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VIA ELECTRONIC FILING

Ms. Cheryl Laskowski, Branch Chief - Low Carbon Fuel Standard
California Air Resources Board, Industrial Strategies Division - Transportation Fuels Branch
1001 I Street
Sacramento, CA 95814

Re: Anew Climate, LLC comments to the Public Low Carbon Fuel Standard Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard, July 7, 2022

Dear Ms. Laskowski:

Anew Climate, LLC (Anew), formerly known as Element Markets and Bluesource, is one of the largest climate solutions providers in North America with an established track record of participation in California's various sustainability programs, including the Low Carbon Fuel Standard (LCFS). We appreciate the opportunity to provide the California Air Resources Board (CARB) with comment on the topics presented in the July 7, 2022 Public Workshop to Discuss Potential Changes to the LCFS Regulation (the Workshop).

Carbon Intensity Target Adjustment

As CARB highlighted during the Workshop, California's LCFS program is a success and is over-performing. The credit market that CARB created has incentivized unprecedented investment into the state's low-carbon fuel supply and achieved decarbonization of fuel production, fuel switching and infrastructure development in combination with other incentives– all of which are emblematic of successful policymaking.

By considering stronger carbon intensity (CI) targets through and post 2030, CARB is appropriately recognizing that without swift and confident stewardship the LCFS program runs the risk of falling victim to its own success through the overgeneration of credits. As an active participant in various environmental commodity markets, Anew is witnessing first-hand how depressed pricing in today's LCFS market is affecting investment decisions and hindering capital allocation. While CARB's announcement of its intent to adjust CI targets is an important first step to correct the course of the credit market and the decarbonization efforts it supports, clear and unequivocal signaling on the strengthening of CI targets and swift implementation of the adjustments is of pivotal importance.

We strongly support CARB working based on Scenario B (the 30% CI reduction target) toward revised LCFS CI benchmarks. We note that while a 30% reduction target may be appropriate to ensure that the program keeps up with the pace of faster than anticipated fuel decarbonization and fuel switching, it is not sufficient to address increased generation from crediting mechanisms introduced by this rulemaking process or that will ramp-up significantly in and after 2024. Namely, measures such as the introduction of Hydrogen Refueling Infrastructure ("HRI") crediting for medium and heavy-duty vehicles with a separate cap that is additional to current HRI and FCI crediting caps, deployment of carbon capture and sequestration in fuel value chains (also increasingly incentivized by federal programs), direct air capture, and increased sustainable aviation fuel participation in the program will accelerate LCFS credit generation beyond current trends driven by rapid EV deployment, renewable diesel and manure biomethane supply increases.

Anew applauds CARB's leadership in incenting decarbonization through the LCFS program and we certainly do not suggest limiting any of the above initiatives. Instead, we note that CARB's suggested increase of the 2030 CI reduction target to 30% will only account for the effect of current trends in over-generation (such as rapid EV deployment, renewable diesel and manure biomethane supply increases) and that additional measures to quantify and account for future crediting growth (through programs such as MHD HRI) are needed. We request that instead of limiting the CI target adjustment to the flat Scenario B outlined in the Workshop, CARB quantify additional credit generation from new crediting measures to be reflected as additional CI target increases.

With CI targets under LCFS currently set to plateau starting 2030, we believe that CARB will soon find itself facing the same challenges that exist today with respect to incentivizing continued investment in decarbonization unless it proactively cultivates investor trust by setting CI target reductions through 2045. We appreciate that anticipating low carbon fueling trends over a 20-year period is fraught with the risk of inaccuracy, however we propose that precisely projecting the CI of California's fuel mix – especially in the tail end of the 2045 compliance curve – is not of the highest priority. CARB has and continues to demonstrate a continued commitment to update its key programs, and we believe that targets set during the current rulemaking may be adjusted in subsequent program updates. What is of vital importance today is that decisionmakers in low carbon fuel development trust the long-term future of the LCFS program and its support of impactful decarbonization investments. Accordingly, we suggest that setting firm annual standards through 2035 (which is approximately the length of two usual "rule update cycles" beginning in 2024) followed by a transition to 5-year goal setting through 2045 that is consistent with the trajectory of current CI benchmark reductions is appropriate. Post-2035 annual CI targets could then be set during subsequent program updates with the 5-year targets serving as guideposts. We urge CARB to avoid underestimating the importance of long-term stability and trust in the LCFS program and to cultivate that trust by proceeding with ambitious target setting through 2045.

