NOYES LAW CORPORATION
FUEL & CARBON LAW

February 20, 2024

Liane Randolph
Chair, California Air Resources Board

Steven Cliff
Executive Officer, California Air Resources Board

1001 I Street
Sacramento, CA 95814

Comment submitted electronically

RE: Low-CI Power Coalition's Comments on Proposed Low Carbon Fuel Standard Amendments.

Dear Chair Randolph and Executive Officer Cliff:

Our diverse group of low carbon fuel producers and developers, including Blue Arrow, Eco Energy, Fulcrum BioEnergy, Growth Energy, the Renewable Fuels Association, POET, Velocys, and World Energy (collectively, the "Low-CI Power Coalition") offers the following comments on the proposed amendments to the Low Carbon Fuel Standard ("LCFS") ("Proposed Regulation Order"). As reflected in the attached Appendix 1, these leading-edge companies utilize a diverse range of low carbon feedstocks and advanced process technologies to produce the low carbon fuels of the future including ethanol, renewable diesel, renewable naphtha, and sustainable aviation fuel.

These comments respond to the proposed revisions to Section 95488.8(i)(1)(C), which would allow wholesale power contracting as part of a narrow set of fuel pathways (certain hydrogen pathways and direct air capture projects). These comments explain why the proposal should apply to a broader set of low carbon intensity ("Low-CI") alternative fuels, and why excluding these fuels is arbitrary and contravenes the California Air Resources Board's ("CARB's") own policy seeking to accelerate rates of deployment of clean technology and fuels identified in the scoping plan.[1] While we are broadly supportive of many aspects of the Proposed Regulations, we are deeply concerned that the Regulation will not achieve all cost-effective emission reductions and will leave federal money that could be directed to clean energy development in California on the table. For reasons discussed in our pre-rulemaking comments, CARB should amend Section 95488.8 to ensure that all alternative fuels can achieve incremental

[1] 2022 Scoping Plan Update, at 182.

emission reductions when their alternative fuel source leads to new electricity demand.[2] This approach (the "Low-CI Proposal") is workable and consistent with CARB's objectives and stated policies supporting the optimal use of Low-CI resources to help meet California's climate goals.

DISCUSSION

I. CARB Should Expand Low-CI Power Provisions in Section 95488.8(i)(1)(C) to include a Broader Set of Tier 2 Applications.

The Low-CI Proposal is straightforward, designed to avoid any concerns about resource shuffling, and is simple to implement. As described in our June 6, 2023, comments, the Low-CI Proposal would allow for review of eligible new Low-CI power sources that are contracted by fuel pathway holders and delivered via the grid. The fuel pathway holder would be required to submit documentation as part of a Tier 2 application that it has contracted for one or more new Low-CI power sources under a power purchase agreement ("PPA") or ownership agreement.

Significantly, the contract or ownership agreement would have to meet three essential threshold requirements to ensure additionality, including a showing through the Tier 2 application process that the facility providing Low-CI electricity is not contracted with another buyer or included in a utility resource plan, a showing that the commercial online date of the facility occurs after execution of the PPA or ownership agreement, and a showing that the environmental attributes of the facility cannot be contracted, sold or transferred to any other buyer. The Low-CI Proposal did not include restrictions as to the alternative fuel because the benefits of the proposal can accrue from a range of Low-CI alternative fuels, including renewable hydrogen, renewable diesel and naphtha, ethanol, and sustainable aviation fuel. As described in our comments, the Low-CI Proposal would create additional flexibility for the sourcing of Low-CI power, and thus enable real, additional, quantifiable, verifiable, permanent, and enforceable greenhouse gas ("GHG") emission reductions. It would directly address obstacles that currently restrict pathway holders from reducing their emissions through contracting for Low-CI power sources to meet demand. The net result of integrating the Low-CI Proposal into LCFS regulation would be to achieve additional and permanent CI reductions from the same quantity of alternative fuel, thereby further decarbonizing California's transportation fuel market.

Instead of recommending adoption of the Low-CI Proposal across all alternative fuels, the Proposed Regulation Order includes only a very limited proposal to allow for the use of PPAs for Low-CI electricity for production and processing of hydrogen used directly as a transportation fuel.[3] The Initial Statement of Reasons ("ISR") acknowledges the need to support and encourage renewable and Low-CI hydrogen production to meet demand for decarbonization

[2] See Low CI Power Coalition comment letter submitted by Noyes Law Corporation in LCFS Pre-Rulemaking workshop (June 6, 2023), available at: https://ww2.arb.ca.gov/system/files/webform/public_comments/3666/Low%20CI%20Power%20ARB%20LCFS%20Comments%20w%20Appendices%206%20June%202023.pdf.

