LCFS is expected to help save Californian's billions in the next two decades as consumers transition away from fossil gasoline and diesel expenditures and increase their use of more efficient vehicles and low carbon fuels. CARB's analysis shows that in 2045, over 75% of the State's transportation fuel expenditures will go to non-fossil alternative fuels like electricity, hydrogen, and low-carbon biofuels, and that Californians will be paying $0.12 per mile traveled, for an overall 42% savings in fuel costs per mile statewide. For the light-duty sector, the savings will be even more pronounced, with costs going from $0.19 per mile to $0.08 per mile by 2045, a reduction of over 50%, as the light-duty sector transitions away from fossil fuels and becomes mostly ZEVs supplied by electricity and hydrogen. This analysis is more complete than the narrowly focused assessment in the SRIA as it integrates both costs and savings for consumers. More importantly, recent data on vehicle fleets and vehicle miles traveled shows that it costs approximately $0.11 less to drive per mile in an electric vehicle versus a gasoline vehicle.





Are there other benefits of the LCFS?

Yes, the LCFS supports investment in efforts to transition away from fossil fuel combustion to achieve the state's air quality and climate targets. To date, the Program has provided approximately $300 million to support public transit, close to a $1 billion for light duty zero emission vehicles, and displaced the fossil diesel with cleaner fuels for over 70% of the demand in the state. The Program has also supported financial assistance for ZEV purchases at the state and local level and equity focused programs administered by the electric utilities. Moving forward the amendments would supercharge investment in clean fuels and infrastructure into the billions and provide opportunities to leverage federal incentives further reducing costs to Californians in the transition away from fossil fuel combustion. The associated health benefits are expected to be a health cost savings of almost $5 billion. There is an additional estimated billions in revenue that would accrue to California businesses from the updated Program. Importantly, electric utilities would be able to continue to invest in programs within their regions to support equity projects such as funding for zero emission drayage trucks and zero emission school buses. All of which would also deliver critical air pollution reductions in frontline communities.

Is the state taking action to protect consumers from retail gasoline price spikes?

Yes, as part of the 2024 Special Session, Governor Newsom and the Legislature to bold action to protect Californians from price spikes which have occurred with more frequency and intensity in recent years. By signing ABx2-1 into law, the California Energy Commission has the authority to set constraints on storage levels for each refiner, each fuel and each blending component, per the bill. The agency will also be able to adjust inventory minimums, as well as establish conditions under which refiners can draw down or rebuild reserves. The recently established Division of Petroleum Market Oversight provided data and analyses to underpin the need for more oversight on supply to ameliorate price spikes and ensure conditions aren't created where more windfall profits flow to the fossil fuel industry.

Attachment A References

CARB September 2023 Standardize Regulatory Impact Assessment (SRIA)
Low Carbon Fuel Standard SRIA | California Air Resources Board

To quantify the direct cost of obtaining LCFS credits in this analysis, CARB uses one annual uniform LCFS credit price for all firms. This methodology assumes that deficit generators will not pursue strategies themselves that cost more than the cost of obtaining credits from others through the LCFS market. However, some regulated entities may be able to generate LCFS credits at a cost lower than the assumed LCFS credit price, through producing and blending low-CI fuels themselves, investing in refinery and oil field projects, or producing renewable hydrogen for refinery use. **Thus, using one annual LCFS market credit price as a proxy for the cost of compliance with the proposed amendments likely overstates the direct cost to deficit generating parties.** SRIA pg. 47

The direct cost of the proposed amendments on a typical crude oil refinery consists of increased cost of obtaining LCFS credits. While a typical refinery might elect to invest in projects that generate credits (for example, direct production of low-carbon fuels or energy-efficiency refinery projects to generate credits), they are only likely to do so if the cost of the project is less than the cost of obtaining the LCFS credits through credit purchase**. Therefore, estimating refinery costs using the market credit price may overestimate the costs of the proposed amendments on a typical refinery.** SRIA pg. 53

Since the credit price is expected to represent the marginal costs of producing the last credit needed to achieve compliance in the system (i.e., the marginal GHG abatement needed to achieve the targeted CI benchmarks), each refiners' compliance cost is certain to be lower than staff's estimated value (because most abatement comes at a cost lower than the marginal abatement cost**). These estimates therefore represent an upper bound estimate.** SRIA pg. 54

Retail fuel prices are strongly influenced by many factors beyond LCFS credit prices (e.g., global events, holiday weekends, seasonal fluctuations, refinery disruptions, seasonal fuel blends, taxes) and fuel producer pricing strategies are complex and reflect local and regional market conditions. **Predicting how LCFS credit price changes impact these complex pricing strategies is beyond the scope of this work.** Instead, staff provides the analysis above as an estimate of the upper bound of possible consumer price impacts based on the carbon content of fuel. SRIA pg. 58