CI Curve Trajectory

In the Workshop, CARB staff solicited stakeholder feedback on what the appropriate scheduling of CI targets should be through and beyond 2030 (i.e. what the shape of the CI benchmark curve should be going forward). We believe that a steady curve with a constant slope is appropriate through 2045, once the excess LCFS credit bank present in the current market is mitigated. To achieve this, we request that CARB introduce steeper CI reduction targets in the years 2024, 2025 and 2026 with a cumulative additional "dip" in these years equaling the credit bank's total increase in the years 2021, 2022 and 2023. Once the excess credit bank is resolved (beginning in 2027), we suggest straightening the curve to provide for even progress toward the 2045 target.

More Responsive CI Target Balancing

Even after the CI target adjustment measures implemented by CARB as part of this rulemaking are taken into account, today's LCFS market will largely remain unaffected through 2024 and oversupply will continue to deter clean fuel investment. The credit bank is increasing under the program today, so while these measures contribute to long-term stability and trust, market participants will prioritize current and short-term credit positions when making decisions about credit procurement. A more responsive approach is needed to maintain market momentum as the rulemaking process continues. In addition to the CI target setting considerations above, we request that CARB implement a transparent, predictable and responsive mechanism that contributes to the balance and predictability of the LCFS credit market in the short term as described below.

To adjust for surplus LCFS credit bank increases relative to the targets, in years where the cumulative LCFS credit bank at year end is greater than a set percentage (we suggest 25%) of the annual deficits incurred and the credit bank has grown versus the prior year, we propose adjusting the slope of the CI target curve for the following year by the Bank Growth Ratio calculated as follows:

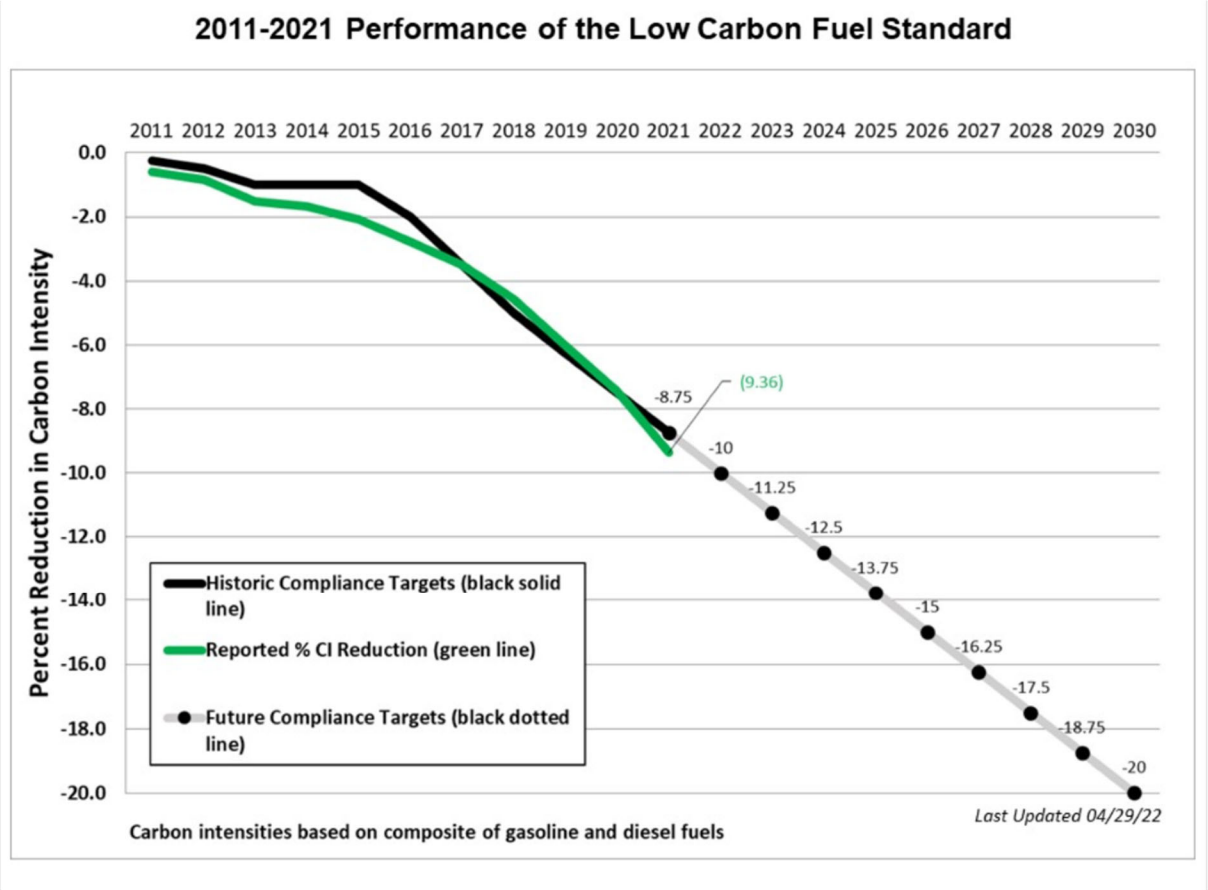
$$[Bank\ Growth\ Ratio] = \frac{[Annual\ change\ in\ credit\ bank]}{[Total\ annual\ deficits\ incurred]}$$

