

California Air Resources Board

Public Hearing to Consider Amendments to the Low Carbon Fuel Standard

Final Statement of Reasons for Rulemaking

Appendix A Summary of Comments and Agency Response

Public Hearing Date: November 8, 2024

Agenda Item No.: 24-6-2

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A. General Support

A-1 Multiple Comments: *General Support for the Proposed Amendments*

Comment Summary: Strongly support the proposed amendment package and urges adoption. (45d-094.1)

Comment: Please lower the carbon fuel standard. (45d-105.1)

Comment: Please consider the low carbon fuel standard. (45d-107.1)

Comment: Please consider this amendment now and help protect our children and communities!! (45d-114.1)

Comment: Please do not slither backwards on low carbon fuel standards. You have been par tof California's leadership in fighting climate change.

Do Not Give Up Now! (45d-129.1)

Comment: Dairy Cares is broadly supportive of the proposed amendments, including updates to the environmental targets and alignment with Short Lived Climate Pollutant ("SLCP") reduction laws. (45d-245.1)

Comment: Secondly, we support CARB in proposing potential changes to the LCFS program as we believe that the proposed changes make the program more efficient, resilient, and can potentially accelerate investment into many projects contributing further to the decarbonization of the transportation sector. (45d-254.2)

Comment: The Proposed Amendments represent a significant improvement and address many needed revisions to the LCFS regulations.

...

SMUD commends CARB staff for their collaborative approach to updating the LCFS regulation and believes that the Proposed Amendments represent a significant improvement and clarification of the LCFS (45d-291.1)

Comment: We, the 51 undersigned clean fuel businesses and related organizations, write to emphasize our support for the key proposed amendments to the Low Carbon Fuel Standard (LCFS) and urge adoption of several additional amendments that will allow the state of California to effectively achieve climate and clean air goals. (45d-328.1)

Comment: MN8 is largely supportive of the Proposed Regulation Order (The Order) and appreciates the opportunity to offer these comments. (45d-345.1)

Comment: On behalf of the California Transit Association, I write to you today to voice our support for the Low Carbon Fuel Standard (LCFS) amendments package released by the California Air Resources Board (CARB) on December 19, 2023... (45d-355.1)

Comment: In an era of significant financial constraints at state and local levels, we view the LCFS program as a vital incentive for encouraging transit and rail agencies to take early and expansive actions to further clean their fleets and as a critical funding source for offsetting the

persistently high costs of zero-emission operations. We thank CARB for its efforts to continuously improve this program to the benefit of program participants and formally request a series of changes to the amendments package as it moves forward. (45d-355.2)

Comment: The Port of San Diego (District) is pleased to express its strong support for the proposed Low Carbon Fuel Standard (LCFS) Amendments, as presented during the public workshop on August 16, 2023, and detailed in the Standardized Regulatory Impact Assessment of September 8, 2023. (45d-395.1)

Comment: Oberon supports the proposed amendment package and urges Board consideration and adoption by mid-2024. Oberon strongly supports the key concepts for rulemaking including increased stringency of the program to displace fossil fuels, incentivizing more production of clean fuels needed in the future such as low-carbon hydrogen, supporting methane emissions reductions, and deploying biomethane to meet the most crucial needs across transportation and other sectors. (Apr-087.1)

Comment Summary: Various soybean associations are encouraged by the continued successes of programs that support the development of cleaner, low-carbon fuels. California's LCFS has in turn supported rural economies that support the soy value chain. They appreciate the work that CARB has done to update and improve the LCFS. (Apr-085.9, Apr-088.15, Apr-093.17)

Comment: The LCFS is one of California's most effective decarbonization tools. It supports critical investments in EV charging infrastructure needed to meet Advanced Clean Cars (ACC) II and other CARB zero-emission vehicle (ZEV) regulations. Unlike other California policies that incentivize EV charger deployment through one-time capex support, the LCFS provides critical ongoing support for EV charger operations, including maintenance, in a manner that enhances the EV charging experience for all drivers. EVgo appreciates all the effort CARB has made to improve the LCFS to-date, and it is imperative that CARB further strengthen the LCFS in this rulemaking to further accelerate ZEV adoption. (Apr-147.1)

Comment: I am 100% in favor of any Reduced Carbon rules that can be enacted.

Also if California puts the new Rules in place We set the standard and create new clean energy jobs.

This is only good for the California Public. (15d1-001.1)

Comment: I helped develop and enthusiastically support the LCFS. A strong LCFS is critical to helping California achieve its zero emission transportation goals. In the 15-Day Notice, staff have proposed several improvements to the LCFS amendments proposal that I agree with. These improvements include:

- allowing pre-2011 transit to generate full credit,
- classifying forest waste biomass as a specified source feedstock,
- applying sustainability criteria to prohibit biofuel feedstock sourcing from land cultivated after 2008,
- allowing staff to apply more conservative LUC CI values based on source of feedstock,
- limiting avoided methane crediting to 20 years instead of 30 years,

- removing hydrogen produced using fossil gas with CCS as eligible credit generator in 2031,
- and a very weak, short-term signal discouraging soy and canola biomass-based diesel. (15d1-065.1)

Comment: The LCFS program has been an important contributor to helping make transportation fuel more sustainable. The proposed changes demonstrate CARB's continued commitment to improving the LCFS program. BMWNA supports the changes proposed by CARB. (15d1-131.1)

Comment: These minor, targeted changes would go a long way towards enabling additional methane reductions and accelerating progress towards the state's transportation electrification goals, especially in heavy-duty applications where infrastructure-related challenges and delays may be most significant. They would align with CARB's intent to support transitioning biomethane resources from current applications to stationary sources and zero emission vehicle (ZEV) fuels. And they would serve to provide equal treatment among ZEV fuel pathways by allowing for book-and-claim eligibility of biomethane-to-electricity and hydrogen-to-electricity pathways, just as currently is proposed for biomethane-to-hydrogen pathways and as currently exists for CNG, LNG and L-CNG pathways. (15d1-204.5)

Comment: These minor, targeted changes would go a long way towards enabling additional methane reductions and accelerating progress towards the state's transportation electrification goals, especially in heavy-duty applications where infrastructure-related challenges and delays may be most significant. They would align with CARB's intent to support transitioning biomethane resources from current applications to stationary sources and zero emission vehicle (ZEV) fuels. And they would serve to provide equal treatment among ZEV fuel pathways by allowing for book-and-claim eligibility of biomethane-to-electricity and hydrogen-to-electricity pathways, just as currently is proposed for biomethane-to-hydrogen pathways and as currently exists for CNG, LNG and L-CNG pathways. (15d1-204.5)
Comment: We believe the "15-day Package" is a measurable improvement upon previous drafts. The increased step-down percentage, commitment to book and claim, a true-up and numerous citations for the record recognizing the benefits of dairy biogas will be helpful to the market. (15d1-209.1)

Comment: Amp strongly supports amending the LCFS quickly and in a manner that will ensure its ongoing success as a driver of investment in a broad array of low carbon fuels for California, including dairy methane capture projects. We appreciate many of the proposed amendments to the LCFS, but encourage additional, minor amendments through another 15-Day change package to ensure the program can continue to support investment in clean fuels and methane reductions, including at dairies. (15d1-212.2)

Comment: LCFS has the potential to be an incredibly exhaustive tool in our comprehensive strategy to cut emissions from transportation. The Scoping Plan relies on massive emissions reductions from this sector for California to see substantial progress toward its climate goals - acting on lessons learned throughout the program's history cannot be undervalued.

We appreciate CARB staff's work on this topic as we navigate toward solutions that protect climate justice and have potential to positively impact the credit market. The contents of these 15-day changes are a promising step in this robust rulemaking process. (15d1-221.9)

Comment: Any modifications to this program should be carefully designed and considered so not to derail California's leadership in this area. In general, we think the 15-Day Changes continues to move the program in the right direction. We appreciate the thoughtful work staff have done thus far to ensure the correct market signals are sent to incentivize continued investment in low-carbon fuel production. (15d1-249.1)

Comment: We generally support the amended proposal and appreciate the California Air Resources Board's (CARB's) continued efforts to balance diverse stakeholder input. (15d1-252.1)

Comment: Weave Grid, Inc. (WeaveGrid) respectfully submits these supportive comments in response to the California Air Resources Board (CARB) Proposed Second 15-Day Changes to the Proposed Low Carbon Fuel Standard (LCFS or Program) Amendments posted on October 1, 2024. (15d2-186.1)

Comment: A. WeaveGrid lends overarching support for the Low Carbon Fuel Standard.

WeaveGrid appreciates Staff's thoughtfulness with the further proposed amendments to the LCFS regulation. WeaveGrid also appreciates that Staff has provided ample opportunities for stakeholders to participate in the rulemaking process.

LCFS plays an essential role in supporting California's ambitious transportation electrification and climate goals. It is a source of funding for many existing and planned transportation electrification initiatives and without the important proposed amendments to this source of funding, we believe a range of the State's transportation electrification goals could be impacted or imperiled. WeaveGrid supports the regulation and the proposed amendments outlined in December 2023, August 2024, and October 2024.

The LCFS Program involves a diverse range of stakeholders. WeaveGrid is cognizant of the varied concerns in regard to the Program and is supportive of further amendments that strengthen the regulation in meeting its overall objectives to lower emissions from the transportation sector. That said, we also believe it is of critical importance that the Program move forward, potentially with identified areas for improvement following this rulemaking cycle. As stated above, LCFS is a fundamental piece of the transportation electrification support system in California. From our view, WeaveGrid does not have a unique viewpoint among the transportation electrification industry. We believe the industry as a whole is highly supportive of the regulation and we are hopeful that Staff, the Board, and stakeholders can come to an agreement in November such that the proposed amendments are approved and the Program continues to deliver significant benefits, as it has a track record of doing so. (15d2-186.2)

Comment: Support for Second 15-Day Changes

I commend CARB staff on their continued initiative to build an updated and robust LCFS program. In addition to the Second 15-day Amendments, I have reviewed the 2024 Rulemaking Documents, as well as the meeting and workshop docket materials dating back to

February 22, 2023.² As demonstrated in these documents, and as detailed throughout the robust workshop series, I believe that CARB has indeed incorporated input from a diverse array of stakeholders to arrive at the current and balanced Proposed Regulation Order. As such, I am pleased to support CARB's Second 15-day Amendments and more widely the updates that to the LCFS program that are under consideration by the Board.

² Website Access: <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/lcfs-meetings-and-workshops>

(15d2-189.1)

Comment: I am pleased to support the Second 15-day Amendments, and more broadly thank CARB and staff for their 20-month initiative to revise and update the LCFS program. I am especially pleased that the program is taking on multiple provisions which will further help the state achieve its TE infrastructure and ZEV deployment goals, and I look forward to the opportunity to further share my ideas on how to better align the provisions of Section 95488.7(a)(3) with the needs of the innovative e-mobility sector. (15d2-189.4)

Comment: A large and diverse coalition of EV industry stakeholders supports LCFS. In March 2024, twenty-eight stakeholders including EVCA and CalETC sent a letter to Governor Newsom supporting the LCFS as proposed in January 2024. See appendix A. Since that time, the EV provisions in LCFS have only improved. (15d2-193.1)

Comment: CARB's second proposal signals intention to pursue further reductions in carbon-based fuel impacts to the environment by incentivizing BEV deployment using decarbonized electricity. GM supports CARB's proposed updates to the LCFS framework, with recommendations on specific aspects of the revised program. (15d2-204.1)

Comment: GM supports CARB's proposed framework for the Second 15-Day Notice for 2024 Low Carbon Fuel Standard updates. As one of the key stakeholders in low carbon electricity usage within the LCFS program and its administration, GM would be glad to provide further support for any of the above topics and looks forward to continued collaboration on the development of the LCFS program. (15d2-204.11)

Comment: Rivian remains strongly supportive of the LCFS and the current rulemaking to update the regulation. (15d2-225.1)

Comment: The ABC is encouraged to see that CARB staff issued a second 15-Day changes package following the feedback received on the first 15-Day changes package, which was released on August 12, 2024. While the second 15-Day changes package focused on more targeted modifications to the proposed regulatory text, the ABC would like to express our general support for the new amendments to the program. (15d2-256.2)

Comment: CalETC supports the proposed draft regulation order ("draft order") dated August 12, 2024, version ("15-day changes") with the additional October 1, 2024, modifications (second 15-day changes). We appreciate the many changes proposed in the October 1 version that respond to our two prior letters and our two joint letters with the EV Charging Association. (15d2-264.1)

Comment: SMUD appreciates that the amendments included in the Second 15-Day Changes addressed several remaining concerns² and appreciates CARB Staff's effort throughout the LCFS rulemaking process. (15d2-276.1)

Comment: Oberon supports the proposed amendment package and appreciates the significant efforts that have gone into developing these changes. (15d2-278.1)

Comment: NDSGA is encouraged by the continued successes of programs that support the development of cleaner, low-carbon fuels. (15d2-293.25)

Comment: VGIC is overall supportive of the Proposed Amendments to LCFS and is excited to continue to work with CARB on achieving California's transportation decarbonization goals. (15d2-305.8)

Comment: The Low Carbon Fuels Coalition is writing in support of the Low Carbon Fuel Standard (LCFS) amendments before the Board on Friday, November 8. While we have previously shared concerns for specific provisions on the record during the rulemaking process, specifically those that move further away from the technology neutrality that has been a hallmark of the LCFS program's success, these amendments ultimately strike a balance to accelerate progress toward California's ambitious climate goals and restore investor confidence, while minimizing LCFS program cost and potential impact on California drivers.

On the other hand, failing to pass these amendments can endanger the long-term viability of the LCFS program by stalling momentum in reducing carbon emissions and failing to send the long-term market signal needed to generate investments.

The LCFS has ***significantly outpaced its targets***, currently achieving carbon intensity reductions ***more than 3 years ahead of schedule***¹ and at ***much lower cost than anticipated***.

¹ CARB Data Dashboard at <https://ww2.arb.ca.gov/resources/documents/lcfs-data-dashboard>

(BH-004.1)

Comment: The Electrification Coalition strongly supports California's LCFS and the proposed amendments.

...

The proposed amendments will create new pathways to deploy funding to EV programs, as well as providing crucial support for the nascent but rapidly electrifying commercial and freight sectors.

These amendments will also help manage prices for consumers in the long term and will provide additional certainty for markets beyond California where programs like LCFS have recently been adopted or are under consideration. (BH-012.1)

Comment: The California Municipal Utilities Association¹ appreciates the opportunity to provide this support for the Low Carbon Fuel Standard (LCFS) and the Second 15-day change package.² CMUA supports many of the changes presented in the second 15-day change package which address concerns previously expressed by CMUA.³

¹ The California Municipal Utilities Association is a statewide organization of local public agencies in California that provide electricity and water service to California consumers. CMUA membership includes publicly owned electric utilities that operate electric distribution and transmission systems. In total, CMUA members provide approximately 25 percent of the electric load in California.

² Second Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Low Carbon Fuel Standard Amendments (October 1, 2024) available at Second Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information.

³ See CMUA comments dated February 20, 2024, at https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=lcfs2024&comment_num=6964&virt_num=294.

(BH-018.1)

Comment: CMUA supports the Low Carbon Fuel Standard (LCFS) program as key to reducing greenhouse gas (GHG) emissions from the transportation sector. (BH-018.3)

Comment: SMUD believes that LCFS-funded programs benefit all ratepayers by promoting transportation electrification, which in turn provides downward pressure on rates. In addition, under the proposed regulations LCFS funds also have the potential to directly reduce grid infrastructure costs (that would otherwise, be borne in rates). Looking further ahead, SMUD anticipates using LCFS funds to help offset the significant distribution system investments needed to support the long-term growth in light, medium, and heavy-duty EVs. (BH-033.4)

Comment: On behalf of the Peninsula Corridor Joint Powers Board (Caltrain), I want to express support for the California Air Resources Board (CARB) Low Carbon Fuel Standard (LCFS) Program as a critical resource to support public transit and the transition to a more environmentally sustainable transportation system. The LCFS program is a major factor in Caltrain's funding plans for electrified service and is furthering the ability of public transit agencies to invest in more sustainable operations.

Access to the LCFS program will allow Caltrain to avoid increasing these fiscal deficit projections, which would potentially force service reductions, increasing vehicle miles traveled and associated air quality and GHG impacts. The LCFS program is an ideal pathway for public transit systems like Caltrain to help mitigate higher operational costs of an electrified system and we are planning to access it in that capacity.

Support for the LCFS program is paramount to ensure this critical resource for public transit agencies is maintained, especially at this time of recovery. We are deeply grateful for our partnership with GARB as a committed supporter of projects like ours and a national and international leader on air quality improvement policies and innovation. (BH-041.1)

Comment: Through the increased use of gaseous motor fuels including renewable natural gas and hydrogen, we can achieve ambitious climate goals and greatly improve air quality safely, reliably, and effectively without delay and without compromising existing commercial business operations.

Our roughly 200 member companies and fleets support the proposed modifications before you and encourage their adoption. They are not perfect, nor ideal for all, including our members, but they represent a rational, comprehensive, and consistent approach to strengthening the LCFS program and continuing its emissions reduction success. (BH-031.1)

Comment: SCE supports the LCFS and the proposed amendments with modifications, as we believe LCFS has been and will continue to be instrumental in helping California move toward a decarbonized economy. (BH-033.2)

Comment: Fidelis supports the California Low Carbon Fuel Standard and applauds the immense success of the program.

Over the ~15 year history of the program, the California LCFS has displaced over 25 billion gallons of petroleum fuels, reduced the carbon intensity of California's transportation fuels by >12% (achieving the targeted 10% reduction in GHG emissions almost a decade before 2030), and spurred billions in low-carbon investments.¹ These real, measurable impacts of this program make the California LCFS a pinnacle achievement in climate leadership, and one of the most successful greenhouse gas reduction programs in the world.

¹ California Air Resources Board. "California Low Carbon Fuels Standard April Workshop Slides", April 10, 2024. ww2.arb.ca.gov/sites/default/files/2024-04/LCFS%20April%20Workshop%20Slides.pdf

Fidelis applauds the leadership of the board in delivering the monumental success of the LCFS program and urges the board to adopt the proposed amendments to the LCFS to cement the continued success of the program for decades to come.

The proposed amendments to the LCFS will enable California to continue to lead the world in climate impact reduction and deliver cleaner air, lower transportation costs, and reduced greenhouse gas emissions. (BH-037.1)

Comment: The LCFS is helping to unlock an EV future for Californians while tackling climate emissions across the transportation sector. Rivian supports several key aspects of the proposed amendments to this important regulation, including revised CI targets, the transformative extension of capacity credits for EV infrastructure, and new rules that would allow automakers to share in the generation of residential base credits. (BH-054.1)

Comment: Raizen appreciates the current and historic efforts by the California Air Resources Board (CARB) to reduce the greenhouse gas (GHG) emissions from transportation through the implementation of the State's Low Carbon Fuels Standard (LCFS). Raizen supports the continued evolution of the LCFS through the CARB rulemaking process. We deeply appreciate CARB's dedication to the Low Carbon Fuel Standard and commend the Board's continuous leadership in shaping policies that advance the adoption of cleaner, sustainable fuels. This program sets a global standard, and we are grateful for the opportunity to contribute.

Raizen supports CARB's proposed changes, particularly the emphasis on advanced biofuels and clear guidance on sustainability certifications. (BH-059.1)

Comment: This Program is going to become even more critical and this program -- I think the other change that we need to recognize that's going occur is now duct tape on the federal cookie jar that has funded many of California's programs, and so we're going to need private investment. And I think your staff have done a good job of making changes, but still providing enough incentive for private investment to continue in California. And that's going to be critical with these projects as we continue to move forward.

...

So please stay the course. This is an important Program that Frankly is going to become even more important over the next decade. (BHT-3a)

Comment: The longer time frames for credit sunsets for dairy, fossil fuel projects, fossil hydrogen, those are all concerns as well that we address in some of our letters, but really just wanted to raise those as ongoing Concerns. (BHT-9)

Comment: Thank you for the opportunity to express support of California's leadership in creating LCFS as an important tool in addressing climate change and reducing fossil fuel consumption. (BHT-23)

Comment: I'm here to support the adoption of the LCFS proposal today. Thank you for the opportunity to comment today on a monumental effort by CARB -- the CARB Board, CARB staff, and the stakeholders have gone into this rulemaking. (BHT-25)

Comment: I represent clients who are working on some of the cutting edge clean fuels and technologies out there, including sustainable aviation fuel, hydrogen, electrofuels, second generation ethanol, carbon capture and sequestration and direct air capture, and landfill gas capture. And these clients highly value the LCFS and many of them rely on the LCFS as of one of the revenue streams that will make their projects pencil out and enable them to expand their projects. (BHT-77)

Comment: Raizen supports CARB's proposed changes particularly the emphasis on advanced biofuels and clear guidance on sustainability certification. (BHT-79)

Comment: I have a strong message of support for you today, in regards to the proposed LCFS amendments.

...

It's a success that's been adopted across the states and provinces. We're eager to see it continue here within California, and it's driving an unprecedented displacement of petroleum in a shorter time than anyone could have imagined. (BHT-97)

Comment: This LCFS Program will bring critical funding that in the wake of what happened this week in the federal level, we know California needs in order to achieve our goals.

...

We estimate that depending on the credit prices and the speed of adoption, about \$10 billion over the next 10 years will go to these programs that will enable the transition to electric vehicle for all Californians. (BHT-108)

Comment: Electrify America strongly supports the Low Carbon Fuel Standard and proposed amendments. The LCFS is absolutely essential to deploying EV charging in California and achieving California's transportation electrification goals. The program has achieved significant economic and environmental benefits for Californians. It is single-handedly responsible for creating \$4 billion market to support that transition, with an estimated one billion in credits generated for a robust in-state EV charging network.

Support for EVs, electric vehicles, will only grow under the program's amendments. (BHT-122)

Comment: I'm here to speak in strong support of the proposal.

...

California was first to implement the opt-in mechanism for SAF under the LCF Program and we support the continuation of the opt-in mechanism along with other enhancements to the Program. The proposed amendments complement the new SAF partnership between CARB and the airlines, and we look forward to working together with CARB and other stakeholders to explore the policy and non-policy interventions that have the potential to achieve our mutual objective of increased SAF availability for use in California. (BHT-126)

Comment: We joined others in support of the proposed updates to the LCFS Program. We agree with the stakeholders who recognize that the LCFS Program is a vital policy tool. We assess that the Program is significantly strengthened by the staff's proposed changes and will deliver increased reductions of greenhouse gas emissions that are foundational to the State's climate goals. In particular, the Program revisions will serve to accelerate the transition to electric vehicles that is central to the State's climate strategy.

The revisions proposed -- the revisions proposed by staff to California's Program will bring together key actors in the electric transportation value chain and will better support the transition to plug-in battery electric vehicles including those in the light-duty segment, which dominate the state's roadways.

...

CARB's proposed changes amplify and strengthen this important incentive. (BHT-170)

Comment: And I'm joining you today on behalf of my 220 member organizations which includes 85 transit umbrella agencies in the state to voice our support for the amendments to the Low Carbon Fuel Standard that are before you today and to thank you for ensuring that the proposed amendments address our priorities for credit generation for fixed guideway systems and For including language in the Board resolution that speaks to the importance of making adjustments to the verification requirements for electric fueling. (BHT-214)

Comment: I think the summary could be best stated as the proposed amendments that we're voting on today, they don't truly address many of the major core issues in the LCFS, including the very low credit prices we've experienced for the last couple of years. They're unlikely to shift the fundamental dynamic that has caused those credit prices. And certainly you've heard from a number of stakeholders that feel that significant issues are not adequately addressed right now, but taken individually, they do make a number of useful changes and improvements to what is an important program that's going to even gain an importance given the election results of last Tuesday. (BHT-241)

Comment: And today, I join you in support of the LCFS amendments under consideration and support the amendments because of their positive impact across the transportation electrification sector. (BHT-247)

Agency Response: No changes were made in response to these comments. Staff appreciates the commenters' support for the proposed amendments.

A-2 Multiple Comments: *General Support for the Low Carbon Fuel Standard*

Comment: NOPA supports California's Low Carbon Fuel Standard (LCFS) which drives demand for biodiesel, renewable diesel and SAF, and encourages investment in low carbon feedstocks and value-added agricultural opportunities. (45d-266.3)

Comment: The LCFS program is a powerful tool to meet the state's climate goals by incentivizing use of fuels with lower carbon intensity and switching to modes of travel such as public transit. The LCFS is one of California's best instruments to get passengers out of cars and reduce Vehicle Miles Traveled (VMT). (45d-284.1)

Comment: California's leadership in climate action through aggressive reduction targets and corresponding programs, like the LCFS, accomplishes actual pollution reduction and public health benefit outcomes by establishing market certainty to drive private investment. The state's leadership and programs provide key solutions to the global climate challenge, however, more needs to be done. (Apr-082.1)

Comment: Tesla continues to support CARB and the state of California in defending the state's authority to implement the LCFS. (Apr-091.1)

Comment: Put simply, the LCFS framework works, and the availability of clean fuels incented by the LCFS is significantly exceeding expectations. (Apr-098.1)

Comment: We write on behalf of the Transportation Electrification Partnership (TEP) in support of the California Air Resources Board's (CARB) Low Carbon Fuel Standard (LCFS) as a critical tool to advance the state's transition to zero emission vehicles (ZEVs) across the light, medium, and heavy-duty sectors. Since its creation over ten years ago, the LCFS has spurred momentum towards the state's climate goals, as well as Los Angeles' regional goals, reducing greenhouse gas emissions and other air pollutants that disproportionately impact low-income and disadvantaged communities, and the program is needed to continue to advance electric vehicle adoption.

...

The LCFS program provides a stable source of funding and regulatory support to achieve these goals while growing the green economy in Los Angeles and beyond. It has also served as a key market signal for billions of dollars of investments in zero emission vehicles and infrastructure and will continue to attract large amounts of private capital to the state.

CARB's Advanced Clean Cars II, Advanced Clean Fleets, and Advanced Clean Trucks rules are spurring zero emission vehicle adoption; extending and strengthening the LCFS program will continue to provide essential support to meet the targets laid out in the regulations. (Apr-113.1)

Comment: As a preliminary matter, we reiterate that the Low Carbon Fuel Standard is one of the most important tools in supporting a transition to zero emission vehicles and a critical mechanism to achieve California EO-N-79-20 which first set the state's target for 100% electrification of fleets by 2045. Over the past 10 years, the LCFS has spurred the transition from petroleum to electricity, reducing greenhouse gas emissions and a myriad of air and toxic pollutants that disproportionately impact low-income and disadvantaged communities. CARB's

2022 Scoping Plan Update relies on the support for electrification that will be funded by the LCFS. As we stated in our initial 45-day comments, we strongly support the LCFS program and see tremendous potential to better align the program to support electrification in the MHD space. (Apr-191.1)

Comment: We applaud the California Air Resources Board's efforts to pursue means of ensuring the continued success of the LCFS. The California LCFS program has been a monumental success displacing over 25 billion gallons of petroleum fuels, delivering cleaner air through PM and NOx reductions, and driving billions in low-carbon investment.¹

¹ California Air Resources Board. "California Low Carbon Fuels Standard April Workshop Slides", April 10, 2024. ww2.arb.ca.gov/sites/default/files/2024-04/LCFS%20April%20Workshop%20Slides.pdf

(15d1-132.1)

Comment: We support CARB's LCFS program, as it sends a market signal to decarbonize the transportation sector, is performance based, and provides long-term policy stability that supports investment. (15d1-146.2)

Comment: Amp Americas ("Amp") appreciates the California Air Resource Board's ("CARB's") leadership on addressing climate change, and especially appreciates CARB staff's thorough and ongoing stakeholder engagement throughout the LCFS amendment process. We strongly support the LCFS program, which has been critical in advancing a wide array of climate and environmental priorities in California, as CARB has documented in various workshops throughout the amendment process and most recently with the August 22, 2024, Dairy Sector Workshop. (15d1-212.1)

Comment: We commend CARB for its ongoing efforts to drive the decarbonization through the LCFS program. This initiative has been pivotal in encouraging significant investments across the value chain, aiding California in its pursuit of emissions reduction goals, and spurring other states and regions to explore similar policies to drive down emissions. (15d1-238.1)

Comment Summary: Members of the soybean association are encouraged by the continued successes of programs that support the development of cleaner, low-carbon fuels. (15d2-197.25, 15d2-208.25, 15d2-214.25, 15d2-239.25, 15d2-240.25, 15d2-243.25, 15d2-255.16, 15d2-268.25, 15d2-285.25)

Comment: As noted in our February 20 and August 27, 2024 comment letters, CalETC strongly supports the Low Carbon Fuel Standard as it has been tremendously successful in supporting the transition from petroleum to cleaner transportation fuels including electric fuel. As described in more detail in the attached fact sheet, the LCFS has also supported utility charging and infrastructure programs that directly benefit California's electric utility customers. (15d2-264.6)

Comment: On behalf of the Peninsula Corridor Joint Powers Board (Caltrain), I want to express support for the California Air Resources Board (CARB) Low Carbon Fuel Standard (LCFS) Program as a critical resource to support public transit and the transition to a more environmentally sustainable transportation system. The LCFS program is a major factor in Caltrain's funding plans for electrified service and is furthering the ability of public transit agencies to invest in more sustainable operations.

...

Access to the LCFS program will allow Caltrain to avoid increasing these fiscal deficit projections, which would potentially force service reductions, increasing vehicle miles traveled and associated air quality and GHG impacts. The LCFS program is an ideal pathway for public transit systems like Caltrain to help mitigate higher operational costs of an electrified system and we are planning to access it in that capacity.

...

Support for the LCFS program is paramount to ensure this critical resource for public transit agencies is maintained, especially at this time of recovery. We are deeply grateful for our partnership with CARB as a committed supporter of projects like ours and a national and international leader on air quality improvement policies and innovation. (BH-041.1)

Agency Response: No changes were made in response to these comments. Staff appreciates the commenters' support for the LCFS.

A-3 General Support for the Board Resolution

Comment: Support the specific portions of the Board resolution that recognize the need for continued work on some of the most difficult areas that really require a lot of attention and stakeholder involvement, the development of a electrofuels and how they fit into the California picture for the Scoping Plan, the expansion of hydrogen supply and infrastructure, and also the land use change work as well as the sustainable aviation fuel work. (BHT-78)

Agency Response: No changes were made in response to these comments. Staff appreciates the commenters' support for the Board Resolution.

B. Definitions

B-1 Multiple Comments: *Definition of "Alternative Fuel"*

Comment: Revise the proposed Alternative Fuel definition to account for drop-in eFuel alternatives for gasoline and diesel fuel. (45d-344.5)

Comment: Infinium also requests that the proposed definition for Alternative Fuel be revised to include the range of eFuel types including eDiesel, and eNaphtha / eGasoline. As drafted, the definition for Alternative Fuel includes fuels that are not CaRFG and 'diesel fuel'. However, for example, diesel fuel, as defined under California Code of Regulations, title 13, section 2281(b), includes any fuel that is commonly or commercially know, sold or represented as diesel fuel. As a result, any drop-in non-petroleum alternative such as eDiesel could be classified as 'diesel fuel' under this broad definition. See Exhibit A for illustrative regulatory language that is aligned with this comment's recommendations. (45d-344.8)

Comment: § 95481. Definitions and Acronyms.

(...)

“Alternative Fuel” means any transportation fuel that is not fossil CaRFG, fossil diesel fuel, or fossil jet fuel including those fuels specified in section 95482(a)(3) through (a)(13).

(...)

“PtL Fuel” means a synthetic hydrocarbon fuel that is produced from water, captured CO2 and electricity, and that can replace or be blended into CARBOB, CaRFG, diesel fuel or jet fuel.

(...) (45d-344.12)

Agency Response: No changes were made in response to these comments. eFuels are already eligible to generate LCFS credits under the current version of the regulation.

B-2 Multiple Comments: *Definition of “Alternative Jet Fuel”*

Comment: *“Alternative Jet Fuel” means a drop-in fuel made from ~~petroleum or non-petroleum~~ sources, which can be blended and used with into conventional ~~petroleum~~ jet fuels without the need to modify aircraft engines and existing fuel distribution infrastructure.”*

- This amendment, to eliminate petroleum sources, would eliminate coprocessing and other means to produce Sustainable Aviation Fuel. CARB should remove the proposed strikeouts and restore the original wording. (45d-241.32)

Comment: Addition to the definition of Alternative Jet Fuel.

Please add clarifying words to the definition of Alternative Jet Fuel as follows:

“Alternative Jet Fuel” means a drop-in fuel, made from non-petroleum sources, **including without limitation ethanol**, or captured CO2, which can be blended into conventional jet fuel without the need to modify aircraft engines and existing fuel distribution infrastructure. (15d1-126.5)

Comment: We write today concerning the proposed 15-Day revision to the LCFS Program’s definition of “alternative jet fuel,” which would add to the definition an explicit reference to “captured CO2.” This modification, shown on page 5 of Attachments A-1 and A-1.1, would appropriately recognize that alternative jet fuel (AJF) may be produced via the PtL pathway, which, as we detailed in our earlier comment letters, combines captured CO2 with clean hydrogen derived from the electrolysis of water using renewable/low-carbon intensity (low-CI) electricity (e.g., solar, wind, hydropower).

...

While we fully support the proposed modification to the AJF definition, we cannot help but observe that it likely will be inconsequential and amount to a definitional change without any real significance or impact. That is because, based on the full contents of the 15-Day Notice and accompanying materials, it is apparent that CARB has opted not to put in place regulatory provisions that would promote rather than inhibit the production and in-state uptake of ultra-low carbon intensity PtL sustainable aviation fuel (SAF) such as Twelve’s E-Jet (and potentially other PtL transportation fuels). (15d1-253.1)

Agency Response: Changes were made in response to these comments. In the First 15-Day changes, staff updated the definition of “alternative jet fuel” to include captured CO2 as a means to produce SAF. Co-processed alternative jet fuel is not precluded by the definition. Ethanol used to produce alternative jet fuel is also not precluded by the definition.

B-3 Definition of “Application”

Comment: We recommend that CARB realign the definition of “Application” in the regulation to correspond to the categories of vehicle types for the purposes of the HRI categories. For example, with the transition of ZEV-HRI crediting to LD-HRI crediting, the term LD becomes a standalone application. (Apr-103.18)

Agency Response: No changes were made in response to this comment, since LDVs were grouped with MDVs during the first 15-day changes. The HRI vehicle class groupings now match the reporting groupings in the EER table, so there is no further need to amend the definition of “application.”

B-4 Multiple Comments: Definition of “Biomass”

Comment: Individual cases exist for developers such as: 1. Wildfire, there need to be details on areas with wildfire risk. 2. Thinnings to increase surrounding tree growth. 3. Agricultural residues. 4. Lumbermill and sugar mil waste. 5. Waste should have zero iLUC, similar to UCO. 5. Counterfactuals are consistent with carbon neutrality.

(20)“Biomass” means non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms, including: products, byproducts, residues and waste from agriculture, forestry, and related industries; the non-fossilized and biodegradable organic fractions of industrial and municipal wastes; and gases and liquids recovered from the decomposition of nonfossilized and biodegradable organic material.

It is recommended to amend the definition as: align with federal enacted law for the definition of carbon neutrality.

Expand CARB’s definition of biomass to include: Federal use of GREET. Support CARB’s efforts in supply chain tracking, consistent with RED, Federal requirements. Carbon neutrality is Federal law, align Carb with Federal definition. (45d-360.2)

Comment: Page 7: Delete the words “and municipal” from the definition of “Biomass” (Apr-034.11)

Agency Response: No changes were made in response to these comments. Because the LCFS has distinct policy goals and context, it is more appropriate for the definition of “biomass” to be tailored to LCFS program needs rather than precisely aligned with federal definitions or methodologies.

B-5 Multiple Comments: Definition of “Biomethane”

Comment: 1) Definition of Biomethane and Synthetic Natural Gas:

The current and proposed amendments to the LCFS regulation do not clearly define biomethane or renewable natural gas, specifically what CARB considers “synthetic natural gas derived from renewable resources” and whether synthetic natural gas derived from renewable resources of non-biogenic origin (e.g., industrial waste stream or captured CO₂) would be considered biomethane or renewable natural gas. The promotion of recycled carbon fuels is a key contributor towards energy diversification and decarbonization of the transportation sector, especially for drop-in fuels that can significantly reduce emissions in the near future with existing fleet and infrastructure. In addition, such fuels contribute to the avoidance of CO₂ emitted to the atmosphere due to the use of waste streams of non-biogenic origin which are unavoidable and an unintentional consequence of industrial processes.

The current and proposed amendments to the LCFS define Biomethane as “methane derived from biogas, or synthetic natural gas derived from renewable resources” but do not define “renewable resources.” The proposed LCFS amendment also includes a new definition for Renewable Natural Gas, defined as “an alternate term for biomethane,” so for the purposes of commenting, we will refer to the term biomethane.

TES recommends that LCFS include a standalone definition for “renewable resources” to clearly define the feedstocks that are allowed in low carbon fuel pathways and extend the scope to include a broader range of sources beyond the traditional “biogenic sources,” in accordance with the established federal practices. As an example, the United States Department of Energy (“DOE”) Office of Energy Efficiency & Renewable Energy defines renewable carbon resources as “*carbon-based resources that are regularly regenerated, either via photosynthesis (e.g., plants and algae), or through regular generation of carbon-based waste (e.g., the non-recycled portion of municipal solid waste, biosolids, sludges, plastics, and CO₂ and industrial waste gases).*” TES recommends expanding LCFS to adopt a similar approach towards the applicability of synthetic natural gas and other e-fuels.

TES would like to highlight the state, federal, and international level recognition of the importance of carbon capture, utilization, and storage (“CCUS”) strategies in achieving climate goals and urges CARB to consider how limiting “renewable resources” to biogenic sources would exclude leveraging existing industrial waste streams via carbon capture to produce low carbon fuels. (45d-325.1)

Comment: § 95481. Definitions and Acronyms. Definition of Biomethane

It is recommended to have a distinct definition of renewable natural gas to include methane derived from other renewable sources, such as methane derived from renewable resources such as bio-genic and non-biogenic components in the landfill-diverted MSW.

Methanation uses H₂ and CO₂ to create synthetic methane and becomes a method for bulk hydrogen storage and bulk hydrogen transportation via existing natural gas pipelines. (45d-360.4)

Comment: The current and proposed amendments to the LCFS regulation do not clearly define biomethane or renewable natural gas, specifically what CARB considers “synthetic natural gas derived from renewable resources” and whether synthetic natural gas derived from renewable resources of non-biogenic origin (e.g., industrial waste stream or captured CO₂) would be considered biomethane or renewable natural gas.

...

The current and proposed amendments to the LCFS define Biomethane as “methane derived from biogas, or synthetic natural gas derived from renewable resources” but do not define “renewable resources.” The proposed LCFS amendment also includes new definition for Renewable Natural Gas, defined as “an alternate term for biomethane,” so for the purposes of commenting, we will refer to the term biomethane.

TES recommends that LCFS include a standalone definition for “renewable resources” to clearly define the feedstocks that are allowed in low carbon fuel pathways and extend the scope to include a broader range of sources beyond the traditional “biogenic sources,” in accordance with established federal and international practices. (Apr-064.1)

Agency Response: No changes were made in response to these comments. The recommendations are not needed, could preclude any new and emerging clean fuel types from LCFS eligibility, and relies on the metric of carbon intensity rather than a specific definition tied to a specific carbon intensity. Synthetic methane is eligible for a fuel pathway under the LCFS, but likely would not fall under the “renewable natural gas” definition. Stakeholders with specific questions about the eligibility of potential fuel pathways may address their questions with staff on a case-by-case basis.

B-6 Definition of “Book-and-Claim Accounting”

Comment: Book-and-claim Accounting Definition

3. We recommend that CARB update the book-and-claim accounting definition at § 95481 Definitions and Acronyms to: *“Book-and-Claim Accounting is chain of custody model in which the administrative record flow is not necessarily connected to the physical flow of material or product throughout the supply chain. For example, the environmental attributes of low-CI electricity, biomethane or low-CI hydrogen may be separated from or matched with the use of grid electricity, fossil natural gas or hydrogen respectively.”*

The definition in the Draft describes book-and-claim accounting as “an indirect accounting system where a physical product and its environmental attributes can be separately traded.” The reference to “indirect accounting” may be misinterpreted as a reference to indirect emissions accounting. Indirect emissions, sometimes called avoided emissions, are the net changes in emissions on the grid due to the generation, while direct emissions are the emissions associated with the generation. Since the emissions being tracked for LCFS are the direct emissions associated with electricity generation, this may be confusing. We recommend the above definition, which is based on the International Organization for Standardization (ISO) 22095 Standard and reflects the broader use of the term in other sustainability accounting practices. (45d-235.3)

Agency Response: No changes were made in response to this comment, as staff finds the use of “indirect” in this definition to be sufficiently clear.

B-7 Multiple Comments: *Definition of “Break Ground”*

Comment: *“Break ground” means earthmoving and site preparation necessary for construction of the digester system and supporting infrastructure that starts following approval of all necessary entitlements/permits for the project.”*

- This definition should be expanded to other projects. It should not singularly apply to digester systems. (45d-241.33)

Comment: “Break ground” - The definition is reasonable, but there is a chance of gaming the system if no additional limitations are added. For example, someone could ‘break ground’ before a specific date to claim benefits under the LCFS (or other regulatory incentive programs), but might not advance the construction of a facility further than having broken ground. This could allow for projects to qualify for eligibility in protocols that have a specified end date for new pathways, e.g. HRI or FCI, even if no other construction activity other than ground breaking occurs until after the cut off date. Clarifying that ‘breaking ground’ implies subsequent construction activity should begin shortly thereafter, or setting a maximum allowable period of time between ground-breaking and subsequent construction activities could resolve this problem. In addition, ‘digester’ may be a typo of ‘digester’. (45d-391.15)

Agency Response: No substantive changes were made in response to these comments. The definition of “break ground” is related only to the provisions for digesters and avoided methane crediting, so there is no need for the definition to be expanded to other projects. Staff believes that the current definition adequately suggests that construction activity should begin shortly after breaking ground. Staff corrected the spelling of “digester” in response to these comments; no other changes were made.

