February 20th, 2024

Matt Botill
Chief, Industrial Strategies Division
California Air Resources Board
1001 I Street, Sacramento, CA 95814

Mr. Botill and CARB Staff,

I am pleased to write to you on behalf of Generate Capital, PBC ("Generate") regarding the current rulemaking process to update and strengthen the Low Carbon Fuel Standard ("LCFS"). Generate is a leading sustainable infrastructure company based in San Francisco. Generate builds, owns, operates, and finances infrastructure solutions for clean energy, transportation, water, waste, agriculture, and smart cities. Founded in 2014, Generate partners with technology and project developers to deliver affordable, reliable, and sustainable resources to over 2,000 customers, companies, communities, school districts and universities.

The LCFS has been a model climate policy. It has enabled the private sector to deploy billions of dollars into climate solutions to decarbonize California's transportation sector. The current amendments to the policy continue that leadership. In particular, by providing carbon intensity ("CI") reduction targets through 2045, the agency is allowing investors like us to have the policy certainty needed to deploy patient, long-term capital into climate solutions and the companies that build them.

As participants in this market, we agree with many of the updates CARB is proposing in this process. At the same time, there remain a handful of key topics where we would like to see amendments to the proposed regulation. In particular, the key areas on which we will provide commentary include:

- The changes to the diesel baseline and its impact on credit supply and demand;
- The CI step-down and the 2030 CI reduction target;
- The design of the Auto-Acceleration Mechanism ("AAM"), and;
- The treatment of Renewable Natural Gas ("RNG").

We look forward to discussing these and other aspects of the LCFS program with CARB staff as may be helpful to finalize the rulemaking process. Thank you for all of your hard work to ensure California continues to be a leader in the fight against climate change.

Sincerely,

Asher Goldman

Asher Goldman
Vice President
Generate Capital

<u>Changing the diesel baseline reduces the ambition of the LCFS program and lessens the impact of the changes CARB is proposing; the CI reduction targets should be increased to counteract the change in the baseline</u>

For the past several years, the conversation around potential LCFS amendments has focused on changing the CI targets in terms of percent reductions relative to the 2010 baseline. While the Initial Statement of Reasons ("ISOR") did adjust those CI reduction targets, it also meaningfully changed the 2010 CI baseline for diesel. While we are aware that this value does periodically change due to updated modeling, this instance was larger than any previous change.[1] As shown in Figure 1, by moving the 2010 baseline for diesel from 100.45 g/MJ to 105.76 g/MJ, the resulting CI targets shift up.