$$[New\ CI\ Target\ ] = [Prior\ Year\ CI\ Target]\ minus$$
$$[(1 + Bank\ Growth\ Ratio) \times (Preset\ Annual\ CI\ Target\ -\ Prior\ Year\ CI\ Target)]$$

For example, diesel CI score targets are currently reduced by ~1.25 CI points per year. Between 2020 and 2021, the Bank Growth Ratio was equal to 6.9% and the year-end bank balance was 9,456,861. The 2021 total annual deficit was 18,848,688, with the bank exceeding the suggested 25% threshold. If this mechanism was in place, the new 2022 target diesel CI would have been reduced from 90.41 (-1.25 vs 2021) to 90.32 (-1.34 vs 2021). The same percentage-based

adjustment would be applied to the gasoline target. Under this mechanism, if the bank balance decreases in the following year, the target would revert back to the original reduction trajectory.

A visual representation of our concept is provided below - if the green line in the chart is lower than the black/gray line, then the following year's CI target will follow the green line's trajectory, until such time that the green line realigns with the black/gray line. At that point, the targets will revert to the original reduction trajectory.



Source: CARB LCFS website. Figure 1 of Data Dashboard. Retrieved 8/4/2022

Extend Book-and-Claim Eligibility for Biomethane Beyond CNG/LNG and Hydrogen Production

CARB's measures to establish a clearly defined and regulated framework for the delivery of pipeline-injected biomethane without regard to physical traceability has been a resounding success in increasing robustness of the program and removing transactional bottlenecks in the development of the biomethane industry. Thanks to this approach, almost all CNG and LNG transportation fuel in the state is renewably sourced with an increasing proportion of carbon negative fuel supply. Similarly, much of the hydrogen used in California fuel cell vehicles is derived from biomethane.

While these are excellent results, the limited scope of LNG, CNG and hydrogen use as transportation fuel presents a significant demand barrier to continued decarbonization via the

capture of highly GHG-potent methane gas. The production of biomethane outpaces CNG, LNG and hydrogen deployment and thus biomethane has limited outlets in California for LCFS participation. This is compounded by California's ZEV mandates which phase out CNG and LNG transportation fuel deployment, creating misalignment between LCFS program's current incentives and other major areas of California transportation fuel policymaking. Given that CARB identified alignment of LCFS incentives as a high-priority topic for the upcoming rulemaking, we urge CARB to remove this unnecessary bottleneck from the decarbonization of electric vehicle charging and other transportation fuel value chains.

