

DOCKETED

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**2019-2020 Investment Plan Update for the Clean Transportation Program
(ARFVTP) - California Advanced Biofuels Alliance Comments**

Additional submitted attachment is included below.



California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

August 5, 2018

Re: Docket No. 18-ALT-01 - **2019-2020 Investment Plan Update for the Clean Transportation Program (ARFVTP)** - California Advanced Biofuels Alliance Comments

Dear Commissioners, Staff and Members of the ARFVTP Advisory Committee,

I am writing on behalf of the California Advanced Biofuels Alliance (CABA), California's not-for-profit advanced biofuels industry trade association, representing a broad range of stakeholders, including all of the state's major advanced biofuels producers.

We thank Commissioner Monahan and Commission staff for their work on the Investment Plan Update, and respectfully submit the following comments to the docket for your review and consideration:

How Biomass-Based Diesel (Biodiesel and Renewable Diesel) are Essential to the LCFS

Introduction

The California Air Resources Board's (CARB) Low Carbon Fuel Standard (LCFS) is California's flagship program for reducing greenhouse gases emitted by transportation fuels. It is currently the world's most effective program and has driven decarbonization by moving away from petroleum fuels while encouraging a plethora of alternatives and efficiencies in the fuel markets. One of the most visionary and insightful elements of the regulation, and key to its success, has been its technology neutrality with respect to alternative fuels and transportation pathways. This market-based approach has given the program credibility as well as worldwide respect, attention, and imitation.

The latest LCFS rulemaking reduces fuel carbon intensity (CI) by 20% by 2030. The CI of each fuel has a 'pathway'. Pathways have a lifecycle analysis of "well to wheels" or "field to wheels" to show how much carbon dioxide is emitted by that fuel for each mega joule of energy that it provides to the wheels. The program steadily reduces its benchmark CI for fuels each year. Regulated parties who produce fuels with a CI over the benchmark must comply by buying LCFS credits generated by parties that produce lower CI fuels.

Perhaps the biggest success, certainly as a percentage of the market, has been in biomass-based diesel (BMBD) – specifically, biodiesel (BD) and renewable diesel (RD). Both are substitutes in the hard to replace diesel market, cutting not only Greenhouse Gas (GHG) emissions but also reducing criteria pollutants in tailpipe emissions. Over the last several years BD and RD have contributed roughly half of all the carbon credits required by the LCFS program. I would also add that virtually every biofuels plant in the state is in a disadvantaged community, providing good paying green-collar jobs in those communities.

CARB's Predictive Compliance Scenarios

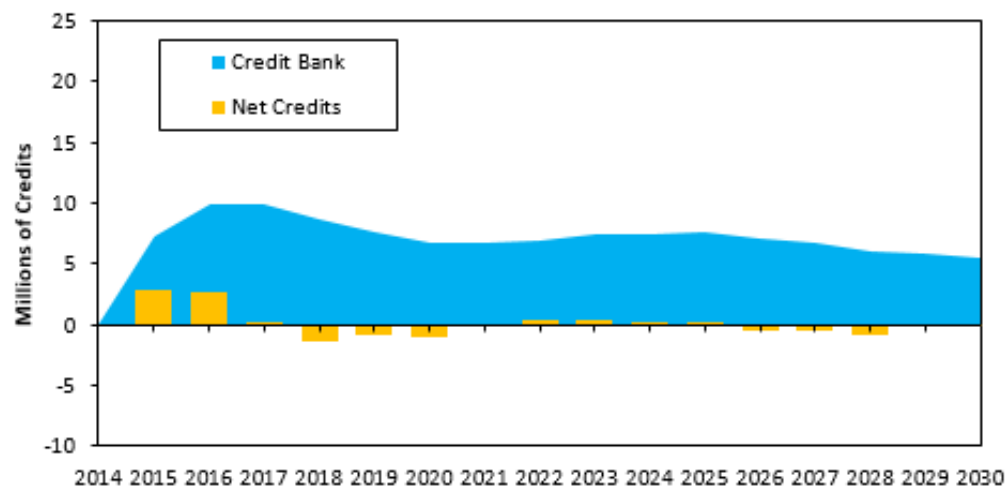
CARB published [several compliance scenarios for 2030](#) in 2018 basing their data on assumed high and low demand for all the fuels in the program. The scenarios used data up to and including the data for 2017 and predicted fuel usages out to 2030. The scenarios were essential as they showed how the credit market would fair under different conditions with a 20% reduction in CI. Maintaining enough credits in the LCFS credit bank is critical for the survival of the program and is seen as a potential weakness that exposes the regulation to attack by its critics.

The scenarios CARB published had the Zero Emission Vehicle (ZEV) infrastructure credits built into them and illustrate how the credit bank will fair under several differing situations. They include high and low fuel demand for gasoline, and low and high adoption of ZEVs. Diesel usage is tied to the growth of the economy and movement of goods and is constant with high and low fuel demand scenarios.