[3] Proposed Regulation Order at 148.

in transportation and hard-to-electrify end uses.[4] It further recognizes that concerns about resource shuffling and additionality can be addressed by restricting eligibility to new or expanded capacity, delivery to the local balancing authority, and resource matching.[5] But there is no discussion justifying or explaining why the modified Tier 2 application process should be limited to hydrogen and direct air capture projects.

As there are clear benefits to be achieved through adoption of the Low-CI Proposal, and no identified justification for the Proposed Regulation Order's narrowing it to address only hydrogen and direct air capture projects, the Board should adopt the broader version proposed in the Low-CI Proposal.

a. <u>Low CI Power achieves CARB's fundamental policy goal of carbon neutrality by 2045 and will lead to material, additional emission reductions irrespective of the type of fuel that claims LCFS credit.</u>

i. Electricity demand (load) from alternative fuel producers will grow irrespective of whether the LCFS regulation allows book-and-claim for Low-CI power.

In the absence of an explanation, it is difficult to understand why the Proposed Regulation Order would forego a clear opportunity to enable incremental emission reductions that can be provided by eligible, available Low-CI alternative fuels. Under the existing LCFS procurement limitations, low carbon fuel production facilities have no practical alternatives other than to source power from a utility or other load-serving entity ("LSE"), which is likely to increase GHG emissions on a marginal basis. Direct connection of Low-CI energy (under existing regulations), is severely limiting and negates cost effective emission reductions that are otherwise available through wholesale contracting.

Marginal emission rates vary by market and are generally the greatest during peak conditions. Allowing a fuel pathway holder to enter into contracts for new, additional Low-CI power sources that are not already contracted for other purposes provides additional emission reductions regardless of the type of fuel that claims the LCFS credit. By restricting the current proposed amendments to hydrogen used as a transportation fuel, the Proposed Regulation Order is limiting potential emissions reductions, since electricity demand from alternative fuel production facilities will grow in any event, and the substantial majority of that demand will be met by system power instead of Low-CI Power.

This outcome directly contravenes the statutory requirements governing the program. Section 38510 of the California Health and Safety Code charges CARB with the responsibility for monitoring and regulating GHG emissions. Section 38560 is the primary statute that provides authority to CARB to implement the LCFS. That section provides that "[t]he state

[4] ISOR at p. 34.

[5] Id.

board shall adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions from sources or categories of sources, subject to the criteria and schedules set forth in this part." The proposed narrow application of the Low-CI power rules contravenes this statute because the LCFS regulation would not maximize emission reductions that are cost effective.

The purpose of the LCFS regulation is to reduce the carbon intensity of transportation fuels used in California and to "incentivize the production of low-carbon and renewable alternatives, such as low-CI electricity and renewable hydrogen, and biofuels to displace fossil fuels and allow more energy security in the transportation sector."[6] While renewable hydrogen used in fuel cell electric vehicles ("FCEVs") is without question a key resource to be supported through the LCFS, there is no need to forego opportunities to support other Low-CI alternative fuel sources. The 2022 Scoping Plan does not only call for scaling up hydrogen production, but more broadly for the "aggressive reduction of fossil fuels *wherever they are currently used in California*, building on and accelerating carbon reduction programs that have been in place for a decade and a half."[7]

The Low-CI Proposal was designed specifically to address market barriers that are currently limiting the integration of new, additional clean energy resources. It is aimed at achieving additional incremental emissions reductions at a time when accelerating climate change demands that we do so immediately, and at scale.

b. <u>A Broader Scope of Low-CI Power Rules Would not Disrupt the Availability of Clean Energy and Capacity for Other Demands.</u>

We appreciate the state has ambitious low-CI power targets and there are concerns about the ability of the state to keep up with demand for low-CI power. This Low-CI Proposal has been designed to protect power markets and to ensure availability of new power for other decarbonization strategies, such as vehicle electrification. These concerns are adequately addressed by the power contracting requirements already proposed for hydrogen and DAC. Among other requirements, the Proposed Regulation Order for Low-CI power contracting would set a quarterly balancing requirement of electricity demand from the fuel production and generation from the Low-CI power source. By proposing a quarterly balancing requirement, the proposed regulations make a fundamental distinction in how Low-CI power would be contracted under the LCFS. The proposed revisions to Section 95488.8(i) would require the fuel pathway holder to purchase energy and match that energy to load over a reporting period (i.e., a quarter). The fuel pathway holder would not need to ensure that power is "deliverable" during peak conditions. As explained below, deliverability requirements are the primary driver of delays in the power sector.