Given the successful track record of book-and-claim delivery so far, CARB should extend the use of this impactful tool for end uses of biomethane beyond CNG, LNG and hydrogen. This would remove the currently existing barriers to continued growth of the biomethane industry and have synergistic effects on the development of novel transportation fuel value chains that may rely on biomethane as a feedstock for further decarbonization. CARB has identified many of these novel applications and suggested adding them as opt-in fuels under LCFS during the Workshop.

Similarly, the 2022 Scoping Plan Update[1] addresses the likely shift from biomethane's current CNG and LNG-centric role in California's ZEV future, while emphasizing its pivotal contribution to the reduction of methane emissions and as an energy feedstock. Extending book-and-claim eligibility would be in line with this strategic vision.

At a minimum, book-and-claim delivery of biomethane should be possible for biomethane used in power generation, ammonia, dimethyl ether and methanol production. California EV drivers and adopters of novel fuel technologies should be given the opportunity to harness the benefits of low and zero-carbon fueling of biomethane-derived fuels.

We recognize that extending book-and-claim eligibility of biomethane to EV charging and other more complex value chains may increase the perceived challenges of its application. For example, biomethane may be delivered to power production via book-and-claim, and the resulting electricity may also be delivered through the grid via book-and-claim. This "double book-and-claim" scenario can create an inference of increased regulatory oversight challenges. However, we encourage CARB to look beyond these surface-level optics. Anew has been successfully transacting in these value chains for over a decade and has seen the maturation of the tools available, both in frameworks developed by regulators and market participants. We believe that the book-and-claim provisions and verification system under LCFS are mature and robust enough to reliably implement multi-step value chains without any major changes necessary. We are firm believers that decarbonization demands complex, sophisticated and diverse solutions; and perceived administrative challenges should not hinder California's journey to a low carbon transportation future.

[1] CARB. May 10, 2022. "Draft 2022 Scoping Plan Update"

Adoption of a Crop Cap and Strengthening of ILUC Modeling

We agree with CARB's assessment in the Workshop that the significant increase in lipid-based feedstock for biofuels is indeed an area deserving careful analysis followed by decisive action. The food vs. fuel conflict and indirect land use change impacts are some, but not all of the key considerations pertinent to this topic. We believe that at least two additional areas – equity and alignment of LCFS incentives – must be of priority as well.

To the extent that biofuels are produced from waste streams or regenerative agricultural practices, efficient and sustainable use of precious resources and implementation of a circular economy are benefitted and thus these value chains should be supported. However, today's lipid-based biofuels rely heavily on redirecting carbon-intensive agricultural products from their other potential uses and thus consume fundamental resources. The market effect of the transportation-facing consumption of these basic resources is paid by every member of society, regardless of whether they consume a high, low or no amount of transportation fuel. An important equity component is thus part of the food vs. fuel consideration, which should not be overlooked.

Furthermore, CARB highlighted the importance of aligning LCFS incentives along with long-term decarbonization. With ZEV incentives and mandates prevalent in current California policymaking, including FCI and HRI crediting within the LCFS program, limitation of crop-based fuels is appropriate to avoid any structural discrepancies (such as slowing or reversal of fuel switching) in the market signals these incentives send.

In accordance with the above, we support CARB's suggestion for the inclusion of a "crop cap" in the LCFS program and propose that this can only be impactfully implemented with continued strong and science-based emphasis on land use change impacts within carbon intensity modeling.

Introduce Measures to Decrease Pathway Approval Process

Today, many production facilities looking to introduce their low-carbon fuel to the California fuel pool face pathway review and processing times of up to one year. In addition to the many different challenges that new fuel production projects face – technological, operational, financial, market and other risks – the added burden of a significant administrative delay to their essential LCFS credit cashflow may be the deciding factor between livelihoods and emission reductions maintained vs. lost.