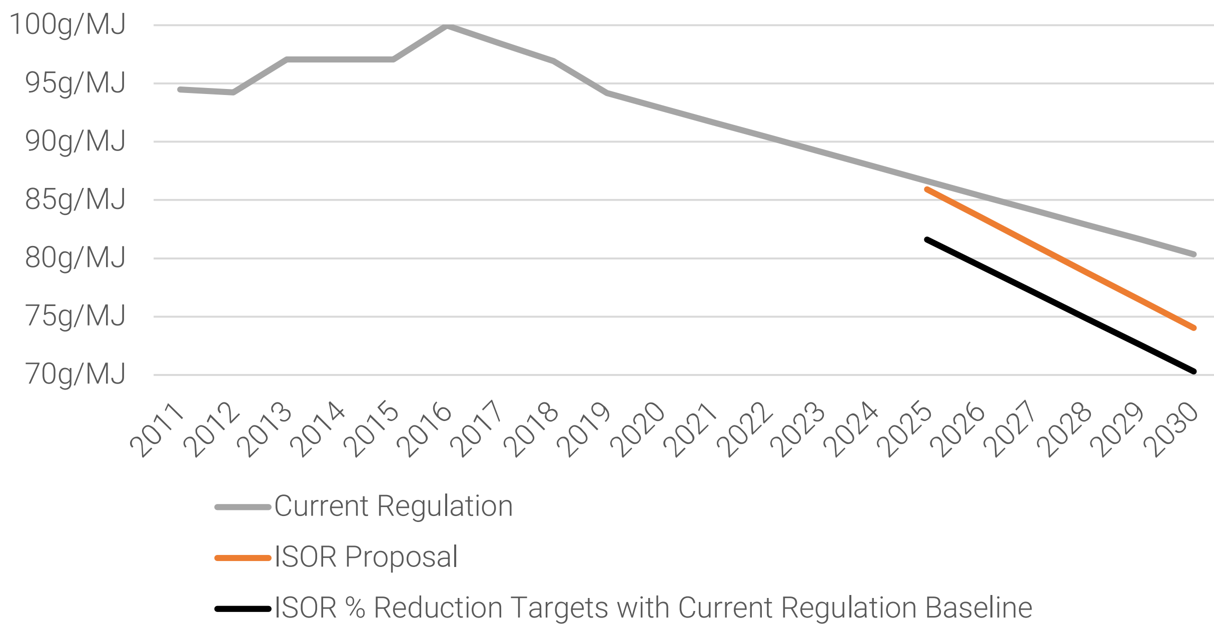

Figure 1: LCFS carbon intensity benchmarks for diesel fuel under different baseline values

The impact of this is significant. As CARB is aware, the volume of fossil diesel fuel used in California has fallen dramatically over the past several years; Q2 2023 had just 40% as much fossil diesel as Q2 2018.[2] With this change in baseline, fossil diesel will generate more deficits on a per-unit basis and diesel-replacements will generate more credits per unit. However, due to the declining fossil diesel volume, these per-unit increases do not cancel out in aggregate. Our modeling suggests that the credit bank will be 12.5M MT larger in 2030 than it would be with the baselines currently in effect (i.e., 100.45 g/MJ for diesel). **The outcome of this would be a reduced credit price, lower investment in climate solutions, and higher emissions levels.**

To account for this change, we suggest that CARB adjust the CI reduction targets to make them ~3% more stringent. This is particularly important for the CI step-down planned for Q1 2025; as can be seen in Figure 1, the baseline change practically undoes the impact of the step-down for the diesel pool.

[1] California Air Resources Board. *Proposed Amendments to the Low Carbon Fuel Standard*. December 2023. "Table 2. LCFS Carbon Intensity Benchmarks for 2011 to 2045 for Diesel Fuel and Fuels Used as a Substitute for Diesel Fuel". Page 65.

[2] California Air Resources Board. *LCFS Quarterly Data Spreadsheet*. January 2024.

In order to promote investment into climate solutions for California's transportation sector at the speed and scale needed, CARB must move the step-down to Q3 2024 and increase its magnitude, and increase the 2030 CI reduction target to between 32% and 35%

Generate is highly supportive of CARB providing the market with a long-term signal to reach deep levels of decarbonization via the 90% CI reduction target in 2045. This is precisely the type of policy certainty needed for investors such as Generate to make long-term investments into infrastructure projects needed to achieve the goals of the LCFS and the Scoping Plan. At the same time, we would like to see greater action in the near-term. In order to stimulate investment and infrastructure development in the next several years – a critical period to avoid exhausting our carbon budget – CARB should further the LCFS program's aims through 2030.

In the days following the publication of the ISOR, the market price of credits fell 22%, reaching the lowest levels since July 2016.[3] This reaction is the market unequivocally stating that the targets included in the ISOR are insufficient. At the current credit price – and those seen over the last two years – the market cannot support meaningful levels of investment into the decarbonization solutions needed to achieve the goals of the LCFS program or the Scoping Plan. We have experienced this first-hand: the low credit price environment has forced us to pause making new investments into LCFS-linked projects and companies. At a time when there are economic, social, and public health imperatives to accelerate our pace of decarbonization, the outcome of the most recent proposal would be lower investment, fewer projects, and greater emissions; in other words, this would be a missed opportunity.

Throughout the rulemaking process, Generate has consistently proposed 30% as the minimum viable 2030 target, a view reinforced with each successive LCFS data release. However, the change to the diesel pool's 2010 baseline value means that the significance of each "percent reduction" value using the updated baseline is actually ~3% less than it would have been under the prior rules; we should think of the proposed 2030 target as only 27%. Therefore, the proposed reduction target should be increased to between 32% and 35% for 2030.