B-8 Multiple Comments: *Definitions of “By-product” and “Co-product”*

Comment: *“Byproduct” means a secondary product with marginal economic value outside its use in a biofuel pathway.*

- WSPA seeks clarification from CARB that a “byproduct” cannot be designated as a coproduct. (45d-241.44)

Comment: “Byproduct” - The expression, ‘marginal economic value’, is insufficiently defined. A quantifiable threshold is required to avoid confusion and gaming the system. Recent Policy Institute research on classification of wastes and residues in LCA set a threshold of 15% of the total economic value for the definition of ‘byproduct’. If a product created more than 15% of the total economic value of the extended system, it was a coproduct, not a byproduct. The quantitative threshold at which to set this cut-off is not adequately discussed in literature, the choice of 15% may not be appropriate for all cases. Adopting a more specific, ideally quantitative definition of byproduct’ offers more certain guidance than the proposed language. (45d-391.16)

Comment: “Co-product” - Similar to “Byproduct,” ‘significant market value’ is insufficiently defined. A quantifiable threshold or other more objective test would help ensure efficient implementation and send a clearer signal to market participants. (45d-391.20)

Agency Response: No changes were made in response to these comments. Setting a quantitative threshold such as 15% of the total economic value to define by-product vs. co-product may not be appropriate as the economic value can fluctuate over time, causing the product to assume a different designation. The determination of the marginal economic value – and therefore the designation of a material as either a by-product or a co-product – will be made based on regulatory requirements and the professional judgement of delegated CARB staff on a case-by-case basis.

B-9 Definition of “CA-GREET”

Comment: § 95481. Definitions and Acronyms.

“California-modified Greenhouse Gases, Regulated Emissions, and Energy use in Transportation model (CA-GREET)” is a modified version of Argonne National Lab’s Greenhouse Gases, Regulated Emissions, and Energy use in Transportation (GREET) model used to evaluate well-to-wheel GHG emissions in the LCFS. The CA-GREET model is periodically updated, and includes a version number suffix, e.g., CA-GREET4.0.

It is recommended to amend the definition as: Projects will occur in CA and developers should not be in a position to build a project with no GHG guidance. (45d-360.1)

Agency Response: No changes were made in response to this comment. Staff did not understand this comment, which appears to be an incomplete thought. The stakeholder is welcome to reach out to staff directly to discuss this point if they would like to.

B-10 Multiple Comments: Definition of “Clean Fuel Reward”

Comment: More significantly, that the combination of defining MDV and HDV solely by weight class and the proposed definition of the Clean Fuel Reward as “a statewide program established by EDUs to provide a reduction in price on purchases or leases for new medium- or heavy-duty electric vehicles” means that the program may be required to provide incentives for *all* vehicles that have a GVWR greater than or equal to 8,501, which includes many passenger vehicles such as the Rivian line of products, the extended range Ford F-150 Lightning, the electric Chevrolet Silverado, and the electric Hummer. Based on CARB Staff’s published rationale, the Clean Fuel Reward should only provide incentives for these vehicles if the purchaser obtained them for *commercial* use. This distinction is important not only for the goals of the Clean Fuel Reward, but also the operations of the program, as implementing a program that is accessible to all commercial customers plus a narrow segment of the retail (passenger vehicle) market would be administratively challenging. Therefore SCE, as the Clean Fuel Reward Program Administrator, recommends that CARB revise the definition for the Clean Fuel Reward program as follows:

*“Clean Fuel Reward” is a statewide program established by EDUs to provide a reduction in price for new **and/or used commercial** electric vehicles, greater than or equal to 8,501 GVWR, that are not subject to the High Priority and Federal Fleets requirements as specified in, title 13, California Code of Regulations, section 2015(a)(1) in California. The Clean Fuel Reward is funded exclusively through LCFS proceeds generated by EDUs from electricity fuel.*

For the avoidance of doubt, SCE also recommends that CARB add *commercial vehicle* to the definitions in the LCFS Regulation now that the CCFR is explicitly incentivizing them. HVIP is an established and well understood definition that SCE recommends CARB adopt for the LCFS Regulation Definitions and Acronyms section:

“Commercial vehicle” for the purposes of this program means any vehicle used by a business, public or governmental agency, or non-profit to carry people, property, or hazardous materials. (45d-178.13)

Comment: *“Clean Fuel Reward” is a statewide program established by EDUs to provide a reduction in price on ~~new light-duty EV~~ purchases or leases for new medium- or heavy-duty electric vehicles that are not subject to the High Priority and Federal Fleets requirements as specified in, title 13, California code of Regulations, section 2015(a)(1) in California. The Clean Fuel Reward is funded exclusively through LCFS proceeds generated by EDUs from electricity fuel.*

- WSPA requests that CARB confirms that the intent of this definitional change is to no longer generate Clean Fuel Rewards for light duty vehicles. (45d-241.45)

Comment: First, as noted above, revenue from LDV PEV residential charging should be directed to LDV PEV market expansion. This applies equally to past revenue that was collected for the LDV Clean Fuel Reward Program and future funding generated by residential charging. Consequently, we recommend adding the following definition in 17 CCR §95481:

“Light-Duty Vehicle California Clean Fuel Reward (CCFR)” is a statewide program to provide a reduction in price on new light-duty electric vehicle purchases or leases in California, including light-duty and medium-duty electric vehicles with a gross vehicle weight rating of 10,000 pounds or less and sold or leased on an individual basis to non-fleet customers. The California Clean Fuel Reward is funded exclusively through LCFS proceeds generated from electricity used for residential charging of electric vehicles up to 10,000 pounds gross vehicle weight rating.

The proposed definition of “California Clean Fuel Reward” should be revised to “Medium- and Heavy-Duty California Clean Fuel Reward (CCFR).” (15d1-080.1)

Comment: CalETC supports staff’s proposed changes in section 95481(a) to the following definitions. Please refer to our previous letters for further explanation.

- “Clean Fuel Reward,”
- “Commercial Vehicle,” (15d2-264.3)

Agency Response: Changes were made in response to these comments. Staff created a new definition for “commercial vehicles.” Staff also updated the definition of “Clean Fuel Rewards” to clarify that the Clean Fuel Reward is intended to support purchases and leases for commercial new medium- and heavy-duty electric vehicles. This change is specifically designed to prioritize investment in these vehicle types.

B-11 Multiple Comments: *Definition of “Conservative”*

Comment: *“Conservative” means reducing the estimated GHG reduction benefits of an operation or utilizing methods and factors that over-estimate energy usage or carbon intensity (90th percentile or highest value) or under-estimate produced fuel volumes (10th percentile or lowest value).*

- WSPA requests that CARB clarify this definition because under-estimating produced fuel volumes of CARBOB or ULSD is not a “conservative” estimate. (45d-241.46)

Comment: “Conservative” - This term is used to define “Alternative Method,” and it is appreciated that the intent of these sections is to ensure that estimated GHG impacts, per LCFS methods, do not overstate actual GHG benefits, and that LCFS incentives actually reflect emissions reductions at least as great as their CI score or the quantity of credits they are issued would imply. Conservative estimation, in this sense, is appropriate in a regulatory environment focusing on reducing GHG emissions like this and can help avoid the worst end of asymmetric impacts from inaccurate estimation in some circumstances. However, the definition needs to be clarified. It is not entirely clear what value or parameter the references to 90th percentile or 10th percentile are meant to apply to. As long as the intent of the definition is clear, and in the case of “conservative” we find it to be, the additional clarity may be effectively provided in a subsequent guidance document, that can be updated over time as needed, rather than through exhaustive specification in the rule text itself, in which case clearer conceptual guidance and a requirement for occasional review and/or revision may be advisable. (45d-391.19)

Agency Response: No changes were made in response to these comments. The definition of a “conservative” value or method provided by the amendments purposes of the LCFS regulation supports a strong contextualization of the concept to the program, specifying the “conservative” means an over-estimate of potential GHG emissions in a specified range (through CI or associated energy use), or an underestimate of potential GHG benefits (from low-carbon fuel values).

B-12 *Definition of “Curtailment”*

95489 (e)(1)(D)5. - Existing language specifies that curtailment “exclusively for the reduction or cessation” of fuel production is excluded. This definition relies on ascertaining the facility operator’s intent behind any curtailment or capacity reduction, and the use of the word “exclusively” further limits the degree to which this provision is protected against issuing credits for curtailment. Providing objectively determinable criteria for determining whether reduced production should qualify for crediting would improve the clarity and actionability of this provision. (45d-391.66)

Agency Response: No changes were made in response to these comments. Refineries may curtail operations for various reasons, including adjusting production to market changes, complying with regulations, performing maintenance, addressing potential safety risks, and more. The regulation explicitly defines curtailment as an intentional operational and/or physical change made exclusively to reduce or cease total gasoline and gasoline blendstocks production, diesel production at the refinery, or hydrogen production at the hydrogen facility. Additionally, the regulation specifies that

curtailment does not include coincidental rate reductions or shutdowns of associated emitting equipment as part of process improvement projects or projects primarily aimed at optimizing refinery efficiency. Staff believe the regulation adequately defines the scope of curtailment. During the review of applications to the refinery investment credit program, if an applicant includes GHG emission reductions from a curtailment event in the credit calculation, staff will evaluate the reasons behind the curtailment event to determine whether the associated GHG emission reductions are eligible for credit generation.

B-13 *Definition of “eFuels”*

Comment: because eFuels are drop-in fuels that comply with conventional petroleum-based ASTM specifications, Infinium recommends that CARB adopt an LCFS definition of eFuels to precisely distinguish eFuels from fossil fuels for LCFS regulatory purposes. (Apr-175.5)

Agency Response: No changes were made in response to this comment. eFuels are eligible for LCFS crediting as an alternative fuel, assuming the CI of the eFuel is lower than the applicable benchmark CI in that year.

B-14 *Multiple Comments: Definition of “Electrical Distribution Utility”*

Comment: CalETC requests clarification that San Diego Gas and Electric is a “medium-sized” utility under the regulation. CalETC notes that the regulatory package has conflicting information regarding the size of San Diego Gas and Electric (SDG&E) and its requirements under CCFR and holdback programs. CalETC may have further comments on the definition of EDUs based on annual GWs in the future, as we understand that staff plans to propose amendments to these definitions. (45d-186.4)

Comment: Electric Distribution Utility (“EDU”) Definition: The current EDU definition in Section 95481 is drastically outdated, relying on 2017 electric sales, and should be modified to 1) rely on 2022 annual electric sales and, 2) accordingly, recalibrate EDU sizing. Currently, SDG&E overpays into the statewide Clean Fuel Reward (“CFR”) program relative to the base credits it receives. SDG&E requests that CARB revise the definition of Electric Distribution Utility (“EDU”) in Section 95481 “Definitions and Acronyms” to rely on 2022 electric sales, rather than 2017 data. This change ensures that SDG&E is defined as medium investor-owned utility (“IOU”) and have a comparable contribution to the statewide program as similarly sized utilities. In the Initial Statement of Reasons released December 19, 2023,³ CARB staff states, “San Diego Gas & Electric is re-defined to have a comparable contribution to the statewide program to similarly sized public utilities.” However, this change was not in the proposed regulation. CalETC identified this discrepancy in 45-day comments submitted on February 20, 2024. The 15-Day Changes still fails to update the EDU definition. Under the regulation, “The EDU or its designee is the credit generator for base credits for the portion of residential EV charging assigned to that EDU by the Executive Officer.” Each EDU’s assignment of base credits is calculated according to Section 95486.1(c)(1), which results in SDG&E receiving a similar portion of base credits as the Los Angeles Department of Water and Power (“LADWP”) – a medium publicly owned utility (POU). However, under the current regulation and as written in the 15-Day Changes, SDG&E is defined as a large IOU and contributes 67% of LCFS credit proceeds to the Clean Fuel Reward program. Therefore, while SDG&E receives equivalent

base credits as a medium POU, SDG&E remits the same proportion of revenues to the statewide program as a large IOU. Since base credits are directly attributable to EV charging, the EDU definition is aligned with electric sales. As in the current regulation, the 15-Day Changes defines a large IOU or POU as having annual load served as equal to or more than 10,000 Gigawatt-hours (“GWh”) in 2017, while a medium IOU or POU has 700 to 10,000 GWh. However, this data is outdated and should be updated to reflect the most currently available data to show “the estimated electricity use in kWh of non-metered residential plug-in electric vehicles assigned to an EDU for the reporting period.” The annual sales reflected for 2022 in the California Energy Commission’s 2023 Integrated Energy Policy Report (“IEPR”) Planning Forecast highlight the discrepancy:

EDU	2022 Electric Sales	Definition under LCFS
PG&E	88,602 GWh	Large IOU
SCE	97,680 GWh	Large IOU
SDG&E	17,867 GWh	Large IOU
LADWP	21,842 GWh	Medium POU
SMUD	10,662 GWh	Medium POU

Therefore, SDG&E urges CARB to update the thresholds for electric sales to align with the most recently available historical data (2022) published by the CEC. SDG&E proposes changes to the 15-Day Changes in the Appendix. (15d1-100.1)

Comment: Update the EDU definition based on 2022 sales data, clarifying that San Diego Gas & Electric Company is a “medium-sized” utility under the regulation for all the reasons listed in Appendix B. Appendix E in the 45-day LCFS proposed order gives the rationale for San Diego Gas & Electric Company (SDG&) as a medium-sized EDU, and we understand that was CARB’s intent. In general, CARB should use GWh definitions consistent with the 2022 EDU annual sales data in the California Energy Commission’s 2023 Integrated Energy Policy Report’s Planning Forecast. This report makes clear that SDG&E is a medium-sized utility with a similar volume of sales as the Los Angeles Department of Water and Power. We recommend small POUs be defined as having less than 5,000 GWh annual sales. See proposed amendments in Appendix A. (15d1-103.12)

Comment: CalETC supports staff’s proposed changes in section 95481(a) to the following definitions. Please refer to our previous letters for further explanation.

...

- “Electrical Distribution Utility,” (15d2-264.3)

Comment: SDG&E supports the proposed updates to the Electric Distribution Utility (EDU) definition, which reflect current electric sales and promote equal treatment across similarly sized utilities. As was discussed in SDG&E’s previous comments on the first 15-day regulatory changes, the definition of EDU that is currently used in the effective regulation relies on outdated 2017 data. Updating the EDU definition to reflect more current 2022 electric sales

data ensures that similarly sized utilities have comparable contributions to the statewide Clean Fuel Reward Program. (15d2-273.1)

Comment: The type of programs that SDG&E will pursue is contingent upon final LCFS amendments; specifically, recategorization of SDG&E as a medium IOU (which would lead to an increase in holdback funds available) and the final list of priority projects (which will determine which ideas are eligible). (BH-033.1)

Comment: SMUD appreciates the following changes that substantially improved the Proposed Amendments to the LCFS regulation:

...

- Redefining “Electrical Distribution Utility” with updated values. (15d2-276.4)

Agency Response: Changes were made in response to these comments. In response to the first comment, staff updated the definitions under “electrical distribution utility” with the Second 15-Day changes to reference 2022 data.

B-15 Definition of “Environmental Attributes”

Comment: Environmental Attribute Definition

2. We recommend that CARB update the environmental attribute definition at § 95481 Definitions and Acronyms to: *“Environmental Attributes: Any and all impacts and benefits attributable to the generation from the Generating Unit, including but not limited to the fuel or resource type, location, greenhouse gas emissions, greenhouse gas emissions avoided or displaced on the grid.”*

The definition in the Draft refers to all attributes as “emissions reductions,” which is misleading as not all attributes of generation are reductions. For example, RECs reflect attributes of generation, including both the direct emissions and any avoided grid emissions associated with generation. But RECs are not carbon offsets and do not represent a quantity of emissions reductions. We suggest using the above definition, which is consistent with the Western Renewable Energy Generation Information System (WREGIS) and represents a more encompassing and accurate definition of environmental attributes. (45d-235.2)

Agency Response: No changes were made in response to this comment. The life cycle boundary for environmental attributes of low-CI electricity is the greenhouse gas emissions associated with the production of the electricity. Credits generated within the LCFS program are based on differences between the CI of the electricity and the applicable CI benchmark for that year, and are distinct from carbon offsets under other programs.

B-16 Definition of “Feedstock First Gathering Point”

Comment: *Feedstock First Gathering Point* - The 15 day package proposes changes to this definition that focus it exclusively on entities that receive, aggregate, store or treat “biomass directly from farms, plantations, or forests...” This definition implies that the definition of a first gathering point is limited only to systems using purpose-grown biomass (from farms or plantations) or collected from forests, which may themselves be managed for a purpose. This

seems to exclude the possibility of a first gathering point for waste or residue biomass that did not come from a forest, such as grassland, wetland, or municipal supplies. We question whether this was the intent of this definition, and if a more expansive definition would better suit the purpose. (15d1-251.17)

Agency Response: No changes were made in response to this comment. The waste and residue feedstocks to which this comment refers are likely to fall under the specified source feedstock category, and thus not be subject to the sustainability requirements in §95488.9(g) that are related to the “feedstock first gathering point” definition.

B-17 Multiple Comments: *Definition of “Food Scraps”*

Comment: “Food scraps” - It is defined using the expression, ‘predominantly disposed by landfilling’, but this is a historical practice and may change as a result of state policy, voluntary action, etc. It would be better to specify in the definition that it is a historical reference to past disposal practice. This is particularly important in light of the way historical practice is accounted for in consequential LCA, where emissions from a proposed product, or activity are compared against a counterfactual scenario without the product of activity. If a definition in regulatory text asserts current or past behavior that does not match reality, quantitative values, including LCFS CI scores, can be affected. (45d-391.21)

Comment: The new proposed definition of food scraps is very concerning, restrictive and conflicting with Calrecycle. The last sentence stating what is excluded needs to be deleted. Food scraps now excludes waste streams that are landfilled.

The Food Scraps definition needs to remove the last sentence carve out for these reasons:

Not conflict with Calrecycle

Not set a dangerous precedent with SB 1440 that will exclude food waste feedstock by mere arbitrary carve out in CARB definition

Follow consistent methodology of tracking statewide average of food waste fraction to landfill from all sources.

Issues are that Food Scraps excludes the following:

Liquid waste - many processors convert food waste into liquid form for transportation purposes and compatibility with AD facilities that have hose connections vs solids receiving bins or tip floors. Adding water to landfill food waste suddenly excludes from food scraps. No logical.

Industrial food processing, Manufacturing, Distribution facilities

All these facilities produce food waste and all food waste in California follows statewide average of landfilled fraction. All food waste should be treated the same following statewide average.

The same food waste from manufacturers and distribution centers is sent to grocery stores where wasted food is considered Food Scraps, and same for downstream residential and commercial users.

Food waste from these sources is considered food waste by Calrecycle and these generators are subject to the same SB 1383 requirements (they do not get waivers because their food waste doesn't go to landfill, so why would CARB assume all their food waste is 100% diverted?).

Strong recommendation: Remove the last sentence of the definition of food scraps. A definition should state affirmative inclusion, and not exclusions. If a material does not fall in the affirmative inclusion of what Food Scraps is, then by default it is not included. By stating affirmative inclusion and exclusions, this introduces confusion if it's in or out. (Apr-008.1)

Comment: The definition of "food scraps" should be corrected to be consistent with CalRecycle's definition. (Apr-150.3)

Comment: The definition of "food scraps" should be corrected to be consistent with CalRecycle's definition. (Apr-158.9)

Comment: 2. Food Scraps Definition: The definition of Food Scraps in CARB's tier 1 calculator must match Calrecycle definition of food waste. Should not exclude food waste generated from manufacturing, distribution facilities or any liquid form of food waste altogether. (Apr-167.02)

Comment: 4. Decouple Legal Requirement: Proposed text does not allow food waste to be considered landfill diverted if there is a law that says food waste must be diverted (even if food waste still goes to landfill). Remove this reference, and follow actual in-State destiny of food waste. (Apr-167.04)

Comment: Food scraps: definition that is considered landfill diverted includes only post consumer food waste in solid form (only what's in trash cans). If food waste is in liquid form, doesn't count (ketchup or salad dressing or soda that goes to landfill). If food waste comes from a distribution center or food manufacturing facility, doesn't count, even though this waste goes to landfill. All food waste regardless of source should be assigned the statewide average of total fraction that goes to landfill. We should not cherry pick sources that are all in or all out of landfill destiny, particularly since all food waste is regulated by SB 1383 regardless of source. The attached document has suggested redlines on the definition to conform with SB 1383 and treat all food waste the same with a suggestion to simply revise the statewide fraction of food waste landfilled that should be adjusted to account for those sources that have lower landfilling rates than those sources that have higher landfilling rates. Now it's binary, either landfilled 97.5% or not at all and this is not reality. (15d1-027.2)

Comment: Concerns Regarding the Definitional Change for "Food Scraps"

We would like to address the definitional change included in the current rulemaking regarding "Food Scraps." As proposed, the definition effectively removes credit for processing organic waste that comes directly from food manufacturers. This waste stream typically consists of off-spec products or excess supply that needs to be disposed of in a sustainable manner. While the ideal solution would be to re-purpose this material—such as by converting it into animal feed—this is often not feasible due to various logistical and regulatory challenges.

When direct alternative uses are not possible, the next best sustainable option is to divert this organic waste away from landfills to compost and anaerobic digestion facilities. The proposal

from August 12, however, appears to exclude this type of waste from qualifying as "Food Scraps," potentially discouraging its beneficial use in energy production and nutrient recycling. This exclusion runs counter to the principles of waste reduction and sustainable resource management that underpin California's broader environmental goals, such as those articulated in SB1383. If implemented as proposed, the narrow definition for "Food Scraps" would make meeting the requirements of SB1383 even more challenging than they are already proving to be.

We recommend that CARB adjust the definition of "Food Scraps" to include food waste from food manufacturers that cannot be beneficially reused for human or animal consumption. By doing so, CARB can ensure that all feasible routes for sustainably processing organic waste are supported under the LCFS, thereby promoting a more comprehensive approach to waste management and further reducing the environmental impact of California's critical food production sector. (15d1-106.4)

Comment: we strongly oppose proposed changes that...

Define "food scraps" in a way that is not practically achievable for most diverted organic waste projects;

...

The Proposed Changes Would Codify a Definition of "food scraps" that is Overly Restrictive and Impractical.

BAC urges CARB to revise the definition of "food scraps" to include all potential sources and forms that could otherwise end up in a landfill. As written, the definition is overly restrictive and would exclude many sources and forms of food scraps. The proposed definition could also be interpreted to exclude food scraps that are combined with other organic wastes in a liquid slurry.

BAC urges CARB to revise the definition of "food scraps" as follows:

"Food Scraps" is the portion of municipal solid waste (MSW) that consists of inedible or post-consumer food collected from residences, hospitality facilities, institutions, commercial establishments, distribution centers, manufacturing facilities, and grocery stores. All food scraps are assumed to follow the state-wide average landfill disposal rate of [97.5%]. This definition excludes fats, oils, or greases (FOG).

Alternatively, BAC recommends that CARB adopt a much simpler definition of "food scraps" that simply states:

"Food Scraps" are the portion of municipal solid waste that consist of inedible, post-consumer or production food wastes that would otherwise be landfilled. (15d1-136.3)

Comment: Edits to the definition of Food Scraps attempt to take this clarification into account but as a result may eliminate certain types of entities that generate Food Scraps and may not address the issue of plastic contamination in the manner described in the Summary of Proposed Modifications. (15d1-141.2)

Comment: “Food scraps” is the portion of municipal solid waste (MSW) that consists of inedible or post-consumer food collected from locations which include but are not limited to, residences, commercial and industrial businesses, hospitality facilities, institutions and grocery stores. Feedstocks that are not typically landfilled do not qualify as Food Scraps, which include fats, oils, or greases (FOG), and liquids at the point of collection. The portion of material that is plastic and other contamination commingled within Recovered Organics does not qualify as Food Scraps.

The edits are intended to broaden the array of sources that Food Scraps may be generated from. The last sentence within the revised definition was added to clearly address the issue noted on Page 11 of the Summary of Proposed Modifications (ie. Modifications to Section 95488.8 Fuel Pathway Application Requirements – subsection 2). Relative to this issue, these edits should assist in avoiding confusion as to whether any contamination contained within organic material would void all of the organic material from being an eligible feedstock. Our extended experience with organics collection programs indicates that contamination of all types in the organic streams will be present (source separated or processed from MSW). While we recognize CARB’s intent to not include the contamination to be counted as feedstock, we do not want the entire stream of organic material voided as a feedstock due to the existence of contaminants in the Food Scraps.

Text has been included in the draft regulations that references Specified source feedstocks. Relative to organic materials, Section 95488.8(g)(1)4 includes in eligible feedstocks “*The organic portion of municipal solid waste that is diverted from landfill disposal*”. This reference further reinforces the concept of only organic portions of municipal solid waste being eligible as a feedstock for a fuel pathway. However, the above edits included in the definition of Food Scraps may provide clarity to the intended outcome noted by CARB in the Summary of Proposed Modifications as noted herein.

The deletion of the text relative to “materials from industrial food manufacturing or processing” is proposed because in some instances, this material is still being landfilled yet may be a viable feedstock for digestion or composting and thus an organic feedstock under the LCFS regulation. (15d1-141.5)

Comment: The ABC believes that the modification made to the definition of “Food Scraps” in the 15-day changes does not accurately reflect the spectrum of food waste feedstocks that are landfilled and can support the production of clean renewable transportation fuels. Thus, we propose the following change to the definition of “Food Scraps”, which is shown in italics:

“Food Scraps” is the portion of municipal solid waste (MSW) that consists of inedible or post-consumer food collected from residences, hospitality facilities, institutions, and grocery stores, *as well as organic waste materials from industrial food manufacturing and distribution facilities that cannot be eaten by people or animals.* Feedstocks that are not typically landfilled do not qualify as Food Scraps, which include: fats, oils, or greases (FOG), and liquids at the point of collection.

Biomethane derived from food waste is an important decarbonization tool and is necessary to meet the state’s climate goals, specifically the state’s landmark organic waste diversion law, SB 1383. The currently proposed definition assumes that pre-consumer food waste and food

processing wastes including liquid wastes are not landfilled, which is incorrect. Further clarification is needed to illustrate that many of these pre-consumer wastes are often landfilled, and therefore, should be able to qualify for a pathway given that sufficient documentation that it was landfilled is provided as it is a requirement for certification of a LCFS pathway. (15d1-178.4)

Comment: However, we are concerned that the proposed definition of “food scraps” is advertantly restrictive and would impede progress in achieving our organic diversion targets under SB 1383.

As proposed, the definition of “food scraps” would exclude many sources and forms of food scraps. We urge CARB to define “food scraps” as follows.

“Food scraps” is the portion of municipal solid waste (MSW) that consists of inedible or post-consumer food collected from locations which include, but are not limited to, residences, **commercial and industrial enterprises**, hospitality facilities, institutions and grocery stores. Feedstocks that are **source separated at the point of generation and that are** not typically landfilled do not qualify as Food Scraps, which include: fats, oils, or greases (FOG), liquids at the point of collection, and materials from industrial food manufacturing and distribution facilities **that can be used as animal feed, as set forth in Chapter 6 of Food and Agricultural Code (FAC), commencing with Section 14901 et. seq and Title 3, Division 4, Chapter 2, Subchapter 2 commencing with Article 1, Section 2675 of the Code of California Regulations.**”

You might also consider a simpler definition, as follows.

“Food Scraps” is the portion of municipal solid waste that consist of inedible, post consumer or production food wastes that would otherwise be landfilled. (15d1-200.2)

Comment: Definition of food scraps to include organic wastes that are currently landfilled

The updated definition of food scraps is overly restrictive and excludes organic wastes that are currently being landfilled and contribute to the emission of landfill gases. These organic wastes could be diverted from landfill and converted into RNG. We therefore propose to include organic wastes from commercial establishments, distribution centers, manufacturing facilities, and grocery stores and to only exclude liquids that have other beneficial uses such as FOG. A proposed definition would be as follows:

“Food Scraps” is the portion of municipal solid waste (MSW) that consists of inedible or post-consumer food collected from residences, hospitality facilities, institutions, commercial establishments, distribution centers, manufacturing facilities, and grocery stores. This definition excludes fats, oils, or greases (FOG). (15d1-231.4)

Agency Response: Changes were made in response to these comments. Staff removed the phrase “predominantly disposed by landfilling” from the definition of “food scraps” in the First 15-Day changes. Staff designed the proposed definition of “food scraps” to reflect only feedstocks that are typically landfilled if they are not used as a biofuel feedstock. The above comments suggest that food waste from commercial/industrial facilities and mixed waste streams should also qualify as food

scraps. However, recent data collected by U.S. EPA show very different fates for food waste generated by various economic sectors. For example, whereas the “Food Retail, Food Service, and Residential Sectors” landfill approximately 60% of food waste, the Manufacturing and Processing Sector landfills only 2% of food waste.⁷ Similarly, the ReFED Insights database found that only 3.6% of manufacturing food waste was landfilled in 2023.⁸ Given the data indicate only a small fraction of food waste in the industrial sector is actually landfilled, avoided methane is not indicated. Some commercial sources listed in the proposed definition remain eligible for avoided methane (“hospitality facilities, institutions and grocery stores”). The LCFS has also approved case-by-case exceptions for food waste from industrial sources to receive avoided methane if the applicant can demonstrate a consistent history of landfilling from their specific feedstock suppliers.⁹ For organics separated from mixed waste streams, the calculator now offers a “Recovered Organics” feedstock option. With regards to concerns about plastic contamination, see response CCC-1.

B-18 Multiple Comments: *Definition of “Forest Biomass Waste”*

Comment: Instead, please see the language additions that offers a few important clarifications. First, we recommend the use of the term “dimensional lumber” instead of “wood product” because it is the higher grade materials that should be prevented from being used for biofuels. The term “wood products” include things like mulch, pet bedding, and landscaping chips, which would be appropriate for use as biofuel, as well. Therefore, the phrase dimensional lumber makes more sense.

...

“Forest Biomass Waste” means small-diameter residues, limited to forest understory vegetation, ladder fuels, limbs, branches, and logs that do not meet regional minimum marketable standards for processing into dimensional lumber. (15d1-057.1)

Comment: Definition of Forest Biomass Waste

ACDC is concerned about the definition of “forest biomass waste” on page 14 of the Appendix A-1. The document proposes to define the forest biomass waste as:

“Forest Biomass Waste” means small-diameter, non-merchantable residues, limited to forest understory vegetation, ladder fuels, limbs, branches, and logs that do not meet regional minimum marketable standards for processing into wood products.

We believe that the definition of “forest biomass waste” should be broadened to include material from wildfire mitigation, fuel removal and forest restoration activities, recognizing that in many cases this material, whose removal helps combat wildfire and associated GHG emissions, may include some larger “merchantable” sized material. Please consider that in situations where only a small portion of material is merchantable, it is more efficient to treat all the material as biomass waste rather than separate out the merchantable portion. That cost/benefit is a decision best made on a case-by-case, site-specific basis by those doing the work, rather than by a rule that applies across the board.

As such, we recommend that the definition be amended as follows:

“Forest Biomass Waste” means residues that are 1) removed for wildfire mitigation, forest restoration projects, or the protection of public safety, or 2) small-diameter, non-merchantable residues, limited to forest understory vegetation, ladder fuels, limbs, branches, and logs that do not meet regional minimum marketable standards for processing into wood products.” (15d1-063.1)

Comment: Section 95481

CAFB supports the need to protect our forests. As such, we support language that defines forest biomass waste. However, the language that CARB has inserted in Section 95481 critically leaves out many or even most wildfire mitigation and forest restoration projects in California. That is because wildfire mitigation, forest restoration, and fuel removal to address bark beetle or other forest health issues generally includes some amount of merchantable residues. In addition, all forest biomass waste can be converted to wood pellets or biochar, which are “wood products,” so the exclusion of biomass that can be converted into other wood products effectively excludes all forest biomass waste. Biochar is recognized and defined as an Auxiliary Soil and Plant Substance by the California Department of Food and Agriculture with benefits as a soil amendment. Biochar is primarily composed of carbon and can be used as a long-term carbon storage sink in soils. It contributes directly to carbon sequestration and efforts to mitigate climate change”.

To ensure that LCFS eligible forest biomass waste is environmentally sustainable and protects forest health, CAFB recommends the following edits to the definition:

“Forest Biomass Waste” means **residues that are 1) removed for wildfire mitigation, forest restoration projects, or the protection of public safety, or 2)** small-diameter, non-merchantable residues, limited to forest understory vegetation, ladder fuels, limbs, branches, and logs that do not meet regional minimum marketable standards for processing into wood products.”

These changes will also make the definition of forest biomass waste consistent with the requirements of Section 95488.8(g)(1)(A)(3) which references wildfire mitigation, the need for defensible space (which often requires clearcutting), forest restoration, and threats to public safety or infrastructure. (15d1-075.1)

Comment: Modify the definition of Forest Biomass Waste as follows (edits in red):

“Forest Biomass Waste” means **residues that are 1) removed for wildfire mitigation, forest restoration projects, or the protection of public safety, or 2)** small-diameter, non-merchantable residues, limited to forest understory vegetation, ladder fuels, limbs, branches, and logs that do not meet regional minimum marketable standards for processing into wood products.” (15d1-230.2)

Comment: *Forest Biomass Waste* - The 15 day package creates a definition meant to describe forest biomass removed for the purpose of wildfire fuel reduction or forest health enhancement, that could not be salvaged for lumber or other wood products. The intent of this definition is clear and appropriate. Staff may want to consider a reference to the California Forest Practice Manual or relevant natural resources code that describe forest biomass waste, to better align the LCFS with existing policy. (15d1-251.18)

Comment: We thank CARB for aligning the description of biomass waste with local, state and Federal requirements. (15d2-291.4)

Comment: The definition of “Forest Biomass Waste” in this section excludes biomass that does “not meet regional minimum marketable standards for processing into wood products.” The problem is that “wood products” is not defined in the regulations and could be interpreted to include anything made from wood, which would include biochar, mulch and wood chips. Virtually all forest waste can be converted to biochar and most of it can be converted to mulch and wood chips, so the exclusion of biomass that can be converted to other wood products effectively excludes all forest biomass waste.

This can be corrected by either 1) putting a semicolon after the word “branches” instead of a comma or 2) changing the “and” after the word “branches” to “or” so that the wood products exclusion only applies to whole logs. (15d2-294.5)

Comment: There are two areas that need clarification. One is the exclusion of clear-cutting, which, in general, we support, but clear-cutting should be allowed when it is done to create defensible space around homes, communities, power lines, et cetera, or to create a large fire break to stop a catastrophic wildfire.

The second clarification is around the exclusion of forest waste that can be used for any other wood products. Wood products aren't defined. And if they are defined in the future to include biochar or mulch, that would effectively exclude all forest waste, which would really go against the voters' clear intentions in passing Prop 4. (BHT-185)

Agency Response: No changes were made in response to these comments. The definition of forest biomass waste is intended to be narrowly focused on biomass for that lacks an existing market or economically-beneficial use in durable wood products. The types of biomass waste included in this definition that further meet the criteria in proposed § 95488.8(g)(1)(A)3. of the LCFS regulation are designated as specified source feedstocks in LCFS fuel pathways. Material that does not meet this definition and specified source feedstock criteria may be classified as forest biomass subject to sustainability requirements specified in proposed section 95488.9(g). The definition of “forest biomass waste” does not refer to the California Forest Practice Rules because staff anticipates that some forest biomass waste may come from outside of California.

B-19 Definition of “Fuel Cell”

Comment: We respectfully request the clarification that “fuel cells” in these two subsections also include “linear generators” or “renewable electrical generation facility” and/or CARB's Resolution to adopt the Proposed Amendments to LCFS clarifies “fuel cell” to include other renewable electrical generation technologies, such as linear generators, to maintain technology neutrality and ensure a level playing field. (15d2-170.2)

Agency Response: No changes were made in response to this comment. Fuel cells are distinct technologies from linear generators.

B-20 Definition of “Fugitive Methane”

Comment: “Fugitive methane” - The definition specifies quantifying using standard values, or a site-specific energy balance of methane within the system boundary. ‘Standard values’ is vague, and simply because a value is ‘standard’ does not mean it is accurate, nor even that it reflects the most up-to-date scientific understanding. Moreover, novel approaches for site-scale fugitive methane emissions measurement are being developed; this definition should be expanded to allow such direct measurement, once it has been appropriately validated. (45d-391.23)

Agency Response: No changes were made in response to this comment. Standard values are developed based on scientific literature and available data and set at a level that is conservative so as to avoid underestimating fugitive methane emissions. Therefore, the use of standard values for fugitive methane is justified.

B-21 Definition of “Heavy-Duty Vehicle”

Comment: Additionally, the definitions for *medium-or-heavy duty vehicle* in the draft amendments need updating to align with CARB’s intentions. While CARB defines medium-duty vehicle in the Definitions and Acronyms as “MDV means a vehicle that is rated between 8,501 and 14,000 pounds GVWR,” there is no accompanying definition for HDV, though HDV is reference in several locations throughout the Regulation as the acronym for *heavy-duty* vehicle. CARB should add the weight classification for completeness. (45d-178.12)

Agency Response: No change was made in response to this comment. The regulation already contains a definition of HDV that includes a weight classification.

B-22 Definition of “Hydroprocessed Ester and Fatty Acid (HEFA) Fuel”

Comment: “Hydroprocessed Ester and Fatty Acid (HEFA) Fuel” - A definition of ‘lipid feedstock’ is required to avoid misinterpretation. We assume that the intent is to limit the definition of lipids to mean non-fossil lipids produced from biomass, such as vegetable oil, tallow, used cooking oil, etc. The proposed definition is not entirely clear whether something like pyrolysis oil made from non-edible cellulosic biomass would be considered a lipid for the purpose of this definition. (45d-391.24)

Agency Response: No changes were made in response to this comment. The name “ester and fatty acid” itself refers to fuels derived from vegetable oil, animal fats, and used cooking oil. This definition will not cover pyrolysis oil made from non-edible cellulosic biomass since it is primarily a hydrocarbon fuel, not ester and fatty acids.

B-23 Multiple Comments: Definition of “Medium-Duty Vehicle”

Comment: ICA also wants to point out that the definition of “Medium-Duty Vehicle” (MDV) in the Modified Proposed Amendments is not aligned with the common definition of MDV and ICA urges CARB to utilize the standard definition of MDV which refers to MDV as Class 3-6 (10,001 lbs – 26,000 lbs GVWR. (15d1-140.3)

Comment: The definition of “Medium-Duty Vehicle” (MDV) is misaligned for vehicle refueling behavior. While there are varying government definitions for MDVs, based on the utilization for

this rulemaking it is best to use the Federal Highway Administration Gross Vehicle Weight Rating (GVRW) Category.

Recommendation: Increase MDV to mean a vehicle that is rated at 10,001 and 26,000 pounds GVRW. This also requires adjusting the “Light-Duty Vehicle” (LDV) definition to mean a vehicle that is rated at 10,000 pounds or less GVRW. (15d1-245.9)

Comment: ICA also wants to point out that the definition of “Medium-Duty Vehicle” (MDV) in the Modified Proposed Amendments is not aligned with the common definition of MDV and ICA urges CARB to utilize the standard definition of MDV which refers to MDV as Class 3-6 (10,001 lbs – 26,000 lbs GVWR). Many existing MDVs up to Class 6 leverage existing light-duty fueling stations today as part of normal operations, while only heavy-duty vehicles (HDV) Classes 7 and 8 typically fuel at dedicated HDV fueling lanes or truck stops. We recommend CARB harmonizes this existing definition and fueling operation with current industry standards. Specifying a different category for MDV within LCFS will create confusion for both station developers and MDV fleet operators that could hinder station development and result in stations that are not properly designed for each vehicle type. (15d2-203.3)

Comment: The definition of medium-duty in these proposed rules is a GVWR between 8,501 and 14,000 lbs, whereas the commercial vehicle industry generally refers to medium-duty as Class 4 – 6 vehicles with a GVWR between 14,000 and 26,000 lbs. While it’s clear that a light duty vehicle would typically not refuel at a Class 8 tractor trailer truck stop, and a class 8 truck would not refuel at a light duty station, Class 4-6 vehicles will benefit from refueling at both of these types of stations.

Therefore, the definition of medium-duty should be amended to also include Class 4-6 vehicles resulting in a medium duty vehicle definition with a range of GVWR from 8,501 lbs – 26,000 lbs. Additionally, since medium duty vehicles as defined in this manner will be refueling in practice at both upgraded light-duty and heavy-duty stations, medium-duty vehicles using this new definition should be included in both categories, thus creating “LMD-HRI” and “MHD-HRI” categories. (15d2-204.8)

Comment: The definition of “Medium-Duty Vehicle” (MDV) is misaligned for vehicle refueling behavior. While there are varying government definitions for MDVs, based on the utilization for this rulemaking it is best to use the Federal Highway Administration Gross Vehicle Weight Rating (GVRW) Category.2

We strongly encourage CARB to adopt the standard definition of medium-duty vehicles (MDVs) as those in Classes 3-6 (10,001 to 26,000 lbs. GVWR). Currently, many MDVs up to Class 6 utilize light-duty fueling stations as part of their routine operations, while heavy-duty vehicles (HDVs) in Classes 7 and 8 typically use dedicated HDV fueling lanes or truck stops. Aligning this definition and fueling practices with industry norms is essential. Introducing a different classification for MDVs under LCFS risks creating confusion among station developers and MDV fleet operators, potentially delaying station development and leading to stations that aren’t suited to all vehicle types.

Recommendation: Increase MDV to mean a vehicle that is rated at 10,001 and 26,000 pounds GVRW. This also requires adjusting the “Light-Duty Vehicle” (LDV) definition to mean a vehicle that is rated at 10,000 pounds or less GVRW. (15d2-222.12)

Agency Response: No changes were made in response to these comments. The LCFS definition of medium-duty vehicles aligns with CARB's EMFAC weight classes.

