August 9th, 2022

VIA ELECTRONIC FILING

California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: California Low Carbon Fuel Standard

Dear Ms. Laskowski and California Air Resources Board's Transportation Fuels Branch Staff,

On behalf of the undersigned companies, we are pleased to provide comments on potential changes to California's Low Carbon Fuel Standard ("LCFS") program. We appreciate the opportunity to engage with Air Resources Board ("ARB") staff during this process. We also provided comment on the development of California's 2022 Climate Change Scoping Plan (the "Scoping Plan"); these comments expand on and provide more detail regarding those prior comments.

Carbon Intensity Reduction Targets

Introduction

California's LCFS program has been an important driver of the State's greenhouse gas emissions reductions. As ARB has pointed out, the LCFS has over-performed, motivating emissions reductions that have outpaced the targets set by ARB. However, the long-term success of the LCFS program and its ongoing impact on transportation emissions is at risk if ARB does not move quickly to align the carbon intensity ("CI") reduction targets of the LCFS with the goals of the Scoping Plan. Sufficiently stringent CI targets in the LCFS program are necessary to incentivize future investments and innovations and to meet the State's overall climate goals.

In its July 7th, 2022 workshop, ARB staff presented two different potential adjustments to the 2030 CI reduction target: increasing the CI reduction target from 20% to 25% ("Scenario A") and increasing the CI reduction target from 20% to 30% ("Scenario B"). We believe both Scenario A and B are too conservative; by significantly over-performing ARB's current targets, the market has clearly demonstrated that it can accommodate more aggressive targets than those proposed in either Scenario A or Scenario B.

We believe that ARB should set goals and pursue policies that align with California's ambition to lead the world in the fight against climate change. We therefore encourage ARB to consider CI reduction targets that:

- Align with the State's goal of carbon neutrality by 2045 at the latest, implying a CI reduction in transportation of between 80% and 100% by 2045; and,
- Result in a market without excess credits or deficits or a large credit bank.

CI reduction targets that accomplish these two objectives will ensure that the LCFS program continues to encourage investment in low carbon fuels technology and helps the State successfully reduce emissions from transportation.

We have modeled five scenarios to illustrate how different CI reduction targets might impact the fundamentals of the LCFS credit market. A summary of the potential adjustments to the CI reduction targets and the results of each of our models is below. In all cases, we assume the credit bank will have grown to approximately 15 million MT by the end of 2023.

We would be happy to provide ARB more details regarding the inputs of our modeling via confidential correspondence.

(Summary results on the following page)

Model 1: 2030 CI reduction target of 25% with linear adjustments in prior years

YEAR	2024	2025	2026	2027	2028	2029	2030
CI TARGET	13.2%	15.2%	17.1%	19.1%	21.1%	23.0%	25.0%
DEFICITS	27,697,573	30,441,490	33,590,671	36,364,420	38,187,172	39,467,085	40,140,924
CREDITS	35,610,454	38,245,259	40,808,062	43,541,689	46,280,812	49,269,357	52,500,180
NET	7,912,881	7,803,769	7,217,391	7,177,269	8,093,640	9,802,272	12,359,256
BANK	**27,606,218**	**35,409,987**	**42,627,377**	**49,804,647**	**57,898,286**	**67,700,558**	**80,059,814**

Model 2: 2030 CI reduction target of 30% with linear adjustments in prior years

YEAR	2024	2025	2026	2027	2028	2029	2030
CI TARGET	13.9%	16.6%	19.3%	22.0%	24.6%	27.3%	30.0%
DEFICITS	28,952,990	32,917,358	37,267,581	41,172,181	43,955,388	46,056,565	47,389,158
CREDITS	35,193,046	37,368,065	39,449,623	41,687,544	44,056,715	46,585,148	49,249,652
NET	6,240,056	4,450,708	2,182,042	515,363	101,327	528,582	1,860,494
BANK	**25,933,393**	**30,384,100**	**32,566,143**	**33,081,506**	**33,182,833**	**33,711,415**	**35,571,909**

Model 3: 2030 CI reduction target of 35% with linear adjustments in prior years

YEAR	2024	2025	2026	2027	2028	2029	2030
CI TARGET	14.6%	18.0%	21.4%	24.8%	28.2%	31.6%	35.0%
DEFICITS	30,208,406	35,393,226	40,935,782	45,979,512	49,728,713	52,649,588	54,637,859
CREDITS	34,780,038	36,488,433	38,071,805	39,822,918	41,490,797	43,434,335	45,599,838
NET	4,571,632	1,095,217	(2,863,977)	(6,156,594)	(8,237,916)	(9,215,254)	(9,038,021)
BANK	24,264,969	25,360,176	22,496,199	16,339,606	8,101,690	(1,113,563)	(10,207,263)