Power plants generate two products that are frequently purchased pursuant to PPAs: energy and capacity. Under the proposed revisions to Section 9588.8(i), CARB would require

[6] ISR at 6.

[7] 2022 Scoping Plan Update, Executive Summary at 1.

energy matching, not capacity. Because the Proposed Regulation Order only requires energy matching, the power plants retain the ability to supply capacity to load serving entities that may need the capacity to satisfy their reliability objectives and load growth. In recent years, the timely development of new network upgrades needed to transact capacity for reliability requirements has contributed to concerns about the ability of the state to develop sufficient new power plants to meet the pace and scale of Low-CI power development contemplated in the 2022 Scoping Plan. Power plants that only require "energy-only" status are generally not affected by the same delays as projects seeking FCDS. While these "energy-only" projects must still meet interconnection requirements, these projects are generally only reliant on the interconnection facilities required for the project itself, not for network upgrades that are shared with many other interconnection customers all trying to sell capacity for reliability.

As this discussion highlights, concerns that enabling broader Low-CI power sourcing authorities to alternative fuel producers would create material risks of disrupting the market for capacity are not grounded in the details of CARB's own proposal for quarterly matching of energy. Nothing in Section 95488.8(i) requires a Low-CI power contract to provide fully deliverable capacity. Rather, the pathway applicant simply must demonstrate that over the course of a quarter, the power plant generated enough electricity to match the demand of the fuel production facility. It is anticipated that energy-only projects would be procured under the Low-CI Proposal without affecting the supply of capacity that LSEs need to meet their reliability obligations or negatively impacting known load forecasting requirements for transportation electrification.

c. Power-plant Development in California Is Subject to Extensive Planning Requirements, Which Help Ensure that New Sources of Demand do Not Compete for Power at the Wholesale Level.

As noted above, fuel-related electricity demand was extensively evaluated in the 2022 Scoping Plan Update and in prior iterations of the Scoping Plan process. CARB has evaluated the displacement of fossil fuels, driven by the growth of a variety of alternative fuels with varying timelines. The Scoping Plan process sets a high-level trajectory for various planning processes, including GHG target setting for the Integrated Resource Planning ("IRP") and also informs the California Energy Commission ("CEC") load forecasting process. Utilities must also account for their own projected load growth in the context of their load forecast filings to the CEC. These forecasts in turn inform the utilities' procurement of power plant capacity. The load forecasting feeds into the CPUC's IRP and the SB 100 process to ensure the utilities are planning for adequate capacity reserve margins. The load forecasting process also informs the pace and scale of new power plant development needed to meet the state's climate targets. In other words, the state has processes in place to ensure that LSEs are planning to meet various reliability and clean energy objectives, including supplying a sufficient amount of new capacity to reliably meet the state's electricity demand. As discussed above, incentivizing incremental Low-CI power demand for energy-only projects will not disrupt the state's clean energy build out

because the state's load forecasting and capacity procurement processes are already designed to keep pace with the state's power needs.

d. <u>Broader Low-CI Power Sourcing Would Drive Clean Energy Development in Other States with Shorter Interconnection Queues, Particularly MISO Where Most of California's Low Carbon Fuels Are Produced.</u>

As part of its oversight of the LCFS program, CARB tracks the share of liquid biofuels produced in-state by volume and displays annual information on the LCFS Data Dashboard.[8] Over the reported years from 2011-2022, the share of in-state biofuel production has remained relatively stable at approximately 9-15%. For 2022, the share of in-state production was 14.72%. While the CARB data does not provide more granular data, it is well-known in the industry that most of the ethanol and biodiesel production in the US is concentrated in the Midwestern states while substantial renewable diesel production is located in these states but also in Texas and Singapore where Neste's renewable diesel production facility that serves the western U.S. markets is located. With reference to electricity markets, the largest concentration of US biofuels production overall is located in MISO. According to recent analysis by RMI, clean repowering- deploying clean power using existing fossil fuel power plants' interconnections- can accelerate and reduce costs for the interconnection of renewables. Overall, RMI determined that clean repowering is a 250 GW opportunity concentrated in MISO, PJM and the Southeast.[9]