Given the credit surpluses seen over the last two years, the step-down in the CI reduction schedule is critical. As CARB is likely aware, most market participants believe that 2024 will have a large number of excess credits produced, causing the bank to build rapidly – our modeling shows 11M more credits produced than deficits in 2024. In order to promote a stable market – one which avoids whiplash as we go from large quarterly surpluses to quarterly deficits – moving the step-down into 2024 and avoiding that bank build is crucial. In public workshops, CARB staff discussed the possibility of a 7/1/2024 step-down to the CI targets.[4] **We strongly support moving the step-down to 7/1/2024.** If CARB determines that Q1 2025 is the earliest that the step-down can be implemented, then we believe a much more aggressive step-down is warranted, as is shown in Table 1.

There are multiple ways of incorporating a mid-year CI change. CARB could implement a 7/1/2024 step-down and then have regular tightening on 1/1/2025. If CARB staff feels this is too aggressive, they could include a 7/1/2024 step-down and keep that CI reduction target through the 2025 calendar year. This moderated route may be attractive in that it avoids the projected 2024 credit bank growth without adjusting the CI target twice in six months. A third version of this would be to implement a smaller step-down on 7/1/2024 and then a larger step-

[3] Argus Media. *CA LCFS Spot Price.* Accessed February 2024.

[4] California Air Resources Board. *Public Workshop: Auto-Acceleration Mechanisms and Step Down Benchmark Considerations*. May 2023.

down on 1/1/2025; for example, CARB could opt for a 18.75% target for the second half of 2024 to mitigate (but not eliminate) the bank build in that year, and then have a second manual change to 22% in for 2025.

Step Down Timing	Step Down Magnitude	2030 Target
Q3 2024, CI targets held through 12/31/2025	21.50%	32%
Q3 2024, CI targets held through 12/31/2025	22.50%	30%
Q1 2025	21.50%	35%
Q1 2025	23.00%	32%
Q1 2025	24.00%	30%

Table 1: Generate recommendations for CI reduction schedule

Considering each of the aspects in concert with one another, Generate's **primary recommendation is for CARB to implement the step-down on 7/1/2024 to 21.50% below the 2010 baseline and maintain that target through 12/31/2025, alongside a 32% 2030 CI reduction target.** We have also prepared alternative designs if CARB wants to keep the 30% 2030 target and/or the Q1 2025 timing of the step-down, though the appropriate step-down magnitude increases if those elements of the ISOR proposal are retained.

The core rationale behind the recommendations above is that each of those designs would enable Generate and our competitors to build the climate solutions necessary to achieve CARB's policy goals, while ensuring that the LCFS program maintains a sensible credit bank to buffer price volatility. Building a market with reasonable, stable pricing allows investors like Generate to confidently deploy capital into projects that are needed for the scale of decarbonization which California is targeting; a market with significant volatility – as we have seen over the past several years – is not helpful to our goal of building infrastructure and deploying zero emission vehicles, meaning that investment happens more slowly, if at all. The four recommended designs would each motivate private capital to rapidly and efficiently decarbonize California's fuel system.

<u>The Auto-Acceleration Mechanism will promote a healthy, stable investment environment by continuously calibrating the LCFS's ambition</u>

We applaud CARB for including the AAM in the rulemaking proposal. The AAM will allow the market to expediently self-correct such that investors like us can have confidence to continue to deploy capital into the technologies needed for this program to continue its success in driving decarbonization of California's transportation sector. While we are excited about the inclusion of the AAM, there are several key points where CARB can improve the design to ensure that the mechanism functions as intended.

Implementation of the AAM should be moved up by a year to reflect the mechanism's ongoing structure as proposed in the ISOR.

CARB's proposed timeline for implementing the AAM currently has 2028 as the first year in which the AAM can amend CI reduction targets. If we treat the step-down planned for Q1 2025 as a manual iteration of the AAM (caused by 2023 overperformance) and apply CARB's logic on suspending the AAM the year after it activates, 2024 should be ineligible for AAM activation but 2025's performance should be able to trigger the mechanism. A 2025 triggering would impact CI targets in 2027, one year prior to when the ISOR currently proposes. We recommend adjusting the implementation timeline accordingly.

The 75% bank-to-deficit trigger is too high and would allow for the types of market dislocations such as we have seen over the past two years.