Model 4: 2030 CI reduction target of 40% with linear adjustments in prior years

YEAR	2024	2025	2026	2027	2028	2029	2030
CI TARGET	15.4%	19.5%	23.6%	27.7%	31.8%	35.9%	40.0%
DEFICITS	31,463,823	37,869,093	44,609,874	50,784,754	55,512,740	59,284,945	61,966,190
CREDITS	34,349,637	35,553,225	36,637,448	37,686,906	38,817,201	40,051,481	41,244,797
NET	2,885,814	(2,315,868)	(7,972,427)	(13,097,848)	(16,695,539)	(19,233,464)	(20,721,393)
BANK	22,579,151	20,263,283	12,290,856	(806,992)	(17,542,881)	(37,653,489)	(60,257,556)

Model 5: 2030 CI reduction target of 30% with non-linear adjustments in prior years

YEAR	2024	2025	2026	2027	2028	2029	2030
CI TARGET	18.0%	20.0%	22.0%	24.0%	26.0%	28.0%	30.0%
DEFICITS	36,108,866	38,797,544	41,894,361	44,546,444	46,064,752	46,986,337	47,261,592
CREDITS	32,679,414	35,187,480	37,902,738	41,084,189	44,345,126	47,713,378	50,872,063
NET	(3,429,452)	(3,610,64)	(3,991,622)	(3,462,255)	(1,719,626)	727,041	3,610,471
BANK	16,263,917	12,653,853	8,662,231	5,199,975	3,480,349	4,207,390	7,817,861

Modeling Conclusions

In both Model 1 and Model 2, the credit bank continues to build through at least 2025 and is not depleted in 2030. These models indicate that, should ARB adopt these adjustments to the CI reduction targets, the incentive value of the LCFS would continue to decline, discouraging new investments. This would not set the State on a path to carbon neutrality by 2045; future CI reduction targets beyond 2030 would be significantly jeopardized by slower investment in low carbon fuels technology over the next 8 years.

In Model 3, the credit bank peaks in 2025 and begins declining rapidly in 2027 and 2028. The credit bank is depleted in 2029. While this would have a positive impact on the market in years 2026 and beyond, new investments may be delayed until then, again jeopardizing CI reduction targets in the long-term beyond 2030.

The 2030 CI reduction target of Model 4 (40%) aligns most closely with a goal of carbon neutrality by 2045; in other models, we must assume CI reduction targets accelerate significantly post-2030 to reach a target of between 80% and 100% by 2045. However, in this Model 4, the credit bank is fully depleted in 2026, and deficit generation continues to exceed credit generation in years 2026 through 2030. This indicates that the market may have difficulty achieving such aggressive targets, which may therefore be unrealistic.

In Model 5, a significant increase in the 2024 CI reduction target causes the market to suddenly shift from a net-surplus of credits in 2023 to a net-deficit of credits in 2024. This would have the most significant, positive impact on the LCFS in the near-term, rebalancing the market in response to the encouraging success of the LCFS in earlier years. Additionally, the credit bank is nearly depleted in 2030. This indicates that the LCFS program would have been successful in reducing CI as much as possible in each year.

Our conclusion based on this work is that ARB should be much more aggressive than it proposed to be in its earlier workshop. The LCFS has been a resounding success, and the market has clearly indicated that ARB should adjust the CI reduction targets in a way that is consistent with the positive outcomes of Model 3, Model 4, or Model 5.

Credit Generation

Base Credit Generation for Residential EV Charging

EV manufacturers play a core role in enabling and accelerating the transition to EVs. Manufacturers enjoy comparatively strong relationships with consumers and act as primary distributors of information regarding the consumer and environmental benefits of EVs. Manufacturers also guide consumer preferences by providing compelling EV products, which are primarily responsible for the emissions reductions associated with EV adoption.

Despite this significant and unique role in the transition to EVs, EV manufacturers may only generate limited incremental LCFS credits, and only if other stakeholders have not already

registered to generate such credits. Furthermore, the value of the incremental credits structurally depreciates as improvements are made to the carbon intensity of California's electric grid.