In *all* the published scenarios biodiesel fuel usage grows quickly (numbers taken from the Scenario spreadsheet):

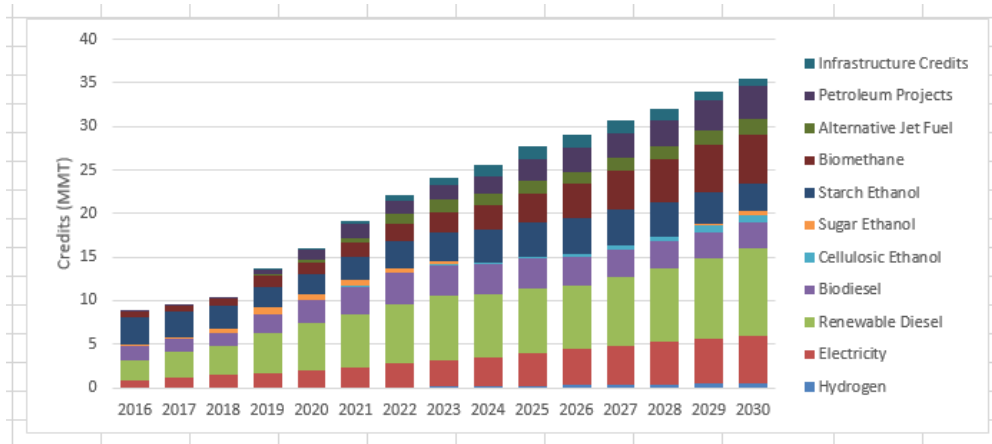
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Biodiesel MM GPY	200	275	350	425	500	500	500	500	500	500	500	500	500

Biodiesel usage grows to 500 million gallons per year (GPY) by 2022, and thereafter stays constant until 2030. Low and High demand for gasoline and Low and High supply of ZEVs are balanced in the scenarios by more or less use of RD. In the low demand for fuels and High ZEV deployment scenario, RD usage must grow to 700 million GPY by 2030 for the credit market to succeed. If, however, there is high demand for fuels and only low ZEV growth, then RD must grow to 1.5 billion GPY for the credit market to succeed. In the two middle usage scenarios, RD growth must be at least 1.1 billion GPY by 2030. CARB errs on the side of caution and uses the Low ZEV and High Gasoline scenario. In this case the credit market looks like this.



The deficits and credits into the market are balanced and the positive total number of credits in the bank means that all obligations can be met.

The contributions of different fuels supplying credits in the marketplace is illustrated below:



BD and RD make up a significant proportion of the supply of credits into the marketplace, close to 50% in 2018 and dropping by 2030 as other alternative fuels come online. In this case BD and RD provide 8.1% and 27.1% of the total credits by 2030, which is still more than a third of all the credits in the program. This scenario also includes an optimistic growth in the supply of renewable natural gas, a partial diesel substitute. If this fails to occur, additional demand for alternative diesel fuels will result.

How did Biomass Based Diesel Fair in 2018?

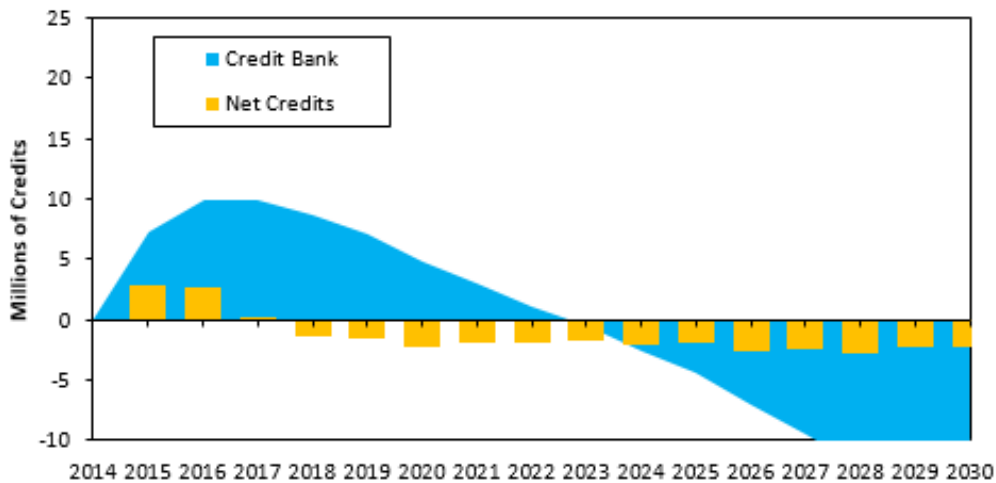
Since the scenarios were released in 2018, the 2018 numbers were not yet available. They have since been released by CARB. It is now possible to compare BD and RD growth against what was projected.