B-24 Definition of “Off-Road Vehicle”

Comment: *“Off Road Vehicle” should be defined in LCFS for clarity* because it is not obvious that vessels, aircraft, and other transportation or mobile sources qualify under that term. Off-road vehicle projects are needed in many areas including construction sites, factories, warehouses, seaports, railyards, airports and farms. Adding a definition will improve the clarity of the holdback program’s list of eligible projects. See Appendix A for recommended edits. (15d1-103.9)

Agency Response: No changes were made in response to this comment because no change is necessary. Existing LCFS definitions – including “on-road,” which mentions that a vehicle covered under CARB's In-Use Off-Road Regulation, Code of Regulations, title 13, section 2449, is not considered on-road – are clear which technologies fall under the off-road category as may be necessary for purposes of implementation of support for eligible equity holdback projects.

B-25 Definition of “Organic Waste”

Comment: *“Organic Waste” is material that meets both the LCFS definitions of “biomass” and “waste.”*

- WPSA requests that CARB provides some examples of what qualifies for organic waste and what does not. (45d-241.47)

Agency Response: Changes were made in response to this comment. Staff removed the definition of “organic waste” from the regulation. The definition was unnecessary in light of the definitions for “food scraps”, “forest biomass waste”, and “biomass”.

B-26 Definition of “Petroleum Product”

Comment: The previous draft LCFS regulations, released in January 2024, included a definition of “petroleum product” which included a highly problematic clause that explicitly stated that this term did “not include plastic or plastic products.” This clause was both inaccurate and confusing given that more than 99% of plastic is made from fossil fuels. We therefore support the following proposed change to the LCFS regulations in the draft released on August 12, 2024:

“Petroleum Product” means all refined and semi-refined products that are produced at a refinery by processing crude oil and other petroleum-based feedstocks, including petroleum products derived from co-processing biomass and petroleum feedstock together. ~~“Petroleum product” does not include plastics or plastic products.~~

Given the LCFS program’s focus on climate mitigation, it is worth noting that a recent study by the U.S. federal government found that global plastic production is a major driver of climate change. The study, which was conducted by scientists at the Lawrence Berkeley National Lab, estimates that by 2050 plastic production could account for between 21% to 31% of the global carbon emission budget required to limit global temperature increase to just 1.5 degrees

Celsius. Currently, the industry is responsible for four times more greenhouse gas emissions than the airline industry, or about 600 coal-fired power plants. It is important, therefore, that the LCFS program does not incentivize the production of plastic or plastic waste in any way, or suggest that plastic is not a petroleum product. (15d1-083.1)

Agency Response: No changes were made in response to this comment. Staff thanks the commenter for their support of this revision.

B-27 Definitions of Private Charging/Refueling Infrastructure

Comment: However, to ensure the LCFS decreases the CI of California's transportation fuel pool and provides an increasing range of low-carbon and renewable alternatives, Joby believes it is imperative that electric and hydrogen aviation is explicitly included within the relevant definitions. As currently defined, “private MHD-FCI charging site” means an EV fast charging site that can be limited to be available only to MHD EVs under single ownership.” Additionally, “private MHD-HRI station” means a hydrogen refueling station that can be limited to be available only to MHD FCEVs under single ownership.” These definitions, as currently stated, are unclear about the eligibility of electric and hydrogen aviation. Therefore, Joby urges CARB to explicitly include electric and hydrogen aviation within both definitions. In doing so, the LCFS program can incentivize the decarbonization of aviation within the transportation sector and, in doing so, drive progress towards achieving California’s climate targets.

The inclusion of electric and hydrogen aviation will likely have national impacts given that California policy frameworks are often used as models for federal legislation. (Apr-106.8)

Agency Response: Changes were made in response to this comment. LDVs were grouped in with MDVs and HDVs became a standalone category during the first 15-day changes, so staff created new definitions for “private LMD-FCI charging site,” “private HD-FCI charging site,” “private LMD-HRI station,” and “private HD-HRI station” to reflect these changes. These definitions do not explicitly include electric and hydrogen-fueled aviation given the current lack of commercially available aircraft falling under this classification. Stakeholders seeking crediting for specific technologies not already included in Table 5 of the regulation may address their questions with staff on a case-by-case basis and are likely eligible for a Tier 2 EER-adjusted CI application.

B-28 Multiple Comments: Definitions of Public Charging/Refueling Infrastructure

Comment: *Public LMD-FCI Charging Site and Public LMD-HRI Station* - The definition of these stations indicates that chargers or stations must not be reservable during public hours. The intent of this definition is clear and in concept, appropriate. It may be useful, however, to allow very limited exemptions from the ban on reserving chargers or stations. If a driver in a vehicle is near a station and in need of recharging or refueling, allowing them to reserve a slot while they are en route (e.g. less than an hour away) may allow for more efficient planning and allocation of charging or refueling capacity in heavily-trafficked areas. Care must be taken to ensure that automated, speculative, or consecutive reservations do not expand this exemption beyond its limited intent. (15d1-251.19)

Comment: Additionally, there is a typo in the definition of “Public LMD-HRI Station” where “EV” is used instead of “FCV.”

Recommendation: “Public LMD-HRI Station” means a hydrogen refueling station that can be restricted to light- and medium-duty EVs-FCVs and that is available to the public for at least 12 continuous hours each day, including the time interval between 9 a.m. and 5 p.m. The station must not be reservable during public hours. (15d2-222.13)

Agency Response: No changes were made in response to these comments. As the first commenter correctly notes, allowing exemptions for the non-reservability requirement would open this provision up to uncertainty, thus diluting its effectiveness. The use of “EVs” in the definition of “Public LMD-HRI Station” is indeed a typo; the definition should refer to “FCEVs” instead to be consistent with the other HRI station definitions.

B-29 Definition of “Pyrolysis”

Comment: For the definition of pyrolysis we suggest two amendments, the inclusion of both biomethane and solid carbon. (BH-010.2)

Agency Response: No changes were made in response to this comment. Biomethane and solid carbon are both already covered by the definition of “pyrolysis” via the inclusion of “combustible gases” and “biochar,” respectively.

B-30 Multiple Comments: Definition of “Recovered Organics”

Comment: Further there has been a definition added to the regulation relative to Recovered Organics. This definition is narrow in that there are other sources of organics that don’t necessarily flow through the facilities noted in the draft text. (15d1-141.3)

Comment: “Recovered Organics” is the organic fraction of municipal solid waste that is collected separately or otherwise manually or mechanically separated from the waste stream, typically at a materials recovery facility, digestion facility, compost facility or transfer station.

These edits serve to incorporate the varied sources of organics that may be used for feedstock as the sole origin of organic material may not be through processing of MSW. The deletion of the Organic Material definition in the draft text would seem to necessitate a broader definition in this regard. (15d1-141.4)

Comment: We also note that the proposed amendments include a definition for “recovered organics” that does not appear to be used anywhere else in the proposed regulation. We ask that CARB clarify how this definition is intended to be utilized in the regulation. The following definition of “recovered organics,” if necessary, would more accurately represent the manner in which organic waste is recovered from the waste stream.

“Recovered Organics” is the organic fraction of mixed municipal solid waste that is source separated at the point of generation or otherwise manually or mechanically separated from the waste stream, typically at a materials recovery facility, anaerobic digestion facility, compost facility, or transfer station. (15d1-200.3)

Comment: *Recovered Organics* - The 2nd 15 day package proposes adding language to the definition of “Recovered Organics” to specify that these can come from anaerobic digestion or compost facilities. There are certainly opportunities to recover organic materials for beneficial

utilization from streams that enter, leave, or circulate within anaerobic digestion facilities or compost facilities, however we note that the term “recovered organics” is typically used in ways that align with the original definition: where organic material is recovered from a mixed waste stream, in which some fractions are inorganic or otherwise unusable. Given that anaerobic digestion and compost facilities would, in most operational examples, be dealing with streams made up solely of organic material, this new definition may expand the concept of “recovered organics” outside of its customary use, which could lead to unexpected and/or unwanted interactions with other organic waste policies. We were unable to find instances of the term “recovered organics” being used elsewhere in the 2nd 15 day package, though our search did not exhaustively cover all of the supporting documents. Given that the term “recovered organics” seems to be sparingly used, if at all, it is difficult to ascertain the rationale behind this change or the impacts it might have, and we suggest CARB Staff provide additional clarification prior to adopting this change. (15d2-287.10)

Agency Response: No changes were made in response to these comments. In this rulemaking, staff added “anaerobic digestion facility” and “compost facility” to the definition of “recovered organics.” Recovered organics may be used as a feedstock in fuel pathways described in §95488.9(f)(2)(A), which is where this updated definition is applicable.

B-31 Multiple Comments: *Definition of “Renewable Diesel”*

Comment: In various places in the proposed regulations, CARB proposes to enumerate certain feedstocks and/or production processes, rather than retaining the feedstock- and technology-neutral approach that has typically been taken under the LCFS. In our comments, Gevo raises concerns with these proposed changes, as they imply unnecessary barriers to feedstock and technological innovation. (45d-187.3)

Comment: Gevo is concerned about the proposed revision to the definition of “renewable diesel” and the proposed definition of “renewable naphtha” in the LCFS package. CARB’s proposals would import specific feedstocks and production pathways (i.e., hydrotreated lipids and biocrudes or from gasified biomass that is converted using the Fischer-Tropsch process and portions from co-processing) into these definitions. As written, the proposed definitions would presumably exclude feedstocks and production pathways that are not enumerated. We urge CARB to reconsider this approach and to instead revert to the technology and feedstock neutral approach for these definitions.

With specific respect to Gevo, our production process – the alcohol-to-hydrocarbons conversion process – apparently would be excluded from these definitions, as would our feedstock, corn starch (or other such biomass not expressly included in the proposed definitions). Yet, renewable diesel and renewable naphtha are hydrocarbon fuels that are produced alongside our SAF (i.e., alternative jet fuel) in alcohol-to-hydrocarbons production facilities. There is no rational reason for excluding such truly renewable naphtha and diesel from the CA-LCFS program and to do so would unnecessarily limit the effectiveness of the LCFS. Moreover, by enumerating specific technologies and feedstocks (and in this case, so few), CARB would be creating an administrative barrier to the types of innovations the State wants to encourage, as regulatory revisions would have to be made each time a new feedstock or production process (or new combination thereof) were introduced. Accordingly, as

noted, we urge CARB to make these definitions neutral as to non-petroleum feedstocks and production processes. (45d-187.13)

Comment: Align the definition of renewable diesel with the definition used by the EPA Renewable Fuel Standard Program (RFS).

...

LanzaJet believes that the proposed definition of “renewable diesel” is unintentionally limited to certain production processes (hydrotreating or Fisher-Tropsch) and feedstocks (lipids, biocrudes, or gasified biomass). The proposed definition would arbitrarily exclude renewable diesels produced via alcohol-to-fuels pathways as well as via other non-enumerated feedstocks. We urge CARB to let lifecycle analysis, guided by the latest science, determine eligibility for credit generation under the LCFS and broaden the definition to include objective criteria, as was the case with the former definition.

Specifically, we suggest that CARB expand the definition of renewable diesel to align with the EPA definition of a non-ester renewable diesel under the federal RFS program:

“A fuel or fuel additive that meets the Grade No. 1–D or No. 2–D specification in ASTM D975 (incorporated by reference, see § 80.12) and can be used in an engine designed to operate on conventional diesel fuel;” (45d-346.7)

Comment: “Renewable Diesel” - The definition only includes hydrotreated lipids, biocrudes, or the products of the Fischer-Tropsch process within its definition. Other chemical synthesis approaches other than F-T may become feasible sources of feedstock for hydrotreating in the future, and thus, the present definition may overly limit the scope to exclude them. (45d-391.25)

Comment: The Proposed Revision of the Definition of “Renewable Diesel” and the Proposed Definition of “Renewable Naphtha” Should Not Be Limited in Terms of Feedstocks or Pathways (§95481(a)): CARB’s proposals would import specific feedstocks and production pathways (i.e., hydrotreated lipids and biocrudes or from gasified biomass that is converted using the Fischer-Tropsch process and portions from co-processing) into these definitions. As written, the proposed definitions would presumably exclude feedstocks and production pathways that are not enumerated. If so, our production process – the alcohol-to-hydrocarbons conversion process – apparently would be excluded from these definitions, as would our feedstock, cornstarch (or other such biomass not expressly included in the proposed definitions). Yet, renewable diesel and renewable naphtha are hydrocarbon fuels that are produced alongside our SAF (i.e., alternative jet fuel) in alcohol-to-hydrocarbons production facilities. There is no rational reason for excluding such truly renewable naphtha and diesel from the CA-LCFS program and by enumerating specific technologies and feedstocks (and in this case, so few), CARB would be creating an administrative barrier to the types of innovations the State wants to encourage. Accordingly, we urge CARB to make these definitions neutral as to non-petroleum feedstocks and production processes. (Apr-078.3)

Agency Response: Changes were made in response to these comments. The definition of “renewable diesel” was updated in the First 15-Day changes, reverting back to the original definition, which is broader in scope and covers renewable diesel

produced from chemical synthesis approaches other than the Fischer-Tropsch process. Staff also created a separate definition for “renewable naphtha.”

B-32 Multiple Comments: *Definition of “Renewable Gasoline”*

Comment: §95486 (b)(1) Table 4 - “Renewable Gasoline” has been added to the table, but its definition has not been provided. A definition of “Renewable Gasoline” should be included in section 95481. (45d-391.39)

Comment: *Renewable Gasoline* - The definition is unclear whether captured carbon that is subsequently used to produce gasoline, such as by Fischer-Tropsch synthesis powered by renewable electricity, qualifies as “renewable” for this purpose. Clarifying whether captured CO2 qualifies and if any restrictions exist for specified sources (e.g. captured CO2 from a fossil fuel powerplant) would help ensure that the implementation of related provisions match the intent of this definition. (15d1-251.20)

Agency Response: Changes were made in response to these comments. Staff created separate definitions for “renewable diesel” and “renewable gasoline.” Whether captured carbon qualifies as renewable is dependent on the remaining inputs used to produce the gasoline, and will be determined on a case-by-case basis. In either case, such fuels will be considered Tier 2 pathways under the drop-in fuels classification.

B-33 Multiple Comments: *Definition of “Renewable Hydrogen”*

Comment: We appreciate the improvements proposed for the renewable hydrogen definition but suggest some additional changes to ensure that all conversion technologies and potential feedstocks are captured, including renewable ammonia used as a feedstock to produce hydrogen.

“§95481 (a) “Renewable Hydrogen” means hydrogen derived from (1) electrolysis of water or aqueous solutions using renewable electricity; (2) catalytic cracking, partial oxidation, autothermal reforming, oxidation or steam methane reforming of biomethane or other biogenic or renewable feedstocks hydrocarbons; or (3) thermochemical conversion of biomass, including the organic portion of municipal solid waste (MSW). Renewable electricity, for the purpose of renewable hydrogen production by electrolysis, means electricity derived from sources that qualify as eligible renewable energy resources as defined in California Public Utilities Code sections 399.11-399.36.” (45d-214.34)

Comment: Low-CI Hydrogen: CARB is introducing the concept of Low-CI hydrogen throughout the Proposed Regulation. We recommend clarification on how this is different from Renewable Hydrogen. If different, Neste requests a definition for Low-CI Hydrogen be added into the Proposed Regulation. (45d-295.11)

Comment: § 95481. Definitions and Acronyms. Definition of Renewable Hydrogen

“Renewable Hydrogen” means hydrogen derived from

(1) electrolysis of water or aqueous solutions using renewable electricity;

(2) catalytic cracking, oxidation or steam methane reforming of biomethane or other renewable hydrocarbons; or

(3) thermochemical conversion of biomass, including the organic portion of municipal solid waste (MSW).

It is recommended to amend the definition as: Hydrogen derived from thermochemical conversion of biomass, including the bio-genic portion of municipal solid waste (MSW) or landfill diverted MSW which contains biogenic and non-biogenic/non-recyclable material. (45d-360.3)

Comment: Revise the definition of the term “renewable hydrogen” in the proposed LCFS amendments to allow for the use of CCS to be consistent with the 2022 Scoping Plan; (45d-365.1)

Comment: The massive scaling of low carbon hydrogen projects necessary to meet the goals of the 2022 Scoping Plan requires an “all of the above” approach to low carbon hydrogen production and ensuring that sufficient supportive financial incentives are in place. LCFS credits represent a potentially critical financial incentive for low or zero carbon hydrogen projects. However, based on how CARB proposes to define “renewable electricity,” hydrogen production would generally only be eligible to generate LCFS credits if it involves: (1) the electrolysis of water or aqueous solutions using renewable electricity; (2) catalytic cracking, oxidation or steam methane reforming of biomethane or other renewable hydrocarbons; or (3) thermochemical conversion of biomass.⁸ This narrow definition ignores, and if adopted as proposed will only serve to disincentivize, the entire low-CI hydrogen industry—a nascent but proven technology being implemented at scale in California by CRC. In light of the 1,700-fold expansion in the state’s hydrogen supply called for by the 2022 Scoping Plan, CRC believes that CARB should be encouraging all forms of low carbon hydrogen production. (45d-365.6)

Comment: Revise the definition of the term “renewable hydrogen” in the proposed LCFS amendments to allow for the use of CCS to be consistent with the 2022 Scoping Plan; (Apr-181.3)

Comment: AB 32 requires that any CARB scoping plan embrace “technologically feasible and cost-effective reductions in GHG emissions.”⁷ The 2022 Scoping Plan follows that statutory directive, but the Proposed Rules do not.

The massive scaling of low carbon hydrogen projects necessary to meet the goals of the 2022 Scoping Plan requires an “all of the above” approach to low carbon hydrogen production and ensuring that sufficient supportive financial incentives are in place. LCFS credits represent a potentially critical financial incentive for low or zero carbon hydrogen projects. However, based on how CARB proposes to define “renewable electricity” (and incorrectly assign that electricity a carbon intensity of zero), hydrogen production would generally only be eligible to generate LCFS credits if it involves: (1) the electrolysis of water or aqueous solutions using renewable electricity; (2) catalytic cracking, oxidation or steam methane reforming of RNG or other renewable hydrocarbons; or (3) thermochemical conversion of biomass. This narrow definition ignores, and if adopted as proposed will only serve to disincentivize, the entire low-CI hydrogen industry—a nascent but proven technology being implemented at scale in California by CRC. In light of the 1,700-fold expansion in the

state's hydrogen supply called for by the 2022 Scoping Plan, CRC believes that CARB should be encouraging all forms of low carbon hydrogen production. (Apr-181.11)

Comment: Revisions to the Proposed Rules are necessary to ensure consistency with the 2022 Scoping Plan and, importantly, to recognize the importance of low CI hydrogen in meeting the state's ambitious climate goals. To that end, revisions to the definition of the term "renewable hydrogen" are required, alongside the expansion and broadening of LCFS crediting programs and requirements, among others, as detailed above. (Apr-181.22)

Comment: For numerous reasons, the Proposal's treatment of hydrogen is thwarting a just transition off fossil fuels. First, the definition of "renewable hydrogen" in the Proposal and the accompanying notice of availability are misleading because CARB does not explain that the definition of "renewable hydrogen" includes hydrogen derived from reformation of fossil methane paired with book-and-claim biomethane credits. CARB allows this dirty hydrogen to be called "renewable" even though its production emits harmful pollutants and has dubious climate benefits. (15d2-173.4)

Comment: We also suggest an amendment to the definition of renewable hydrogen to include pyrolysis in section two. (BH-010.5)

Comment: Page 24: Delete the phrase "including the organic portion of municipal solid waste (MSW)" from the definition of "Renewable Hydrogen" (BH-034.12)

Comment: The LCFS can play a critical support role in the development of California's low carbon hydrogen economy. For example, strong market signals from the LCFS have supported increased production and use of biodiesel and other low carbon fuels.¹⁵ Even regarding CCS, a recent May 2022 study from the Stanford Center for Carbon Storage found that "LCFS is the single largest financial incentive for eligible CCS projects in California."¹⁶ But rather than send strong market signals or incentives in support of California's growing low carbon hydrogen industry, the Proposed Rules send the opposite signal, likely harming both the low carbon hydrogen and CCS industries. By picking winners and losers at such an early stage in the energy transition, CARB is abandoning the technology-neutral approach outlined in its own 2022 Scoping Plan where it stated that "[t]he challenge before us requires us to keep all tools on the table."¹⁷ We believe that CARB should adopt this latter approach and reverse the restrictive course proposed in the LCFS amendments. In particular, as part of this reversal, CARB needs to revise its proposal so that blue hydrogen projects are eligible to receive additional LCFS credit generating opportunities. (45d-365.7)

Comment: For numerous reasons, the Proposal's treatment of hydrogen is thwarting a just transition off fossil fuels. First, the definition of "renewable hydrogen" in the Proposal and the accompanying notice of availability are misleading because CARB does not explain that the definition of "renewable hydrogen" includes hydrogen derived from reformation of fossil methane paired with book-and-claim biomethane credits. CARB allows this dirty hydrogen to be called "renewable" even though its production emits harmful pollutants and has dubious climate benefits. (15d2-173.4)

Agency Response: Changes were made in response to these comments. Staff updated the definition of "renewable hydrogen" to make it more flexible, by including oxidation and steam methane reformation of renewable hydrocarbons as methods of

producing renewable hydrogen. “Low-CI hydrogen” refers to any hydrogen that has a CI score less than that of fossil hydrogen – all renewable hydrogen is therefore expected to be low-CI hydrogen, but it is not the case that all low-CI hydrogen must be renewable. Hydrogen produced from fossil methane accompanied with carbon capture and sequestration (CCS) is currently excluded from the renewable hydrogen definition because it uses non-renewable fossil inputs. This definition also already includes pyrolysis through its inclusion of “thermochemical conversion of biomass.” As directed by Resolution 24-14, the Executive Officer will monitor, report back to the Board as part of the next Scoping Plan Update, and propose any adjustments, if low-CI hydrogen fuel availability may impede successful expansion of similar greenhouse gas reduction policies in other jurisdictions or impede the ability of the State to achieve its air quality and climate goals, and transition to zero emission technology.

B-34 Multiple Comments: *Definition of “Renewable Naphtha”*

Comment: In various places in the proposed regulations, CARB proposes to enumerate certain feedstocks and/or production processes, rather than retaining the feedstock- and technology-neutral approach that has typically been taken under the LCFS. In our comments, Gevo raises concerns with these proposed changes, as they imply unnecessary barriers to feedstock and technological innovation. (45d-187.3)

Comment: Gevo is concerned about the proposed revision to the definition of “renewable diesel” and the proposed definition of “renewable naphtha” in the LCFS package. CARB’s proposals would import specific feedstocks and production pathways (i.e., hydrotreated lipids and biocrudes or from gasified biomass that is converted using the Fischer-Tropsch process and portions from co-processing) into these definitions. As written, the proposed definitions would presumably exclude feedstocks and production pathways that are not enumerated. We urge CARB to reconsider this approach and to instead revert to the technology and feedstock neutral approach for these definitions.

With specific respect to Gevo, our production process – the alcohol-to-hydrocarbons conversion process – apparently would be excluded from these definitions, as would our feedstock, corn starch (or other such biomass not expressly included in the proposed definitions). Yet, renewable diesel and renewable naphtha are hydrocarbon fuels that are produced alongside our SAF (i.e., alternative jet fuel) in alcohol-to-hydrocarbons production facilities. There is no rational reason for excluding such truly renewable naphtha and diesel from the CA-LCFS program and to do so would unnecessarily limit the effectiveness of the LCFS. Moreover, by enumerating specific technologies and feedstocks (and in this case, so few), CARB would be creating an administrative barrier to the types of innovations the State wants to encourage, as regulatory revisions would have to be made each time a new feedstock or production process (or new combination thereof) were introduced. Accordingly, as noted, we urge CARB to make these definitions neutral as to non-petroleum feedstocks and production processes. (45d-187.13)

Comment: CARB should consider broadening the proposed definition of “renewable naphtha;” (45d-215.1)

Comment: Twelve recommends that CARB consider broadening the proposed definition of “renewable naphtha” so that it also encompasses the E-Naphtha to be produced at Twelve’s facilities. We suggest the following possible revision to the first sentence of the proposed definition (underline to indicate additions and ~~strikeout~~ to indicate deletions):

“Renewable Naphtha” means naphtha that is produced from hydrotreated lipids and biocrudes, ~~or from gasified biomass that is converted to liquids using the Fischer-Tropsch process,~~ or from captured CO₂, water, and low-CI electricity that are converted to liquids using electrolysis and the Fischer-Tropsch process. (45d-215.8)

Comment: *“Renewable Naphtha” means naphtha that is produced from hydrotreated lipids and biocrudes, or from gasified biomass that is converted to liquids using the Fischer-Tropsch process. This includes the renewable portion of a naphtha fuel derived from co-processing biomass with a petroleum feedstock.*

- CARB should extend the definition of renewable naphtha to any type of renewable feedstocks. (45d-241.48)

Comment: “Renewable Naphtha” - Similar to “Renewable Diesel”, the definition may overly limit the scope of potential feedstock sources and exclude relevant future chemical synthesis processes. (45d-391.26)

Comment: The Proposed Revision of the Definition of “Renewable Diesel” and the Proposed Definition of “Renewable Naphtha” Should Not Be Limited in Terms of Feedstocks or Pathways (§95481(a)): CARB’s proposals would import specific feedstocks and production pathways (i.e., hydrotreated lipids and biocrudes or from gasified biomass that is converted using the Fischer-Tropsch process and portions from co-processing) into these definitions. As written, the proposed definitions would presumably exclude feedstocks and production pathways that are not enumerated. If so, our production process – the alcohol-to-hydrocarbons conversion process – apparently would be excluded from these definitions, as would our feedstock, cornstarch (or other such biomass not expressly included in the proposed definitions). Yet, renewable diesel and renewable naphtha are hydrocarbon fuels that are produced alongside our SAF (i.e., alternative jet fuel) in alcohol-to-hydrocarbons production facilities. There is no rational reason for excluding such truly renewable naphtha and diesel from the CA-LCFS program and by enumerating specific technologies and feedstocks (and in this case, so few), CARB would be creating an administrative barrier to the types of innovations the State wants to encourage. Accordingly, we urge CARB to make these definitions neutral as to non-petroleum feedstocks and production processes. (Apr-078.3)

Comment: II. Gevo Urges CARB to Make the Renewable Naphtha Definition Feedstock and Process Neutral

Throughout this LCFS revision cycle, CARB has revised various definitions to better reflect the array of feedstocks and processes that generate renewable fuels. As noted in our August 27 comments on the first 15-Day Notice, we strongly supported CARB’s proposal to make the “renewable diesel” definition process- and feedstock- neutral and we see in the Second 15-Day Notice additional efforts by CARB to better reflect an array of processes in definitions involving LCFS eligibility (for example, the proposal to expand the definition of “recovered organics.”) While we were pleased that CARB provided a new proposal for the “renewable

diesel” definition in the 15-Day Notice that would make it process- and feedstock-neutral, and note that the definitions of biomethane, renewable gasoline, renewable propane and several others are similarly neutral as to process and feedstock, we are concerned that CARB still has not proposed a corresponding change to the “renewable naphtha” definition. As we had noted in our previous comments, there is no rational reason for excluding from LCFS eligibility the renewable naphtha from a process such as Gevo’s. Accordingly, we urge CARB to also make the “renewable naphtha” definition neutral as to non-petroleum feedstocks and production processes. (15d2-226.2)

Agency Response: No changes were made in response to these comments. The scope of the definition of “renewable naphtha” is already broad, and feedstocks and processes not covered by this definition are likely to be covered by the newly proposed definition of “renewable gasoline.”

B-35 Definition of “Residue”

Comment: “Residue” - While the intent of this definition is clear, the lack of any testable significance threshold leaves it open to a variety of competing interpretations. Similar to the definitions of ‘byproduct’ and ‘coproduct’ (discussed above) a specific quantitative significance threshold could enhance the clarity of this definition.

Additionally, the proposed definition of ‘residue’ limits its scope of applicability to biofuel production, excluding other uses in bioenergy or bioproduct systems that could be relevant to future LCFS pathway certification or broader trends in the development of a circular economy. It would seem that this definition could classify something as a residue when it’s used for biofuels, but not if it were combusted to produce electricity or used as a feedstock for bioplastics.

Finally, the definition relies on establishing that a given material either has no significant value, apart from that which it could gain as biofuel feedstock, or that there would be significant costs for alternative management or disposal costs for fates other than use as a biofuel feedstock. Without a clearly identified significance threshold, this definition may be open to multiple competing interpretations.

This definition also omits a significance threshold for the term ‘secondary,’ which would allow for a variety of products or activities to be classified as residues inappropriately. If a producer creates a product that is used as a biofuel feedstock from which they obtained 49% of their total revenue stream, it could be classified as a ‘residue’ under this definition, provided that it had no market value outside of its use as feedstock and that alternative disposal would entail ‘significant’ cost, despite the fact that producers would certainly optimize their production process to maximize the value of something that provided nearly half of their revenue. (45d-391.27)

Agency Response: No substantive changes were made in response to this comment. Staff updated the definition of “residue” in the second 15-day changes to correct a typo. A quantitative threshold for classifying residues is best determined by CARB staff on a case-by-case basis while working with applicants, given the diversity of materials that applicants may desire to classify as residues. The current definition is broad enough by design to apply to both process energy and feedstocks in a biofuel pathway.

B-36 Multiple Comments: *Definition of “Rural Area”*

Comment: NCPA supports the continued inclusion of “rural areas” as eligible for equity project funding; rural communities face unique challenges that require additional assistance and support to ensure the adoption of zero-emission vehicle technologies. However, the definition of “rural” needs to be updated as the U.S. Census Bureau no longer reports rural percentages for census tract population. The Census Bureau now defines rural as “all population, housing, and territory not included within an urban area.” NCPA recommends amending the definition of “rural” within the LCFS to align with the U.S. Census Bureau’s use of “non-urban” for rural census tracts: “Rural Area” means a census tract with at least 75 percent of its population identified as rural non-urban by the latest US Census data. (45d-303.7)

Comment: PACT also supports CalETC’s recommendation to update the definition of “rural.”¹³ Aligning the definition of “rural” with the U.S. Census bureau’s will create more opportunities for potential equity benefits as M/HD ZEVs operate in a variety of communities—not just urban areas—depending on the vehicle use case.

In addition to potentially building a stronger alignment with the state’s overarching disadvantaged communities policies, adopting this broader definition of “rural” may provide more “territorial” flexibility to the Electrical Distribution Utilities (“EDUs”) to use holdback credits (to invest in, for example, grid-side distribution infrastructure for M/HD ZEVs) in the areas where the EDUs anticipate the potential for the greatest equity impact. (Apr-092.8)

Agency Response: Changes were made in response to these comments. Staff broadened the definition of “rural area” to include any areas in California not a part of the California Department of Finance’s California Urban Area Delineations.

B-37 *Definition of “Shared HD-FCI Charging Site”*

Comment: CalETC supports staff’s proposed changes in section 95481(a) to the following definitions. Please refer to our previous letters for further explanation.

...

- “Shared HD-FCI Charging Site.” (15d2-264.3)

Agency Response: No changes were made in response to this comment. Staff thanks the commenter for their support of the proposed changes.

B-38 *Definition of “Zero Emission Vehicle”*

Comment: Note that there is no definition for ZEV in the definitions and acronyms section of AB 32. This is a problem because common nomenclature for ZEV is that it’s an acronym for “Zero Emission Vehicle” and Staff uses this interchangeably with EVs (the acronym for “electric vehicles”) from time to time. This is very confusing to both participants and onlookers

The “ZEV” acronym is a marketing term used by electric vehicle (“EV”) manufacturers to brand their vehicles and make them appear cleaner to consumers than they actually are. It is a great marketing ploy because the average consumer does not know the difference between zero tailpipe emissions and zero GHG emissions. They can put a little asterisk that says “zero emission claim refers only to tailpipe emissions” and no one is any wiser. Staff does not have

that luxury as AB 32 is a complete cradle to grave GHG policy, making most EVs greater than zero emission due to the use of grid electricity for fuel. Therefore, ZEV and EV acronyms are not interchangeable within the contexts of AB 32. As it sits today, Staff should define ZEV as zero emission H2 fuel cell vehicles or EVs that only use charging stations connected to off-grid renewable power.

Broadly interchanging the acronyms "EV" and "ZEV" is misleading to participants of program, especially those less familiar with cradle to grave GHG programs. This was especially evident in the most recent workshop when there were multiple comments from the environmental justice community and other NGOs speaking negatively about dairy RNG and its role in AB 32. No grid can run on 100% wind and solar energy and while the California grid significantly lower GHG emission than the rest of the US, it is far from zero. RNG is a key feedstock to decarbonize the CA grid and reduce criteria pollutants in the state. But yet multiple EJ commenters spoke on the fuel as if it were worse than petroleum natural gas. EJ advocates and other NGOs spoke as if grid electricity were already zero emission. In truth, it is nowhere close. Staff need to be more clear with the community about that fact.

It starts with defining ZEV within the proper context of AB 32. (Apr-009.1)

Agency Response: No changes were made in response to this comment, as it does not refer to the LCFS regulation.

C. Carbon Intensity Target

C-1 Multiple Comments: *Support Increased CI Reduction Targets*

Comment: Fidelis encourages CARB to adopt the compliance targets as modeled in the February workshop of 30% by 2030, 45% 2035, 65% by 2040, and 90% by 2045, along with a one-time step down in 2025 of an incremental 5%. (45d-045.5)

Comment: Fidelis supports CARB's consideration of a one-time stepdown in the benchmark carbon intensity near term to address the rapid accumulation of excess credits. Of the 13.4 million credits in the cumulative bank, 4.7 million excess credits were added to the cumulative bank in the four-quarter period ending in Q3 2022. With the average quarterly deficit generation over this period being 5.1 million credits, the credit generation was outpacing deficits by almost an entire quarter of expected deficit generation. Fidelis recommends that CARB implements the proposed 5% stepdown in 2025 to address this growth. This step down will provide market confidence in credit pricing, enabling near term investments required to support the strengthened carbon intensity requirement. (45d-045.7)

Comment: We are in favor of a strong CI reduction target for driving down GHG emissions in the transportation sector, reducing reliance on petroleum fuels, and transitioning to electronic vehicles where feasible. (45d-152.1)

Comment: We support incorporation of a one-time 5% "step down" in the CI target in 2025. (45d-049.1)

Comment: we support the proposed standard of a 30% reduction in fuel CI by 2030, and 90% by 2045. (45d-101.2)

Comment: Audi supports CARB's interest in exploring LCFS design elements that will underpin a market incentivizing LCFS credit price. This is most directly and favorably impacted by ensuring sufficient program stringency and we would encourage CARB to consider increasing stringency mechanisms accordingly. (45d-158.2)

Comment: Strengthening the carbon intensity benchmarks throughout 2045 and including fossil jet fuel are necessary steps to ensure continued reductions in GHG emissions while providing industry with the regulatory certainty required to develop and grow low carbon fuel alternatives. (45d-176.1)

Comment: GM supports CARB's framework proposal to tighten carbon intensity stringency, adopt an acceleration mechanism and introduce a step down in stringency for 2025. The LCFS program is among the most successful regulatory programs, delivering significant reductions in carbon intensity of fossil fuels and promoting adoption of lower carbon intensive transportation modes. As such, the market is oversupplied with credits, thereby reducing their value and potential to reinvest in California's EV infrastructure development. CARB's plan to increase stringency for the LCFS market will tighten market conditions, thereby bolstering the market and further decreasing carbon intensity in liquid fuels. The proposed amendment to require a 30% reduction in carbon intensity benchmarks by 2030 is appropriate for market compliance conditions. Adding additional flexibility to the regulation with the adoption of a near-term step-down and an automatic acceleration mechanism will strengthen the LCFS market long-term. Using two credit market ratio signals as the triggers for the acceleration mechanism is appropriate to address the specific problem that the proposal is intended to address. (45d-180.1a)

Comment: Gevo strongly supports CARB's intent to strengthen the overall compliance curve. CARB's analysis clearly shows that this is needed to support California's emission goals. While we support CARB's proposal of a 30% reduction in fuel CI by 2030 and a 90% reduction in fuel CI by 2045 from a 2010 baseline at a minimum, as detailed below, we believe CARB can and should adopt an even more aggressive curve. (45d-187.1)

Comment: Gevo supports CARB's proposal to update the annual CI benchmarks through 2030 and establish more stringent post-2030 benchmarks in alignment with the 2022 Scoping Plan (45d-187.8)

Comment: EVCA and CalETC support the proposed carbon intensity targets in Table 1 (e.g., 30% in 2030 and 45% in 2045) (45d-188.2)

Comment: 2030 Target NCGA is encouraged to see CARB's proposal of a 30% reduction in carbon intensity (CI) by 2030. (45d-190.1)

Comment: Further Increasing the Stringency of the Program Will Accelerate California's Transportation Decarbonization Goals (45d-199.1)

Comment: Increase LCFS stringency to at least 30%–35% to meet the Governor’s stated goal. This will force a more rapid removal of NOx- and black carbon-emitting internal combustion engine (ICE) powered stationary and mobile sources. (45d-200.4)

Comment: Setting the target at a 30% CI reduction by 2030 should be the minimum. (45d-214.8)

Comment: Increasing the stringency of the program to reduce emissions and decarbonize the transportation fuel sector, which will also aggressively reduce our dependence on fossil fuels. We support the aim of increasing the stringency of the program, given the anticipated impacts of reducing emissions and decarbonizing the transportation fuel sector. (45d-225.1)

Comment: We support the increased reductions in carbon intensity as proposed. This includes a 25% reduction by 2025; a 30% reduction by 2030; and a 90% reduction by 2040. (45d-229.2)

Comment: As the single largest program FSE registerer, PMSA supports and welcomes raising the carbon intensity (CI) targets and benchmark proposed (45d-236.1)

Comment: LADWP supports the proposed near-term step-down (45d-237.1)

Comment: We continue to support the trajectory of increasingly stringent carbon intensity targets. Moving to a 30% CI reduction from the baseline by 2030 is both appropriate and achievable.

Comment: We strongly support staff’s recommendation of the 30% reduction in fuel carbon intensity (CI) by 2030 and a 90% reduction in fuel CI by 2045 from a 2010 baseline. (45d-263.1)

Comment: ASA is largely supportive of CARB’s proposed carbon intensity (CI) reduction targets through 2030 and the auto-acceleration mechanism. (45d-269.1)

Comment: For these reasons, the Mobile Carbon Capture Coalition supports CARB’s proposal to establish a strong carbon intensity reduction target of 30 percent by 2030 with increasing stringency in subsequent years, as the emission reductions driven by the LCFS program will be critical to ensure California remains on track to meet its climate goals. LCFS CI targets can be made more ambitious by the inclusion of a suite of transportation decarbonization technologies, including mobile carbon capture technologies that can be rapidly scaled to deliver significant climate, air quality, and public health benefits in California. (45d-270.2)

Comment: Charm supports the LCFS proposed amendments to increase both the pre- and post-2030 stringency of the LCFS CI benchmarks to incorporate a more stringent CI reduction target of at least 30 percent by 2030 and a 90 percent reduction in fuel CI by 2045 from a 2010 baseline, as well as an initial step-down of at least 5% in 2025. (45d-274.1)

Comment: EVgo supports the increased stringency of the annual carbon intensity (CI) targets and the introduction of the auto-acceleration mechanism (AAM) to deliver more greenhouse gas (GHG) emissions reductions in line with state climate goals. (45d-292.1)

Comment: With regards to the Proposed Regulation Order, NCPA supports an increase in the carbon intensity targets and the inclusion of the automatic acceleration mechanism to address current and future imbalances in the credit market. (45d-303.1)

Comment: Joby supports increasing the carbon intensity (CI) reduction target of the LCFS program to at least 30 percent by 2030 and also increasing stringency in later years. (45d-322.1)

Comment: Remora supports CARB's accelerated carbon intensity (CI) reduction target of 30% by 2030 as proposed by Staff in these LCFS amendments. (45d-326.1)

Comment: We are pleased to see that this proposal strengthens the CI reduction benchmarks both pre- and post-2030. (45d-327.1)

Comment: We agree with staff's recommendation of the 30% reduction in carbon intensity (CI) by 2030 and a 90% reduction in CI by 2040. (45d-329.1)

Comment: MN8 supports CARB's proposed amendments to increase California's LCFS carbon intensity (CI) benchmarks. California has not updated its LCFS annual CI benchmarks since 2018 and the state has made significant progress in technology development and Zero-Emission Vehicle (ZEV) infrastructure deployment since the last update. MN8 appreciates CARB staff's (Staff) in-depth analysis and engagement with stakeholders to determine appropriate benchmark updates. We agree with Staff's assessment that a reduction in the CI of transportation fuel of at least 30% by 2030 and 90% by 2045 is both achievable and necessary to meet the state's goal in transportation decarbonization and beyond. Increasing the stringency of the LCFS CI targets and implementing an automatic acceleration mechanism will provide the market with a strong incentive to make long-term investments in low carbon transportation infrastructure. (45d-345.2)

Comment: Further strengthen proposed increases to the stringency of the program. (45d-346.6)

Comment: Clean Fuels and CABA are generally supportive of CARB's proposal to strengthen the CI reduction targets in 2030 and 2035 but we reserve comment on the feasibility of a 2045 target due to the lack of data to support a target that far out into the future. We are also generally supportive of the addition of the step-down and auto acceleration mechanisms to provide ways to firm up credit prices as quickly as possible. (45d-354.1, 445d-354.2)

Comment: Nuseed applauds the increase in stringency of carbon intensity reductions from 20% below 2010 baselines to 30% by 2030 and a 90% reduction by 2045. (45d-357.1)

Comment: We Support a 30% or Greater Reduction in Carbon Intensity by 2030

While we would also support a higher CI reduction target, we recognize that a reduction scenario of at least 30% would help set California on a path to meet its ambitious target of at least a 40% reduction in economy-wide GHGs by 2030 and carbon neutrality by 2045. Strong CI reduction goals will continue to accelerate carbon reductions in the transportation sector while establishing clear market signals that will drive innovation and investments. (45d-363.2)

Comment: Rondo supports the regulatory amendments aimed at restoring equilibrium in the credit marketplace, and believes that interventions that strengthen the price signal in the near-term are particularly important. Extended periods of low prices reduce market confidence in the mechanism, which jeopardizes the ability for decarbonization projects to get financed and built. Stabilizing the credit-deficit balance will unlock projects set to deploy over the next 1-3 years – a particularly critical window in California’s efforts to reach its decarbonization goals.(45d-378.1)

Comment: PG&E supports the increase in program stringency through a near-term step down, increased 2030 and 2045 benchmarks, and the creation of an automatic acceleration mechanism...CARB’s proposed amendments are critical to carrying out the 2022 Scoping Plan for Achieving Carbon Neutrality, which charted a path to reach carbon neutrality by 2045. Importantly, credits for low-carbon fuels will support the mobile source regulations that are driving the transition to zero-emission vehicle (ZEV) technology identified as necessary in the Scoping Plan, such as the Advanced Clean Cars II and Advanced Clean Fleets regulations.