We are concerned that this existing structure provides only a weak and diminishing incentive for EV manufacturers to make additional allocations to- or investments in- California based on LCFS, and it does not reflect the relative contributions of different stakeholders in the transition to EVs. As such, we believe ARB should establish a structure that enables EV automakers to share in base credit generation for residential EV charging, creating a more inclusive program in which the roles of different stakeholders are more evenly balanced while still ensuring programmatic goals are met.

Such a change would directly reward EV manufacturers for the *use* of their products—a powerful complement to the existing zero emission vehicle sales mandate and an incentive to invest in more capable and desirable EVs that are highly utilized by customers. The LCFS can and should help ensure that EVs sold in California are highly utilized products that displace fossil fuels.

Should ARB make such a change, ARB may also consider reevaluating the administration of the California Clean Fuel Reward program ("CCFR"), which is funded and administered by electric utilities using a portion of base LCFS credit revenue for residential EV charging. In November of 2021, the CCFR halved in value and could now be paused indefinitely. These changes are confusing to customers and could cause delays in EV sales: customers that would otherwise purchase an EV may wonder and wait for the CCFR to return or to increase in value.

The CCFR, or a program like it, would be better administered by EV manufacturers, rather than utilities, as EV manufacturers are customer-facing at the important "point-of-decision" and could better communicate directly with customers. Furthermore, EV manufacturers would have more flexibility in credit trading, which could allow for forward price hedging and therefore fixed reward prices.

In general, ARB should consider adjustments to base credit generation for residential EV charging and associated programs that would realign the LCFS to be consistent with and appropriately leverage the unique strengths of different stakeholders in the EV transition.

Incremental Credit Generation for Residential EV Charging

EV manufacturers are currently second in a "hierarchy" of stakeholders eligible to generate incremental LCFS credits for residential EV charging. This hierarchy provides little value to the efficacy of the LCFS and unnecessarily complicates the registration process. EV manufacturers generate the vast majority of all incremental LCFS credits generated for residential EV charging.

We recommend ARB consider either eliminating the hierarchy and establishing EV manufacturers as the sole stakeholder eligible to generate incremental LCFS credits for

residential EV charging or reorganizing the hierarchy such that EV manufacturers are the first-priority credit generator.

ARB should also clarify in the regulation that EV manufacturers may designate a third-party to act as a first-priority credit generator on their behalf.

Verification for Electricity Credit Generation
ARB has contemplated introducing third-party verification requirements for electricity transactions. While we appreciate the need for third-party verification to ensure the integrity of the LCFS program, we encourage ARB staff to consider the cost-effectiveness and feasibility for third-party verification of reporting for residential EV charging.

We recommend ARB establish that any third-party verification of electricity transactions occur annually and in aggregate or through a random sampling of residential EV charging data. We also recommend that ARB consider how the requirements for third-party verification will interact with the requirements imposed on many credit generators by the 2018 California Consumer Privacy Act, particularly for residential EV charging.

Other Technical Changes

ARB could also consider other technical changes to the LCFS, including the changes described below.

EV EERs
The Energy Efficiency Ratio ("EER") assigned to on-road light, medium, and heavy-duty EVs should be updated based on a more recent analysis of how the efficiency of internal combustion engine vehicles compares to similar EVs.

"Geofencing Radius" for Residential EV Charging
ARB should consider reducing the current "conservative" Geofencing Radius ("GFR") of 220 meters to a smaller and more precise GFR (such as 20 meters), as described in LCFS Guidance 19-03, Appendix A "Rationale for Minimum and Maximum Geofencing Radius." The GFR is used to "disaggregate the quantity of electricity used for residential and non-residential EV charging" and should be as precise as possible.

We are concerned that as charging station network operators and utility companies install more charging stations, an increasing amount of residential EV charging will be erroneously categorized as non-residential and therefore ineligible to generate credits. This will be particularly acute in densely populated urban areas of a mixed-use commercial/residential nature.

We believe that geolocation data (latitude, longitude) provided by non-residential reporting entities, as well as the precision of on-vehicle telematic systems, supports a higher precision GFR.

Conclusion

We encourage ARB to continue to pursue aggressive policies that support California's climate goals. As the transportation sector is the largest sector contributing to greenhouse gas emissions, reducing those emissions is critical to achieving carbon neutrality. The LCFS has been an important and effective tool, but it will only continue to perform if ARB makes changes like those described above.

We thank you again for the opportunity to provide these comments, and we look forward to continued engagement with ARB staff. If we can provide additional information or further support your efforts, please contact any of the undersigned.

Sincerely,

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