Because nearly 85% of the liquid biofuel development driven by the LCFS occurs in other electricity markets (e.g., MISO, PJM, ERCOT, etc.), and while there are delays in many interconnection queues across the country, there is no evidence that creating incremental demand for Low-CI energy will exacerbate those delays in the longer term. To the contrary, encouraging incremental Low-CI power in these markets will ensure that grid operators have a broader pool of renewable energy to serve load. Moreover, there are processes in place and underway at the Federal Energy Regulatory Commission and elsewhere to ensure that utilities are meeting the demand for energy and capacity across the country. The LCFS has the potential to send long term investment signals to maximize emission reductions and expand renewable energy production to other electricity markets. CARB should not presume that interconnection delays will persist, that interconnection delays are necessarily applicable to the Low-CI energy-only projects contemplated in Section 95488.8(i), or that the concerns about competition for Low-CI power are uniform across the country. To the contrary, CARB should send positive market signals to incentivize the production of alternative fuels with Low-CI power to the greatest extent possible.

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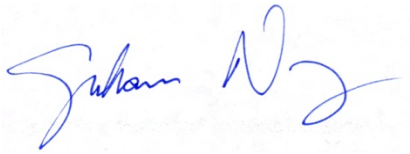
[8] <u>See</u> CARB, "LCFS Data Dashboard," Figure 10a (Share of Liquid Biofuels Produced In-State by Volume 2022), at https://ww2.arb.ca.gov/resources/documents/lcfs-data-dashboard.

[9] RMI, Clean Repowering: How to Capitalize on Fossil Grid Connections to Unlock Clean Energy Growth, January 2024, Research and Analysis Summary at slide 29, available for download at https://rmi.org/insight/clean-repowering/.

Conclusion

The Low-CI Power Coalition appreciates the opportunity to comment on CARB's proposed amendments to the LCFS. We look forward to working with CARB to further tailor and ultimately implement amendments to the LCFS regulations.

Sincerely,



Graham Noyes
Noyes Law Corporation

APPENDIX 1

Low-CI Power Coalition member companies:

Blue Arrow is the exclusive technology licensee in Mexico, Brazil and elsewhere of Fulcrum Bioenergy, Inc. Blue Arrow's and Fulcrum's plants combine multiple proven and established industrial processes into a patented system that converts waste into zero-carbon synthesis crude. The syncrude is then upgraded at a refinery to zero-sulfur SAF.

Eco Energy is a leading clean energy solutions company for over three decades, focuses on reducing emissions through the promotion of low-carbon renewable fuels and products. The Eco-Energy Solar team is the trusted advisor in achieving sustainability goals for our partners by offering custom projects, including solar design and engineering. In an evolving, climate-conscious economy, Eco-Energy is leveraging its core businesses in marketing, trading, and logistics of ethanol and natural gas across the US, Canada, and abroad.

Fulcrum BioEnergy is a clean energy company pioneering the creation of renewable, drop-in transportation fuels from landfill waste, and is currently commissioning a facility in Reno, Nevada.

Growth Energy represents producers and supporters of biofuels who are working to bring consumers better choices at the fuel pump, grow America's economy, and improve the environment for future generations.

POET is the world's largest producer of biofuel and a global leader in sustainable bioproducts, creating plant-based alternatives to fossil fuels that unleash the regenerative power of agriculture and cultivate opportunities for America's farm families.

Renewable Fuels Association is a national trade association for America's ethanol industry, driving growth in sustainable renewable fuels and bioproducts for a better future.

Velocys is an international Sustainable Aviation Fuel (SAF) technology company with offices in the US and UK. Velocys' technology enables the conversion of various cellulosic feedstocks, including woody biomass residues and municipal solid waste, into low or negative carbon intensity transportation fuels. Velocys broadly offers its technology to the marketplace, and is developing the Bayou Fuels project in Natchez, MS as a commercial reference plant. Velocys has secured offtake commitments for 100% of the SAF from Southwest Airlines and IAG (parent of British Airways) with plans to supply this fuel for uplift in California.

World Energy is a low-carbon solutions provider focused on helping the world's leading companies make their net-zero commitments real. World Energy's solutions include sustainable aviation fuel, renewable diesel, and renewable naphtha, with plans to create renewable propane and green hydrogen.