PG&E supports CARB’s overarching proposal to strengthen the Carbon Intensity (CI) reduction benchmarks in LCFS both pre- and post-2030 in support of the Scoping Plan, and specifically the 30% reduction in overall fuel CI by 2030 and 90% reduction in fuel CI by 2045 from a 2010 baseline. This is critical in order to stabilize credit prices and balance supply and demand in the LCFS market, as well as providing stakeholder and market certainty. We also support a step-down reduction in the CI benchmark of at least 5% in 2025 to increase the stringency of the CI target, sending an important near-term signal to accelerate investment in cleaner fuels. (45d-388.2)

Comment: The District fully endorses the objective of increasing carbon intensity reduction targets and extending the LCFS program through 2045. These amendments align with its commitments outlined in the Maritime Clean Air Strategy (MCAS) and are pivotal for achieving significant progress in reducing carbon emissions associated with its operations. (45d-395.2)

Comment: 3) We encourage CARB to approach increased program stringency as an ongoing need. Each element of the proposed targets (2025, 2030, 2045) is important, and deserves thorough analysis to ensure it aligns with the Scoping Plan and the state’s climate change priorities. As described above and further below, we believe this includes:

- A stronger 2025 step-down, of at least 9% and likely 10.5-11.5%
- A stronger 2030 target, of at least 34%, and likely 40+%
- A responsive AAM that is able to quickly correct program stringency if/when the market continues to overperform

We expect the 2045 target deserves further analysis, as well, but we believe the current 2045 proposal is appropriate for now. While long-term targets are important to provide an ongoing signal and vision for the program, there will be additional time to evaluate the 2045 target as part of future rulemakings. (Apr-026.3)

Comment: 4) We believe a strong 2030 target is critical to ensuring a smooth and sustained mid- to long-term market signal. We urge CARB to re-evaluate 2030 targets and ensure that

the stringency of the program in 2030 aligns with the State's climate goals (i.e., a 48% economy wide reduction in greenhouse gas emissions).

If the State wants to succeed in meeting its climate change targets, it needs to plan to succeed. Setting appropriately strong targets that align with the State's climate change goals, rather than relying on the AAM to potentially get there, is critical to achieving the outcomes identified in the Scoping Plan. This likely requires a 2030 target of at least 40%, and likely closer to the 48% economy-wide greenhouse gas reduction target. (Apr-026.4)

Comment: 1) CSE generally supports CARB's proposed amendments to the LCFS program, including the proposals to strengthen carbon intensity (CI) targets. CSE supports CARB's proposal to strengthen the CI reduction targets and expand these targets out to 2045. These actions will help stabilize LCFS credit prices and provide long - term certainty to the transportation fuels market in California. Strengthening CI targets may also encourage other jurisdictions with clean fuel standards to adopt more stringent reduction goals. (APR-028-1)

Comment: 2) Additionally, CSE supports CARB's proposed Automatic Acceleration Mechanism, which will accelerate the CI targets once certain conditions are met. This will enable CARB to respond to changes in the transportation fuel market without the need for a formal rulemaking process, while simultaneously driving progress towards California's climate and clean transportation goals. (APR-028-2)

Comment: Navy Region Southwest is pleased to express its support for the proposed Low Carbon Fuel Standard (LCFS) Amendments as presented during the public workshop on August 16, 2023. Proceeds from the sale of LCFS credits are being used to improve and expand energy and utility infrastructure at Naval Base San Diego and the Port of San Diego.

This innovative program strengthens the Navy's mission and energy resilience, allows for a consistent funding stream to aid in future planning and execution of utility projects, helps reduce greenhouse gas emissions, and improve air quality around the San Diego. (Apr-031)

Comment: NCGA appreciates CARB's additional modeling and consideration of increased step-downs of 7% and 9% in carbon intensity (CI). Increasing the step-down to 9%, instead of the originally proposed 5%, is an appropriate value that can reset the current credit-to-deficit ratio and make use of the existing credit bank. The 9% step-down is necessary, as it will remove about 16 million credits from the program, a needed adjustment to stabilize the market and leave an adequate number of deficits in the bank. (Apr-038.1)

Comment: The Coalition for Clean Air supports Increase the stringency of the program and add an acceleration mechanism. Meeting California's greenhouse gas emission caps under SB 32 and AB 1279 will require more rapid progress in phasing out petroleum fuels in the transportation sector, our largest source of climate-changing emissions. Alongside CARB's regulations and incentives for deploying cleaner engines, and the state's as-yet unrealized targets for reducing vehicle miles travelled, the LCFS provides a vital tool for curbing transportation emissions, as reiterated by the 2022 Scoping Plan Update, which calls for a 94% reduction in petroleum use and identifies the LCFS as a key route to that goal. Therefore, we support the proposed standard of a 30% reduction in fuel CI by 2030, and 90% by 2045,

with inclusion of an automatic acceleration mechanism as a backstop to assure that the market for cleaner fuels stays at a robust level. (Apr-039.2)

Comment: GM supports CARB's framework proposal to tighten carbon intensity stringency, adopt an acceleration mechanism and introduce a step down in stringency for 2025. CARB's plan to increase stringency for the LCFS market will tighten market conditions, bolstering the market and further decreasing carbon intensity in liquid fuels. The proposed amendment to require a 30% reduction in carbon intensity benchmarks by 2030 is appropriate for market conditions. Adding additional flexibility to the regulations with the adoption of a near-term step-down and an automatic acceleration mechanism will strengthen the LCFS program long-term. Using two credit market ratio signals as the triggers for the acceleration mechanism is appropriate to address the specific problem that the proposal is intended to address. (Apr-053.1)

Comment: Gevo Supports Strengthening the Compliance Curve, Step Down, and Automatic Acceleration Mechanism. (Apr-078.1)

Comment: In closing, we support the most aggressive CI reductions that CARB determines feasible and commend CARB for the success of the LCFS program. (Apr-081.2)

Comment: We support CARB using the three main levels: (1) CI targets, (2) CI step-down, and (3) AAM in the April Workshop and Proposed LCFS Amendments. To maintain existing investments, encourage future investments to meet long-term climate goals, and provide a stable credit market, CARB should develop a mix of percentage decreases based on an outcome that stabilizes the credit bank from its currently unsustainable oversupply levels. (Apr-082.5)

Comment: First Element Fuel supports staff's recommendations to enact a steeper step-down and accelerate the auto adjustment mechanism to bolster the credit prices as soon as possible. (Apr-083.1)

Comment: Tesla applauds CARB's long-term vision of setting a 90% reduction target by 2045. This cements California as the clear leader in the transportation decarbonization policy space, with the farthest-forward decarbonization target of any transportation decarbonization program globally. It also sets California on a path to reach Net Zero by 2045, as envisioned by Executive Order B-55-18. (Apr-091.2)

Comment: One of the most significant aspects of CARB's proposed changes is the tightening of CI benchmarks for fuels. Rafzen is particularly well-prepared to meet these challenges, thanks to our proprietary technology known as E2G, which converts sugarcane waste bagasse into ethanol (15d1-019.2)

Comment: We were encouraged by the increased ambition reflected in the 2025-2029 carbon intensity (CI) benchmarks, particularly the 9% step-down set for 2025. This more aggressive implementation schedule offers the potential to restore a healthy balance to the credit market, while also better aligning with the state's capacity for meaningful carbon reductions across a broad spectrum of technologies.

As shown in the following charts, the program has been significantly outperforming the current CI benchmarks. While this overperformance is a positive development for the climate, it has inadvertently led to a decrease in credit prices and slowed investment in the clean technology sector. The proposed 9% step-down, coupled with the possibility of activating the Automatic Acceleration Mechanism (AAM), will address this fundamental issue more effectively than the original proposal, helping ensure the program continues to drive substantial carbon reductions while maintaining economic viability in the clean technology market. (15d1-033.1)

Comment: Promus supports CARB recommendation of a 9% CI reduction stepdown in 2025 to rapidly help bring credits and deficits into balance. However, as Promus and other interested parties have pointed out in past comment periods, a more aggressive 2030 target will be needed to prevent potential weakness in the credit market between 2025 and 2030. Promus recommends at least a 39% CI reduction target by 2030 to ensure both near- and medium-term strength in the credit market. (15d1-041.1)

Comment: WeaveGrid offers strong support to increase the stringency of the program. WeaveGrid applauds CARB's proposed amendments to the carbon intensity benchmarks to increase the stringency of the program by bringing LCFS credits and deficits in balance.⁷ To maintain the long-term effectiveness of LCFS, we believe at least a 9 percent step-down is required in 2025. As stated previously, LCFS is a critical funding source in the state for transportation electrification efforts, so maintaining reliable credit prices is necessary. Given the prominent role that LCFS plays, we are highly supportive of CARB's efforts to strengthen compliance measures, which can ultimately increase the program's success in reducing transportation emissions and promoting cleaner fuels. (15d1-051.3)

Comment: Newtrient applauds CARB and is encouraged to see that the proposed amendments aim to set more ambitious carbon intensity targets. A strong CI reduction target is a critical component for driving down (GHG) emissions in the transportation sector, reducing reliance on petroleum fuels, and transitioning to electric vehicles where feasible. We are pleased to see that staff have proposed a more aggressive step-down of 9% in the 15-day changes. This is a much-needed market correction, to align targets with available supply, which has been delivered to the LCFS program in excess in recent years, creating a credit bank. While this alone will not fully address the oversupply of credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of GHG emission reductions that would've otherwise gone unabated. (15d1-052.1)

Comment: Cargill welcomes CARB's proposal of a near-term increase in stringency to a 9% CI reduction in 2025 as a way to stabilize LCFS prices, but we believe there is room for a more impactful step-down given the build in the LCFS credit bank as the industry responds to the demand of lower carbon liquid transportation fuels in California. The over-performance of the program is a testament to its success, and we believe the proposed adjustment will be supportive to higher credit prices and continued investment in the state's transition to cleaner energy. (15d1-053.1)

Comment: Kia supports CARB's proposal for a "near-term increase in stringency of 9 percent CI reduction in 2025 (15d1-054.3)

Comment: As stated in Eco's comments on the Proposed Amendments issued on December 19, 2023, including a step-down mechanism is a crucial element of the proposed rules and, if implemented correctly, could help stabilize the credit market. EcoEngineers supports the increase in the step-down mechanism from the originally proposed 5% to 9% in 2025. Our modeling has shown that this will be valuable for program performance in the short and medium term, and we thank CARB for re-examining this key element for program success. (15d1-059.1)

Comment: we strongly support CARB's proposal for a 9% step-down in 2025, which will help relieve the surplus in credits and help support the market and credit pricing so that it can efficiently incentivize low carbon fuels and reduce emissions. (15d1-060.1)

Comment: We applaud Staff's proposal of a more aggressive Carbon Intensity ("CI") step-down of 9% from the previous 5% in the 15-day changes. This is a much-needed market correction in order to align targets with available supply, which has been delivered to the LCFS program in excess in recent years, creating a credit bank. While this alone will not fully address the oversupply of credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of GHG emission reductions that would've otherwise gone unabated. (15d1-062.1)

Comment: In both of our earlier sets of comments, Gevo supported CARB's intent to provide a near-term CI stringency increase (i.e., "stepdown") in tandem with a strengthening of the overall compliance curve and adoption of an Automatic Acceleration Mechanism (AAM), while also urging CARB to go farther in increasing the stringency of these provisions. (15d1-064.1)

Comment: Page 5, Section 95484 – Increases the near-term average carbon intensity benchmarks' stringency to a 9% CI reduction in 2025 from the 5% year-to-year increase included in the initial amendments' proposal (will help bring the deficits and credits back into balance). The compliance targets between 2025 and 2030 are adjusted in the 15-day modifications package to smooth the curve between the more ambitious 2025 compliance target and the originally proposed 30% reduction in 2030 that will be maintained. TTP commends the 9% CI reduction (15d1-066.3)

Comment: we strongly support a step-down in stringency of at least 9% and the inclusion of the AAM as a new feature of the program (15d1-069.3)

Comment: Electrochaea supports the proposed modification to Section 95484 of the annual carbon intensity (CI) benchmarks to further advance the States attainment of a net-zero carbon economy. The proposed 9% reduction in the annual CI benchmark for fuels, used as a substitute for fossil fuels, from the previously proposed 5% reduction, is a welcome modification. The increased stringency should have a positive outcome on the further adoption of low CI fuels in the California transportation market. (15d1-072.1)

Comment: In reality, the proposed 9% stepdown in GHG emissions and increase in stringency will promote low carbon intensity feedstock fuels immediately, making a crop-based biofuel cap wholly unnecessary. Importantly, this would allow California to maintain optionality and better navigate potential reactionary fuel price impacts on drivers. (15d1-073.2)

Comment: First and foremost, Joby supports increasing the carbon intensity (CI) reduction target of the LCFS program. As expressed in our previous comments, a more ambitious initial step-down – when paired with the “auto-acceleration mechanism” – will help to expedite investments in low-carbon fuels and serve to maximize California's potential for emissions reduction in the transportation sector. (15d1-076.1)

Comment: Therefore, Joby is appreciative of the proposed near-term increase in stringency to a 9% CI reduction in 2025 in the 15-Day Changes.⁴ This increased stringency aligns with the 2022 Scoping Plan Update, which finds that the aviation sector holds an important role in California's ambitious journey toward carbon neutrality by 2045. (15d1-076.2)

Comment: PineSpire supports the strength of the proposed amendments to the regulation, including the strengthened CI standards, Auto-Acceleration mechanism, and overall efforts to improve the integrity of credit generation. We continue to support starting the auto-acceleration method sooner, in order to ensure the changes made in this rulemaking are meaningful in the near term as well as long term. (15d1-086.1)

Comment: As the largest producer of renewable diesel in the United States and the single largest generator of credits under the California Low Carbon Fuel Standard (LCFS), Diamond Green Diesel LLC (DGD) strongly supports the increased step-down in the carbon intensity benchmarks as proposed in the August 12, 2024 15-day comment package.

As CARB staff have recognized, LCFS credit prices have plummeted in recent years, undermining investments necessary to stimulate continued expansion of the clean technology sector. Having recently invested approximately \$315MM to develop production facilities for sustainable aviation fuel (SAF), we are reassured to see CARB's increased commitment to setting targets that are realistic and attainable, yet ambitious enough to reenergize the LCFS credit market. This increase in ambition is particularly welcome in light of the current 15-day proposal, which eliminates the obligation on jet fuel. (15d1-097.1)

Comment: BART also supports the proposed amendments that will strengthen the price of LCFS credits such as increasing the stringency of the program and capping certain kinds of biomass. The recent steep decline in credit prices has noticeably impacted BART's budget, which is still hundreds of millions of dollars in deficit. Transit systems around the country have not recovered from the COVID passenger decline, with the Bay Area being most impacted. BART is coping with severe fiscal issues facing a substantial budget shortage beginning in fiscal year 2027. (15d1-099.2)

Comment: Oberon strongly supports the increased stringency to a 9% carbon intensity reduction in 2025 from the 5% originally proposed in the 45-day package. This adjustment reflects a necessary step toward more robust climate action. This single adjustment will translate into millions of additional tons of GHG emission reductions and act as a supportive market signal for new clean fuel projects that have been or are being constructed to bring more clean fuels to market. (15d1-105.1)

Comment: Finalize the Newly Proposed 2025 Carbon Intensity Benchmark

Short-term conditions in the LCFS credit market are a top concern for businesses like ours that earn credits under the program. Rivian has consistently supported a one-time stepdown in the

2025 carbon intensity (“CI”) benchmark to course-correct the credit market, which currently suffers from a glut of credits stemming from a sustained period of overcompliance.

As of Q1 2024, the cumulative credit bank stood at approximately 26 million metric tons

(“MT”). Moreover, the bank has grown extremely quickly over the past two years.² Based on the trend since the start of 2020, we estimate that the bank could total approximately 35 million MT by the end of 2024, immediately preceding the earliest opportunity for regulatory amendments to take effect.

We appreciate the staff’s efforts to address this overcompliance with a one-time stepdown. Rivian provided extended feedback on the magnitude of the stepdown after both the ISOR and the April workshop, arguing that the previously proposed adjustments to the CI curve were not sufficient to rebalance the market.

Rivian welcomes the progress made in the newly modified amendments, which now call for a 9-percentage point stepdown in 2025. This is a big step forward and we are grateful to the staff for proposing this. Importantly, the initial market reaction to the proposal was positive. We respectfully urge the Board to implement this change as a necessary step toward rebalancing the LCFS program and credit market. (15d1-107.1)

Comment: Support of compliance targets and curve smoothing - Re: Modifications to Section 95484. Annual Carbon Intensity Benchmarks. ABFC supports the increased stringency of the LCFS (from 5% to 9%) in the 2025 compliance year and a smoothed trajectory towards the 2030 target of 30% reduction. (15d1-113.4)

Comment: Support for increased program ambition for 2025 and beyond

We strongly support CARB’s proposal to change the carbon intensity reduction target for 2025 to 9%. Since its implementation over a decade ago, the LCFS has proven highly successful in both encouraging market investment in low carbon fuels and lowering emissions in the transportation fuel sector. To help ensure a healthy LCFS credit market that can keep pace with these investments, we strongly support CARB’s plans to strengthen the existing emission targets for 2030 and beyond. Therefore, we encourage CARB to adopt the 9% near-term stepdown presented during the April workshop, thereby recognizing the carbon intensity (CI) reduction successes of the program over the previous years. This better aligns with the findings of the consulting firm ICF, which suggests an optimal stepdown range of 10.5% to 11.5% for 2025 and targeting a credit bank size equivalent to two quarters worth of deficits. By making appropriate adjustments, CARB can reflect the strong market supply scenario, thereby fostering the development of additional solutions to further drive down the state’s emissions with SAF. (15d1-111.3)

Comment: CARB’s proposal to increase the annual carbon intensity (CI) reduction benchmark in 2025 from 5% to 9% will drive further investment into the state as California continues to exceed its clean fuel goals. (15d1-116.1)

Comment: Support for Increased Stringency

We strongly support the proposed near-term increase in stringency to a 9% CI reduction, rather than the 5% year-over-year increase outlined in the Initial Statement of Reasons (ISOR)

proposal. The 9% reduction offers the greatest certainty for rebalancing the LCFS credit bank in the short term and is the chief reason this rulemaking should be finalized on November 8th. (15d1-130.2)

Comment: Fidelis supports the proposed 9% stepdown in the compliance benchmark CI in 2025 and the implementation of the Automatic Acceleration Mechanism (“AAM”) to ensure long-term program stringency.

Both the initial stepdown in 2025 and AAM are critical to address the current overperformance of the program and support the necessary investments to meet the long-term program targets and State goals. (15d1-132.2)

Comment: Proposed Change to Reduce the Carbon Intensity Target by 9% in 2025: Air Products applauds CARB’s bold step and supports the recommendation to reduce the carbon intensity (CI) target in transportation fuels by at least 9% in Q1 2025. We also strongly support CARB’s retention of the auto- acceleration mechanism included in the amendment package which will enable timely stringency adjustments to maintain strong market signals for the development of lower carbon transportation fuels. (15d1-135.1)

Comment: BAC strongly supports the more stringent carbon intensity reductions in the proposed 15-day language, including the 9 percent reduction required in 2025.1 These proposed changes will better align the LCFS program with the requirements of SB 32 and SB 1383, which require 40 percent reductions in California’s overall greenhouse gas emissions and methane emissions, as well as a 50 percent reduction in anthropogenic black carbon emissions, by 2030. The proposed changes will also better align with the target of AB 1279 to achieve carbon neutrality by 2045. (15d1-136.6)

Comment: ICA greatly appreciates CARB staff’s decision to modify the near-term increase in stringency to a 9% CI reduction in 2025 and enable auto acceleration mechanism (AAM) as this should help restore the LCFS credit price in the near term. ICA believes that the proposed CI reduction target (i.e., 30% in 2030) may not be enough to stabilize the LCFS credit price longer term and appreciates the opportunity to revisit the CI reduction targets to ensure the proposed amendments will enable future investment in clean fuels that are required to meet CARB’s goals. (15d1-140.1)

Comment: EVCA and CalETC support the proposed carbon intensity targets in Table 1 and Table 2 (e.g., 30% in 2030 and 90% in 2045) including the 9% step-down in the first year. EVCA and CalETC applaud staff for aligning the proposed Tables 1 and 2 requirements with CARB’s Scoping Plan vision and providing industry and stakeholders with the certainty needed for LCFS to be successful to planners, implementers, and investors.

Currently the LCFS is overperforming as the carbon intensities are too easy for the market to meet, leading to low credit prices that are undermining investment in electric cars, trucks, buses, and charging infrastructure, as well as infrastructure for other low-carbon fuels. Multiple models support increasing the stringency of the LCFS to a minimum 30 percent reduction in carbon intensity by 2030. It is essential that the stringency be increased expeditiously and be implemented as soon as possible to ensure the LCFS continues to contribute substantially to the state’s clean air, climate change, and zero-emission transportation requirements and goals. The LCFS has been a highly successful program as part of a broad package of

regulations and incentives to address climate change. For the LCFS program to continue to be successful, the annual compliance requirements on regulated parties should be strengthened and extended. Currently, the LCFS credit market suffers from credit oversupply issues. When the 2030 standard was adopted, the CARB Board made it clear the standard could be adjusted if market circumstances called for adjustment. CARB must expeditiously address this market supply issue; increasing the overall stringency of the LCFS regulation is one way to accomplish this.

Regarding the need for a 9 percent step down, the credit bank is currently on track to have 30 million credits or more by the end of 2024. A step down of 7% is likely to reduce the bank by approximately six million credits, which is not enough of a drawdown to stabilize the market. That is why EVCA and CalETC support a strong step down of at least nine percent, which is likely to reduce the bank by sixteen million credits. A nine percent step down is the best and most efficient way to quickly relieve this glut in credits and get the market back on track so that it can efficiently incentivize low carbon fuels and reduce emissions. (15d1-150.5)

Comment: ABFA believes that federal and state carbon intensity (CI) targets allow the feedstock and biofuels market to function efficiently. As carbon intensity targets increase, the demand for feedstock producing low carbon intensity biofuels will increase driven by currently available federal and state tax credits. Most notably, the expiring CI-agnostic federal blenders tax credit (BTC) will be replaced in 2025 with the Inflation Reduction Act's (IRA) CI-dependent 45Z Clean Fuel Production Credit (CFPC) rewarding the use of low carbon intensity feedstocks with higher credit value.

In conjunction with CARB reducing its CI targets by 9 percentage points in 2025, ABFA feels that no further restriction on feedstock use is necessary; the market will determine the most economic path forward to produce the low carbon intensity biofuels required on a federal and state level. (15d1-151.1)

Comment: Stringency: We support the LCFS 15-day change provisions that increase the stringency of the program, as reflected in Tables 1 and 2. These changes will reduce the size of the credit bank and help improve the LCFS regulatory signal. (15d1-164.2)

Comment: Given that the LCFS is fundamental to reducing carbon emissions from the transportation sector, Electric Hydrogen is appreciative of the proposed near-term increase in stringency to a 9% carbon intensity (CI) reduction in 2025.² This is an important step in helping to realize the climate benefits needed to reach California's environmental and clean energy goals.

To effectively leverage hydrogen for decarbonization, the state must significantly boost demand for green hydrogen. The LCFS program is essential in driving this demand within the transportation sector, fostering industry scale, and reducing green hydrogen costs across the economy. Scaling the industry is vital to supporting the 2022 California Scoping Plan for Achieving Carbon Neutrality, which indicates that California must increase green hydrogen production by 1700-fold to meet its net-zero goal by 2045.³ Additionally, the LCFS program is crucial for advancing statewide clean energy objectives, including the clean hydrogen hub through the Alliance for Renewable Clean Hydrogen Energy System. Since California's LCFS program frequently serves as a model for other low-carbon initiatives across the U.S., it is

crucial to ensure it sends the right market signals to effectively expand the clean hydrogen economy. (15d1-173.1)

Comment: The following comments and recommendations are consequently limited in scope and detail by the abbreviated comment period.

The LCFC commends CARB for increasing the Step-Down from 5% to 9%, and for maintaining the Auto-Acceleration Mechanism, to better rebalance the credit bank. The increase is supported by the Initial Statement of Reasons (ISOR) analysis by ICF, which indicated that achieving a target credit bank equivalent of 2-3 quarters worth of deficits requires a step down of 10.5% to 11.5% in 2025. (15d1-185.1a)

Comment: We appreciate CARB's proposal to modify the 2025 carbon intensity target from a 5% to a 9% step down to help rebalance the market, address the oversupply of credits, and make additional progress toward California's climate and clean air goals. We also acknowledge that there has been significant stakeholder concern and debate over the sustainability of certain biofuel pathways as well as the carbon reductions attributed to those fuels. The proposed limit on credits for biomass-based diesel produced from virgin soybean and canola oil is a step in the right direction on this front, and we commend CARB for taking an initial step to address stakeholder concerns. However, the market response to the stringency and sustainability provisions to date has been muted. We support the proposed amendments overall and look forward to program implementation in early 2025, but we also encourage CARB staff and Board Members to continue refining the program as needed to better support the State's mandates for a transition to zero emission transportation. (15d1-198.6)

Comment: We along with many other stakeholders strongly support more stringent carbon reduction targets, including a more aggressive target in 2025. (15d1-200.1)

Comment: While we applaud the increase in stringency of the 2025 LCFS target we urge CARB to put bio-based jet fuel and gasoline back in and avoid backtracking on climate ambition. (15d1-201.5)

Comment: Strongly support CARB's decision to increase the near-term step-down to 9% starting in 2025 and the discretion given to the Executive Officer to make future changes to supply eligibility, but share concerns of others that these amendments alone may not address the more fundamental problem of oversupply (15d1-203.5)

Comment: The precipitous decline in credit prices has affected investment in electrification; it has made infrastructure financing more difficult and pushed out investment in fleet electrification. While we support ARB's proposal to increase program stringency in the short-term and believe this will have a positive effect on electrification investment, it remains to be seen if these amendments will address the more fundamental issue of oversupply in the long run. (15d1-203.13)

Comment: We strongly support the program and encourage CARB to adopt amendments at the November 8, 2024, Board meeting, including those that extend the program through 2045, step-down program stringency by at least 9% in 2025, create an auto acceleration mechanism to automatically strengthen program stringency when market conditions warrant, (15d1-204.1)

Comment: We also offer general comments on the 15-day package, supporting the proposed 9-percent increase in stringency (15d1-207.1)

Comment: We support the ambitious 9-percent stepdown in the CI benchmark that CARB proposed in the 15-day package. (15d1-207.5)

Comment: LADWP supports CARB's proposed 30 percent reduction in fuel carbon intensity (CI) by 2030 and 90 percent reduction in fuel CI by 2045. To comply with long-term zero emission vehicle adoption targets of regulations such as Advanced Clean Cars II, Advanced Clean Fleets, Advanced Clean Trucks, and others by the 2045 deadline, extending the LCFS program is essential in supporting the transition. (15d1-208.1)

Comment: LADWP supports CARB staff's proposal to modify the near-term increase in stringency to a nine percent CI reduction in 2025 from the five percent year-to-year increase included in the initial 45-Day Proposal. (15d1-208.2)

Comment: SUPPORT: we are pleased to see the proposed 9% step down (vs. a prior 5%) be implemented in Quarter 1, 2025. Without it, the credit bank will not reduce fast enough and we will be stuck in a depressed LCFS price environment. (15d1-209.1)

Comment: We appreciate and strongly support a step down of at least 9% in 2025. (15d1-212.3)

Comment: The ongoing development and operation of low carbon fuel projects, including dairy RNG projects, requires programs like the LCFS to provide and maintain a strong and clear market signal sufficient to attract capital for new projects and to maintain operations at existing RNG facilities. In previous comments,¹ we have described how the bank of excess credits could reach about 38 million by the end of 2024, almost 6 times quarterly deficit generation. According to our analysis, a step-down to 25% in 2025, coupled with a stronger target of at least 35% in 2030, is necessary to correct for this projected level of surplus credits. Note that this would translate to a ~11% step down in 2025 and aligns with similar analysis and findings from ICF.²

Still, the increase in the step-down to 9%, as proposed in the 15-Day Changes, represents significant progress towards addressing the excess credit bank. We appreciate CARB proposing to increase the step-down and have it take effect in Q1 2025, provided the regulation is finalized before April 2025. We strongly support this proposal and encourage CARB to work to finalize the regulation before April 1, 2025 – so that the step down may take effect in Q1 and to avoid an ongoing buildup of the credit bank. (15d1-212.10)

Comment: We Support an Immediate Step-Down of CI Targets by at least 9%, effective January 1, 2025, as Critical to the LCFS Program's Success

Anew supports the proposal in the 15-Day Package to modify the near-term increase in stringency to a 9% CI reduction in 2025 from the 5% year-to-year increase included in the initial proposal. Given the LCFS credit surpluses generated over the last two years, a significant and near-term step-down of at least 9% is critical. Based on available market information to date, the LCFS credit bank will continue to grow for the remainder of 2024 as more credits are being generated than are needed to meet the current CI benchmarks. Without

intervention, this will cause the market to stall or even fall further, undermining a key goal of the program—to incentivize investment in low-carbon fuels and fuel technologies. The step-down reflects the current effectiveness of the program, which suggests that the pace of CI reductions can be increased through the benchmarks.” (15d1-220.1)

Comment: We further support making the step-down effective as of January 1, 2025, even if retroactive application is required. Many groups had initially urged CARB to target an implementation date of no later than January 2024. Given the dramatic oversupply in the market, implementation of a step-down as soon as possible is critical to the integrity of the market going forward. Near-term action by CARB would send a strong signal that California remains committed to rapid decarbonization of its transportation sector and that investments in low-carbon fuels continue to be adequately rewarded and incentivized in California. (15d1-220.2)

Comment: We believe that immediate implementation of a step-down of at least 9% is one of the most consequential and important steps CARB could take in this rulemaking process, and it is vital to the future of the LCFS program. (15d1-220.3)

Comment: We Support a 30% or Greater Reduction in Carbon Intensity by 2030

While we would also support a higher CI reduction target, we recognize that a reduction scenario of at least 30% would help set California on a path to meet its ambitious target of at least a 40% reduction in economy-wide GHGs by 2030 and carbon neutrality by 2045. Strong CI reduction goals will continue to accelerate carbon reductions in the transportation sector while establishing clear market signals that will drive innovation and investments. We are also supportive of the proposal to smooth out the compliance target curve between 2025 and 2030 as included in the 15-Day Package. (15d1-220.4)

Comment: PG&E supports program stringency, FCI, and holdback program administration spend modifications, with additional changes. (15d1-224.2)

Comment: PG&E supports the proposed increased stringency, including 30% in 2030 and 90% in 2045 and a 9% step-down in the first year. (15d1-224.9)

Comment: WIE strongly supports the near-term increase in stringency to a 9% carbon intensity (CI) reduction from the 5% year-to-year increase included in the Initial Statement of Reasons (ISOR) proposal. The 9% step-down scenario provides the most certainty to rebalance the LCFS credit bank in the short term, as intended within this rulemaking. (15d1-226.2)

Comment: The ambitious 2025-2029 carbon intensity (CI) benchmarks, particularly the 9% reduction in 2025...[is] vital to restoring balance to the credit market and ensuring the program meets its GHG and co-pollutant reduction goals, (15d2-091.2)

Comment: CleanFuture particularly appreciates and supports the acceleration of the rate of carbon intensity (“CI”) reductions, the extension of the CI reduction tables to 2045, and the continued expansion of electrification crediting. (15d2-181.1)

Comment: We would like to express our general support for the new amendments to the program, and would recommend CARB consider more ambitious targets in subsequent rulemakings for overall CI reduction targets higher than 30% by 2030. (15d2-188.1)

Comment: We support the step down of 9% but it could be even larger. (15d2-188.2)

Comment: Strong support of the proposed carbon intensity (CI) targets. (15d2-192.4)

Comment: Clean Fuels and CABA strongly supports the proposed CI targets and Automatic Acceleration Mechanism and encourages the Board to adopt the proposed changes to the LCFS, including our recommendations stated above, at its November 8th Board meeting. (15d2-192.16)

Comment: CleanFuture particularly appreciates and supports the acceleration of the rate of carbon intensity ("CI") reductions, the extension of the CI reduction tables to 2045, and the continued expansion of electrification crediting. (15d2-199.1)

Comment: As such, the market is oversupplied with credits, thereby reducing their value and potential to reinvest in California's EV infrastructure development. CARB's plan to increase stringency from 5% to 9% to achieve a 22.75% carbon intensity reduction will tighten market conditions, bolstering the market and while continuously decreasing carbon intensity in liquid fuels. (15d2- 204.2)

Comment: The proposed amendment to require a 30% reduction in carbon intensity by 2030 continues to be an appropriate benchmark for market conditions. Adding additional flexibility to the regulation with the adoption of a near-term step-down and an automatic acceleration mechanism will strengthen the LCFS program long-term. Using two credit market ratio signals as the triggers for the acceleration mechanism is appropriate to address the specific problem that the proposal is intended to address. (15d2- 204.3)

Comment: support The 9% step down in program stringency in 2025 and extension of the program and CI benchmarks through 2045 (15d2-206.11)

Comment: The immediate step-down of CI targets by 9%, effective January 1, 2025, because this is critical to the LCFS program's continued success. This is one of the most consequential and important steps CARB is taking in this rulemaking process, and it is vital to the future of the LCFS program. (15d2-212.2)

Comment: The 30% reduction in carbon intensity by 2030, because this sets California on a path to meet its ambitious target of at least a 40% reduction in economy-wide GHGs by 2030 and carbon neutrality by 2045. Strong CI reduction goals will continue to accelerate carbon reductions in the transportation sector while establishing clear market signals that will drive innovation and investments. We are also supportive of the proposal to smooth out the compliance target curve between 2025 and 2030 as included in the 15-Day Package. (15d2-212.3)

Comment: We strongly support the 9% stringency step-down (15d2-218.2)

Comment: As noted in our prior comments¹, we remain generally supportive of the more stringent carbon intensity (“CI”) targets and 9% “stepdown” included in the proposal and encourage CARB to finalize these aspects. (15d2-219.1)

Comment: As such, we applaud CARB’s proposed 30% reduction in fuel carbon intensity (CI) by 2030 and 90% reduction in fuel CI by 2045, as a means of aligning with greenhouse gas emission caps under SB 32 and AB 1279. (15d2-223.1)

Comment: Strong support of the proposed carbon intensity (CI) targets, including the 9% stepdown in 2025. (15d2-274.5)

Comments: Oberon strongly supports the increased stringency to a 9% carbon intensity reduction in 2025 from the 5% originally proposed in the 45-day package. This adjustment reflects a necessary step toward more robust climate action. This single adjustment will translate into millions of additional tons of GHG emission reductions and act as a supportive market signal for new clean fuel projects that have been or are being constructed to bring more clean fuels to market. (15d2-278.3)

Comment: Support updates to the Carbon Intensity Standard and Auto Adjustment Mechanism. SRECTrade applauds CARB’s amendments to tighten carbon standards and provide increased stability to the LCFS program. Additionally, we support the proposal to move the auto adjustment mechanism to a rolling four quarter trigger which will bring greater market certainty and improve responsiveness of the regulation to market supplies and demands. (15d2-288.1)

Comment: To address the current uncertainty in market pricing, we support CARB using the three main levers: (1) Carbon Intensity (CI) targets, (2) CI step-down, and (3) Auto Acceleration Mechanism (AAM) in the Proposed LCFS Amendments. To maintain existing investments, encourage future investments to meet long-term climate goals, and provide a stable credit market, CARB should develop a mix of percentage decreases based on an outcome that stabilizes the credit bank. CARB should also maintain the current regulatory structure for avoided methane crediting and deliverability of low carbon fuels. (15d2-290.2)

Comment: The new proposed targets will ensure that the program continues to achieve high levels of emission reductions. (15d2-300.2)

Comment: VGIC strongly supports the modifications being proposed by staff in these amendments to strengthen the LCFS program. Given LCFS’s success so far, increasing the program stringency is the right step towards furthering its goals: driving California towards the use of cleaner fuels and decarbonizing the transportation sector as a whole. (15d2-305.1)

Comment: The proposed amendments expand the program past 2030 to 2045, increase carbon intensity reductions to 90%, and take several measures to reduce the accumulated bank of credits and increase credit values. This programmatic expansion will provide essential economic support to help fleets make the investments to operate ZEVs. (BH-013.3)

Comment: SMUD supports the LCFS program. Transportation electrification is a key component of SMUD’s 2030 Zero Carbon Plan. LCFS provides crucial funding support for

programs and investments that can advance electric transportation in our region while helping keep SMUD's electric rates among the lowest in the state. (BH-033.3)

Comment: Fidelis supports the proposed CI benchmarks and mechanisms to support the long-term stringency of the program including the 9% stepdown in 2025 and the Automatic Acceleration Mechanism ("AAM").

The increased stringency in CI benchmarks, the 9% stepdown in 2025, and AAM will significantly strengthen the LCFS program and ensure the continued success of the program. These steps will address the current overperformance of the program and provide a concrete mechanism for addressing future overperformance, providing the long-term confidence required to support continued low carbon fuel investments. (BH-037.2)

Comment: Notably, we strongly support the nine percent step down in 2025 and the 30 percent CI target in 2030 that together provides the regulatory certainty that is needed to rebalance the market. (BHT-84)

Comment: The ABC strongly supports strengthening the CI targets of the program as well as the proposed nine percent stepdown and the inclusion of the auto acceleration mechanism. (BHT-57)

Comment: We appreciate that this proposal strengthens the 2030 carbon intensity benchmarks and adds benchmarks out to 2045. (BHT-238)

Agency Response: A change was made in response to these comments. Staff appreciates the commenters' support for the proposed amendments. Staff prioritized bringing supply and demand into balance in a manner that considered 1) the accomplished decarbonization to-date, 2) expected rate of transition to zero emission vehicles, 3) energy feedstock supply cost curves, 4) fuel production costs, 5) exogenous subsidies, and 6) exogenous credit generation from infrastructure. Staff analysis and stakeholder feedback suggest that the most important factor in balancing the market is a near-term step-down in compliance targets such that the targets reflect the unforeseen and rapid decarbonization that occurred from 2021-2023. After further analysis (see Agency Response to C-4) and in response to comments, staff increased the 2025 step-down target. Over the medium-term, the compliance target for 2030 is more dependent on the rate of the California fleet's conversion to zero emission vehicles. Staff's modeling, which assumes full implementation of California's ZEV regulations, shows that electricity and hydrogen used in ZEVs become dominant sources of credits in the program in the future as demand for those clean fuels increases. However, if ZEV adoption in California is slower than anticipated under these regulations, LCFS credit generation from ZEVs will lag. This would reduce the supply of credits and potentially increase deficits as gasoline and diesel fleets remain on the road longer. This uncertainty must be considered when establishing CI targets, and therefore staff maintained a 30 percent target for 2030. Staff selected 30 percent in acknowledgement of current vehicle fleet trends with the intent of setting an ambitious target, while acknowledging that consumer uptake of zero emission vehicles may fluctuate and that a more aggressive target could make compliance challenging and more costly. If market conditions were present that led to very rapid growth in the credit

bank, it is likely that the automatic acceleration mechanism (AAM) in section 95484 would be triggered, and the compliance target schedule modestly advanced. Conditions for when the AAM would be triggered are clearly defined in the Proposed Amendments. Market participants would likely anticipate the triggering of the AAM and would factor this into their valuation of LCFS credits in the marketplace. In addition, the actual change in compliance targets from triggering the AAM would increase the CI reduction benchmark of the program in the near-term and reduce the supply of credits, but is not designed to zero out banking of credits and allows some hedging for future compliance costs.

No changes were made in response to the recommendation “to put bio-based jet fuel and gasoline back in,” because carbon intensity benchmarks for gasoline and fossil jet fuel were never removed from section 95484.