Anew recognizes CARB staff's dedication, professionalism and efficiency in the day-to-day work with LCFS pathway applicants. We also see the significant improvements in the third-party verification process achieved since its introduction to the program and understand that a certain timeframe is necessary to build experience and ramp up speed of these processes.

We caution however, that the expectation of the buildup of institutional experience alone will de-bottleneck the pathway application process is fraught with risk. We suggest that CARB make

minor adjustments to the pathway application process – especially that of Tier 2 Pathway Applications – which have no expected effect on program robustness, but bring tremendous potential to overcome pathway application bottlenecks and maintain investor trust in LCFS program participation. Below we provide three groups of suggestions:

Less CARB Touchpoints During the Application Process

The introduction of validation and verification bodies to the LCFS program has been a resounding success not only to program compliance and ongoing verification, but efficiency of pathway applications as well. The validation process in now a well understood, robust process where pathway applicants can work with a CARB-accredited and overseen, trained third-party professional who is fully capable of implementing the checks and balances necessary to preserve accuracy and impact of the LCFS program.

Currently, the Tier 2 Pathway Application process limits the use of third-party verifiers and includes at least two touchpoints between CARB staff and the pathway applicants – one before third-party validation and another after. We suggest that CARB increases utilization of third-party verifiers, especially Tier 2 Pathway Applications, and limit drain of CARB staff's time to final, high-level review of the application after third-party verification is complete.

Fewer Tier 2 Applications

Currently, the applicability of the Tier 1 Pathway Application process is very limited. This includes pathway types for which well-understood and implemented CI calculators are available, and even the slightest adjustment to the pathway modeling or Excel formulas of the calculator qualifies the application as Tier 2. The Tier 2 Pathway Application process is an essential part of the LCFS program, which allows for the inclusion of novel fuel value chains into the LCFS program – we request that the practice of applying it to slight tweaks of existing pathways be discontinued, so that the appropriate focus may be placed on truly innovative applications while pathways for which sufficient experience and guidance is available are not unnecessarily delayed.

Increased Application and Use of Guidance Documents

Significant knowledge and experience exists regarding how to address situations specific to the pathways of certain fuels during life cycle analysis and the pathway application process. We believe that the increased publication and institutionalization of this knowledge could greatly enhance the efficiency of pathway applications.

If "lessons learned" from every pathway application are readily available to producers preparing their pathway applications, they could use this knowledge to perform life cycle analysis and prepare application packages in a way that allows them to move through the application process more efficiently. Furthermore, the important benefit of avoiding "double standards" (where different guidance is received by applicants from CARB staff for the same situation) could be created by having clear, public situation-specific guidance.

Tying into our comments regarding Tier 2 Pathway Applications above, public guidance documents may be used to establish adjustments to Tier 1 calculators (such as formulaic improvements, transport distance adjustments, etc.) that have been thoroughly mapped out and as such would not require going through as Tier 2 process.

In summary, we believe that CARB's guidance documents have been a very good resource to the LCFS program in general and we encourage CARB to increase the reliance on them and widen how they are applied across the program and to improve the efficiency of pathway applications.

Recognize Regenerative Agriculture Carbon Benefits through Site-Specific Agricultural Inputs

The LCFS program has great potential in charting the course towards accurate carbon accounting in the agricultural sector. Allowing industry participants and innovators to leverage quantifiable carbon reductions achieved through regenerative agricultural practices is the next frontier of California's renewable fuels initiative. Not only would this overdue regulatory update catalyze development and adoption of sustainable agriculture-based fuel value chains leading to California, but also provide a blueprint for other sustainability programs to rely on – greatly contributing to CARB's goal of increasing exportability of the LCFS program.

As CARB has highlighted, some of the challenges of implementing this measure are complex, with key challenges highlighted on the Workshop being safeguards against leakage and resource shuffling.