	2017	2018	
	Actual Supply	Predicted Supply	Actual Supply
Biodiesel	171	200	184
Renewable	335	450	384

As you can see, BD usage grew by only 13 million GPY against expected growth of 29 million GPY, and RD only grew at 49 million GPY as opposed to 115 million GPY. If we project those growth rates for BD into the future, we can predict how many gallons of BD will be in use by 2030:

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Biodiesel MM GPY	184	197	210	223	236	249	262	275	288	301	314	327	340

With this growth the credit market is strongly affected, since a large amount of BD has a low CI and contributes large numbers of credits as a percentage of the total.



BD reaches 340 million GPY by 2030, but without growth to 500 million GPY by 2022 the credit bank runs at a deficit from 2018 onwards and will be out of credits by 2023, possibly causing the LCFS to fail.

How to make Biodiesel grow to 500 million GPY by 2030?

If we work on the assumption that the BD market must grow strongly to 500 million GPY then it's important to understand the challenges. This required growth is not a given and simply cannot occur unless storage and distribution infrastructure is built to support this market growth. These infrastructural capabilities must be available at every existing bulk fuel terminal and rack in the state, and the introduction of new renewables-focused distribution terminals are critical if this expansion is to succeed. The slow growth in BD supply, only adding 21 million GPY over the course of two years is a clear indication that the market is not driving this infrastructural development rapidly enough for the LCFS to succeed. Additionally, market volatility caused by uncertainty in federal policy is a strong factor requiring California to act on its own.

The BD industry already has more than enough capacity to supply California's growth to 700 million GPY, which would be 20 percent of the projected liquid diesel fuel sold. There are currently 1.1 billion GPY of nameplate BD production capacity with pathways allocated by CARB, so supply is not an issue.

Since there is enough supply of BD to satisfy the market it is informative to see how many extra credits BD would generate if the full 700 million GPY of supply was sold into the market. In 2018 that would have been an extra 516 million gallons (over the 184 million that was actually sold).

516 million gallons of biodiesel with an average CI of 31 gCO₂/MJ would generate approximately 4.3 million Metric tons (MMT) of LCFS credits, worth approximately \$850 million in today's market.

Conclusions

CARB published scenarios of how the credit market is going to be able to meet obligations and ensure the LCFS program's health.

The scenarios clearly show that BD and RD are critical to the health of the program, having the ability to supply high volumes of low CI fuels.

BD sales growth has been very slow, averaging around 10 million GPY over the last couple of years, far short of what CARB anticipated in its scenarios. This can be directly correlated to a lack of storage and distribution infrastructure throughout the state. This slow growth puts the LCFS credit market, and therefore the stated climate goals of the government, in peril of failure by 2023.

Clearly market forces are not driving the buildout of BD storage and distribution infrastructure, possibly because of the strong vertical integration of petroleum companies and their vested interests in California. However, we do note some exceptions with certain refiners upstream and retailers downstream that have invested in installing proprietary blending infrastructure, driven by profits available from high LCFS credit prices. Unfortunately, this value is not allowed to trickle down to fuel producers who don't have financing available to build their own infrastructure. This is a direct function of the profit motivated market and is not expected to change on its own.

Providing funding for ubiquitous state-wide distribution infrastructure for BD and renewable fuels in general, and to shift the balance of market control, must be a key part of the CEC's policy strategy. This will help facilitate a successful LCFS program, resulting in lowering CI in transportation fuels.

The California Advanced Biofuels Alliance (CABA) estimates that a \$30 million investment in biodiesel infrastructure in California would facilitate biodiesel consumption growth to 500 million GPY, and at an average CI of 31 that would equate to roughly 2.5 million MT of credits annually. Over 10 years that investment would effectively cost \$1.20/MT of LCFS credits. This provides a very attractive cost benefit result unequaled by anything else contemplated in the market.

Specifically, CABA estimates a need for between 25-40 projects ranging from bulk fuel terminal retrofitting to dedicated renewable fuels distribution racks offering blends of RD & BD as a 100% renewable solution. These projects have been estimated to cost between \$500,000 - \$1 million each. We are asking CEC to cover some of those costs that will not be borne by the LCFS credits values since they are in fact not available to producers.

If we examine statewide GHG inventory reduction target of 40 percent below 1990 levels by 2030, and further review the expected total GHG inventory of 429 MMT, we observe the needed reduction would be 171.6 MMT. Transportation is responsible for 40 percent of the total which means LCFS targets almost 69 MMT GHG reduction by 2030.

Biodiesel's growth to 500 million GPY would contribute 6.5 percent of that total, and at 700 million GPY it would be over 8 percent. When combined with RD, BMBD could account for almost 26 percent of the state's GHG reduction targets in 2030 for transportation. Compared to all other programs the return on investments, as measured by GHG reduction, is unparalleled. This approach also maintains the legal intention and credibility of technology neutrality as originally contemplated by, and written into, the regulation.

CABA and its members value the open dialog and relationship our industry has with the Commission and staff and look forward to continuing this level of communication. We are focused on technology neutrality and lowering carbon emissions using the most cost effective means possible to help California not only find solutions to our global climate crisis, but to lead by example.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Joe Gershen", with a long horizontal flourish extending to the right.

Joe Gershen
Vice Chair
California Advanced Biofuels Alliance