C-2 Multiple Comments: *Increase 2030 CI Reduction Targets Further*

Comment: We are supportive of CARB’s proposed carbon intensity (CI) reduction targets. However, we encourage even more ambitious near-term targets to match statewide greenhouse gas reduction target codified in SB 32 (Pavley, Chapter 249, Statutes of 2016). While we are supportive of the increased 2045 carbon intensity target, emissions reduction in the near-term is most critical to avoid runaway climate change and its most harmful effects. We have seen the success of the LCFS in driving rapid transition towards renewables and decarbonization in the transportation industry. As California’s largest source of emissions, the transportation sector must play a leading role in achieving the State’s climate change and air quality objectives. Therefore, carbon intensity targets under the LCFS should be no less than statewide greenhouse gas reduction targets. Adopting higher near-term LCFS carbon intensity reduction targets of at least 40% will not only drive progress towards long-term Statewide climate goals; this change will also incentivize near-term achievement of emissions reductions, especially in the transportation sector and communities where they are needed most, providing additional runway to mitigate and reverse climate change. Anaergia encourages CARB to adopt a more aggressive 2030 CI reduction target (40-55%) to be consistent with SB 32. (45d-043.1)

Comment: Promus urges CARB to consider ways to minimize or eliminate the dip in credit prices by 2030, such as by setting a greater than 30% CI reduction target by 2030 sufficient to restore and stabilize healthy credit pricing. BTR’s analysis presented during the May 2023 LCFS workshop indicated that a 2030 CI reduction target of greater than 30% will be required to prevent the credit bank from growing again within just a few years after the one-time step down. Preventing renewed growth of the credit bank is essential to supporting healthy LCFS credit market dynamics. Promus supports a CI reduction of 35% by 2030 to ensure strong short- to medium term credit prices needed to spur investment in low CI fuels projects.¹ (45d-049.1)

Comment: Understanding that 30% under Alternative B is what CARB has identified as the basis on which to move forward with the current proposed rulemaking, Braya remains optimistic and in support of Alternative C, under CARB’s Compliance Target Options, as discussed during the November 9, 2022 workshop. With standards based on achieving a 35% reduction in carbon intensity by 2030, Alternative C is the only option that truly advances

CARB's efforts by making rational use of currently available and efficient biofuels while incentivizing new technologies that are being developed. Further, under Alternative C there would be no cap on crop-based feedstocks, allowing the program to set more aggressive and beneficial targets. During the February 2023 workshop, CARB presented Alternative B as the base case for discussions, citing that a majority of stakeholders were in support of at least a 30% CI reduction based on comments received in December 2022. However, during the lengthy Q&A to follow, a majority of stakeholders providing input appeared to be in strong support of a 35% target, and Braya agrees. We hope that the supporting data we are providing as evidence, in addition to expanded support from other stakeholders will assist CARB in making the decision to move forward with a 35% target without artificially capping beneficial feedstock supply. (45d-221.4a)

Comment: We encourage...strengthening the 2030 target, to at least 40% in-line with the Scoping Plan and ICF analysis (45d-121.8)

Comment: 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...To account for this change, we suggest that CARB adjust the CI reduction targets to make them ~3% more stringent...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. (45d-140.1)

Comment: PineSpire appreciates CARB's recognition of the importance of strengthening CI standards to provide long-term stability and viability to the LCFS program. However, as currently proposed and as evidenced in the market value trends, the proposed updates to CI targets and the AAM are not strong enough to achieve those goals and maintain a viable marketplace. (45d-150.1)

Comment: we strongly support CARB's plans to strengthen the existing emission targets for 2030 and beyond. As such, CARB should revise the 2030 compliance target to achieve at least a 35% reduction in GHG emissions for diesel and gasoline and implement more stringent carbon intensity (CI) targets for jet fuel. We encourage CARB to make an appropriate adjustment to reflect the strong market supply scenario to ensure development of novel markets, like SAF. (45d-155.1)

Comment: Notably, the analysis undertaken by ICF demonstrates that CARB could go even farther, as ICF's LCFS analysis found that a 2030 target for the program greater than 40% is achievable, when all low carbon fuels are allowed to contribute fully under the program's technology-neutral, performance-based design. Thus, while supporting CARB's benchmarks/compliance curve proposal, we urge CARB to view the proposed targets as a minimum, and to continue to consider ways to further advance emissions reduction through LCFS emissions targets. (45d-187.9)

Comment: Increase the 2030 carbon intensity reduction targets to at least 40%
(45d-189.1)

Comment: The most important thing CARB can do to stabilize the program is quickly amending the LCFS to appropriately strengthen targets, reverse the trend of accumulating excess credits, and return the program to a state where it continues to drive investments in a broad array of low carbon fuels and infrastructure, including EV charging. To achieve these goals, and based on the analysis by ICF,³ we believe that a 40% reduction target by 2030 is the minimum necessary to stabilize the credit market and ensure that the LCFS program supports a successful transition to electric transportation in California. (45d-197.1)

Comment: CARB should propose 15-day changes to align with findings from the ICF analysis Electrify America has participated in the coalition group working with ICF to analyze market appetite for low carbon fuels and associated appropriate targets for the LCFS. We support the overarching finding of the analysis, that a 2030 target of greater than 40% is appropriate and can be readily supported by the market. A target of at least 40% by 2030 is likely necessary to align with California's climate change goals and Scoping Plan outcomes, as well, which calls for a 40-48% reduction in greenhouse gas emissions by 2030. Given the fact that transportation fuel pathways account for about half of California's greenhouse gas emissions, LCFS targets that align with statewide greenhouse gas reductions are reasonable... Their analysis reinforces their earlier findings that CARB's proposed targets are too low, and that the step-down and auto acceleration mechanism as proposed in the 45-day regulatory package are insufficient to flatten or reverse the credit bank and restore market conditions that support ongoing investments in EV charging and other low carbon fuels... Increase the 2030 target to at least 40%, in line with Scoping Plan targets. (45d-197.2, 197.3, 197.5)

Comment: We encourage CARB to target at least a 40% CI reduction by 2030 to correct its course and address the credit surplus. (45d-199.2b)

Comment: Aemetis also encourages CARB to adopt a more aggressive CI reduction target than the 30% by 2030 that was put forward in the January 2, 2024, *Proposed Amendments to the LCFS*. We support a 40% CI reduction target by 2030. Extensive quantitative modeling by ICF Resources concludes that implementing this strategy would increase the current approximate \$55 credit price to \$100-\$120 by the end of 2025 and maintain at least that price through 2030. (45d-201.2)

Comment: We respectfully propose CARB consider implementing at least a 35% target in 2030, especially if the AAM and step down above is not fully implemented. This would also better align the pre-2030 and post-2030 annual targets (vs back-end loading post-2030). (45d-216.3)

Comment: Rivian views the staff's proposal for a 30 percent reduction in CI by 2030 as a big step in the right direction. However, we find that a 30 percent target in 2030 is the minimum level of stringency the Board should consider. The Board should take a closer look at targets greater than 30 percent. (45d-228.3)

Comment: Finally, we strongly encourage CARB to continue to target *at least* a 30% CI reduction by 2030. (45d-232.5)

Comment: CARB should also set midterm targets in the range of a 30-44% reduction by 2030. (45d-240.2)

Comment: we urge CARB to set more ambitious CI reduction targets of at least 25% in 2025 and at least 35% in 2030. Adopting these targets would greatly assist in reestablishing adequate demand for credits by depleting the credit bank and creating a more competitive market for the sale of credits. (45d-252.2)

Comment: the demand for LCFS credits should be strengthened to balance the market and achieve the decarbonization goals. Nowadays, the LCFS credit bank balance is at a historic high and subsequently, the LCFS credit price, which is the main driver of investments in the clean fuels industry, is very low. To strengthen the demand for LCFS credits and restore the credit prices, CARB staff proposed increasing the stringency of CI reduction targets through 2030, however, ICA believes that the proposed CI reduction target (i.e., 30%) will not be enough to restore and stabilize the LCFS credit price and urges CARB to consider a greater CI reduction target, at least 40%, and implements the CI step down (5%) and auto acceleration mechanism (AAM) sooner than the proposed dates to restore the LCFS credit price faster and jumpstart the investment in production of clean fuels. (45d-254.3)

Comment: However, ARB's LCFS amendments proposed in the Initial Statement of Reasons (ISOR), released on December 19th, 2023, jeopardize the program's progress in the years to come. ARB's proposed amendments to the program's carbon intensity ("CI") targets fail to bring the program's ambitions in line with its performance, thus presenting broad challenges to every producer of low-carbon fuels and risking a sharp drop in clean fuels and technologies investment. (45d-256.1)

Comment: Set a 2030 CI reduction target greater than 30%. (45d-256.9)

Comment: Monarch supports a more aggressive CI reduction from CARB's proposed 30% target to 40% by 2030. Throughout the rulemaking process, consulting firm ICF, with experience modeling supply and demand for clean fuel programs, has independently analyzed feasible program targets and revealed significant disparities in LCFS credit price outcomes compared to CARB's analysis¹. The ICF analysis indicates that a 2030 target exceeding 30% CI reduction is achievable with a lower credit price trajectory than anticipated in CARB's LCFS planning scenarios. (45d-275.1)

Comment: CalBio proposes CARB increase the 2030 CI target to at least 35%. This is one of the scenarios that CARB has been workshopping since 2022 and is the one which is expected to achieve the highest levels of GHG reductions¹. A study from ICF found that the LCFS could accommodate a carbon intensity target of 41-44%². Increasing the stringency to drive GHG reductions is in alignment with the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan)³ which lays out a path to achieve targets for carbon neutrality and reduce GHG emissions by 85 percent below 1990 levels by 2045. The actions described above are

necessary to give confidence to investors that new projects can be built and allow for greater GHG reductions to be achieved. (45d-288.5)

Comment: Increasing the stringency of the program to 18.75% in 2025 and to 30% by 2030, at minimum, is a necessary step to support a healthy market for LCFS credits (45d-291.7)

Comment: 2030 Target

Increasing the 2030 target to 30% reduction is a step in the right direction, however, we urge CARB to consider a more ambitious target. As we see the market reacts to the large balance in the credit bank, weighed against a 30% reduction target, the corresponding drop in market prices makes it clear that more carbon reductions are possible.

Along with other stakeholders, World Energy has been working with ICF to model the LCFS targets. The recent IC F modeling relative to the ISOR1 highlights that 30% CI by 2030 is still conservative and will leave an estimated 70 million in excess credits in 2029 (Figure 2). With such a large credit bank, program investors will have a low incentive to further invest in the newest technologies and innovations in carbon reduction. The ICF “Central Case” modeling shows more aggressive 2030 CI targets of 41-44% are readily achievable given the anticipated fuel volumes and CI reductions across various fuel pathways. (45d-300.1)

Comment: Policy recommendation: To address current and anticipated credit oversupply that threatens the viability of RNG projects, a more aggressive carbon intensity target with an increase to at least 40% (45d-320.1)

Comment: Stronger near-term targets than proposed are necessary to address the ongoing accumulation of credits and drive additional investments in low carbon fuels projects in the near term...A 2030 target of at least 35%, in order to drive the outcomes laid out in the 2022 Scoping Plan. We note that approximately 3 percentage points of the target are required to counteract the change in diesel baseline, which without adjustment, effectively reduces program ambition by 3 percentage points. (45d-323.1, 45d-323.3)

Comment: We are also supportive of at least a 41% CI reduction target by 2030, which to our industry’s extensive quantitative modeling⁵ concludes that implementing the above strategy would increase the current approximate \$55 credit price to \$100-\$120 by the end of 2025 and maintain at least that price through 2030. (45d-328.4b)

Comment: A 2030 Target of >30% can be Achieved with a Lower Credit Price Trajectory than Predicted in CARB’s Modeling of the Primary ISOR Scenario

Comment: Increased Program Ambition as it is Critical for Continued Methane Reduction and Growth in All Low Carbon Fuels

We support the effort that CARB staff has taken to outline future scenarios that set forth carbon intensity reduction goals for 2030 and beyond, however we feel that the biggest barrier to continued LCFS-driven methane reduction is the Proposed Rule’s lack of overall ambition. Given the LCFS credit surpluses seen over the past two years and as CARB staff has highlighted in several of their recent workshops, the LCFS program has significantly exceeded

expectations and low carbon fuels are coming to the market quicker and in greater volumes than previously anticipated. With this success, a significant step-down in the Annual Carbon Intensity (CI) Benchmarks is critical at this time. Based on all recent market information to date in 2024, the program will have produced many more credits than deficits. This will cause the bank to continue to build rapidly, prices to fall, and low-carbon investment to decline... ICF's work shows significantly different LCFS credit price outcomes than CARB's ISOR analysis of the primary scenario. We believe that ICF's outlook is better informed by the true near-term supply outlook across all low carbon fuels and a better understanding of the potential other areas of public policy support (e.g., federal biofuel policy). Given that this deeper understanding demonstrates that it is possible to achieve greater mid-term reductions, we recommend that CARB continue to target at least a 30% CI reduction by 2030. (45d-330.7c)

Comment: Additionally, we suggest that CARB increase the 2030 CI reduction target—currently at 20%-- even beyond the proposed 30%. A recent study by ICF found that a 42% CI reduction by 2030 is both feasible and necessary to support progress toward the 2022 Scoping Plan goals.²⁷ (45d-346.6c)

Comment: Target Setting The market is oversupplied to a degree that the proposed rule changes will not sufficiently rebalance. The surplus credits will continue to build for years, even more so with the proposed CI change to ULSD. We request CARB refer to the excellent analysis prepared by ICF and described in the RNG Coalition's letter, with the accompanying recommendations regarding changes to the timing and degree of annual CI targets. (45d-351.2)

Comment: Tesla Supports Strong Program Stringency (30% minimum by 2030)⁵⁰ Tesla applauds CARB's long-term vision of setting a 90% reduction target by 2045. This cements California as the clear leader in the transportation decarbonization policy space, with the farthest-forward decarbonization target of any transportation decarbonization program globally. It also sets California on a path to reach Net Zero by 2045, as envisioned by Executive Order B-55-18.

The compliance curve, step change, and auto acceleration mechanisms must all work in unison, and Tesla encourages CARB to increase the stringency of the 2030 target beyond 30% if our below recommended changes to the step-change and auto acceleration mechanism are not implemented. (45d-353.2)

Comment: A Carbon Intensity (CI) reduction target between 41 - 44% for 2030. (45d-354.3, 45d-370.2)

Comment: Further, the ICF analysis indicates that the current proposal is insufficient to reverse this trend and will only slow credit market growth to about 4 million credits per year. In order to rebalance the market, both the step down and Automatic Acceleration Mechanism (AAM) should be adjusted in the final rule as described in detail in the attached ICF ISOR Case Report. (45d-370.1)

Comment: Increase the Carbon Intensity (CI) reduction target from the proposed 30% to 35% for 2030. (45d-376.1)

Comment: Increased Stringency

While we see the 2030 midterm target of 30 percent a move in the right direction, we encourage staff to be bolder and adopt a target closer to 41-44 percent by 2030. ICF has performed extensive modeling of the market and has identified the need for an even deeper CI adjustment to maintain a healthy credit marketplace that will ensure that long-term investments are built. (45d-382.1)

Comment: Iwatani is asking CARB to increase the stringency of the CI reduction targets through 2030 which will balance the demand and supply of LCFS credits in the market and increase the LCFS credit price. We want to reiterate that the revenue from the LCFS credits plays a critical role in the economic feasibility of operating ZEV infrastructure and with the current LCFS credit price, it is very challenging to make an investment case for building and operating a hydrogen station for both light-duty and heavy-duty vehicles. Developing and expanding ZEV infrastructure requires time and we strongly believe that the investment in ZEV infrastructure should happen now to make sure we achieve the ZEV mandate goals. Hence, strengthening carbon intensity targets and providing long-term price signals from CARB will create stability in the LCFS credit market and bring more investment into ZEV infrastructure expansion. ICA believes that the proposed CI reduction target (i.e., 30%) will not be enough to restore and stabilize the LCFS credit price and appreciates the opportunity to revisit the CI reduction targets to ensure the proposed amendments by CARB staff will actually make the change and restore the LCFS credit price. Based on our internal modeling as well as ICF's study¹ the CI reduction target of 30% by 2030 will result in significant oversupply of LCFS credits and overflowed credit bank which will eventually result in fairly unstable and low credit prices. Therefore, ICA urges CARB to consider a greater CI reduction target, at least 40% by 2030, implements a higher CI step down (9%), and enables auto acceleration mechanism (AAM) to restore and stabilize the LCFS credit price faster and jumpstart the investment in production of clean fuels and expansion of ZEV infrastructure. (Apr-029.1)

Comment: Pine Spire appreciates the additional modeling and evaluations provided. In regard to the feedback requested on short-term vs. Long-term market conditions, we would like to emphasize the importance of nearer-term viability. Unless credit prices recover (through aggressive changes to the CI) and market stabilization can be improved (through the AAM process), it will decrease participation, investment, and additional innovations in low carbon solutions, making the long-term conditions moot for most parties that would otherwise participate. The existing credit bank is very robust, and CARB will continue to have opportunities to fine tune the implementation to address long-term conditions. Pine Spire strongly supports all the measures to strengthen the program including more aggressive proposed targets and beginning the AAM immediately. (Apr-047.1)

Comment: ABC recommend that CARB retain the annual rate of CI reductions proposed in the 45-day package to complement increasing the step down in 2025 to 9%. This means that with a 9% stepdown in 2025 the 2030 CI reduction target should be 34%. (Apr-056.2)

Comment: Electrify America support the overarching finding of the analysis, that a 2030 target of greater than 40% is appropriate and can be readily supported by the market. A target of at least 40% by 2030 is likely necessary to align with California's climate change goals and Scoping Plan outcomes, as well, which calls for a 40-48% reduction in greenhouse gas emissions by 2030. Given the fact that transportation fuel pathways account for about half of California's greenhouse gas emissions, LCFS targets that align with statewide greenhouse gas reductions are reasonable.

If nothing else, we suggest maintaining the current annual reductions from 2025-2030 envisioned in the proposed amendments (that is, 2.25 percentage points per year), in addition to an increased step down in 2025. With a 9-11% step down taking 2025 stringency to 22.75-24.75%, this would translate to a 2030 target of 34-36%. As indicated by the ICF analysis, this target is readily achievable, and we believe it is necessary – coupled with a stronger step-down and more responsive auto acceleration mechanism – to maintain a healthy LCFS market to support the state's transportation electrification goals. (Apr-057.2)

Comment: Brimstone supports 15-day changes to adopt a more stringent step-down to strengthen the market and remove excess credit. (Apr-058.1)

Comment: DTE Vantage (DTE) encourages CARB to target at least a 40% CI reduction by 2030 to address the credit surplus. (Apr-061.1)

Comment: Crimson supports for More Stringent CI Targets and Changes to Auto Acceleration Mechanism. (Apr-065.1)

Comment: Anew support a higher CI reduction target, we recognize that a reduction scenario of at least 30% would help set California on a path to meet its ambitious target of at least a 40% reduction in economy-wide GHGs by 2030 and carbon neutrality by 2045. (Apr-069.2)

Comment: The Proposed LCFS Amendments are insufficient to maintain and increase investment in the LCFS program and risk stranding existing assets that have relied on the program with the bank this large. As with other workshops and rule proposals, the credit market has shown, through price indifference following the April Workshop, that the proposed changes are insufficient. Current LCFS prices indicate that the proposal in the April Workshop has not gone far enough in the April Workshop, the Proposed LCFS Amendments regarding Carbon Intensity (CI) targets, CI step-down, and the Auto Acceleration Mechanism (AAM). This trend in credit market decreases following CARB proposed rule announcements includes after the February 2023 workshop, after posting of the Standardized Regulatory Impact Assessment (SRIA) in September 2023, and after the release of the Proposed LCFS Amendments in December 2023. If the current prices continue, there is a real threat of stranded assets for current investments and limiting, if not eliminating, future investment. (Apr-082.2)

Comment: Bright Mark believes the reduction target should be 40% by 2030, combined with a step-down of 10-12% in 2024. Because of the delay in LCFS rule implementation, the credit bank increases through 2024 are not addressed in the CI targets and step-down proposals. If not administratively possible in 2024, then a 10-12% step-down in 2025 should be implemented. As with California's Renewable Portfolio Standard program, the industry rises to the occasion with aggressive targets. (Apr-082.11)

Comment: To address current and anticipated credit oversupply that threatens the viability of RNG projects, a more aggressive carbon intensity target with an increase to at least 40%. (Apr-082.18)

Comment: The compliance curve, step change, and auto acceleration mechanisms must all work in unison, and Tesla encourages CARB to increase the stringency of the 2030 target beyond 30% if the recommended changes to the step-change and auto acceleration mechanism are not implemented. (Apr-091.4)

Comment: Bright Mark believes the reduction target should be 40% by 2030. (Apr-082.9)

Comment: Set midterm targets in the range of a 30-44% reduction by 2030. This would be better to align GHG reductions from the transportation sector (the largest emitting sector of the California economy) with legislatively mandated goals for the entire economy. (Apr-098.4)

Comment: CARB has a narrowing window to provide clarity and investment certainty through additional changes to the Proposed Rule. More ambitious targets will allow the state to continue leveraging renewable gas production to help reduce methane emissions, improve organic waste management, and decarbonize California's transportation sector. (Apr-098.16)

Comment: As a general rule, we strongly urge CARB to select targets – for 2025, 2030 and other dates through 2045 – that align with the State's Scoping Plan and other climate targets, and avoid relying on the Auto Acceleration Mechanism ("AAM") to "get it right" or correct for overly conservative targets. We believe a step-down of greater than 9%, specifically 11%, stronger 2030 targets of at least 35% and a more responsive Auto Acceleration Mechanism ("AAM"), as described below, are necessary to fully align the program with the state's climate change goals and return to the LCFS to a position where it is supporting additional low carbon fuels projects and volumes for California. (Apr-101.11)

Comment: We believe a stronger 2030 target is critical to supporting near-term and ongoing investment in deeper decarbonization in the 2030s. Coupled with the AAM, we hope this structure provides a framework for maintaining conditions supportive of investment in deeper decarbonization on an ongoing basis. We also urge CARB to maintain and add elements that will support continued innovation and development of additional low carbon fuels, even as the state's vehicle fleet evolves. (April-101.15)

Comment: Alternatively, CARB could choose to adjust the 2030 CI reduction target and lessen the need for as large of a 2025 step-down. If CARB were to adjust the 2030 target to 32%, a 9% step-down would be adequate to promote a stable investing environment. With a 35% 2030 target, a 7% step-down becomes viable. As we have discussed in prior letters, these two adjustments to the CI schedule interact with one another and CARB has the ability to lessen the necessary magnitude of the change in one category by increasing the change in the other. Regardless of the specific values chosen, it is clear that this aggregate magnitude of targets is needed. (Apr-102.4)

Comment: The core adjustments from the latest proposal Generate requests are:

- Including a 2025 CI step-down of at least 9% and ideally 11%, and;
- Increasing the 2030 CI reduction target to at least 32%. (Apr-102.6)

Comment: We urge CARB to be as ambitious as possible in setting the new carbon intensity reduction targets between now and 2045 and align targets with levels no less than what is needed to achieve California's greenhouse gas targets and outcomes established in the 2022 Scoping Plan Update. CARB should be confident in setting ambitious standards, given that existing, robust cost-containment provisions in the regulation provide regulated party protection. As discussed in the 2022 Scoping Plan Update, a statewide carbon reduction target of 48% below 1990 levels by 2030, as well as carbon neutrality by 2045, create decarbonization targets that need to be supported by enhancing the stringency of the LCFS program. The transportation sector and fuel production pathways are the largest component of statewide greenhouse gas emissions, accounting for about half of the state's climate footprint and an even greater portion of emissions that contribute to ozone and particulate matter adversely impacting the health of millions of Californians, but particularly those located in our most vulnerable communities. As such, the LCFS needs to provide, at a minimum, a proportional amount of the reductions toward the 48% reduction target. (Apr-103.10)

Comment: Air Products and Chemicals supports retaining the proposed rate of annual reductions in CI with the enhanced 2025 stepdown (i.e., a 9% stepdown in CI in 2025 should be propagated through the year-by-year stringency translating into a 2030 CI reduction target of 34%). (Apr-103.3)

Comment: A 39% CI reduction by 2030 is consistent with the 2 AAM trigger scenario CARB presented during the April 2024 workshop. While that scenario appeared very promising from the standpoint of drawing down the credit bank and keeping prices strong and stable long-term, the reliance in that scenario on the AAM triggering twice before 2030 adds an element of risk to investors looking at financing low carbon fuels projects. Rather than relying on AAM triggers – important as they are -- Promus believes that setting the 2030 target at a 39% reduction will give investors confidence that the credit market will be strong between now and 2030. CARB's August 12 Modification Uncertainty Scenario 1 with a single 2028 AAM triggering similarly presents short-term weakness in the credit market that would undermine investor confidence. Investors have not yet seen the AAM in action, therefore, setting a more aggressive 2030 target will ensure that credit price strength is not dependent on uncertain triggering of the AAM in the short-term. (15d1-041.2)

Comment: Similarly, a greater than 30% reduction in CI by 2030 is not only warranted, but also achievable and in keeping with the overall past performance of the LCFS. Biofuels have far exceeded GHG reduction targets set by CARB, and with the influx of additional fuels into the portfolio, it is not mere speculation that the market will respond once again. For true progress to be made, CARB should not allow the program to be hampered by obligated parties who are rewarded with longer time periods and slower progress. We strongly support a CI reduction of 40% by 2030. (15d1-045.3)

Comment: CARB should still consider imposing a more stringent 2030 carbon intensity target to ensure long-term credit price stability.

3Degrees applauds Staff's proposal to go with a 9% CI step-down goal for 2025. However, even with this step-down, our market analysis continues to show that the proposed 30% CI target (§ 95484) is too low to provide the near-term price indicators that are necessary to spur the substantial industry investment in lower-CI projects, fuels, and vehicles required to reach the program's long-term goals. 3Degrees previously advocated for at least a 35% CI reduction by 2030 and 90% by 2045 in order to align with the ambition of the 2022 Scoping Plan and other decarbonization objectives in California and we still believe this is an appropriate action.

We understand that this stringent step-down coupled with the potential that the auto-adjustment mechanism (AAM) would be triggered one or multiple times could result in an increase to the 2030 CI target by the time we enter the latter half of the decade. However, while we support the AAM, it cannot be triggered until 2028 at the earliest and takes a reactive, rather than proactive, approach to balancing the credit market. To reiterate a point from our 45-Day comments: while lower near-term prices may achieve the objective of reducing total program costs, the post-2030 targets will only be achievable through significant investments in the low carbon fuel sector this decade. Low credit prices will not send the reliable demand signal necessary to drive the required level of investment. This can only be accomplished through increasing the CI schedule through 2030 to ensure the credit bank is drawn upon sooner than later. (15d1-050.1)

Comment: TTP commends the 9% CI reduction and encourages CARB to move to a 35% reduction in 2035. (15d1-066.4)

Comment: While we believe a stronger 2030 carbon intensity target and more responsive auto acceleration mechanism (AAM) are necessary to achieve the state's 2030 targets identified in the 2020 Scoping Plan (15d1-069.1)

Comment: Additionally, we respectfully recommend that CARB target at least a 35% CI reduction by 2030 (15d1-094.2)

Comment: We support CARB's increase in the stringency of the program to reduce emissions and decarbonize the transportation fuel sector. Reduced credit values in recent years due to over-compliance with the program have to some extent slowed investments in renewable fuel production and research into new fuels. Greater certainty around credit values being supported would encourage investment from companies like ours, and improve access to and terms for credit to execute on these investments. We support both the near-term step-down in the CI benchmark in 2025, as well as the Automatic Accelerator Mechanism (AAM) as a means to drive continued innovation and development in the biofuels sector, and urge CARB to consider even more aggressive reductions, which we believe are achievable. (15d1-096.1)

Comment: Recommendation for the 2030 CI Reduction Target

Given the substantial increases to the credit bank over the last 3 years, the removal of fossil jet fuel as a deficit generator, and the impact of other regulatory measures such as Advanced Clean Cars II, Advanced Clean Fleets, and Advanced Clean Trucks, we believe that the currently proposed 2030 CI reduction target of 30% is insufficient both as a matter of ensuring a stable market and to ensure California meets its climate goals. The latest market performance data suggests that the LCFS program is on track to exceed the 30% CI reduction target well before 2030, which would result in unnecessary market volatility and could trigger

the Auto Acceleration Mechanism (AAM). To avoid this outcome, we recommend extending the 2030 CI reduction target to 35%, a level that would better align with the state's decarbonization objectives and the realities of the LCFS market. (15d1-106.6)

Comment: While we appreciate CARB adjusting the step-down target to 9% in the Proposed LCFS Amendments, a step-down target of 9%, coupled with a 2030 CI target of 30%, will not adequately address the credit bank oversupply. To account for the credit oversupply, Brightmark supports more aggressive CI targets and allowing the AAM to be triggered as early as possible.

The delays in the regulatory amendment process have prevented the implementation of the amendments in the first quarter of 2024. It is imperative that CARB implements a steep CI step-down to ensure that the bank returns to post 2023 levels (a reduction of approximately 23 million credits) by the end of 2025. This will help stabilize credit prices to maintain existing investments and increase future investment.

To address credit oversupply, research by ICF supports a reduction target of 40% by 2030, combined with a step-down of 10-12% in 2025, and an AAM triggered much earlier. Because of the delay in LCFS rule implementation, the credit bank increases through 2024 are not addressed in the CI targets and step-down proposals. As with California's Renewable Portfolio Standard program, the industry rises to the occasion with aggressive targets and the LCFS program's lack of aggressive targets is eroding confidence and increasing investment uncertainty. (15d1-147.2)

Comment: In the latest draft LCS amendments, CARB is proposing a 9% stepdown in CI stringency beginning in 2025. In the interest of moving swiftly to a final rule that can be implemented, CalBio supports this stepdown. However, CARB should consider retaining the annual rate of CI reductions through to 2030 and beyond. By holding the CI reduction target to 30% CARB has made a shallower slope for year-over-year reductions by 2030. Instead, maintaining the slope already established in the proposal would result in a CI reduction target of ~34% by 2030, would create a path for greater emission reductions, reduce the uncertainty of whether the Automatic Accelerator Mechanism will kick in, and result in greater investment in renewable fuels. (15d1-183.4)

Comment: We anticipate the rate of credit generation will continue to grow in the short- and medium-term as a result of renewable diesel refinery conversions and an increasing adoption of electric light-duty vehicles. The cumulative LCFS credit bank now stands at ~26 million surplus credits, and though credit prices have stabilized, are still hovering around all-time lows. Based on the updated targets included in the 15-Day package, we estimate that the credit bank could increase to over 70MM credits by 2030 absent additional changes. Therefore, we encourage CARB to target at least a 40% CI reduction by 2030 to address the credit surplus. (15d1-199.2)

Comment: we strongly encourage CARB to implement the following modifications: Strengthen the CI reduction target to at least 40% by 2030 (15d1-199.6a)

Comment: PROPOSED AMENDMENT: while the proposed step-down amendment helps, it may not be nearly enough on its own. The oversupply of credits in the market hurts existing project returns, limits new project development, and sends the wrong signal to investors. Since

the proposed 30% CI target by 2030 would send a modest market signal for private investment (today's market price remains at \$54 despite CARB's proposal), especially for a program that over-delivered and outpaced CARB staff's expectations to date, a 40% CI target for 2030 would be far better and/or a 30% CI target if an amended (please see below) Automatic Accelerator Mechanism can be triggered in 2025. (15d1-209.4)

Comment:

Expand the LCFS's Total Ambition to Target 35% CI Reduction in 2030

While we support the increase of the 2030 CI reduction target to 30%, we believe this figure is insufficient in light of recent market data. The change to the 2030 target from 20% to 30% is necessary and welcome, but a 30% target is not enough to keep the market from overheating. The market has consistently overperformed, and it is now highly probable that the market will exceed a 30% CI reduction by 2030. Instead, we propose CARB adopt a 35% CI reduction target for 2030 which will push the market towards further investment in climate solutions and will come closer to aligning transportation, the state's largest source of emissions, with California's overall ambition of cutting emissions by 48% by 2030.

While the proposed rule does institute other safeguards against significant market overperformance (such as the Auto-Acceleration Mechanism, the "AAM"), setting a 30% target for 2030 would put the market in the position of effectively relying on the AAM to get the CI reduction targets right, rather than treating the AAM as a backstop mechanism. This would risk leaving the market imbalanced for long periods, stifling investment in critical low-carbon infrastructure as the market oscillates between boom and bust. Instead, a 35% target would send a strong signal to the market that it is time to invest in decarbonization at scale. It would encourage capital deployment and infrastructure development now rather than waiting for the market to falter before the AAM is triggered and costing us time which we do not have to avoid the worst consequences of climate change. This higher target would align with the pace of progress that California has already demonstrated is possible and with the broader decarbonization targets for California's economy. (15d2-166.1)

Comment: While we support the 9% step down, we remain concerned, that combined with the 2030 target, targets over the remainder of this decade are insufficient to drive continued growth in the low carbon fuels market. (15d2- 172.5)

Comment: Strengthen the CI reduction targets. (15d2-192.1)

Comment: CalBio writes these comments to express our concern that CARB did not go further to strengthen the ambition of the program. In particular, the near-term carbon intensity (CI) stepdown has not been implemented in accordance with the recommendations from a study by ICF¹, which outlined more aggressive reductions are feasible and necessary. By not aligning with the ICF findings, CARB risks missing an important opportunity to drive impactful emissions reduction. (15d2-215.1)

Comment: Moreover, it is disappointing that targets beyond a 30% reduction by 2030 were not proposed. In previous comment letters, CalBio recommended that maintaining the slope established in the proposal would result in a CI reduction target of ~34% by 2030. Doing so

would create a path for greater emission reductions by shrinking the credit bank and creating greater investment in renewable fuels. (15d2-215.2)

Comment: We have previously advocated for, and continue to believe, that more ambitious targets are appropriate—specifically a minimum 40% reduction in carbon intensity by 2030, in-line with the Scoping Plan and ICF analysis¹—to allow the program to continue working to advance California’s transportation electrification priorities. (15d2-218.1)

Comments: The proposed CI benchmarks of 22.75% in 2025 and 30% in 2030 are not aggressive enough to support a 2045 carbon neutrality target, let alone a near-zero/zero emissions future. The LCFS is a nation-leading transportation decarbonization policy last updated in 2018, so the time to be bold and have sufficient ambition with the program is now, not in another 5-6 years.

As of Thursday, October 9th, LCFS credit prices were \$69 from a \$42 low earlier this year. The market really needs to possess a credit price at or above \$120 a credit to support project investment and meet program targets. This is especially the case for dairy digester projects to be built in years 2025-2029, which as proposed, only receive two crediting periods for avoided methane crediting. Low LCFS prices already impact project returns, putting project development on-hold (this has already occurred) and prevents existing projects from operating profitably.

PROPOSED AMENDMENT: CARB staff should recommend a more ambitious benchmark for 2030 that signals a minimum 35% target or a maximum 40% target to the Board. Not only will setting a more ambitious mid-term target send a necessary market signal to investors, it’s also critical to curb global warming and support the program’s overall viability. (15d2-266.2)

Comment: Strengthen the CI reduction targets. (15d2-274.2)

Comment: As stated in our August 27th comments, a CI step-down target of 9%, coupled with a 2030 CI target of 30%, will not adequately address the credit bank oversupply. (15d2-290.3)

Comment: Support for Increased Program Ambition for 2025 and Beyond

We strongly support CARB’s intention to increase program ambition for 2025 and beyond. Since its implementation over a decade ago, the LCFS has proven highly successful in both encouraging market investment in low carbon fuels and lowering emissions in the transportation fuel sector. To help ensure a healthy LCFS credit market that can keep pace with these investments, we strongly support CARB’s plans to strengthen the existing emission targets for 2030 and beyond. Therefore, we encourage CARB to adopt what was proposed at the November hearing, because the proposed increase in near-term stringency is needed to address near-term oversupply. By making appropriate adjustments, CARB can reflect the strong market supply scenario, thereby fostering the development of additional solutions to further drive down the state’s emissions with SAF.

Additionally, we believe CARB should also commit to considering at least a 35% CI reduction by 2030 through a future rulemaking (the ICF analysis shows that a CI reduction of >40% by 2030 is feasible) and that the Auto Acceleration Mechanism should be able to trigger earlier.

As a member of the Coalition for Renewable Natural Gas (RNG Coalition), we support their positions on these two topics in their comments on the 15-day amendments. (15d2-302.6)

Comment: We're concerned that carbon intensity targets and auto-acceleration mechanism included in the rule do not go far enough to address the extreme credit oversupply in the market. The ability of the Program to function properly and drive more private investment is something we encourage CARB Board and staff to monitor closely and prepare to address should depressed uncertain market conditions continue.

We believe the Board should give the Executive Officer the authority to make adjustments or trigger the auto-acceleration mechanism earlier if necessary. (BHT-89)

Agency Response: No change was made in response to these comments. See Agency Response to C-1.

C-3 Multiple Comments: *Oppose Increased CI Reduction Targets*

Comment: Consumer Watchdog urges the California Air Resources Board to reject the proposed acceleration of carbon intensity standards under the Low Carbon Fuel Standard (LCFS) Program. (45d-089.1a)

Comment: Modification of Average Carbon Intensity Benchmarks: The proposed increase in the carbon intensity (CI) reduction targets for gasoline, diesel, and jet fuels to a near-term increase in stringency to a 9% CI reduction in 2025 represents an abrupt shift in the regulatory framework. This accelerated target poses several substantial challenges that could impact various aspects of the fuel market and broader economy:

Feasibility and Technological Constraints

Technological Readiness: Achieving a 9% reduction in carbon intensity within such a short timeframe requires advanced technological solutions that are not yet fully developed or commercially available. Many of the technologies necessary to meet these stringent targets, such as next-generation biofuels, carbon capture and storage, and advanced engine technologies, are still in the research or early deployment stages. The rapid escalation of targets may outpace the development and deployment of these critical technologies, making it difficult for industry stakeholders to achieve compliance.

Infrastructure Limitations: Existing infrastructure, including refineries and distribution networks, may not be adequately equipped to support the rapid shift required by the new CI benchmarks. Upgrading infrastructure to handle new types of fuels or technologies involves substantial investment and time. The lack of readiness in infrastructure could lead to bottlenecks and inefficiencies in fuel production and distribution.

Supply Shortages and Market Impact

Fuel Supply Disruptions: The short timeline for achieving a 9% CI reduction could lead to significant disruptions in fuel supply. As companies scramble to meet the new standards, there could be a shortage of compliant fuels, affecting availability and reliability. This would particularly impact sectors that depend heavily on consistent fuel supplies, such as transportation and logistics.

Increased Fuel Prices: Meeting the accelerated CI targets may involve higher production costs, which are likely to be passed on to consumers. The additional costs associated with adopting new technologies, reformulating fuels, and upgrading infrastructure could lead to higher prices at the pump. This price increase would disproportionately affect consumers, particularly those in lower-income and disadvantaged communities who are less able to absorb such costs.

Impact on Consumers and Disadvantaged Communities

Economic Burden: The increased cost of fuels resulting from the rapid escalation of CI reduction targets could impose a significant economic burden on consumers. Low-income and disadvantaged communities are often more vulnerable to fluctuations in fuel prices and may struggle to cope with higher costs, exacerbating existing inequities.

Access to Affordable Energy: Higher fuel prices could reduce access to affordable energy, affecting the cost of goods and services that rely on transportation and fuel. This could further strain household budgets and impact the overall quality of life for individuals in vulnerable communities.

Market Stability and Innovation

Regulatory Uncertainty: Abrupt changes to CI benchmarks without adequate lead time can create regulatory uncertainty. Companies may face difficulties in long-term planning and investment, leading to reduced confidence in the market. This uncertainty could discourage investment in new technologies and infrastructure, potentially stalling innovation and progress in the sector.

Hindrance to Innovation: Rapid regulatory changes may lead to a focus on short-term compliance measures rather than long-term innovation. Companies might prioritize meeting immediate targets over investing in more sustainable and innovative solutions that could offer greater benefits in the long run. (15d1-024.1)

Comment: Decreasing the carbon intensity benchmarks for diesel, which would further decrease future LCFS credits generated from electric forklifts (15d1-061.4)

Comment: Acceleration of reduction in carbon intensity (CI) from 20% to 30% by 2030 with a 9% reduction for 2025.

On the one hand, the accelerated CI reduction would appear to support greater investment by renewable fuel producers. However, when combined with the proposed feedstock caps (see II below) raises concerns about the ultimate impact of the amendments on costs and adequate supply of low carbon fuels into the transportation fuel pool. It also seems to unfairly diminish the potential for ICEs using low carbon fuels against other decarbonization strategies.

We urge CARB to weigh the ability to implement more aggressive CI reduction targets with the actual feasibility of achieving them considering the proposed caps on soy and canola feedstocks as noted below. (15d1-090.2)

Comment: The proposed 15-day changes represent a radical shift in the LCFS's approach, undermining the program's credibility by dismantling its foundational principles and favoring certain technologies over others. It is imperative that CARB defends the technology-neutral

design of the LCFS and allows the Carbon Intensity (CI) standards to determine which fuels will receive credits or deficits within the program. By taking actions such as, sunseting crediting for avoided methane in biogas, eliminating fossil-based hydrogen in 2030, treating all RECs as if they are unbundled, and imposing arbitrary restrictions on crop-based fuels, among other examples, CARB is straying from critical technology-neutral, market-based principles that have lifted the LCFS as a program that provides a path to reduce emissions through innovative technologies. (15d1-156.1)

Comment: AGGRESSIVE COMPLIANCE TARGETS DISRUPTIVE TO CONSUMERS

In the 15-day language, the compliance targets between 2025 and 2030 are adjusted to create a larger drop in Carbon Intensity (CI) reduction than previously proposed. For 2025 alone, the new language would drop target reduction from 13.75% to 22.75%; an additional 9% drop. This 9% drop would move the 2030 CI reduction target would move from 30% to 39%. More aggressive short-term compliance targets are above and beyond any staff suggestions from the 45-day language and are not projected to be feasible considering the state's current inability to reach target CI reduction. In 2024, the CI target set by LCFS was missed by 5%; more aggressive compliance curves would only exacerbate the impacts to end-users attempting to procure sufficient quantities of compliant fuel. If current targets cannot be achieved, it is unreasonable to set more stringent targets for the following year.

Additionally, these newer aggressive compliance targets would create disruptions in existing fuels market and make it more difficult for suppliers to procure adequate renewable fuels to address existing market demands. As stated in previous letters, renewable fuels with ultra-low CI scores like that of renewable propane, are prime for meeting the CI targets set by LCFS. That being said, existing markets would be pressured to make extra jumps in reduction they were not prepared for. The ripple effect of the proposed increased targets would negatively impact procurement achievability. (15d1-163.1)

Comment: The change from the initially proposed 5% "step-down" to an almost doubled 9% "step-down" is arbitrary and threatens to upend LCFS program cost-effectiveness, feasibility, and success. (15d1-171.4)

Comment: Commenters urge Carb to not increase stringency unless and until CARB first eliminates avoided methane crediting (15d1-211.3)

Comment: Kern is specifically providing comments on the following: (1) Near-term Increase in Program Stringency is Excessively Aggressive; (15d1-214.1)

Comment: Staff note this change as intended to smooth the curve between the 2025 compliance target and the originally proposed 30% reduction in 2030, yet the effect is to create an immediate, near impossible burden to comply.

This additional increase has the effect of front-loading 2025 with an unreasonable compliance burden to refiners with little to no time to prepare, rather than spreading the burden across the full five years to 2030. The CI benchmark for gasoline in 2024 is 87.01 grams CO₂ per megajoule (g/MJ). Under the 5% increased stringency scenario initially proposed in the 45-day package, this benchmark would drop to 80.55 g/MJ – a 6.46 g/MJ difference. Under the 9% stringency scenario currently proposed, this benchmark would drop to 76.6 g/MJ – an

astounding difference of more than 10 g/MJ. CARB cannot expect refiners to adjust to this dramatic change in less than four months. To place additional context around the magnitude of this CI reduction, even under the current proposal, the next time a benchmark CI decline of 10 g/MJ would be realized is in six years.