These challenges may seem especially daunting given that they require an in-depth view into the agricultural sector and are thus somewhat of a departure from the usual focus areas of LCFS program implementation – analysis and tracking of fuel value chains. Accordingly, we suggest that CARB does not focus on the creation of LCFS program-specific tools, but instead leverage existing solutions for the quantification and tracking of carbon emission reductions through sustainable agriculture practices. Below, we suggest some of these readily available tools that CARB could leverage in the essential step of recognizing the carbon reduction benefits of regenerative agricultural practices under the LCFS program.

The existing voluntary offset market for regenerative agricultural practices that uses 3rd party independent registries of recognized standards (such as CAR, VCS, VERRA, ACR) can play an important role in the quantification of reductions and sequestration for the purposes of CI calculation.

Protocols such as the VERRA Improved Agricultural Land Management Protocol (VM0042) and the CAR Soil Enrichment Protocol (SEP) provide the integrity in the permanence, additionality and verifiability of carbon reductions and sequestration which are necessary to their recognition for CI benefits under the LCFS program.

By requiring a credit using one of these accepted protocols and associated directly with regenerative practices within the specific supply chain of the biofuel in question to be surrendered for every tonne of reduction or sequestration claimed from regenerative practices

as part of fuel life cycle analysis, CARB can protect against double-counting of such carbon reduction benefits. This concept has already been successfully used by CARB in the implementation of methane avoidance benefits for dairy and swine manure-derived biomethane.

Safeguards against leakage or resource shuffling are inherent to each of the protocols described above and may be used to enhance the currently existing life cycle analysis methodology. These protocols use either:

a) process models that refine the inputs of the models used to generate regional/national averages to derive emissions factors for specified regenerative practices; or

b) actual soil organic carbon measurements year-on-year.

The greater frequency, granularity, and accuracy of both the model refinements or soil carbon measurements may inform the broader factors used in CA-GREET for the calculation of regional and national averages. As such, the regional and national averages used by CA-GREET will, over time, adjust to incorporate emissions reductions and sequestration from the adoption of regenerative practices. USDA currently provides updates to these models every 5 years, ways could be explored to incorporate a more continuous and granular basis for data inclusion from offset projects to adjust the regional and national averages used within CA-GREET.

When granting agriculture-derived carbon reduction benefits to fuel pathways, the reliable tracking and assignment of feedstock presents itself as an important consideration for program robustness. Double-counting of benefits and unfounded claims on feedstock procurement are just two challenges to overcome.

We do believe that the Specified Source Feedstock provisions present in the LCFS today provide the sufficient foundation for robust tracking and verification of regenerative agriculture-derived feedstock. If deemed necessary, however in this area there are solutions readily available for incorporation into the LCFS program. Some of the programs operating in the European Union referenced by CARB during the Workshop already leverage schemes that achieve source-to-sink tracking of feedstocks and renewable fuels. The European Commission maintains a list[2] of voluntary schemes (i.e. audit programs operated by private companies, in accordance RED II regulatory requirements) approved for use in Member States' renewable fuels programs, many of which are already in successful use in US value chains for various low-carbon feedstock.

Revise 75% Landfill Gas Capture Efficiency in Diverted Waste Lifecycle Analysis

CARB is basing their current life cycle analysis approach (e.g. as part of the Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Organic Waste) on the assumption that all landfills in the US achieve a 75% landfill gas capture efficiency.

[2] https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en

Both the US NASA, NOAA, and other agencies, including the EPA, have reported that landfill gases are rarely properly capped. Large amounts of greenhouse gasses are continuously leaking from all landfills at high amounts, significantly exceeding the 25% considered by CARB.

Anew asks that CARB consider reducing the assumed methane capture rate of 75% to a more conservative percentage.

Support MHD HRI

We support the creation of a Hydrogen Refueling Infrastructure program within LCFS facing medium and heavy duty vehicles. We emphasize that while supporting the development of ZEV and associated fueling value chains deployment alone is deserving of the support suggested by CARB, enabling the use of hydrogen as an energy carrier will also have synergistic and multiplicative effects on the development of several clean fuel industries, such as biomethane used for the decarbonization of hydrogen.

Thank you for consideration of our feedback and we look forward to working with CARB staff during the rulemaking process.

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