The proposed design for the AAM includes a trigger when the ratio of a given year's ending credit bank divided by the total deficit production in that year exceeds 75%. The issue with this is that a 75% bank-to-deficit ratio would be quite high in other commodity markets (where that metric is often referred to as the stock-to-use ratio).[5] Over the past 30 years, typical stock-to-use ratios in commodity markets have been below 40% and often under 10%.[6] To this point, in 2022 – a year in which the credit bank expanded by 55% and credit pricing fell by 54% – the AAM would not have been triggered under the proposed design with the bank-to-deficit ratio at "only" 71%.[7]

To support stable pricing in the LCFS market – and thereby allow investors to properly underwrite long-term investments into infrastructure projects – CARB would be well served to adjust the threshold for triggering the AAM to a bank-to-deficit ratio of 50%. This would allow the AAM to capture periods such as 2022 and adjust the targets of the program accordingly.

<u>While CARB has made progress in its proposed changes to RNG's treatment under the LCFS, there are additional amendments needed regarding avoided methane crediting and true ups to ensure private capital will target and prevent methane emissions</u>

CARB has shown leadership in arriving at a productive policy determination on RNG's treatment under the LCFS program. LCFS is fundamentally a technology-neutral policy which asks the market to determine the best and fastest way to decarbonize transportation. Avoiding prescriptive policy choices is key to allowing the market to do this efficiently and efficaciously. By protecting this ethos through this rulemaking, CARB is giving confidence to investors and project developers that their technology will not suddenly be eliminated from LCFS eligibility.

We endorse the comments from Amp Americas, the RNG Coalition, and the American Biogas Council on CARB's proposals regarding RNG.

CARB should condition phasing out avoided methane crediting on regulation of methane emissions.

Generate views preventing the emissions from agricultural methane to be no more or less valuable than preventing any other type of greenhouse gas emission, adjusted for global warming potential. The methane emitted is real, and solutions are needed to mitigate those emissions. While it is tempting to exclude certain emissions from our inventory, the climate

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[5] Zulauf, et al. University of Illinois. *Stock-to-Use Ratios of US Corn, Soybeans, and Wheat Since 1960.* June 2021.
[6] Ibid
[7] California Air Resources Board. *LCFS Quarterly Data Spreadsheet*. January 2024.

does not care what laws we pass or what emissions we choose to ignore, only what gases we put into it. As such, we suggest that CARB amend the proposal phasing out avoided methane crediting by 2040 for projects breaking ground in 2030 or later to be conditioned on direct regulation of these methane emissions. This would ensure that emissions do not suddenly increase in 2040 as the existing operating model for projects falls away.

True ups to credit production are welcome and should be extended to Temporary Pathways, but the 4x penalty for overproduction will be an impediment to investment and to decarbonization.

The clarity CARB has provided on "true ups" for RNG is valuable. This will better reflect the actual GHG impact made by each project, ensuring projects are not over- or under-compensated for the climate impact they make. With that said, we would like to see two changes to the draft language. First, as the RNG Coalition notes in their letter, it is unclear why CARB has changed its approach from what was discussed at public workshops regarding true ups for projects utilizing Temporary Pathways. As with latter pathways, the idea is only to correctly allocate value based on real-world climate impact. Second, it is unclear why CARB has proposed a 4x penalty for overproduction of LCFS credits. As staff is likely aware, conditions outside of the control of an investor or an operator can materially impact an RNG project's output and thereby its LCFS credit production. For example, warmer conditions than normal can increase an anaerobic digester's output, resulting in over-production of credits. CARB's proposed 4x penalty is overly harsh and aims to prevent something outside of any operator's control. Instead, we suggest a bidirectional true up, with penalties only for intentional misrepresentations, fraud, or consistent and egregious overproduction.

<u>Closing Comments</u>

In summary, we are pleased with the process CARB has undergone over the past two years and with many of the policies CARB has included in the proposed regulation. With that said, we would like to see CARB continue to push the market to decarbonize California's transportation system faster. In particular, we would like CARB to consider the following proposals:

- Amending the timing of the step-down to 7/1/2024 and updating the step-down's magnitude to a minimum of 21.50%;
- Increasing the 2030 CI reduction target to at least 32%;
- Using an AAM design that will trigger at a 50% bank-to-deficit ratio and beginning the AAM one year earlier than proposed, and;
- Conditioning the phase out of avoided methane crediting for RNG on regulation of methane emissions and adjusting the design of credit production true ups.

Generate appreciates the opportunity to provide commentary and suggestions and looks forward to collaborating with CARB. Should you have any questions about the information contained herein, please do not hesitate to contact us.