CARB is creating an impossible feat for regulated parties to comply even as the agency acknowledges the need for liquid fuels to meet state demand for many years to come. The LCFS proposed amendments already create a layering effect with the incorporation of the auto-acceleration mechanism, limitations to biomass feedstocks, and disincentives toward biomass-based diesel fuels. The longer runway associated with the 5% stringency allows fuel producers the time needed to continue advancing new technologies and innovations in ultra-low CI fuels and implementing projects that are already underway but take five or more years to engineer, construct, and commission. Kern understands that Staff may envision smoothing the curve as beneficial, but the reality is an opposite and detrimental effect. Kern supports requiring reductions in a ratable manner.

The demise of over 80% of California small refiners over the last 30 years is due in large part to exponentially expanding regulatory burdens and accompanying compliance costs, which disproportionately harms small businesses. Using today's near-record low credit prices in the carbon market, Kern's estimated cost to comply with the newly proposed 10 g/MJ decline (9% stringency proposal) is greater than \$13 million for 2025 alone – more than double Kern's estimate under the previous 5% stringency proposal. These single-year cost-to-comply estimates using current carbon credit prices should be seen as conservative, if not the minimum cost for Kern to comply. The agency's desired result from the layered stringencies in this regulatory action is to drive up the price of carbon, which leaves these compliance estimates nowhere to go but up. Kern expects to see these costs double again if/when the market responds to CARB's signal.

Kern urges CARB to continue consider giving consideration to small refineries for the disproportionate regulatory impact on these facilities and ways to alleviate that burden. As a smaller company operating a single facility, Kern is less able to absorb regulatory costs. Notably, reduced costs create opportunities to utilize funds for reinvestment in the facility and expanding a low-CI fuel portfolio – investments that are critical for Kern's long-term operation and success and critical to meeting the state's climate goals. (15d1-214.9)

Comment: In conjunction, we propose that CARB set the jet fuel benchmarks at a level and on a schedule that recognizes that SAF is an emerging, less mature market that has not benefited from higher fossil benchmarks and years of credit generation since program inception in 2010. In the early years of the LCFS program, CARB set small CI reduction targets for gasoline and diesel and modest annual increases to allow the industry (both fossil and alternative) time to complete their investments and ramp up production. CARB can evaluate the jet fuel benchmarks and set them in such a way that supports SAF as an emerging fuel and addresses airline industry concerns about the transition towards increasing low-carbon fuel use. This could include freezing the jet fuel benchmarks, resetting the 2030 jet fuel benchmark targets to their pre-amendment level of 20%, or decoupling the annual increases of the jet fuel benchmarks from those of gasoline or diesel. Notably, British Columbia has adopted a similar approach under their recent LCFS amendments, providing both a higher benchmark and a less

aggressive compliance curve for aviation fuels, preserving credit generation opportunities for the emerging SAF industry. (15d1-215.3)

Comment: Near-term Increase in Program Stringency is Excessively Aggressive

Staff remains committed to the August 2024 proposal to modify Section 95484 (d) through (f) with an immediate increase in stringency to a 9% CI reduction in 2025, nearly double the 5% year-to-year increase presented in the initially proposed December 2023 amendments. This increase is additive to adjusting the overall CI reduction goal to 30% by 2030 and proposing the addition of an auto-acceleration mechanism that would accelerate the annual CI target by a year when specified market conditions are triggered. Staff note this change as intended to smooth the curve between the 2025 compliance target and the originally proposed 30% reduction in 2030, yet the effect is to create an immediate, near impossible burden to comply. While not specifically addressed in the second 15-day package, Kern is emphasizing its previous comments about this aggressive and immediate reduction to the annual CI, given the severity of the impact.

Kern is one of the smallest refineries in California and is one of only two remaining small refineries in the state producing finished transportation fuels. California Energy Commission data indicates that roughly 30 years ago a dozen small refineries operated in the state. The demise of over 80% of California small refiners over the last 30 years is due in large part to exponentially expanding regulatory burdens and accompanying compliance costs, which disproportionately harms small businesses. Using today's near-record low credit prices in the carbon market, Kern's estimated cost to comply with the newly proposed 10 g/MJ decline (9% stringency proposal) is greater than \$13 million for 2025 alone – more than double Kern's estimate under the previous 5% stringency proposal. These single-year cost-to-comply estimates using current carbon credit prices should be seen as conservative, if not the minimum cost for Kern to comply. The agency's desired result from the layered stringencies in this regulatory action is to drive up the price of carbon, which leaves these compliance estimates nowhere to go but up. Kern expects to see these costs double again if/when the market responds to CARB's signal.

This additional increase has the effect of front-loading 2025 with an unreasonable compliance burden to refiners with little to no time to prepare, rather than spreading the

burden across the full five years to 2030. The CI benchmark for gasoline in 2024 is 87.01 grams CO₂ per megajoule (g/MJ). Under the 5% increased stringency scenario initially proposed in the 45-day package, this benchmark would drop to 80.55 g/MJ – a 6.46 g/MJ difference. Under the 9% stringency scenario currently proposed, this benchmark would drop to 76.6 g/MJ – an astounding difference of more than 10 g/MJ. CARB cannot expect refiners to adjust to this dramatic change in less than four months. To place additional context around the magnitude of this CI reduction, even under the current proposal, the next time a benchmark CI decline of 10 g/MJ would be realized is in six years.

CARB is creating an impossible feat for regulated parties to comply even as the agency acknowledges the need for liquid fuels to meet state demand for many years to come. The LCFS proposed amendments already create a layering effect with the incorporation of the auto-acceleration mechanism, limitations to biomass feedstocks, and disincentives toward

biomass-based diesel fuels. The longer runway associated with the 5% stringency allows fuel producers the time needed to continue advancing new technologies and innovations in ultra-low CI fuels and implementing projects that are already underway but take five or more years to engineer, construct, and commission. Kern understands that Staff may envision smoothing the curve as beneficial, but the reality is an opposite and detrimental effect. Kern supports requiring reductions in a ratable manner.

Kern urges CARB to recognize the disproportionate regulatory impact on small refineries and consider ways to alleviate that burden. As a smaller company operating a single facility, Kern is less able to absorb regulatory costs. Notably, reduced costs create opportunities to utilize funds for reinvestment in the facility and expanding a low-CI fuel portfolio – investments that are critical for Kern's long-term operation and success and critical to meeting the state's climate goals. (15d2-296.3)

Comment: AGGRESSIVE COMPLIANCE TARGETS DISRUPTIVE TO CONSUMERS

In the first 15-day language, compliance targets between 2025 and 2030 are adjusted to create a larger drop in Carbon Intensity (CI) reduction than previously proposed. More aggressive short-term compliance targets are above and beyond any staff suggestions from the 45-day language and are not projected to be feasible considering the state's current inability to reach target CI reduction. More aggressive compliance curves would only exacerbate impacts to end-users attempting to procure enough compliant fuel. If current targets cannot be achieved, it is unreasonable to set more stringent targets.

Additionally, these aggressive compliance targets would create disruptions in the existing fuels market and make it more difficult for suppliers to procure the renewable fuels necessary to meet market demand. Renewable fuels with ultra-low CI scores like that of renewable propane, are prime for meeting CI targets set by LCFS. The ripple effect of the proposed increased targets would negatively impact procurement achievability for these key fuels. (15d2-304.2)

Comment: Layering on the significant costs the Kern will incur with these amendments, combined with the additional cost from Cap-and-Trade, it will be very difficult to bear for Kern as a small independent refinery. (BHT-191)

Comment: First, the proposed nine percent increase to a 25 percent CI reduction by 2025 represents an abrupt and stringent change that is not aligned with technological readiness. Many technologies needed to meet these targets, like next generation biofuels and carbon capture, are still in early stages. A rapid escalation of standards without a viable path to compliance risks significant supply shortages and infrastructure strain leading to higher costs at the pump, especially for working families and disadvantaged communities. (BHT-198)

Agency Response: No changes were made in response to these comments. The proposed 2025 and 2030 targets are a direct response to the market's demonstrated ability to decarbonize significantly faster than required under the existing regulation. Regarding comments that the market cannot achieve a 9 percent step down, staff modeling for the rulemaking estimated that 34 million deficits would be generated in 2025 and that a sufficient quantity of credits would be available from existing production capacity to cover the deficits. This does not include the existing credit bank of over 30 million credits as of Q2 2024 reporting. Given the current growth of credits in 2024, staff

expect that the credit bank could meet the total demand for credits in 2025, without further production of low-CI fuels, which indicates that companies will be able to meet the proposed regulatory targets without needing to deplete their credit reserves, as demand is not expected to exceed credit production. The proposed regulatory targets instead both balance the need to avoid credit price spikes that could translate into higher compliance costs with the need to provide a stable signal to ensure that low-CI fuels continue to be developed and deployed at regular pace into the future to support changing consumer demands as fleets turnover and continue to reduce GHG emissions from the transportation sector and achieve our statutory GHG reduction targets. Additionally, staff maintained the 30 percent 2030 target, though many stakeholders suggested targets above 40 percent are attainable, given the inherent uncertainties associated with transportation fuel market and policy conditions, rate of innovation and technology development in reducing the CI of any given fuel, rate of ZEV deployment, and the need for the electricity and hydrogen fuel growth to further penetrate the market to ensure continued growth in GHG reductions beyond those attainable through biofuel deployment alone. When proposing to maintain the 2030 CI reduction target at 30 percent, staff also considered the impact that other proposed regulatory provisions that phase-in between 2025 and 2030 may have by 2030 (e.g., the AAM, biomass sustainability criteria, the crop-based BBD crediting limit, and other provisions). Given the mix of various transportation fuel market and technology uncertainties, as well as the as-yet-to-be determined outcomes from updates to other LCFS regulatory provisions, staff proposed to maintain the 30 percent 2030 CI reduction target rather than increase (or decrease) the proposed target as suggested by many commenters.

C-4 Multiple Comments: *Stronger 2025 Step Down*

Comment: While we believe that the proposed 5% step-down in stringency will help to course correct the market, it simply does not go far enough considering the size of the cumulative credit bank, which is anticipated to increase its rate of growth as new clean fuel projects that have been or are being constructed bring more clean fuels to market. The step-down should be increased by at least 7%, which, for perspective, translates into a 2030 target of at least 32% reduction in the CI relative to the 2010 baseline. While a 7% step-down will still leave many credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of GHG emission reductions that would've otherwise gone unaddressed. (45d-094.2)

Comment: While we believe that the proposed 5% step-down in stringency is good start at course-correcting the market, it simply does not go far enough considering the size of the cumulative credit bank, which is anticipated to increase its rate of growth as new clean fuel projects that have been or are being constructed bring more clean fuels to market. Within the boundaries of staffs existing environmental and economic analysis, the step-down must be increased by at least 7%, which, for perspective, translates into a 2030 target of at least 32% reduction in the CI relative to the 2010 baseline. While a 7% stepdown (20.75% CI target) will still leave many credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of GHG emission reductions that would've otherwise gone unaddressed. ABC would like to emphasize that a 7% step down should be the minimum considered, and that it is possible, based on recent modeling by ICF, for CARB to be more

aggressive with the step-down, noting that a step-down of 11.25% (25% CI target) is feasible, and would sufficiently address the excess credits in the cumulative credit bank. (45d-096.1)

Comment: We encourage changes that would align with the objectives listed above, including (1) strengthening the step-down and applying it as soon as the regulation takes effect. (45d-121.7)

Comment: Lastly, AJW recommends increasing the size of the step-down. A 5% step-down is a good start at beginning to address the size of the cumulative credit bank, however, it does not go far enough. The cumulative credit bank is anticipated to increase its rate of growth throughout 2024 and a 5% step-down will not sufficiently address the problem considering current market conditions. Thus, as stated in previous AJW comment letters, we encourage staff to increase the step-down to at least 7% while staying within the boundaries of the existing environmental and economic analysis. (45d-156.4)

Comment: While we believe that the proposed 5% step-down in stringency is a good start at course-correcting the market, it simply does not go far enough considering the size of the cumulative credit bank, which is anticipated to increase its rate of growth as new clean fuel projects that have been or are being constructed bring more clean fuels to market. Within the boundaries of staff's existing environmental and economic analysis, the step-down must be increased by at least 7%, which, for perspective, translates into a 2030 target of at least 32% reduction in the CI relative to the 2010 baseline. While a 7% step-down (20.75% CI target) will still leave many credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of GHG emission reductions that would've otherwise gone unaddressed. RAE would like to emphasize that a 7% step down should be the minimum considered, and that it is possible, based on recent modeling by ICF, for CARB to be more aggressive with the step-down, noting that a step-down of 11.25% (25% CI target) is feasible, and would sufficiently address the excess credits in the cumulative credit bank. (45d-168.1)

Comment: While we believe that the proposed 5% step-down in stringency is a good start at course correcting the market, it simply does not go far enough considering the size of the cumulative credit bank, which is anticipated to increase its rate of growth as new clean fuel projects that have been or are being constructed bring more clean fuels to market. Within the boundaries of staff's existing environmental and economic analysis, the step-down must be increased by at least seven percent (7%), which, for perspective, translates into a 2030 target of at least 32 percent (32%) reduction in the CI relative to the 2010 baseline. While a 7% step-down will still leave many credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of greenhouse gas emission reductions that would've otherwise gone unaddressed. (45d-169.1)

Comment: That being said, we strongly feel that the proposed regulation, as it stands, would fall short of achieving CARB's goals in terms of diversifying the fuel pool mix as well as providing support for the LCFS credit prices. In fact, we have run some simulation scenarios using CARB's input file and incorporated the proposed step-down CI values as well as any potential trigger of the Automatic Acceleration Mechanism (AAR). We have also included some plausible scenarios that may alleviate these limitations. Note that we have only focused on the period of 2024 through 2030 as we strongly believe that the market will not price future projections past this time frame.

Scenario 1 – Proposed Regulation: 5% CI Step-down in 2025 and AAR in 2028

We believe that CARB underestimated the growth of renewable diesel (RD) and biomethane, which has led to a large credit bank and depressed credit prices. As of Q3 2023, renewable diesel filled almost 60% of the state's liquid diesel pool and generated roughly 50% of all new LCFS credits. In fact, we expect 80% of the diesel complex to be made up of RD by early 2025. This has undermined the LCFS's support for electrification and more scalable low-carbon fuels. The LCFS credit current prices saw high 50's, which did not inspire much in terms of investment. As the bank continues to grow, prices will continue to drop.

While stepping down the CI target by 5% in 2025 should create more demand for LCFS credits, this will not be enough to curb the rapid growth of the LCFS credit bank and its downward pressure on credit prices. We have used CARB's input file, along with the present CARB data (Q3 2023), to model the size of the bank throughout Q4 2030, as shown in Fig. 1. We assumed that the AAR will be triggered in 2027 and the CI target will be updated in 2028. Under this scenario, the credit bank will grow to 91 million credits by Q4 2030. As the bank continues to grow, prices will continue to drop. It is important to note that current RD capacity utilization is in the high 60% and low 70%, and capacity in the pipeline is expected to double; the bottleneck is how quickly paperwork can get signed to have the fuel find its way into California.

Scenario 2 – Incoming legislation + Stronger step-down to 21%

In this scenario, we propose stepping down the CI target to **21% in 2025** while keeping the same rules in the proposed regulation. Under this scenario, the AAR isn't triggered until 2030, and the resulting credit bank will be shown in Fig. 2. The impact of this would initially be positive between 2025 and 2028 as it would draw down the bank almost immediately. This may send a signal to the market, which can result in supporting LCFS credit prices. This change in CI step-down CI schedule can be easily implemented, allowing CARB to maintain the proposed regulation. CARB can then monitor the bank and assess whether a stronger action would be needed. However, it is important to note that the draw on the bank is relatively weak, so its impact on price levels may not be sufficient. The model predicts that the bank will resume rising in late 2028 and reach almost 77 million by the end of 2030.

Scenario 3 – Incoming legislation + Stronger step-down to 23.5%

In this scenario, we propose a bigger step down to 23.5% by 2025. This larger step down would quickly draw down the bank and correct prices. While the bank would rise starting in 2029, the size of the bank will be below the projected levels by the end of 2024. In addition, as the number of deficits grows, the bank's acceptable size can also become larger. In addition, the AAR may be triggered in subsequent years (past 2030) to address growing bank size and falling prices.

In summary, the current proposed regulation, as is, will not result in any measurable impact on the rapid growth trajectory of the credit bank and will almost eliminate any clean fuel technology, other than renewable diesel, from being competitive. We have presented some alternatives that may help stabilize the growth in the credit bank and stabilize LCFS credit prices. CARB can also put caps on RD and other biofuels to help other clean technologies get established and allow investments to flow into them. (45d-172.1)

Comment: The inclusion of a “step-down” mechanism is a key element of this proposal. If implemented correctly, the mechanism could help stabilize the credit market. EcoEngineers recommends CARB implement a more active “step-down” mechanism that annually balances rates of production with requirements. EcoEngineers also suggests including a “step-up” mechanism that can address potential credit surpluses. (45d-176.3a)

Comment: Gevo also supports CARB’s proposal for a CI stepdown in 2025 and for adoption of an Automatic Acceleration Mechanism (AAM). However, as detailed below, we urge CARB to consider a significantly greater stepdown than the 5% that has been proposed and to further strengthen the AAM. (45d-187.2)

Comment: EVCA and CalETC recommend at least an immediate 7% step down in carbon intensity (CI) to better account for historical overcompliance and push the market to greater levels of emission reduction and attract the private capital needed to meet state requirements and goals (45d-188.6)

Comment: If CARB wishes to attract new investment utilizing the LCFS program, then an ambitious mandate that allows the LCFS price cap to be reached quickly and thereby establish a stable LCFS credit market price is the best way to quickly create confidence in the LCFS program. As the rapidly accelerating surplus of LCFS credits weighs heavily on the market and market price for credits, we fear that without immediate and dramatic action by CARB, the LCFS will lag well behind the goals envisioned in the ISOR, and the atmosphere for investment in low or below zero carbon projects in California will shift to other states or regions that promise a more fitting economic return...To that end, we are concerned that the proposed carbon intensity (CI) compliance curve is inadequate in stimulating the market and needs to be significantly strengthened to draw down the excess credit bank which recently hit a new high of over 20 million surplus credits, with ICF forecasting that the program will have an excess credit bank of more than 30 million LCFS credits by the end of 2024...Without immediate action by CARB, the LCFS credit price will continue to decline, and investment will stall further. A 2025 target of 25% or greater CI reduction below the 2010 Baseline is needed to address the LCFS credit oversupply issue. This step-down should be implemented in Q3 or Q4 of 2024. Without immediate and meaningful action this year, investors and obligated parties have little or no incentive to accelerate the implementation of low or below zero carbon intensity fuels in California, which will not only damage existing and planned development, but it will also remove the sense of urgency needed to achieve meaningful carbon reduction in the state’s transportation matrix. (45d-201.1)

Comment: The proposal for a stepdown in 2025 and for the auto accelerator mechanism are warranted and support California’s emissions reduction goals, though CARB should further strengthen these proposed mechanisms. In addition to adjusting the overall compliance curve, CARB has also proposed a near term, one-time 5% stepdown of the CI benchmark in 2025 and an Automatic Acceleration Mechanism (AAM). While Gevo supports the adoption of these mechanisms, we urge CARB to adopt a greater stepdown than proposed and to further strengthen the AAM. The LCFS is clearly a successful program, exceeding its initially projected carbon reductions through what CARB has referred to as “overperformance.” Although the LCFS has supported the production of a greater quantity of low-carbon fuels during a certain timeframe than originally projected, Gevo notes that labelling this phenomenon as

“overperformance” is a bit of a misnomer. In actuality, given the State’s aggressive carbon emissions reduction and climate goals, and the challenges associated with meeting them, the situation might better be referred to as underperformance of the CI targets and implementing mechanisms. As CARB has recognized, because the volume of low-carbon fuel has exceeded projections, the credit prices have been reduced and the credit bank is unduly large, thereby threatening continuing success. Implementing an appropriately calibrated near-term CI stepdown and automatic acceleration mechanism alongside the compliance curve/benchmarks revisions can address this. Indeed, a near term CI stepdown can provide near-term market improvements while the accelerator mechanism will provide California with the tools to monitor the LCFS program and adjust it when needed. In addition, the accelerator mechanism will also help meet the State’s interest in spurring additional emissions reductions from SAF by supporting expansion of SAF production (and other renewable fuels) by providing investors and industry with confidence that the LCFS can support the crediting of additional gallons without the long delays that would be required by future rulemakings. (45d-187.10)

Comment: ARB should impose a more stringent near-term carbon intensity reduction schedule to ensure long-term credit price stability.

The LCFS program has been highly effective at achieving emissions reductions, and we understand that the final target for this rulemaking needs to be feasible as well as effective. The low carbon fuel industry has consistently exceeded the expectations of this program and with the right market signals, the total decarbonization of the transportation sector could be within reach. However, our market analysis shows that the proposed 30% CI target (§ 95484) is too low to provide the near-term price indicators that are necessary to spur the substantial industry investment in lower-CI projects, fuels, and vehicles required to reach the program’s long-term goals.

In our comments during the informal rulemaking process, 3Degrees advocated for at least a 35%CI reduction by 2030 and 90% by 2045 in order to align with the ambition of the 2022 Scoping Plan and other decarbonization objectives in California. (45d-195.1a)

Comment: Increase the step-down to 20-25%, and have it take effect as soon as the regulation does in 2024. (45d-197.4)

Comment: DTE encourages the Agency to consider increasing the step-down provision’s size to 10% to appropriately address the current state of credit and deficit creation. A decisive step-change reduction in 2025 would provide a signal of strong intent by the Agency to support both short- and long-term investment to meet California’s climate goals. (45d-199.2c)

Comment: A 5% step down in 2025 is simply not ambitious enough to remedy the ongoing challenges linked to overcompliance and a historically high credit bank. To address this issue, stakeholders previously recommended that CARB implement the 5% step down beginning July 1, 2024 rather than January 1, 2025. We still believe this would be an effective policy response to help address the current problem. However, in addition, we recommend increasing the 2025 step down from 5% to at least 10.5%. This would help restore the credit bank to levels more consistent with historical averages. For the 2030 benchmark, we recommend a requirement of at least 35%. By implementing these measures, the program would be poised for stability and innovation both in the short and long term. (45d-211.1)

Comment: We support the most ambitious carbon intensity (CI) reduction targets feasible and a robust stepdown of at least 7% prorated for 2024 to send a strong signal to the market once the rule is effective. (45d-214.1)

Comment: We support including both the initial 2025 accelerated stepdown of at least 5% and automatic stringency 'ratcheting' mechanism conceptually as proposed in the 45-day package. Based on the most recently published banked credit balance of over 20 million metric tonnes (Q3 2023), a step down of at least 7% is more appropriate. In the ICF International comments submitted to CARB last year, a CI reduction level of between 20% and 25% may still have an associated credit bank build.² A stepdown in the range of 7% to 10% would result in a CI reduction target from 20.75% to 23.75% relative to the current target of 13.75% in 2025. We also request that a prorated stepdown occur for the partial year of 2024, as soon as the rule is effective, to send the right signal to the market as early as possible. (45d-214.9)

Comment: We recommend a step down to 25% in 2025, or even by mid-2024. This magnitude of step down is essential to enable the LCFS to "catch up" and absorb the large supply of banked credits. This change could be implemented with minimal recycling of CARB's previous modelling as it would simply bring the targets in line with renewable diesel, electricity, and RNG utilization in California. This larger step down is also needed to mitigate the supply-demand balance impact from the new ULSD baseline (105.76). Without changing the 2030 target beyond the associated modelling, this near term step down demand signal is needed to sustain momentum to reach more ambitious targets proposed after 2030. (45d-216.1)

Comment: Prairie Farms believes that there are two key adjustments that CARB can make to the stringency as part of the 15-day change process that do not require new economic or environmental analysis as they fall within the scope of the work CARB has already included in the Initial Statement of Reasons (ISOR), specifically, by increasing the step-down (45d-219.1a)

Comment: Take greater action to stabilize the credit market, either through supply-side intervention or more stringent carbon intensity targets. Increase the step down to 10%. (45d-224.4)

Comment: Current low LCFS credit values are driven in large part by oversupply due to a rapid acceleration in the amount of imported renewable diesel to CA starting in 2021. This trend does not show any signs of abating. To increase and stabilize credit values in the short and medium term, we support increasing the one-time step down in 2025 from 5 % to 8 %. (45d-227.1a)

Comment: One-time stepdown. Throughout the workshop process, Rivian called for a one-time stepdown in CI targets and we applaud the inclusion of just such a provision in the ISOR. We recommended an evaluation of several alternatives, including the 18.75 percent reduction in 2025 ultimately proposed in the ISOR. We anticipate the proposed adjustment will force a draw on the credit bank that could help rebalance the program. CARB should finalize a one-time stepdown no later than 2025 and at least as stringent as the one proposed. (The proposed adjustment to the 2010 baseline CI for ultra-low sulfur diesel would blunt the effect of the stepdown on diesel and might justify a more substantial one-time adjustment.) (45d-228.1)

Comment: We support the ABC's comments on this topic. Specifically, (1)"by increasing the step-down... to set a 25% CI reduction below the 2010 Baseline in 2025 would be sufficient to begin to draw down the credit bank, reestablish a demand for additional expansion in low carbon fuel supply, and therefore drive additional greenhouse gas abatement. (45d-232.2)

Comment: We believe that an immediate CI step-down of at least 7% (instead of 5%) would help push the market to more significant levels of emissions reduction. Again, we believe that the next few years are a time in which to push forward ever more aggressively in meeting California's climate goals. (45d-238.7)

Comment: CARB should adopt an LCFS program target of at least 25% for the remainder of 2024 (and through 2025) to immediately reduce the program's credit bank to an appropriate level. (45d-240.1a)

Comment: We believe the most effective changes ARB could make to its proposal are to adjust the magnitude of the Step-Down to set the program's CI targets ahead of its performance in the short-term. (45d-256.3)

Comment: finalizing both a near-term Step Down and a higher 2030 target are both sensible and defensible actions. However, the timing and magnitude of ARB's proposals in the ISOR are insufficiently ambitious.

Since the ISOR's release, LCFS prices have dropped over 20% to levels not seen since 2015.4 The market is sending a clear signal to ARB that it believes performance is likely to continue outpacing targets - including the updated targets in the ISOR - and that the LCFS program could be a victim of its own success.

We believe the fundamental issue with the Step-Down as proposed is that it is too little to fulfill its fundamental purpose: to reset the ambitions of the program ahead of its performance.

This is particularly true since ARB has proposed adjusting the 2010 baseline CI for ultra-low sulfur diesel ("ULSD") upwards by 5.3%, from 100.45 gCO₂/MJ to 105.76 gCO₂/MJ. This adjustment effectively negates any impact of the Step-Down on ULSD, since the new "stepped-down" 2025 target of 85.93 gCO₂/MJ is less than 1% below the current target⁵. The impact of this is to increase the supply of credits from renewable diesel, which already generates the most credits in the program. (45d-256.7)

Comment: Adjust the magnitude of the Step-Down from the proposed 5% below the current 2025 level to at least 10%.

- This implies a new 2025 CI reduction target of at least 23.75% below the 2010 baseline. (256.8)

Comment: The program has become a victim of its own success and now overcompliance threatens to stifle investment making it uneconomic to build new projects under the current market conditions. CalBio appreciates CARB's recognition of this problem by introducing both a near-term step down in the CI target in 2025 and the introduction of an Automatic Acceleration Mechanism (AAM). We believe these are fundamental concepts to bring down the LCFS credit bank surplus, however, they simply do not go far enough. Fortunately, there exists an extraordinary opportunity to increase ambition and ultimately achieve more GHG reductions

by strengthening the near-term step down and enabling the AAM to begin one year earlier. Both actions will work in tandem create the near-term price signal necessary to drive investments in GHG reductions now and enable a faster, more dynamic response to changing market conditions, and help to achieve a CI reduction beyond the stated target of 30% by 2030...The primary lever at CARB's disposal to have the most immediate impact in driving down the LCFS credit bank is to first increase the near-term step down from 5% in 2025 to at least 10%. Notably, as part of the proposed amendments, the diesel benchmark for years 2025 through 2045 has been revised from 100.45 gCO₂e/MJ to 105.76 gCO₂e/MJ from a 2010 base year which substantially reduces the impact of the originally proposed 5% step down in the diesel pool. For the proposed step down to be meaningful, an 10% or greater step down is required and that the increased step-down be propagated through the stringency curve translating into a revised 2030 target (e.g., a step down of 10% translates into approximately a 35% reduction in the CI in 2030 relative to 2010). (45d-288.1,45d-288.2)

Comment: CARB can reduce the risk of excess credits and support greater GHG emissions reductions through an increase in the stringency of the 2025 CI step down by at least seven percentage points. (45d-292.2)

Comment: Apply an immediate CI step-down of 12% (and not the proposed 5%) in 2025 to adequately address the large credit bank and to account for the adjustment to the fossil diesel baseline that effectively cancels out the proposed 5% step down for diesel (45d-295.2)

Comment: Step Down CI Reduction Is Needed Immediately to Stabilize the LCFS Carbon Market:

Neste sees an immediate step down in the CI as integral to quickly addressing the overperformance of the LCFS program and the depressed credit prices. This could also provide visibility to the industry that could bolster investments in future alternative energy projects. Overperformance is a lost opportunity for GHG reductions, and the longer the market overperforms, the longer California passes up significant reductions in GHGs and harmful air pollutant emissions. Neste supports a CI step down in the range of 12% for 2025 as modeled by ICF in the "ISOR Case", versus the 5% proposed by CARB. ICF found that a CI reduction of 25% in 2025 is needed to "ensure that the credit bank reverses and that the bank is drawn down to a level that is in line with a credit bank of only two quarters' worth of deficits". As part of this rulemaking, CARB also updated the fossil diesel baseline from 100.45 gCO₂/MJ to 105.76 gCO₂/MJ, a 5% CI increase that essentially canceled out the 5% CI step down that CARB proposed for diesel. Neste plotted the CI reduction targets proposed by CARB in Tables 1 and 2 of the Proposed LCFS Regulation in Figure 6 below, showing that the CI step down is nonexistent for diesel. To truly balance the LCFS credit market, a 12% CI step down must be made in 2025. This step down is needed before the AAM can be effectively implemented, otherwise the AAM could be triggered excessively and overperformance will persist. (45d-295.2)

Comment: Increasing the step-down by at least 2% (for a total step-down of at least 7%) will right-size the current credit to deficit ratio and allow for the current robust credit bank to be utilized. This could potentially abate an immediate trigger of the Auto Acceleration Mechanism in its first eligible year. (45d-300.2)

Comment: Upon thorough market modeling analysis, we express reservations regarding the proposed one-time 5%¹ stringency step-down. We contend that this increment is insufficient for market stabilization. Consequently, we advocate for the implementation of a one-time 9% increase in stringency, set to commence in 2025. This adjustment is anticipated to yield a substantial 22.75% Carbon Intensity (CI) reduction, a notable enhancement from the initially proposed 18.75%. Moreover, we support a linear progression in stringency, reaching 30% from 2026 through 2030 after the initial 9% increase. Table 7-12 delineates the CI adjustment for the Diesel baseline. The proposed 5% increase elevates the CI benchmark for Diesel from 100.45 to 105.76, inadvertently augmenting the number of credits in the market. This unintended consequence is particularly pertinent due to the outsized impact of biodiesel and renewable diesel on the credit bank. Addressing this, we recommend a 9% increase in CI, effective from 2025, to align with CARB's objectives and stabilize the market. (45d-302.1)

Comment: Policy recommendation: A CI step-down of 10% from the current regulation of 13.75% to 23.75% in 2025 to address current oversupply issues and increases in the bank that will occur in 2024. This level of ambition should also be implemented in Q3 or Q4 of 2024, if administratively possible. (45d-320.2)

Comment: A step down to at least 23% carbon intensity reduction, to take effect as soon as the regulation takes effect in Q3 2024, rather than 2025. If the step down is not effective until 2025, we recommend a 25% step down effective January 1, 2025. (45d-323.2)

Comment: We urge CARB to set an ambitious compliance curve course that immediately draws down the credit bank and ensures a steady market to 2030. We support the ICF conclusion on the step-down for 2025 that “[A] CI [reduction] of 25% in 2025 is likely needed to ensure that the credit bank reverses and that the bank is drawn down to a level that is in line with a credit bank of only two quarters’ worth of deficits. This level of stringency, while seemingly high, is likely what is needed to achieve CARB's stated intent of correcting for the ‘near-term over-performance’ of the program.”⁴ (45d-328.4a)

Comment: A 2025 Target of >25% is Needed to Address Current Oversupply Issues. This Level of Ambition Should also be Implemented in Q3 or Q4 of 2024, if Administratively Possible.

The ICF work demonstrates that increasing the program’s benchmarks to set a 25% CI reduction below the 2010 Baseline in 2025 would be sufficient to begin to draw down the credit bank, reestablish a demand for additional expansion in low carbon fuel supply, and therefore drive additional greenhouse gas abatement. (330.7a)

Comment: The proposed 5% step-down in stringency does not go far enough considering the size of the cumulative credit bank, which is anticipated to increase its rate of growth as new clean fuels come to market. CALSTART strongly encourages the step-down must be increased by at least seven percent (7%), translating into a 2030 target of at least thirty-two percent (32%) reduction in the carbon intensity (CI) relative to the 2010 baseline. While a 7% step-down will likely leave many credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of greenhouse gas emission reductions and strengthen the market in the process. (45d-332.1)

Comment: ICF recommends a step down of 10.5% to 11.5% in 2025 to achieve a target credit bank equivalent of 2-3 quarters worth of deficits. This level of stringency is likely what is needed to achieve the stated intent of correcting for the "near-term over-performance" of the program. ICF's analysis indicates that the credit bank will likely continue to build significantly in 2025 if the step down is limited to 5%. ICF analysis suggests that a 6.5% step down is needed to ensure that the credit bank build is flattened in 2025. (45d-335.1, 45d-384.1)

Comment: we therefore urge CARB to 1) aim for a 6 or 7% stepdown in the CI reduction target in 2025, rather than the proposed 5%, (45d-346.6b)

In light of this data, the 2025 step change as proposed will not go far in rebalancing the market. The proposed 18.75% CI reduction target for 2025 would result in about equal credits and deficits assuming pretty conservative trends for biomass-based fuels, RNG, and electric vehicles. If this turns out to be true, the LCFS credit market will remain severely oversupplied due to the large credit bank until at least 2028, when the AAM can begin to respond. Until then, the credit bank will weigh on prices, decarbonization investments, and climate outcomes.

While these assumptions are far from a sure thing, history tells us that technology has adapted quickly to LCFS, and that overlapping local, state, and federal incentives for making this technology economical are quite powerful together. The biggest obstacle to accelerated technological progress seems to be underestimation of its potential. The rulemaking in 2018 seemed quite ambitious at the time but proved to be the opposite. The current rulemaking, on the other hand, feels conservative even at its onset.

The credit bank is in the process of reaching a full year's worth of deficits. The AAM is a fine instrument for automatically adapting to future developments, but CARB should act now to address current situation if it indeed seeks to support the market. A step change to 22.75% in 2025 would reduce the credit bank by approximately 28mm MT vs the current proposal. This is necessary if CARB seeks to reduce the LCFS credit bank by a meaningful amount before EV adoption begins shifting the market back into surplus before 2030, assuming the 30% target in 2030 remains in place.

If it is the desire of CARB to keep prices around current levels (between \$50 and \$80) I think the current proposal would be adequate. While the market will remain oversupplied, I believe the prospect of the AAM triggering in later years will draw in investor interest when credits drop significantly below this range, with the possibility of higher prices in the 2030's. This rulemaking strategy also has its merits, as it would help avoid rising compliance and fuel costs which could pose a political risk to the LCFS and other state-level environmental programs such as Cap-and-Trade and ACCII, among others. And to the extent that LCFS is meant to find least-cost pathways to low carbon transportation, this path would truly emphasize the 'least-cost' aspect, with competition likely to drive the cost of low-carbon fuels lower. (45d-352.1)

Comment: Correcting The Supply-Demand Imbalance Necessitates a Regulatory Step Change of at least 12%

As discussed earlier, the current LCFS market is not functioning in a sustainable manner. There is simply a glut of credits on the market that has driven down pricing, making the LCFS less supportive of electrification efforts in California. As a near term solution to address these

issues, CARB should implement a step change of at least 12%, implemented as quickly as possible.

In the past year of reported data, the actual CI reduction has gone from -13.11% (against a -10% target) in Q4 2022 to -15.61% (against a -11.25% target) in Q3 2023, resulting in the differential between target and actual increasing from -3.11% to -4.36%. A simple linear extrapolation of this trend would result in a CI differential of -6.41% by Q1 of 2025.⁵¹ However a response to adopt a 7% step change would not result in a declining credit bank or be reflected in a substantive credit price stabilization. The combination of continued EV adoption with the diesel pool approaching 100% justifies a significant step change of at least 12%.

The step change should be increased in stringency to adjust for the change being proposed by CARB in this rulemaking to the diesel benchmark from 100.45 gCO₂e/MJ to 105.76 gCO₂e/MJ. Because the diesel credit pool is now more than 50% renewable, an increase in the diesel benchmark results in more overall credit generation per gallon consumed in the whole pool. Going forward, in the absence of limits to first generation biofuels, it is widely expected that the renewable content of the diesel pool will continue increasing until it approaches 100%. This increase in renewable content will amplify the effects of this benchmark change. We recommend CARB model these effects and increase the step change stringency correspondingly.

Just as speed to implementation of the rule changes is critical to health of the program, so too is speed to implementation of the step change. The difference between a 2024 implementation and a 2025 implementation could result in a bank size growing millions of MT higher. Such a large bank increase could require years to rebalance, lowering demand for newly generated credits during that period. By allowing such a large supply and demand imbalance and the creation of such a large total bank, many smaller credit-generating companies who have been critical to the success of the program thus far could experience financial hardship, potentially resulting in lower credit generation in future years as they slow or cease operation. Further, delaying a step change, to use a BEV analogy, sends a message to participants that California is taking its foot off the accelerator, engaging regenerative braking. This effectively implies that the state leading the climate fight in the U.S. feels it has done enough near-term and is willing to sacrifice additional emissions reductions and reinvestment when it is critically needed. (45d-353.3)

Comment: An initial step down of 10.5% to 11.5% in 2025 to achieve a target credit bank equivalent of two to three quarters worth of deficits. (45d-354.4, 45d-370.3)

Comment: A significant step-down in CI benchmarks as soon as possible is the only feasible way in the near term to prevent continued building of the credit bank. In addition, we recommend a step-down of at least 7% to a level of at least 20.75% below the 2010 baseline. (45d-363.1)

Comment: More aggressive reduction in proposed CI targets with a higher than 5% step-up in reduction in 2025 from the current regulation. (45d-376.5)

Comment: We support the adoption of an immediate 10.5-11.5 percent “Step-Down” of the CI target in 2025 to quickly stabilize the carbon market. (45d-382.2)

Comment: 1) Ductor supports a stronger step-down, and encourages the step down to take effect as soon as the amended regulation does – including potentially for a portion of 2024. According to the analysis presented at the workshop,³ a 9% step-down would remove 27 million banked allowances through 2046. This means that even the highest step-down under consideration would not clear the existing credit bank over the lifetime of the program. We fear this is insufficient to correct the market, especially with the modest proposed 2030 targets, which would strengthen the target less over the next 5 years than a 9% step-down would do in a single year. We encourage CARB to continue analyzing near-term targets (the step down and 2030 targets), including consideration of the potential impacts of step-downs of greater than 9% and 2030 targets of greater than 30%. In particular, we support targets in-line with analysis by ICF, which suggests a step-down of 10.5-11.5% is appropriate, as well as 2030 targets of greater than 40%. (Apr-026.1)

Comment: 2) While we support even greater levels of stringency that align with the ICF analysis (and which would only support California's climate change goals), we believe the following would be an appropriate, conservative baseline approach for CARB to consider, at a minimum:

- A 9% step-down, to take effect as soon as the regulation does
- Maintain the proposed rate of annual reductions from 2025-2030 in the proposed amendments (2.25 percentage points), which on top of a 9% step down, would take stringency from 22.75% in 2025 to 34% in 2030.

We note that, under this framework, if the auto acceleration mechanism (AAM) were triggered twice by 2030, and post-2030 stringency remained as proposed (an increase of 4.5 percentage points annually), the 2030 target would reach 43%, which the ICF analysis has shown to be reasonably achievable, and would better align with the state's economy-wide greenhouse gas reduction goals. (Apr-026.2)

Comment: OCWGA appreciates CARB's additional modeling and consideration of increased step-downs of 7% and 9% in carbon intensity (CI). We echo the comments submitted by NCGA which highlight that increasing the step-down to 9%, instead of the originally proposed 5%, is an appropriate value that can reset the current credit-to-deficit ratio and make use of the existing credit bank. The 9% step-down is necessary as it will remove about 16 million credits from the program, a needed adjustment to stabilize the market and leave an adequate number of deficits in the bank. (Apr-046.1)

Comment: ABC appreciates CARB's responsiveness to stakeholders' calls for a more ambitious approach as the ABC does not believe that the original proposal of 5% goes far enough considering the current size of the cumulative credit bank and its continued growth. As noted in our February 16, 2024, comment letter responding to the proposed LCFS amendments, the step-down must be increased to at least 7%, and we strongly urge CARB to consider being even more ambitious here and adopt a 9% step-down in 2025. With the rate at which the cumulative credit bank is growing, a strong market course correction is desperately needed to ensure that the LCFS continues to be a successful program. (Apr-056.1)

Comment: Electrify America has supported the findings of the ICF analysis and in previous comments, urged CARB to propose 15-day changes to the regulation that would increase the step-down to 20-25%, and have it taken effect as soon as the regulation does in 2024.

We appreciate CARB re-evaluating the magnitude of the step down in this workshop. Given the market response to the April Workshop (prices have not rebounded), the increasing likelihood that amendments do not take effect before 2025, and the fact that even a 9% step down would not clear the credit bank over the duration of the regulation,³ we believe a step down at the higher end of this range – at least 9% – is needed. We hope CARB will further evaluate the step down and even consider an 11% reduction, which would take the program to approximately 25% stringency in 2025. (Apr-057.1)

Comment: Brimstone recommends a step-down of at least 9% needed to support a strong LCFS market. (Apr-058.2)

Comment: DTE encourages the Agency to consider increasing the step-down provision's size to at least 9% to appropriately address the current state of credit and deficit creation. (Apr-061.2)

Comment: The market is making it very clear that more needs to be done to address the credit bank in the short term, and it is precisely why Neste continues to support a step-down of 12% as modeled by ICF2. In the April 10th workshop CARB also modeled a 9% step down, and Neste is willing to support this step down if it means quicker approval of this updated LCFS regulation. This higher 9% step down will bring predictability to the credit market as to how the credit bank will be addressed versus relying on the unpredictable automatic acceleration mechanism to trigger in 2-3 years. Addressing the credit bank more quickly will also make new technologies more competitive in the LCFS, and this includes electrification and hydrogen. Therefore, it is paramount that CARB pursues the predictable 9% step down to start decreasing the credit bank in 2025. Delaying credit bank reductions will likely delay the implementation of new technologies. (Apr-066.2)

Comment: To truly balance the LCFS credit market, a 9% CI step down must be made in 2025. This step down is needed before the AAM can be effectively implemented, otherwise the AAM could be triggered excessively and overperformance will persist. (Apr-066.5)

Comment: The proposed 9% step-down in 2025 to a level of 22.75% below the 2010 baseline is the only option that has a chance to counter the ever-faster build-up of the LCFS credit bank.

Implementing the step-down as soon as possible is just as important as setting the level of the step-down at 9%. Any further delay in implementation of the program revisions will only serve to further accelerate the growth in LCFS surplus credits and make it more difficult to correct. Near-term action by CARB is now required to send a reassuring signal to investors that California remains committed to rapid decarbonization of its transportation sector and that investments in low-carbon fuels continue to be adequately rewarded and incentivized. (Apr-069.1)

Comment: Using the 30% CI reduction scenario as a baseline, Braya believes the optimal approach is to implement a 9% step-down in target CIs in 2025. We believe that front-loading

new CI targets will align with CARB goals and help repair credit prices that are currently significantly depressed due to a projected 27 million credit bank drawdown. Significant action is needed to support LCFS credit prices if the LCFS program is to achieve its stated goals. (Apr-079.23)

Comment: Brightmark LLC believes the reduction target should be 40% by 2030, combined with a step-down of 10-12% in 2024. Because of the delay in the LCFS rule implementation, the credit bank increases through 2024 are not addressed in the CI targets and step-down proposals. (Apr-082.10)

Comment: A sufficient step-down must be implemented where the AAM would not be triggered in the first year after the new amendments (2026). (Apr-082.15)

Comment: A CI step-down of 10-12% from the current regulation of 13.75% to at least 23.75% in 2025 to address current oversupply issues and increases in the bank that will occur in 2024. This level of ambition should also be implemented in Q3 or Q4 of 2024, if administratively possible. (Apr-082.19)

Comment: It is imperative that CARB implements a steep CI step-down to ensure that the bank returns to post 2023 levels (a reduction of approximately 23 million credits) by the end of 2025. This will help stabilize credit prices to maintain existing investments and increase future investment. (Apr-082.4)

Comment: Unfortunately, in the April Workshop, the most ambitious step-down target of 9%, coupled with a 2030 CI target of 30%, will not adequately address the credit bank oversupply. Of the three options presented, Brightmark supports the most stringent 9% step-down, but to maintain and increase investment in the LCFS, a more stringent 10-12% stepdown should be implemented and allow the AAM to be triggered earlier. (Apr-082.7)

Comment: Life Cycle Associate recommend CARB implement an immediate 9% step-down. This approach is most likely of those presented on May 10th to rebalance the LCFS credit bank. (Apr-084.1)

Comment: While we believe that the proposed 5% step-down in stringency may slow the rate of growth in the cumulative credit bank, it simply does not go far enough. The cumulative credit bank is anticipated to increase its rate of growth as new clean fuel projects that have been or are being constructed to bring more clean fuels to market. Informed by the unprecedented growth in the bank (e.g., 3 million credits were added to the bank in Quarter 4 of 2023) the step-down should be increased by at least 9%, which, for perspective, translates into a 2030 target of at least 4% reduction in the CI relative to the 2010 baseline. While a 9% step-down will still leave many credits in the cumulative credit bank, this single adjustment will translate into millions of additional tons of GHG emission reductions that would've otherwise gone unaddressed. (Apr-087.2)

Comment: Based upon clear trends in the marketplace and the gaps in the recent modeling, the proposed step change options of 5%, 7%, and 9% are clearly inadequate. (Apr-091.12)

Comment: The market reaction to CARB's recent proposal is also indicative of its inadequacy. Credit prices have fallen to their lowest level since the program began trading in 2015, indicating that the market has socialized CARB's proposed step change options and does not believe that a 5%, 7%, or 9% step-change is stringent enough to materially affect credit oversupply. (Apr-091.13)

Comment: In the absence of a crop-based biofuel cap, CARB should implement a more significant step change to address this credit oversupply issue. Accordingly, Tesla encourages CARB to adopt a 12% or higher step change. (Apr-091.6)

Comment: The absence of an accelerated phase out of Avoided Methane Crediting further highlights the need for CARB to implement a more significant step change. (Apr-091.8)

Comment: Adopt a 2025 "step down" in the LCFS program target of at least 9% to immediately reduce the program's credit bank to an appropriate level. Of the proposed step-down options presented at the Workshop, 9% provide the most certainty to rebalance the LCFS credit bank, which has long been the primary goal of this rulemaking. (Apr-098.3)

Comment: Given the LCFS credit surpluses over the last two years, a significant step-down in the Annual Carbon Intensity (CI) Benchmarks cannot be delayed any further. Cumulatively through Q4 2023, 155.58 million metric tons (MT) of credits and 132.03 million MT deficits have been generated, for a net 23.55 million MT of banked credits.³ This "extra" climate benefit to the atmosphere produced by the LCFS—the banked credits above and beyond current goals—is currently approximately the same size as the annual emissions of the country of Honduras.⁴

This success should be celebrated, but changes to program ambition are critically needed if the trend in rapid clean fuel development is to continue in California. Based on all recent market information to date, 2024 will also contribute to the credit bank build significantly. Unless CARB acts swiftly to improve near-term targets, this will cause prices to fall further and RNG investment to fully stall.

The CARB modeling material released at the Workshop demonstrates that a near-term step down of at least 9% is feasible. This aligns with the work conducted by the consulting firm ICF, whose analysis we continue to support.⁵ ICF has extensive experience modeling supply and demand in analogous clean fuel programs, both for governments and non-governmental organizations. We encourage CARB to rely upon the results of the ICF analytical work as it represents the most comprehensive and realistic analysis of supply and economics of RNG available to the LCFS system, as well as for other low carbon fuels.

ICF recommends an optimal step down of 10.5% to 11.5% in 2025 and targeting a credit bank equivalent of 2-2.5 quarters worth of deficits.⁶ A step down of 9% should be easily reachable next year. The ICF work also demonstrates that greater ambition is achievable in the 2030 timeframe—2030 Targets in the range of 41-44% are recommended, which would better align with CARB's primary Scoping Plan scenario targeting a 48% economy-wide reduction in greenhouse gases by 2030.⁷

Since transportation remains the largest sector of greenhouse gas (GHG) emissions in California, and additional deployment of a variety of low carbon fuel supply is clearly feasible,

we believe CARB should move swiftly to increase the ambition of LCFS program targets and match the LCFS more closely to economy-wide goals. (Apr-098.8)

Comment: The ongoing development and operation of low carbon fuel projects, including dairy RNG projects, require programs like the LCFS to provide and maintain a strong and clear market signal sufficient to attract capital for new projects and to maintain operations at existing RNG facilities. As indicated by the market response following the April 10, 2024 workshop (the price of credits fell from \$64.50 on April 9, 2024 to \$48.00 on May 8, 2024 according to Argus Air Daily), even the stronger near-term targets presented at the workshop are insufficient to return the market to balance and restore investor confidence.

In our previous comments,¹ we described how the bank of excess credits could reach about 38 million by the end of 2024, almost 6 times quarterly deficit generation. According to our analysis, a step-down to 25% in 2025, coupled with a stronger target of at least 35% in 2030, is necessary to correct for this projected level of surplus credits. Note that this would translate to a ~11% step down in 2025 – greater than the scenarios presented at the workshop – and aligns with similar analysis and findings from ICF.² We encourage CARB to continue evaluating appropriate step-downs, including levels greater than 9%, in order return the market to conditions that will support ongoing investment towards California's climate goals. (Apr-101.10)

Comment: CARB certainly needs to prioritize strengthening the market in the near-term to remove the glut of excess credit. Until the massive credit bank is significantly reduced, it will prevent LCFS prices from recovering and will continue to send a signal not to invest in low carbon fuels for the California market. Setting targets that cause the bank to reduce will support immediate investment in additional low carbon fuels projects that are needed now to achieve the state's near-, mid-, and long-term climate change goals. (Apr-101.13)

Comment: CARB's solution to offset the increase in diesel's baseline CI value included a key flaw, making the solution inadequate to address the increase in the credit bank expected from this change; the CI reduction targets should be increased to fully counteract the change in the baseline.

At the time, we had believed that the adjustment being incorporated by CARB would functionally increase the CI scores of these fuels by 4.78g/MJ, which would have been a satisfactory outcome.

Upon further review and discussion with other market participants, it has become apparent that this view was not entirely correct. The 4.78g/MJ increase applied to biomass-based diesel's CI scores had been calculated from the revised modeling of tailpipe emissions of methane, nitrous oxide, and carbon dioxide. Our understanding is that the increased carbon dioxide would not be counted here as it is considered biogenic. As a result, the actual applied change to biomass-based diesel fuels' CI scores would be just 2.74g/MJ.

This is material to the supply-demand balance in the LCFS market. Assuming no change in biomass-based diesel volumes from Q4 2023 (a bad assumption given the huge volumes of renewable diesel coming online in 2024), the change from a 4.78g/MJ adjustment to a 2.74g/MJ adjustment would yield an extra 650,000 MT of credit production in 2025; through 2040, this would be expected to be worth 10M MT of incremental credit production.

Throughout the rulemaking process, CARB staff has continually demonstrated a commitment to science-based reasoning underpinning each decision made. We applaud this; the fact-based approach allows investors like us to have confidence in CARB to oversee and administer this program in a consistent, level-headed manner. As such, we do not want CARB to adjust the CI scores of biomass-based diesel fuels any more than the rigorous modeling already performed suggests reflects the fuels' real-world lifecycle emissions. Instead, we would like to see CARB consider this mechanical increase in credit production (and corresponding relaxation of the LCFS's stringency) as you set the step-down magnitude. Our estimate is that this change is equivalent to reducing the 2025 step-down by ~2% and we suggest increasing the step-down's magnitude accordingly. (Apr-102.2)

Comment: For both the 2025 step-down and the 2030 target, CARB must substantially increase the ambition of the LCFS program in order to reaffirm the LCFS as a program that attracts and rewards long-term capital investment and infrastructure development.

The market is demanding more ambition than what has been proposed to date, including that from the April 10 Public Workshop. Pricing has fallen nearly 30% since the publication of the workshop documents containing the revised step-down values². The remedy for this is greater ambition for both the 2025 step-down as well as for the 2030 CI reduction target.

In the April 10 workshop, we noted in our oral remarks that we would include details of why we viewed a 5% step-down for 2025 to be inadequate. Since then, Q4 2023 data showing nearly 3m MT of excess credits has made this point even clearer. With a 5% step-down, we would expect a continued rapid build in the credit bank – more than doubling over the next 3 years – and an immediate triggering of the Auto-Acceleration Mechanism. It isn't hard to see why: the achieved CI reduction increased by over 4% from Q4 2022 to Q4 2023, and at the end of 2023 that metric sits just 1.5% below where a 5% step-down would place the CI target for 2025. No matter which forward-looking assumptions we use, we get to a 5% step-down being woefully inadequate.

The 7% step-down proposed in the April 10 workshop is also insufficient. While we had initially thought that 7% would be fine, the 2023 Q4 data release combined with the previously discussed error in the adjustment to biomass-based diesel fuels' CI scores pushes this step-down level outside of the range that would balance the market. Our modeling shows an early AAM triggering if this were the chosen step-down and a continued build to the credit bank for the next several years.

Considering the latest data and the other adjustments CARB has communicated in this rulemaking process, our view is that a minimum of a 9% step-down is needed to avoid the AAM being triggered, and that a 10% or 11% step-down not only must be considered but are the lowest values at which we would anticipate the credit bank being worked down over time. Each of these scenarios includes CARB maintaining the view that the 30% 2030 target is set. We know that there may be a degree of "sticker shock" to the numbers suggested; CARB must realize, however, that the real sticker shock is seeing credits trade below \$50/MT. At present pricing, the LCFS program is not a catalyst for investment. In each of our prior letters to CARB, we have strongly recommended implementing the step-down in 2024 – a year in which we now believe there will be more than 12m MT added to the credit bank – to avoid the increased magnitude in the step-down that would be needed if CARB waited until 2025; given the delay in this rulemaking, these levels of action are not only justified but are necessary. (Apr-102.3)

Comment: Based on the most recently published (Q3 2023) banked credit balance of over 20 million metric tons (MMTs) and the current rate of growth suggesting that the bank balance will easily be between 25 MMT and 30 MMTs by 2025, a step-down of at least 9% is necessary and feasible. On slide 47 of the April 10th workshop presentation, CARB estimated a bank drawdown of 27 MMTs (cumulative between 2024-2046) with a 9% stepdown and 30% CI reduction target in 2030. This suggests that the cumulative bank drawdown over the long-term is well matched to the anticipated 2025 bank balance. Based on the historical rate of innovation in the production of progressively low-CI fuels, the projections likely understate the rate of innovation providing the program maintains clear and ambitious targets. We also request that a prorated stepdown occur for the partial year of 2024, as soon as the rule is effective, to send the right signal to the market as early as possible. (Apr-103.11)

Comment: Air Products and Chemicals supports the most ambitious carbon intensity (CI) reduction targets feasible and a robust stepdown of at least 9% prorated for 2024 to send a strong signal to the market once the rule is effective. (Apr-103.2)

Comment: Tesla applauds CARB's long-term vision of setting a 90% reduction target by 2045. This cements California as the clear leader in the transportation decarbonization policy space, with the furthest-forward decarbonization target of any transportation decarbonization program globally. It also sets California on a path to reach Net Zero by 2045, as envisioned by Executive Order B-55-18. Currently, there are two principal factors in over-compliance that threaten the continuing stringency of the LCFS – the accelerating use of both renewable diesel and renewable natural gas. Tesla applauds the 15-day Amendments pushing for a 9% step change; however, Tesla continues to believe a higher step change is required and supports the adoption of a 12% step change.

As detailed in prior comments to the Board, the current LCFS market is not functioning in a sustainable manner. There is a glut of credits on the market that has driven down pricing, making the LCFS less supportive of electrification efforts in California. CARB's 9% step change proposal is unlikely to do enough to address this threat to the program. The clear near-term solution is implementation of a step change of at least 12%, as quickly as possible. (15d1-029.1)

Comment: We support CARB's approach to expanding the programmatic targets in the 15-day package. The proposed expansion recognizes that without immediate action, the carbon market will continue to languish with low targets and an oversupply of credits. This is critical as most investments already made or contemplated for the future require a higher LCFS price to merely break even, much less become profitable. The current paradigm has resulted in investors holding back, stalling projects, reconsidering future investments, or looking to other states or countries for alternative strategies. Without aggressive action, this will be catastrophic to the LCFS and similar programs that require large capital investment to move forward. While the proposed 9% near-term-stepdown for 2025 is a clear improvement over the prior proposal, we believe that adjusting the stepdown to 10.5% - 11.5% will prove more effective. The lack of market response to CARB's proposed 15-day rule on this topic clearly demonstrates that the increase does not go far enough, nor is the suggested >\$130 credit price credible. We encourage CARB to adopt a higher stepdown. (15d1-045.1)

Comment: Accordingly, we welcome and strongly support CARB's 15-Day Notice proposal for a near-term stepdown of nine percent, rather than the five percent CARB originally proposed. As noted in our previous comments, the five percent and seven percent stepdown options that CARB analyzed would be insufficient to address the excess credit buildup in the bank that weakens the effectiveness of the LCFS, even if accompanied with an AAM trigger. While we continue to believe that a stepdown of ten to eleven percent would be supportable based on the ICF analysis presented to CARB,⁴ the nine percent option is the most preferable of the options CARB assessed as it is projected to result in credits closer to the demand to be sparked by the compliance curve. Therefore, we strongly support this proposal and urge CARB to adopt it. (15d1-064.2)

Comment: Although staff has outlined a steeper initial stepdown of 9% (compared to the original 5%), the size of the credit bank will likely remain at historically high levels until post-2027. This 3 year period of depressed value will exacerbate the financial hardship our industry has suffered and further limit our ability to aggressively build hydrogen refueling stations (HRS) as desired by the state. The delays in amending this regulation and bringing credit prices back to reasonable levels has significantly damaged our reputation with fuel cell vehicle drivers, the vehicle manufacturers and the policy makers in the legislature, and has crippled our ability to continue building stations due to lack of capital. We urge the staff to adopt a steeper stepdown followed by implementation of the AAM as soon as practicable. (15d1-074.1)

Comment: Cargill welcomes CARB's proposal of a near-term increase in stringency to a 9% CI reduction in 2025 as a way to stabilize LCFS prices, but we believe there is room for a more impactful step-down given the build in the LCFS credit bank as the industry responds to the demand of lower carbon liquid transportation fuels in California. The over-performance of the program is a testament to its success, and we believe the proposed adjustment will be supportive to higher credit prices and continued investment in the state's transition to cleaner energy. (15d1-082.1)

Comment: SJI Renewable Energy Ventures appreciates CARB's change from 5% to a more aggressive 9% stepdown in the 15-day package. This should move should help alleviate the current over supply in the credit bank. As mentioned in previous comments, stronger CI reduction targets is an essential element to driving down GHG emissions. Given the current LCFS credit surplus, seen over the last few years, we respectfully suggest an even larger step-down in the carbon intensity benchmark. (15d1-094.1)

Comment: We strongly support CARB's proposal to increase the 2025 carbon intensity reduction target by 9%. This adjustment is a crucial step toward restoring balance in the LCFS market, which has faced challenges due to oversupply and low credit prices. By setting a more stringent CI reduction target, CARB is sending a clear signal to the market that it remains committed to driving meaningful reductions in carbon emissions. This move is likely to invigorate investment in low-carbon technologies, ensuring that California continues to lead in the fight against climate change.

While the 9% reduction is a positive and much-needed step, we believe it represents the minimum necessary to achieve market equilibrium and will not undo the growth in the credit bank seen over the last several years. A larger step-down should be considered to address the

large reserve of supply in the credit bank. The credit bank is more than three times larger than it was 3 years ago, and we anticipate that 2024 data will show further acceleration to the bank's growth. By increasing the step-down to 10% or 11%, CARB could more effectively reduce the excess credit supply and provide a stronger foundation for future investments in sustainable infrastructure. (15d1-106.1)

Comment: At the same time, we encourage the staff and the Board to continue weighing the benefits of a stepdown that is yet larger. While we welcome the 9-percentage point adjustment, the reality is that the credit bank continues to grow quickly. We find that the market could accommodate even more significant action than what has been proposed—accounting for the possibility that current modeling underestimates potential credit generation—and set the program up for success in the coming years.

We appreciate concerns about the potential risks of a larger stepdown, namely the possibility of 'over-obligating' industry and creating the conditions for an excessive runup in compliance costs. However, the policy's existing cost containment provisions adequately safeguard the market and broader public, preventing runaway increases in credit prices. In our view, there are far greater risks attached to an overly conservative adjustment to the CI benchmark curve that fails to fully rebalance the credit-to-deficit ratio, including chilled investment in EV charging networks and slower growth in EV sales. (15d1-107.2)

Comment: We strongly support ARB's decision to increase the stringency of the CI curve by 9% starting in 2025 to slow the growth of the bank and help support low carbon fuel suppliers in California and would even suggest ARB increase the step-down by as much as 12%. We also support ARB's proposal to give the Executive Officer greater discretion in the future to limit or adjust the use of certain pathways should California's transportation market evolve or new information answers important land use change questions regarding biofuels. This discretion should help streamline future changes to the program without rulemaking should they be necessary (15d1-203.11)

Comment: We want to start the letter by expressing our appreciation for CARB 's increasing the amount of the one-time step-down in 2025.

Although 9% is much improved from the 5% contained in the 45-day text, however, we are concerned that it might not be sufficient to cause the necessary depletion of the credit bank. (15d1-206.1)

Comment: Adopt an immediate CI step-down of 12% (instead of the proposed 9%) in 2025 to adequately address the large credit bank and more quickly stabilize the credit prices; (15d1-228.10)

Comment: Adopt an immediate CI step-down of 12% (instead of the proposed 9%) in 2025 to adequately address the large credit bank and more quickly stabilize the credit prices.

Neste continues to view a step down in the CI in 2025 as integral to quickly addressing the overperformance of the LCFS program and the depressed credit prices. The 9% step down is definitely an improvement appreciated by Neste, however the credit market continues to indicate that proposed targets are not aggressive enough in this rulemaking, as shown by the continued drop in credit prices even after the 9% step down was proposed by CARB in this 15-

day package. The market indicates that more needs to be done to address the credit bank in the short term. This is why Neste continues to support a step-down of 12% considering that ICF has modeled that a 20.25% step down is needed to ensure that the credit bank does not build 17. The 9% step down may be enough to balance the credit market in 2025, but it is likely to be oversupplied again in 2026 and 2027. Neste estimates the Automatic Acceleration Mechanism (AAM) to be triggered in 2027 and having an impact in 2028. However, since the annual CI target increases after 2025 are only 1.45% per year, Neste estimates the market will be significantly oversupplied in 2029 again, triggering the AAM in 2030 and impacting 2031. Moreover, a balanced credit market in 2025 depends heavily on the operational level of new RD refineries and the speed of electrification. If all the RD plants in California and the U.S. Gulf Coast are fully operational, we are likely to see an imbalanced market again. This CI step down will also speed up investment in lower CI feedstocks, making the various proposals to limit RD in this 15-day package unnecessary. These proposed limits on RD could affect innovation and lead to higher costs for consumers. CARB should therefore not proceed with the phaseout of RD pathways (95488(d)), the additional sustainability requirements (95488.9(g)), and the cap on soybean/canola oil (95482(i)). By lowering the CI, CARB signals to the market that it favors lower CI and lower LUC fuels. (15d1-228.25)

Comment: To truly balance the LCFS credit market, a 12% CI step down must be made in 2025. This step down is needed before the AAM can be effectively implemented, otherwise the AAM could be triggered excessively and overperformance will persist. (15d1-228.26b)

Comment: Apply an immediate CI step-down of 12% (and not the proposed 9%) in 2025 to adequately address the large credit bank and more quickly stabilize the credit prices; ICF has shown that a step down of 20.25% is needed⁵ and the credit market continues believe that more is possible; (15d2-300.7)

Agency Response: Changes were made in response to these comments. Because the credit bank had continued to grow during the open rulemaking period, staff increased the near-term stringency to reflect a 9% step-down in 2025 in the updated amendment proposal, an increase from the previously-proposed 5% step-down. Staff proposed to increase the near-term ambition of the compliance targets in consideration of the continued growth in the credit bank in recent quarters, as well as public feedback stating that a 5% step-down would not be adequate to balance credits and deficits in the market or reduce the size of the credit bank, which continues to increase over time. Staff's refinement of the feedstock supply curves for biofuels as well as updates to fuel supply modeling using the CATS model to better reflect renewable diesel's growth in the market to meet diesel fuel demand supported a greater step-down. Because higher volumes of renewable diesel led to greater growth in credit generation, indicating the potential to decarbonize faster, staff increased the step down from 5 percent to 9 percent. The CATS model outputs supported this step down and suggest that the

change will result in a reduced bank size without creating a risk of market non-compliance or credit price spikes.¹

C-5 Multiple Comments: *Change Step-Down Timing*

Comment: While the proposed LCFS amendments are intended to drive stronger target reductions and greater investments in new technologies, they have the opposite effect as the market reaction has been very negative, where LCFS credit prices have fallen sharply (~\$56 /MT). CARB's proposed amendments include no actions to support LCFS credit prices in 2024. This will further increase the size of the credit bank throughout 2024, which will further exacerbate the LCFS credit price. The proposed increase in CI target by 5% in 2025 will do very little against an oversized credit bank to recover credit prices... we propose that CARB moves its 5% step up in CI target to 2024 (45d-013.1)

Comment: 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. 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 stepdown 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-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. (45d-140.2)

Comment: A 2025 target of 25% or greater CI reduction below the 2010 Baseline is needed to address the LCFS credit oversupply issue. This step-down should be implemented in Q3 or Q4 of 2024. (45d-201.1)

Comment: Further, starting the step-down as soon as possible and avoiding unnecessary bank build is crucial. We recommend that CARB target the step-down to occur on 7/1/2024. (45d-232.4)

¹ For further detail regarding the updated CATS modeling, see CARB, First 15-Day Changes: Attachment C: LCFS Fuels and Credit Market Modeling, August 12, 2024.

https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day_attc.pdf

Comment: We recommend that CARB target the step down to occur on 7/1/2024 to a level of 25% below the 2010 baseline and maintain that level through 12/31/2025 (45d-240.1b)

Comment: However, we are concerned that the historically low credit prices 2 will continue through 2025, which has a chilling effect on providers' financing further stations and is increasingly discouraging OEMs from committing capital to Hydrogen fuel cell light-duty (LD) and HD vehicles. Unlimited biodiesel and renewable diesel supply has been one of the leading causes of the LCFS credit market's inability to effectively support other pathways.

We therefore urge starting with tighter targets and policies that can result in the immediate recovery of credit prices. We request the Board implement the one-time 5% CI step down and the auto acceleration mechanism (AAM) sooner than the proposed date. (45d-263.2)

Comment: However, we are concerned that the historically low credit prices will continue through 2025, so urge bringing the one-time 5% CI step down forward sooner (e.g., at rule adoption through OAL) as well as the auto acceleration mechanism (AAM). (45d-329.2)

Comment: Further, starting the step-down as soon as possible and avoiding unnecessary bank build is crucial. We recommend that CARB target the step-down to occur on 7/1/2024 to a level of 25% below the 2010 baseline and maintain that level through 12/31/2025 (assuming CARB elects to retain the updated 2010 diesel baseline value). (45d-330.7b)

Comment: Unfortunately, in the April Workshop, the most ambitious step-down target of 9%, coupled with a 2030 CI target of 30%, will not adequately address the credit bank oversupply. Of the three options presented, Brightmark supports the most stringent 9% step-down, but to maintain and increase investment in the LCFS, a more stringent 10-12% stepdown should be implemented and allow the AAM to be triggered earlier. (Apr-082.8)

Comment: First Element Fuel supports staff's recommendations to enact a steeper step-down and accelerate the auto adjustment mechanism to bolster the credit prices as soon as possible. (Apr-082.2)

Comment: We support CARB's proposed AAM, but request that the implementation be set one year earlier than proposed to allow faster acceleration of the targets – providing increased stringency to the program if the 2025 stepdown fails to bring the program back in balance. The signal to the market has been diminished based on substantial overcompliance for many years and based on the current and growing cumulative credit bank balance, we foresee this trend continuing unless CARB sets an ambitious CI reduction target. To facilitate the most flexible and effective AAM, we request that CARB change the reference year in 95484 (b) from 2027 to 2026 and reference years in 95484 (c), (d), (e), and (f) from 2028 to 2027. (Apr-103.12)

Agency Response: No changes were made in response to these comments.

The timing of implementation for the Proposed Amendments depends on a variety of factors. Rulemaking process needs include staff review and consideration of stakeholder comments submitted during the 45-day and 15-day comment periods,

development of amendment proposal revisions in response to stakeholder and Board feedback when appropriate, updating regulatory support analyses as needed, and review times for the Department of Finance and the Office of Administrative Law (OAL). While staff make every effort to move expeditiously, the compliance target updates included in the Proposed Amendments cannot be implemented until after OAL consideration of the final rulemaking package following CARB approval for adoption on November 8, 2024. Staff are aware of the market sensitivities associated with these compliance target updates, and proposed a greater step-down in compliance targets to be responsive to the most recent market dynamics available. Staff selected a 9 percent step down with the aim of creating stability in the market based on the targeted date of implementation.

C-6 Multiple Comments: *Oppose Step Down*

Comment: We note, however, that the proposed 5% reduction in the CI benchmarks in 2025 (referred to as the “near-term step down”) could have unintended consequences for existing renewable fuel producers. Each of the aforementioned measures attempt to head off a growing credit surplus that could stifle prices and deter future investments. If credit prices do not rise at the speed or to the degree CARB forecasts in its rulemaking analysis, the near-term step down could end up doing more harm than good for existing producers; credit generation would be curtailed by the sharp decline in the 2025 benchmark without a corresponding rise in prices to help offset these losses. We ask CARB to carefully consider the credit availability and pricing analyses of other stakeholders in their comments in evaluating the necessity of the near-term step down versus a more gradual approach to achieving the proposed 30% CI reduction target by 2030. (45d-255.9)

Comment: Super-accelerating” near-term program stringency may compromise the goal to balance the costs the economy bears, and the environmental benefits received. Market signals are necessary to incentivize the production of lower-CI fuels. But CARB’s aggressive proposed reduction targets may exacerbate California’s pressing energy affordability challenges. (Apr-094.17)

Comment: We are also concerned that the aggressive step-down of CI benchmarks, which partially result from the removal the proposed regulation of fossil jet fuel, combined with other changes, will reward importers of waste feedstocks while penalizing farmers across Georgia, Florida and the broader United States. (15d1-021.4)

Comment: We are also worried that the aggressive step-down of CI benchmarks, which partially result from the removal of the proposed regulation of fossil jet fuel, combined with other changes, will reward importers of waste feedstocks while penalizing farm families across the United States. (15d1-032.4)

Comment: ASA is also concerned that the aggressive step-down of CI benchmarks, combined with other changes, will reward importers of waste feedstocks while penalizing U.S. farmers. (15d1-037.5)

Comment: We are also concerned that the aggressive step-down of CI benchmarks, which partially result from the removal the proposed regulation of fossil jet fuel, combined with other

changes, will reward importers of waste feedstocks while penalizing farmers across Iowa and the broader United States. (15d1-115.3)

Comment: Currently, the LCFS includes a carbon intensity benchmark requiring a 20% reduction from the 2010 baseline by 2030. The proposed amendments, released in December 2023, strengthened the carbon intensity benchmark to a 30% reduction from the 2010 baseline by 2030, and established a new 90% carbon intensity reduction benchmark by 2045.¹ In our February 2024 comments, we pointed out that strengthening the carbon intensity would increase demand for LCFS credits, and thus increase the money eligible fuel producers, including factory farms, receive for LCFS credits. The additional modifications to the proposed amendments would further increase the required carbon intensity reduction in the first five years following adoption (2025, 2026, 2027, 2028, and 2029). Notably, the initial increase in stringency will be a 9% reduction from the 2010 baseline benchmark² in 2025 as compared to the 5% reduction included in the amendments published in December. Put differently, the recent amendments update the 2025 benchmark schedule to achieve a 22.75% CI reduction compared to the 13.75% CI reduction specified in the 2018 adopted regulation, and the 18.75% reduction specified in the December 2023 amendments. CARB explained this change is intended to increase the stringency to bring deficits and credits into balance.³ If adopted, this modification would provide even more financial benefits for eligible fuel producers, and thus increase the incentive factory farms have to expand their herds and install anaerobic digesters. (15d1-123.1)

Comment: We are also concerned that the aggressive step-down of CI benchmarks, which partially result from the removal the proposed regulation of fossil jet fuel, combined with other changes, will reward importers of waste feedstocks while penalizing farmers across Iowa and the broader United States. (15d1-138.5)

Comment: The proposed increase of the CI reduction targets to a nine percent reduction beginning in 2025 threatens to raise prices for consumers. Ambitious targets will inevitably increase the associated costs of compliance for fuel producers and distributors, and will ultimately be passed down to and borne by consumers in the form of higher fuel prices.

California lawmakers and regulatory agencies have repeatedly expressed concerns with, and sought to mitigate, escalating fuel costs throughout the State. This has often resulted in accusations of unfair or deceptive practices by businesses when, in reality, they generally reflect the costs of bringing fuel to market in a jurisdiction governed by an LCFS program. The Associations are supportive of aspirational, consumer-focused policies that result in increased consumption of low-carbon fuels. At the same time, policymakers must be clear-eyed about the impact that regulations may have on costs and prices. CARB should facilitate compliance with CI reduction targets in a market-oriented manner that balances its regulatory objectives with the resulting inflationary consequences for consumers at the pump. (15d1-149.2)

Comments: As WSPA has explained in previous comments, super-accelerating the carbon intensity (CI) “step down” target in 2025 by 9% will likely increase consumer cost impacts and disincentivize longer- term advancements in developing lower-CI transportation fuels. This may compromise CARB’s efforts to balance program costs with emission reductions. The State has repeatedly acknowledged^{12,13,14} that LCFS has a direct cost impact on California consumers, which can disproportionately burden low- and moderate-income Californians. Rather than

super-accelerating reductions, CARB should adopt more feasible CI reduction targets to mitigate potentially significant consumer cost impacts and encourage longer-term advancements in lower-CI transportation fuel development. (15d2-195.1)

Comments: We are also concerned that the aggressive step-down of CI benchmarks, which partially result from the removal the proposed regulation of fossil jet fuel, combined with other changes, will reward importers of waste feedstocks while penalizing farmers across Kentucky and the broader United States. (15d2-255.5)

Agency Response: No change was made in response to this comment. Staff updated the CATS modeling for the Proposed Scenario in response to public feedback received on the regulatory proposal released along with the ISOR to match the currently proposed modifications to the initial regulatory proposal. The most important update to the Proposed Scenario CATS modeling was increasing the stringency of the 2025 compliance target to reflect a 9% step-down, an increase from the previously-proposed 5% step-down. See response to comments in section C-4 with regard to the rationale for the Proposed 9% step-down.

C-7 Multiple Comments: *Support Proposed Automatic Acceleration Mechanism*

Comment: We support...inclusion of an automatic acceleration mechanism as a backstop to assure that the market in cleaner fuels stays at a robust level. (45d-101.3)

Comment: AJW is pleased to see that much of what was proposed by CARB staff is aligned with the recommendations in our white paper and strongly supports the overall concept and inclusion of the mechanism into the LCFS. (45d-156.1)

Comment: Among other things, SCE supports the Proposed Amendment's recommendations to: (1) establish an automatic acceleration mechanism (AAM) (45d-178.1)

Comment: Adding additional flexibility to the regulation with the adoption of a near-term step-down and an automatic acceleration mechanism will strengthen the LCFS market long-term. Using two credit market ratio signals as the triggers for the acceleration mechanism is appropriate to address the specific problem that the proposal is intended to address. (45d-180.1b)

Comment: We believe the extension of the Carbon Intensity Benchmarks to 2045 and the "automatic acceleration mechanism" or "ratchet" that would advance the benchmark to the next year's target will prove to be an effective tool in managing the state's clean fuels targets. (45d-223.1)

Comment: As we and many other stakeholders have noted previously, overcompliance in the LCFS strongly suggests the need for an AAM. In 2022, for example, regulated entities exceeded California's CI target by more than 2.6 percentage points.³ We anticipate a similar level of overcompliance in 2023. Even with a stepdown and more stringent targets in place, in short order the LCFS could very well find itself right back where it is today, with the market consistently and significantly outpacing the policy's CI targets resulting in a credit glut. Absent

an automatic ratchet, a policy response would be years away due to regulatory development timelines. Therefore, the staff proposal for an AAM is encouraging. CARB should approve an AAM as part of the LCFS amendments. (45d-228.3)

Comment: we further support “auto-acceleration” to stabilize the credit market in the event of rapid decarbonization. (45d-236.2)

Comment: LADWP supports the...Automatic Acceleration Mechanism. LADWP agrees that there needs to be a mechanism in place to enhance the stringency of the standard if and when transportation decarbonization advances more rapidly than staff initially anticipated. (45d-237.2)

Comment: SVLG requests that the auto-acceleration mechanism and its triggers be implemented as soon as possible without delay. (45d-242.1)

Comment: Additionally, the Mobile Carbon Capture Coalition supports the incorporation of a compliance target acceleration mechanism that can automatically adjust based on clear criteria to increase programmatic stringency. This type of mechanism will help provide critically needed emissions reductions and provide market certainty for ongoing investment in low- and zero-carbon technologies. (45d-270.3)

Comment: Additionally, a well-designed compliance target acceleration mechanism that functions to increase stringency based on program performance will support critically needed emissions reductions and provide market certainty for ongoing investment in low and zero-carbon technologies. (45d-274.2)

Comment: Likewise, the implementation of the auto-acceleration mechanism will help to ensure technology advancements that lower the carbon intensity of fuels do not result in an oversupply of LCFS credits. These necessary market improvements will help drive investments in electric mobility options, charging infrastructure and programs necessary to reach the state’s decarbonization goals. SMUD supports CARB’s efforts and supports consideration of further increases in stringency. (45d-291.8)

Comment: I appreciate the auto acceleration to increase the CI stringency and support no Board approval for consecutive auto acceleration events unless they are further strengthened. (45d-297.1)

Comment: The inclusion of a compliance target “auto-acceleration mechanism,” capable of automatically adjusting to expedite investments if the LCFS program surpasses expectations, serves as a strategic measure to maximize California's potential for emissions reduction in the transportation sector. (45d-322.2)

Comment: Remora encourages CARB to consider even more ambitious CI targets to drive California towards its climate goals. For this reason, Remora also supports the inclusion of an auto-acceleration mechanism that will increase the stringency of LCFS if the program over-performs. This mechanism will help to ensure that California will continue to achieve emissions

reductions and will provide additional incentives for investment in clean transportation fuels and technologies. (45d-326.2, 45d-326.3)

Comment: In addition to the increase in stringency, we also support the development of the Automatic Acceleration Mechanism (AAM). This addition to the program allows the state to more nimbly respond to the biofuel (and ZEV) industry's ability to "overcomply." As noted in the ISOR, the AAM would help bolster market stability in the event that transportation fuel decarbonization grows rapidly. This kind of market adjustment sends a strong signal to companies like ours that are putting significant resources into developing new feedstocks with low and ultra-low carbon intensities. (45d-357.2)

Comment: We recognize that there may be unforeseen market forces that impact the fuel market, as occurred due to the COVID 19 pandemic. Given this reality, we support CARB's proposal to establish an AAM that will only trigger a CI reduction when the market metrics pertaining the credit bank size and credit/deficit generation ratio are fulfilled. (45d-370.6)

Comment: PG&E also appreciates the inclusion of a proposed Automatic Acceleration Mechanism (AAM) which will help support market stability in the event that transportation fuel decarbonization outpaces deficit generation in the program. Program success or overperformance should not destabilize the market, and the AAM can prevent such a dynamic from reoccurring. (45d-388.3)

Comment: FuSE strongly supports the concept of the AAM, however, believes single-year or intra-year adjustments are technologically feasible and digestible to the market. As currently proposed, and as the market has clearly identified via trading trends, the proposed updates to CI targets and infrequency of AAM triggering is not stringent enough. (Apr-054.1)

Comment: SCE supports the Proposed Amendment's recommendations to: (1) establish an automatic acceleration mechanism (AAM). (Apr-071.1)

Comment: An Auto Accelerator Mechanism Provides an Appropriate Guardrail Against Low Prices and Increases Investor Certainty. (Apr-082.13)

Comment: In addition to more stringent near-term targets, CARB should adopt a target accelerator mechanism to reduce the likelihood of future oversupply scenarios. An accelerator mechanism is not a substitute for appropriate changes in the targets. Still, it does offer an attractive additional tool to CARB if they wish to minimize future minor target-adjustment rulemakings. The key term here is "future oversupply scenarios." The LCFS is already oversupplied with that oversupply projected to increase by 30-40+% higher from now through 2024. (Apr-082.14)

Comment: While we believe that the proposed 9% step-down in stringency is a good start at course correcting the market, we also believe that an Auto-Acceleration Mechanism (AAM) is still needed to respond to clear overperformance of the program and to send an unambiguous market signal to investors that the program is nimble and will respond to opportunities to deliver additional GHG reductions rather than "add to" an excessively large credit bank that is

at odds with the objectives of the program. The AAM is a necessary complement to the CI target adjustment and as designed, will send a clear, supportive, and unambiguous market signal to continue investments in clean fuels by tightening the program in the event overperformance occurs. Adoption and implementation of this mechanism will ensure that potential emission reductions are not left on the table and will help California reach its climate goals faster if triggered. (15d1-052.2)

Comment: Kia supports the addition of the “Automatic Acceleration Mechanism” to help ensure the continued success of the LCFS. Appropriate CI targets that maintain adequate LCFS credit pricing will support the continued growth of low-carbon fuels. We appreciate CARB recognizing the need to add these measures to advance adoption of low carbon fuels. Kia encourages CARB to continue to ensure a healthy credit trading market by monitoring program metrics (15d1-054.4)

Comment: Electrochaea also supports the Automatic Acceleration Mechanism as described in Section 95484. This mechanism, designed to bring into balance the credit bank, credits, and deficits in the LCFS program, can reduce the oversupply of credits and provide a market signal to sustain the success and importance of the LCFS program. (15d1-072.2)

Comment: Additionally, we commend CARB for the inclusion of the Auto Acceleration Mechanism as a forward-thinking measure to ensure the program’s dynamism. The AAM is a necessary compliment to the CI target adjustment and as designed, will send a clear, supportive, and unambiguous market signal to continue investments in clean fuels by tightening the program in the event overperformance occurs. Adoption and implementation of this mechanism will ensure that potential emission reductions are not left on the table and will help California reach its climate goals faster if triggered. (15d1-105.2)

Comment: along with the Automatic Acceleration Mechanism (AAM) are vital to restoring balance to the credit market and ensuring the program meets its GHG and co-pollutant reduction goals. (15d2-091.3)

Comment: The regulation appears to rely on the Auto Acceleration Mechanism ("AAM"), which we strongly support, to drive additional investment and progress in the low carbon fuels market. We appreciate the amendments in the Second 15-Day changes to move from annual to quarterly review, which will allow the tool to be more flexible to market conditions. This is a necessary change, since the 2030 target under the program is clearly out of alignment with State's emission goals under the 2022 Scoping Plan, and achieving the state's climate change targets may rely on the AAM triggering multiple times before 2030. (15d2-172.6)

Comment: Also we support the modifications made in the second 15-Day changes to the auto-acceleration mechanism (AAM). Switching from a calendar year of data to the most recent four quarters of data as the determination for whether the AAM is triggered will allow for greater transparency and market certainty to LCFS participants, and urge CARB to clarify this AAM will be allowed to trigger as early as possible. (15d2- 188.3)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, Iowa Soybean Association appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-197.14)

Comment: Development of the Auto Acceleration Mechanism, and proposed change in the second 15-day change package to move from annual to quarterly review (15d2- 206.12)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, the Arkansas Soybean Association appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-208.14)

Comment: The Automatic Acceleration Mechanism, because it will bring additional stability to the market. We also support the recent proposed change to perform a look back covering the previous four quarters worth of data on a quarterly basis (instead of once per calendar year). This allows the AAM to be triggered up to three quarters sooner, giving more notice to market participants and providing market certainty for both low carbon fuel producers and obligated parties. To avoid confusion, we suggest CARB clarify that the benchmark schedule update to the LCFS website and AAM trigger announcement occur at the same time. (15d2-212.4)

Comment: and the development of the auto acceleration mechanism (AAM), which we hope will help return the LCFS market to health and allow it to continue serving as a driver of investment in EVs and other clean fuels in California. (15d2-218.3)

Comment: We appreciate CARB's willingness to re-evaluate the AAM and support the change in this second 15-day change package to move from calendar year reviews of credit and deficit generation to quarterly reviews. This is a small but important change that will make the mechanism more responsive to market conditions and provide greater certainty to support ongoing investment in clean fuels and ZEV infrastructure. Electrify America believes a more responsive AAM will help maximize the potential of this new element of the program and ensure the ongoing health of the LCFS program. (15d2-218.4)

Comment: We recognize that CARB has incorporated stakeholder feedback and strongly agree with the increase in program targets and the new adjustments to the auto-acceleration mechanism (AAM). We believe these changes are essential to meet the state's emissions reduction goals in the transportation sector while fostering further investment and innovation in clean technologies. (15d2-224.1)

Comment: Gevo Strongly Supports CARB's Proposed Modification to the Trigger for the Automatic Acceleration Mechanism (Section 95484)

In each of our earlier sets of comments, Gevo supported CARB's intent to adopt an Automatic Acceleration Mechanism ("AAM") to advance CI adjustments as needed to respond to LCFS

market conditions. Gevo strongly supports CARB's proposal in the Second 15-Day Notice to have the trigger for the AAM be based on the four most recent quarters of reporting, making a quarterly announcement regarding whether the AAM is triggered, rather than using a calendar year for the trigger and making an annual announcement. As CARB recognized in making the current proposal, switching from a calendar year of data to the most recent four quarters of data as the determination for the AAM trigger will allow for greater transparency and market certainty to LCFS participants, thereby strengthening the market pull of the LCFS and increasing the GHG emissions savings it achieves. Accordingly, Gevo urges CARB to adopt this proposal. (15d2-226.1)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, the Nebraska Soybean Association appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-239.14)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, MSA appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-240.14)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, ASA appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-243.14)

Comments: the ABC supports the modifications made in the second 15-Day changes to the auto- acceleration mechanism (AAM). Switching from a calendar year of data to the most recent four quarters of data as the determination for whether the AAM is triggered will allow for greater transparency and market certainty to LCFS participants. (15d2-256.3)

Comments: The second 15-Day changes package is focused on targeted modifications to the proposed regulatory text and Newtrient would like to express our support for the new amendments to the program. Specifically, the modifications made in the second 15-Day changes to the Auto Acceleration Mechanism (AAM). Switching from a calendar year of data to the most recent four quarters of data as the determination for whether the AAM is triggered will allow for greater transparency and market certainty to LCFS participants. Adoption and implementation of this mechanism will ensure that potential emission reductions are not left on the table and will help California reach its climate goals faster if triggered. (15d2-260.1)

Comment: For all of the reasons staff provided in the second 15-day change notice, CalETC supports staff's proposed changes in subsection 95484(b) ensuring that the determination for whether the Automatic Acceleration Mechanism is triggered will be based on data from the most recent four quarters of reporting. (15d2-264.4)

Comment: SUPPORT: We support the proposed change to the AAM trigger to using data from the most recent four quarters of reporting. (15d2-266.5)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, ISA M&P appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-268.14)

Comment: We also support the updates to the Automatic Accelerator Mechanism. Triggering the AAM mechanism off a rolling quarterly assessment is preferable to using an annual look-back. Clearer timing of when the adjustment would impact the market should be supplied. (15d2-269.3)

Comment: We Support the Auto Acceleration Mechanism Being Able to Trigger Earlier. The changes to the Auto Acceleration Mechanism (AAM) in the Second 15-day Package are positive. Evaluating the AAM on a rolling four quarter basis is more likely to detect oversupply more quickly than evaluating on only a calendar-year basis. (15d2-269.7)

Comments: We commend CARB for the inclusion of the Auto Acceleration Mechanism as a forward- thinking measure to ensure the program's dynamism. The proposed change in the Second 15-Day package to four quarterly announcements from one annual announcement for determination of whether an AAM trigger will occur further exemplifies CARB's dedication to the success of the program and their recognition of the importance of timely credit price stabilization to the market and the program's stakeholders. The AAM is a necessary compliment to the CI target adjustment and as designed, will send a clear, supportive, and unambiguous market signal to continue investments in clean fuels by tightening the program in the event overperformance occurs. Adoption and implementation of this mechanism will ensure that potential emission reductions are not left on the table and will help California reach its climate goals faster if triggered. (15d2-278.4)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, the Michigan Soybean Association appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-285.14)

Comment: In terms of updating the timeline for analysis of data to trigger the auto acceleration mechanism, NDSGA appreciates that CARB is seeking to provide additional notice to the market before a trigger is implemented through the ability to analyze data quarter over quarter rather than just annually. This will allow the industry more time to plan and make business decisions ahead of new benchmarks triggering. (15d2-293.14)

Comment: In addition, Neste also supports the positive changes proposed to the Automatic Acceleration Mechanism (AAM). (15d2-300.4)

Agency Response: No change was made in response to these comments. Staff appreciates the commenters' support for the proposed amendments.

C-8 Multiple Comments: *Modify Automatic Acceleration Mechanism*

Comment: instead of raising the CI target by 5% in 2025, CARB should start by raising the 2024 CI target by 5%. CARB should also allow the ratcheting mechanism to be triggered annually while giving CARB the option to decide if ratcheting is needed or not. (45d-011.3)

Comment: In addition, the proposed ratcheting mechanism will not be able to support the credit prices due to the long time lag before it kicks in and its bi-annual triggering nature... allow the ratcheting mechanism to be triggered annually. (45d-013.2)

Comment: Fidelis applauds CARB for considering an acceleration mechanism to adjust compliance targets based on the performance of the LCFS market. This acceleration mechanism will ensure market certainty for industry to develop and deploy the required low carbon fuel infrastructure and ensure that emissions are rapidly, but feasibly, reduced to deliver both climate and air quality improvements to Californians. Furthermore, implementing an automatic acceleration mechanism allows the LCFS program to be more dynamic, send a positive market signal to renewable sector investors, and reach its decarbonization targets faster.

Furthermore, Fidelis supports the proposed auto-acceleration structure applied when the trigger criteria have been met (with limitations noted below). As such, all future years of the program schedule should be impacted accordingly. Rather than sending a one-time signal and holding the program at the new target for an additional period (i.e., a "freeze"), we believe that impacting all future years in the program sends a strong and consistent market signal. This will further encourage projects and investments in the decarbonization sector and allow the LCFS program to accelerate its progress towards California's GHG reduction goals.

To maintain an active level of oversight on the program's acceleration, Fidelis supports a limit on the number of consecutive auto-accelerations that can be implemented. Fidelis recommends that CARB be required to provide their approval on a third program auto-acceleration, if both trigger criteria are satisfied and there have been two consecutive prior auto-acceleration periods implemented. (45d-045.6)

Comment: As designed, the first year that the AAM could impact program stringency is 2028--four years from now! The concept and need for the AAM is to respond to clear overperformance of the program and to send an unambiguous market signal to investors that the program is nimble and will respond to opportunities to deliver additional GHG reductions rather than "add to" an excessively large credit bank that is at odds with the objectives of the program. Waiting four years is too long, and the ABC recommends pulling the date for triggering the AAM forward. The AAM should be based on 2025 data with the trigger assessment occurring in May 2026, and the AAM being applied in 2027 providing the applicable conditions are met, thus increasing the program stringency for 2027. Relying on 2025 as the first eligible year for triggering the AAM is appropriate as one of the main objectives of the step-down is to bring the program into balance. Therefore, assessing the impact of the stepdown on the market based on 2025 data, including the cumulative bank and

the rate of credit to deficit generation, is aligned with the principles of the program. With this approach, the AAM could theoretically increase the stringency of the program in 2027 and 2029 (i.e., triggered twice prior to 2030 providing the conditions for the triggering the AAM are satisfied), better ensuring that potential emission reductions are not left on the table in the event the program continues to overperform following the Board's adoption of the amendments. (45d-096.2)

Comment: Furthermore, it is important to note that the proposed 3:1 ratio (i.e., cumulative bank/average quarterly deficits) that would trigger the AAM is likely inadequate. For example, in 2022, a year where there is general stakeholder consensus that the LCFS was overperforming, the AAM would not have triggered using CARB's current proposal. Updated ICF modeling shows that changing the cumulative credit bank to average quarterly deficit ratio threshold from 3 to 2.5 or lower would position the AAM to be more responsive to overperformance of the program, thus delivering additional reductions in GHG emissions. (45d-096.3)

Comment: We encourage...allowing the AAM to be more responsive to the market, including allowing it to be triggered based on 2025 market data and to be triggered in consecutive years if needed. (45d-121.9)

Comment: 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. (45d-140.3)

Comment: 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. (45d-140.4)

Comment: We hereby urge that the AAM triggers be moved up. As proposed, the mechanism cannot be triggered earlier than 5/15/2027. That is too late. (45d-141.4)

Comment: PineSpire strongly suggests accelerating the...speed at which the AAM functions. (45d-150.2)

Comment: Requiring acceleration of the benchmark reduction schedule by an entire year gives CARB too little room to maneuver. If the credit bank just barely reaches the threshold required to trigger the AAM, the benchmark reduction schedule leaps forward by an entire year, instead of considering a minor adjustment to maintain the credit market's stability. This could lead to CARB overtightening the benchmark reduction schedule, leading to a saturation of deficits and more market volatility.

Instead, we recommend the AAM create more flexibility by allowing CARB to proportionally accelerate the benchmark reduction schedule based on how much the credit bank exceeds the trigger threshold, up to the CI benchmark for the following year. This would help maintain the stability of the credit market and thwart any potential overcorrection, which contributes greatly towards supporting long-term investment in transportation decarbonization. (45d-151.1)

Comment: Return to the Board if the Auto-Acceleration Mechanism (AAM) is triggered repeatedly: The AAM is designed to automatically increase the stringency of the program if there is a chronic excess of credit leading to a buildup of the credit bank and reduction of credit prices. In discussing the rationale for the AAM, CARB wrote "The existence of an AAM is expected to decrease market volatility and increase market confidence, which will promote low-carbon technology investments." However, in the staff report, CARB staff made no effort to assess the impact of this mechanism on the credit price or even qualitatively discuss the implications as part of the scenario analysis. For example, in the Proposed Amendments scenario, CARB staff estimate average credit prices ranging from \$76 to the price cap, but they do not discuss whether this large volatility in the market is reasonable given the addition of the auto-acceleration mechanism to the proposal. Will the AAM effectively set a credit price floor that is well above \$76? Will unexpected credit generation result in multiple triggers of the AAM and unexpectedly high pass-through costs? Because of the uncertainty surrounding the impact of the AAM on credit price and pass-through cost, I recommend requiring that a rulemaking be initiated if the AAM is triggered twice in any six-year period. Moreover, this rulemaking should be completed before a third acceleration is allowed. Repeated triggering of the AAM indicates market conditions that staff and the Board did not anticipate when approving these amendments. Staff should be required to investigate and return to the Board with amendments to establish new compliance targets and address the cause(s) of the market imbalance, if necessary. (45d-154.16)

Comment: Address the potential for the AAM to overcorrect the market: I suggest not allowing an acceleration to occur in either 2031 or 2032 as the rate of CI decline for the benchmarks is already doubling and an acceleration that occurs in either of these years would quadruple the rate of target CI decline. Here are the scenarios of concern:

- The AAM is triggered in May of 2030. This trigger has occurred because the market is generating too many credits based on an annual benchmark decline through 2030 of 2.25 percent. In 2031, the rate of benchmark decline is already scheduled to double to

4.5 percent. An acceleration in 2031 would quadruple the rate of benchmark decline to 9 percent.

- The AAM is triggered in May of 2031. Again, this trigger has occurred because the market is generating too many credits based on an annual benchmark decline through 2030 of 2.25 percent. In 2031, the benchmark has already declined by 4.5 percent, which may itself correct the market. However, in 2032, an acceleration will occur increasing the target CI reduction another 9 percent.

Either of these scenarios may result in an overcorrection with the credit price going to the ceiling, at which it may be stuck for many years. Under the above scenarios, credit price at the ceiling will result in a pass-through cost of approximately \$1.30 per gallon of gasoline. Such a pass-through cost would be politically untenable for the program. (45d-154.17)

Comment: We support the introduction of an auto-acceleration mechanism (AAM) to strengthen CI reduction targets and respond to growth in the low carbon fuels sector. By recognizing and rewarding overperformance in the program, California benefits from the latest in low carbon fuel technologies. As the rule is currently written, it is essential that the AAM functions properly in tandem with the CI adjustment. Private industry has signaled that it is ready to exceed stated goals well ahead of the established targets. Considering the achievement of 2024 goals in 2022 and strong credit bank builds each quarter, we believe the AAM should not be restricted to an every-other-year frequency. This allows the AAM to respond to market conditions as they emerge rather than potentially two years behind schedule. (45d-155.2)

Comment: Thus, AJW recommends that CARB pull forward the date for triggering the AAM by one year. In the event the cumulative credit bank continues to grow in 2025, in spite of the step-down and new compliance targets, we believe it is appropriate for a first assessment in 2026, with a change in benchmark in 2027. In fact, 2025 is the most important year for CARB to consider, as it will be imperative to make any adjustments to the compliance target before an oversized credit bank deters further investment into alternative fuels and vehicles. Using this approach, the AAM could potentially be utilized in 2027 and 2029, which will yield more opportunities for potential emission reductions and still give ample lead time for deficit and credit generators to adjust their operations to anticipate a stricter compliance curve. (45d-156.2)

AJW encourages CARB to reassess the proposed threshold when considering the credit bank to average quarterly deficit ratio formula, which is currently proposed at 3.0 (i.e., three quarters of credits in the credit bank). This, when combined with the threshold of 1.0 for the credit generation to deficit generation formula (i.e., credits are continuing to contribute to a growing cumulative bank), is an overly conservative proposal as it would not allow for the AAM to trigger in situations where there is general consensus on the overperformance of the program. For example, looking at recent LCFS history, this 3:1 ratio the AAM would not have been triggered even in 2022 despite most stakeholders observing that the LCFS was overperforming and needed adjustments to program stringency to course correct. After backcasting recent LCFS activity, we are instead recommending the average quarterly deficit ratio should be 2.0. The impact of this threshold would mean that the credit bank is able to cover one-half a year of deficits. (45d-156.3)

Comment: Waiting four years is too long, and RAE recommends pulling the date for triggering the AAM forward. The AAM should be based on 2025 data with the trigger assessment occurring in May 2026, and the AAM being applied in 2027 providing the applicable conditions are met, thus increasing the program stringency for 2027. Relying on 2025 as the first eligible year for triggering the AAM is appropriate as one of the main objectives of the step-down is to bring the program into balance. Therefore, assessing the impact of the stepdown on the market based on 2025 data, including the cumulative bank and the rate of credit to deficit generation, is aligned with the principles of the program. With this approach, the AAM could theoretically increase the stringency of the program in 2027 and 2029 (i.e., triggered twice prior to 2030 providing the conditions for the triggering the AAM are satisfied), better ensuring that potential emission reductions are not left on the table in the event the program continues to overperform following the Board's adoption of the amendments. (45d-168.2)

Comment: Furthermore, it is important to note that the proposed 3:1 ratio (i.e., cumulative bank/average quarterly deficits) that would trigger the AAM is likely inadequate. For example, in 2022, a year where there is general stakeholder consensus that the LCFS was overperforming, the AAM would not have triggered using CARB's current proposal. Updated ICF modeling shows that changing the cumulative credit bank to average quarterly deficit ratio threshold from 3 to 2.5 or lower would position the AAM to be more responsive to overperformance of the program, thus delivering additional reductions in GHG emissions. (45d-168.3)

Comment: As designed, the first year that the AAM could impact program stringency is 2028--four years from now! The concept and need for the AAM is to respond to clear overperformance of the program and to send an unambiguous market signal to investors that the program is nimble and will respond to opportunities to deliver additional GHG reductions rather than "add to" an excessively large credit bank that is at odds with the objectives of the program. Waiting four years is too long, and Newtrient recommends pulling the date for triggering the AAM forward. The AAM should be based on 2025 data with the trigger assessment occurring in May 2026, and the AAM being applied in 2027 providing the applicable conditions are met, thus increasing the program stringency for 2027. Relying on 2025 as the first eligible year for triggering the AAM is appropriate as one of the main objectives of the step-down is to bring the program into balance. Therefore, assessing the impact of the step-down on the market based on 2025 data, including the cumulative bank and the rate of credit to deficit generation, is aligned with the principles of the program. With this approach, the AAM could theoretically increase the stringency of the program in 2027 and 2029 (i.e., triggered twice prior to 2030 providing the conditions for the triggering the AAM are satisfied), better ensuring that potential emission reductions are not left on the table in the event the program continues to overperform following the Board's adoption of the amendments. (45d-169.2)

Comment: Allowing the Auto Acceleration Mechanism (AAM) to be triggered as early as 2026 and to apply to consecutive years would be more effective in supporting a robust LCFS. RFA supports the AAM and the conditions proposed to trigger a pulling forward of the compliance schedule by one year. The current proposal prohibits the AAM from starting before 2027 and being triggered in two subsequent years, requiring a one-year break before it can be triggered again even if in that subsequent year the conditions are met. To support a robust LCFS

compliance curve, we support the AAM implementation in 2026 and dropping the skip-year requirement. Carbon markets are efficient in responding to supply/demand imbalances. Delaying implementation of the AAM until 2027 or a waiting an extra year if the market is out of balance will create inefficiencies and undermine the objective of the LCFS to maximize carbon emission reductions. (45d-171.3)

Comment: While ICF's analysis demonstrates that a greater 2025 stepdown is needed, it also demonstrates that this should be done in tandem with an adjustment to the proposed threshold for triggering the AAM so the AAM will be triggered when the credit bank is more than 2.5 times greater than the quarterly deficits generated in a given year. These changes would result in a tighter credit-deficit balance and would provide sufficient flexibility to respond to market conditions in the near-term future (pre-2030), while enabling California to achieve its long-term GHG reduction targets. Accordingly, Gevo recommends that CARB revise the stepdown and AAM proposals consistent with this analysis. (45d-187.12)

Comment: EVCA and CalETC support the proposed automatic acceleration mechanism but recommend that the mechanism can be triggered as soon as 2027 (45d-188.7)

Comment: Modify the auto-acceleration mechanism (AAM) to be triggered in consecutive years. The AAM will be a valuable tool to adjust carbon intensity targets to market conditions without the need of a rulemaking. The triggers for the AAM should be attuned to prevailing market conditions and not be unnecessarily restricted. (45d-189.2)

Comment: We are generally supportive of the AAM (§ 95484(b)) and 2025 step-down adjustment (§ 95484(d) - Table 1, footnote b), though we would suggest that the AAM should be able to be triggered earlier, in 2026. This design would lead to fewer surplus credits through the late-2020s and likely result in the higher prices needed to drive investment, thus mitigating pricing volatility with a smoother path towards more ambitious targets. (45d-195.1b)

Comment: Modify the AAM so that it:

- Would be triggered when banked credits exceed 2-2.5 times quarterly deficits.
 - Can apply to calendar year 2025 data, potentially be triggered in 2026, and the compliance schedule can be potentially pulled forward in starting in 2027.
 - Can be triggered in consecutive years if market conditions warrant.
- (45d-197.6)

Comment: Finally, we applaud CARB's proposal to integrate an auto-acceleration mechanism to increase the stringency of the annual CI targets of the program when triggered by clear criteria...We recommend the agency adopt the auto-acceleration mechanism earlier, as soon as 2025, to allow triggering as early as 2026 and ensure the current surplus is addressed promptly and efficiently. There is no rationale for delaying the implementation of the acceleration mechanism given its triggering criteria, however substantial risk exists if the mechanism is delayed resulting in further growth of the credit bank. (199.2d)

Comment: The Auto Acceleration Mechanism should be allowed to trigger as early as 2026 using data from 2025. This would dynamically respond in the event of future sustained and significant underestimation of CI reduction targets by further tightening the overall stringency of the program, complement existing mechanisms to avoid credit shortfalls, and better ensure that opportunities to deliver additional reductions of carbon and air pollutants are not foregone. (45d-201.4)

Comment: AAM, we recommend considering 2027 as a more suitable timeline. The years spanning 2025 through 2027 stand out as particularly unbalanced during credit bank modeling exercises, demanding more ambition than is represented in the proposed amendments. (45d-211.4)

Comment: We support the inclusion of the Auto-Acceleration Mechanism but believe the assessment should start in 2026 based on 2025 data. (45d-214.2)

Comment: To facilitate the most flexible and effective AAM, we request that CARB change the reference year in 95484 (b) from 2027 to 2026 and reference years in 95484 (c), (d), (e), and (f) from 2028 to 2027. (45d-214.10)

Comment: We recommend three changes to the auto acceleration mechanism (AAM): First, allow it to take effect in 2027 (or 2026 if the 2025 step down remains less than 25%). Secondly, implement the triggering threshold when the credit bank is more than 2.0 times greater than the quarterly deficits generated, based on analysis by AJW and others that 3.0 is excessive. Finally, the AAM should allow for the program to trigger continuously (no “freeze” needed between years as currently proposed). These adjustments to the AAM will ensure it is effective enough to avoid repeat regulatory revisions and give sufficient confidence to market participants to make informed investments and long term commitments. (45d-216.2)

Comment: FuSE strongly supports the concept of the AAM, however, believes single-year or intra-year adjustments are technologically feasible and digestible to the market. As currently proposed, and as the market has clearly identified via trading trends, the proposed updates to CI targets and infrequency of AAM triggering is not stringent enough. (45d-218.1)

Comment: pulling forward the effective date for triggering the Auto Acceleration Mechanism (AAM) CARB can “recapture” reductions in GHG emissions that will otherwise be lost with the current proposal. Doing so will also send a clear, and supportive market signal to continue investments in clean fuels that would otherwise be constrained and subdued by the current proposal. (45d-219.1b)

Comment: Also during the November workshop, CARB presented the possibility of devising a “Self-adjusting CI target mechanism” that would trigger an auto-adjustment in standards. We believe that this concept has merit, assuming that it would spur credit bank drawdown and stop plummeting prices when LCFS credits are being over-generated. We were pleased to see this mechanism’s adoption in the currently proposed rulemaking. However, we would like to see this much-needed mechanism implemented earlier than currently proposed. Without such a

mechanism, producers who have made responsible investments in reliance on a functioning incentive-based LCFS program will face grave economic uncertainty. Braya also supports front-loading the new CI targets to further repair the currently significantly depressed credit prices. We look forward to CARB moving forward with both provisions. (45d-221.4b)

Comment: Modify the Automatic Acceleration Mechanism (AAM) formula to trigger once the credit bank exceeds three-fifths of the prior year's deficits, instead of three-fourths. (45d-224.5)

Comment: We would also encourage CARB to explore ways to build more flexibility into the AAM as to reduce lag time between the trigger criteria being met and the benchmark CI adjustment being implemented. (45d-227.1b)

Comment: We support...pulling forward the effective date for triggering the Auto Acceleration Mechanism (AAM) (232.3)

Comment: The Automatic Accelerator Mechanism should be allowed to trigger as early as possible, to guard against the case where the near-term target step down is not sufficient to address the current oversupply. (45d-240.3)

Comment: adjust the timing of the Auto Acceleration Mechanism... ARB proposes to delay the first trigger of the AAM until 2027, which would not impact CI reduction targets until 2028 - three years after ARB's proposed Step-Down in 2025.

We believe that timing is too late and encourage ARB to consider an earlier, modified trigger, in line with that proposed by the Low Carbon Fuels Coalition... Allow the AAM to trigger in 2026, one year after the effective date of the Step-Down in 2025... Adjust the bank-to-deficit ratio to 2.5 from 3.0. (45d-256.4, 45-d 256.10, 45d-256.11, 45d-256.12)

Comment: Monarch supports adopting an Automatic Accelerator Mechanism (AAM) and amending the proposed language to trigger the AAM earlier. The AAM is a complementary refinement to the step-down in program stringency within the LCFS. This mechanism will dynamically respond to sustained and significant CI reductions by tightening programmatic stringency, increasing investor certainty in credit markets. While CARB's current timeline suggests the AAM's implementation in 2028, Monarch recommends allowing 2025's performance to trigger the AAM. By doing so, CI reduction targets for 2027 will commence one year earlier than in the Proposed Amendments. This clarifies and improves Monarch's ability to make significant additional capital investments in decarbonization projects. (45d-275.5)

Comment: approximately a 35% reduction in the CI in 2030 relative to 2010). Another specific way to address the near-term credit bank surplus is to revise AAM to be triggered in 2026 based on 2025 credit bank data and increase the CI stringency target in 2027. As currently proposed, it will not kick in until 2028 based on 2026 data. However, if the proposed near-term step down, even if increased to 10%, is insufficient to draw down the credit bank, the AAM should be triggered provided the eligibility requirements are satisfied. Postponing the AAM by an additional year will undermine its ability to serve its intended purpose which is to guard against an oversupply of credits. (45d-288.3)

Comment: CARB can support greater GHG emissions reductions by allowing the AAM to be triggered in 2026 with an effective date in 2027. (45d-292.3)

Comment: Start applying the CI Automatic Acceleration Mechanism (AAM) proposed by CARB in 2026 (using 2025 data) and not wait until 2027 to address overperformance in the LCFS credit market should it persist...Automatic Acceleration Mechanism (AAM) Should Start in 2026 (using 2025 data):

In the current environment, where the credit price is at 2015 lows and the credit bank is at a record 20.6 million credits¹⁹, it is important that adjustments to the CI reduction targets are made through a predictable process and send credible, long-term signals to the market. Neste therefore appreciates that CARB is proposing an AAM that will move up the CI standard by one year (and subsequent years) when triggered, resulting in a predictable impact on the longer-term fuel market.

Given the significant credit bank and the expected record growth in renewable energy consumption in California, Neste recommends that the AAM first be activated in 2026 (using 2025 data) and not wait until 2027. It is essential that CARB have this mechanism in place should overperformance persist, and to balance out the credit market more quickly so that renewable fuel producers can feel more confident investing in new production.

Neste also supports ICF's recommendation that the AAM triggers be reevaluated to ensure a smoother reduction of the credit bank. By lowering the "Credit Bank to Average Quarterly Deficit Ratio" AAM trigger from 3 to 2.5, CARB can provide an even more predictable credit market. (45d-295.3)

Comment: The proposed Auto Acceleration Mechanism is an important new concept for credit generators in the LCFS. World Energy is very supportive of this proposal. The initial staff proposal is strong, but World Energy has a couple of suggestions for the proposed design. First and most important, our modeling suggests that the proposed 2030 target and 5% step-down will only serve to increase the credit bank and dampen investment in low carbon fuels. Moving the first eligible date of the AAM forward may be necessary to allow for the AAM to "catch" any near-term adjustments needed. In the current proposed amendments, the Executive Officer will announce whether the AAM has been triggered starting in May 2027, with an effective date in January 2028. Instead, a first eligible trigger announcement in 2026 for a 2027 effective date would be more appropriate. While the staff proposal is likely giving the market time to "adjust" to the new 2030 targets after a 2025 implementation, our experience is that the market reacts in real time. As of February 2024, the market has already modeled, reacted to, and priced the proposed 2030 targets, and the result has been a decrease in credit price. The current credit price reflects the market's belief that the package of design details is insufficient to draw down the credit bank precipitously. In that instance, the AAM is needed as soon as possible to help with a large oversupply of credits. With the current pace of the market and size of the credit bank, the AAM will be needed as soon as possible to recalibrate the program and account for the many GHG emissions that would go unaddressed if the AAM is delayed. (45d-300.3)

Comment: Acknowledging CARB's ambition to manage the market's "potential overperformance," it becomes imperative to recognize the cumulative impact on the credit bank through 2030 by adjusting the Diesel baseline CI. As a precautionary measure, we advocate for CARB to incorporate an annual program review of the credit bank, encompassing both deficits and credits, along with a forecast of anticipated fuel demand and production. If the annual review validates the program's feasibility, we propose triggering the Automatic Acceleration Mechanism (AAM) in 2025, rather than waiting until 2027. The earliest market impact of the AAM would be felt in 2026, contingent on meeting market conditions. (45d-302.2)

Comment: Policy recommendation: in the AAM,

- allow for a cumulative Credit/Deficit (C/D) bank trigger, instead of waiting for annual C/D numbers, and adjust the C/D ratio from 1.0 to 0.8, and
- allow for the AAM to be triggered as early as 2025. (45d-320.3)

Comment: We support the addition of an auto acceleration mechanism (AAM) to the program, and encourage minor adjustments that would allow it to be more responsive to market conditions:

- The AAM should take effect as soon as the regulation does, with the first test occurring in 2026 to evaluate 2025 performance.
- The AAM trigger should be 1x quarterly deficits, rather than 3x, in recognition that 1) the LCFS is now a liquid and mature market, and 2) that liquid and mature markets are in surplus conditions when inventory is greater than 0.6x quarterly demand.
- There should be no limit to applying the AAM in consecutive years. (45d-323.4, 45d-323.5, 45d-323.6, 45d-323.7)

Comment: The Auto Acceleration Mechanism should be able to trigger as early as 2026. This would dynamically respond in the event of future sustained and significant underestimation of CI reduction targets by further tightening the stringency and complement the updated overall stringency of the program, complement existing mechanisms to avoid credit shortfalls, and better ensure that opportunities to deliver additional reductions of carbon and air pollutants are not foregone; (45d-328.6)

Comment: We request the Board implement the 5% step down and AAM sooner than the proposed date of 2025. (45d-329.4)

Comment: As designed, the first year that the AAM could impact program stringency is 2028-- which is far too long in the event the cumulative bank continues to grow. The concept and need for the AAM is to respond to clear overperformance of the program and to send an unambiguous signal to investors that the program will respond to opportunities to deliver additional GHG reductions. The AAM should be based on 2025 data with the trigger assessment occurring in May 2026, and the AAM being applied in 2027 providing the applicable conditions are met, thus increasing program stringency for 2027. Relying on 2025 as the first eligible year for triggering the AAM is appropriate as one of the main objectives of the step-down is to bring the program into balance. Therefore, assessing the impact of the

step-down on the market based on 2025 data, including the cumulative bank and the rate of credit to deficit generation, is aligned with the principles of the program. With this approach, the AAM could potentially increase the stringency of the program in 2027 and 2029 (i.e., triggered twice prior to 2030), better ensuring that potential emission reductions are not left on the table in the event the program continues to overperform following the Board's adoption of the amendments. Furthermore, it is important to note that the 3:1 ratio (i.e., cumulative bank/average quarterly deficits) proposed by staff that would trigger the AAM is likely inadequate. For example, in 2022, a year where there is consensus that the LCFS was overperforming, the AAM would not have been triggered using CARB's current proposal. (45d-332.2)

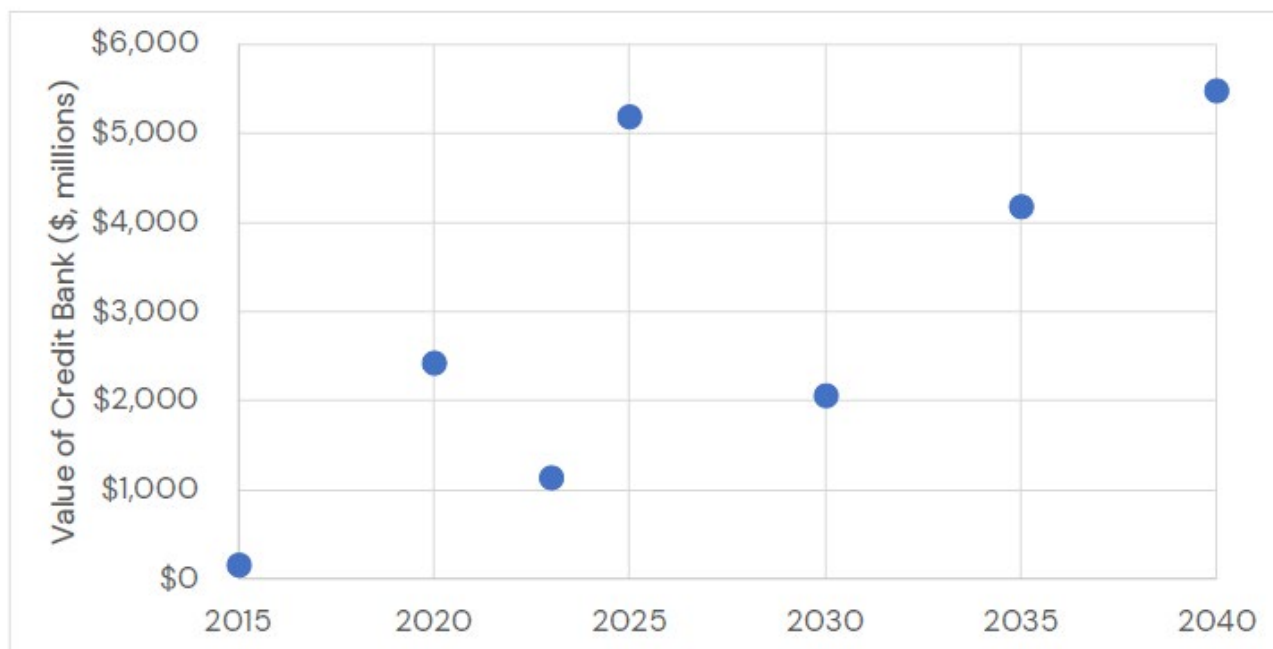
Comment: ICF recommends that the Automatic Acceleration Mechanism be considered for implementation as soon as 2026, rather than waiting until 2028. ICF also recommends that the first criteria for the Automatic Acceleration Mechanism be modified such that the mechanism is enacted when the credit bank is more than 2.5 times greater than the quarterly deficits generated in a given year (down from the proposed value of 3 times).

The figure below shows the results of ICF's modeling using the ISOR Case. The figure above has a shape and curve that ICF thinks is more in line with a successful Low Carbon Fuel Standard program i.e., one that maintains a tighter credit-deficit balance and is flexible enough to respond to market conditions in the near-term future (pre-2030), while enabling California to achieve its long-term GHG reduction targets. ICF's view of the market suggests that a focus on an "ideal" credit bank from pre-2021, quantified using a threshold of 3 quarters worth of deficits, is misguided and may lead to a market that "swings" up and down (as measured by the credit bank) more than necessary, thereby creating market uncertainty for active and would-be participants. Major investments by regulated parties in the last several years have likely improved their respective line of sight on credit generation, thereby reducing the need to carry such a large credit bank. (45d-335.2, 45d-384.2)

ICF Commentary on AAM Trigger Criteria 1

ICF disagrees with the underlying presumption that the AAM should be triggered at the proposed threshold i.e., when there are three quarters' worth of deficits in the bank. Based on information presented at the May 23, 2023 modeling discussion, the AAM design is looking to program data from prior to 2021 as an indicator of an "ideal" bank of credits. ICF views this as a critical mistake with respect to how the market is likely to unfold in the future. From a market perspective, if we consider the credit bank as a measure of the risk that regulated parties (i.e., refiners) bear in order to do business in California, then the credit bank should be measured in dollars, not credits/deficits. The figure below shows the estimated value of the credit bank in five-year increments from 2015 to 2040. The data for 2015 and 2020 are based on data reported by CARB for both deficits and credits; whereas the data for 2025 to 2040 is based on the deficit generation in ICF's analysis of the proposed CI reduction trajectory and the credit price reported by CARB in the Staff Report. All values are reported in real dollars using 2021 as the basis year (\$2021).

Figure 5. Estimated value of LCFS credit bank as a proxy for refiner risk tolerance



A target credit bank of three quarters worth of deficits in 2015 would have been valued at \$140 million; by 2020, the value of the bank grew to \$2.4 billion. In 2023, ICF estimates that a credit bank with three quarters worth of deficits is valued at \$1.1 billion. Based on CARB's forecasted credit price, the value of a credit bank of three quarters worth of deficits in 2025 would rise to \$5.2 billion before collapsing back to \$2.1 billion in 2030. The higher pricing reported by CARB in 2035 and 2040 yields an "ideal bank" valued at \$4.2 billion and \$5.5 billion. When viewed from the lens of dollars tied to risk, rather than risk tied to a specific credit bank, the target bank of three quarters worth of deficits does not make sense. By 2035, for instance, petroleum products will have decreased substantially due to efficiency gains, increased liquid biofuel blending, and transportation electrification. ICF estimates that gasoline consumption may decrease by up to 50% by 2035, while ULSD consumption could decrease by as much as 85% by 2035 (compared to 2022 consumption). Why would an industry that has lost so much market share increase the value of its risk burden by nearly a factor of four over that same time frame?

In line with ICF's hypothesis that the AAM should consider the "ideal credit bank" in terms of managed risk (as measured in dollars' worth of exposure), we also believe that the proposed AAM fails to recognize the evolution of the market post-2020. Consider that in 2018:

- The average CI of ethanol was nearly 70 g/MJ
- Biodiesel volumes were averaging around 5% blend rates in California
- There were 2-3 renewable diesel producers delivering product to California
- The first fuel pathway for RNG from animal manure was submitted and approved by CARB
- EVs represented just 7% of new light-duty vehicle sales
- Off-road electrification applications generated about 500,000 credits

Most of the refiners in the LFCS program had limited visibility with respect to LCFS credit generation and were forced into a position of purchasing LCFS credits from a limited market.

As a result, refiners generally opted to build substantial credit banks as part of their compliance strategy. This strategy enabled other market participants to benefit via an increased credit price. However, in the interim years, refiners have made substantial investments that give them a clearer line of sight in their credit generation. The table below highlights the key investments that six refiners have made since 2018; these refiners represent what ICF estimates to be more than 90% of the obligation in the LCFS program. This is not meant to be an exhaustive list, rather it illustrates key investments that will impact LCFS credit generation moving forward.

It is clear from this table that there is a much clearer line of sight to LCFS credit generation for regulated parties today in 2024 than there was in 2018. The view of the credit-deficit balance from pre-2021 will not be a good indicator of how the market will evolve moving in 2025 and beyond.

ICF recommends that the first criteria for the AAM be modified such that the mechanism is enacted when the credit bank is more than 2.5 times greater than the quarterly deficits generated in a given year.(45d-335.4, 45d-384.4)

Comment: move implementation of the auto adjustment mechanism forward from 2028 to 2027. (45d-346.6c)

Comment: Auto Accelerator Mechanism We applaud the AAM as a needed tool to balance supply and demand in the LCFS market. Due to the large and rapidly growing oversupply in the market, we urge that the mechanism be triggered earlier. As proposed, it cannot be triggered earlier than 5/15/2027 and the impacts of this mechanism might not be felt for months or even years after that date. Our company is already needing to pause investments in this sector until demand is more certain. (45d-351.6)

Improve the Automatic Acceleration Mechanism (AAM)

The inclusion of an Automatic Acceleration Mechanism (AAM) is an important and welcome step towards balancing the safeguards in the program. The program already includes multiple safeguards to help rebalance the program if it is underachieving its targets, including a Credit Clearance Market, Advanced Credits, Carryback Credits, and Accumulated Deficits. The AAM is an important counterbalance safeguard for times when the program is overachieving its targets.

During times of program overachievement, the AAM, as currently envisioned, requires two full years to take effect. The current draft rule also sets the AAM's first year of implementation as 2027, with benchmark changes taking effect in 2028 at the earliest. Tesla's primary ask is for the first year of AAM implementation should be in 2026, using 2025 data for the trigger, with the changes to the benchmark being implemented in Q3 of 2026 if triggered. (45d-353.7)

Comment: An Automatic Acceleration Mechanism (AAM) implementation that can be triggered in 2026, with a modification to enact the AAM when the credit bank is more than 2.5 times greater than the quarterly deficits generated in a given year. (45d-354.5, 45d-370.4)

Comment: The AAM should be amended such that it could be triggered as soon as 2026 if the applicable trigger conditions are met. Additionally, the AAM should be triggered when both the "Credit Bank to Average Quarterly Deficit Ratio" exceeds 2.5 and the annual credit generation

exceeds the annual deficit generation for the compliance year preceding the year of the May 15 announcement. (45d-363.3)

Comment: Consider revising the Automatic Acceleration Mechanism by moving up the start two years earlier, from 2028 to 2026, utilizing 2024 annual data instead of 2026. (45d-376.2)

Comment: We strongly support the incorporation of the Automatic Accelerator Mechanism (AAM) concept and making it available for activation as early as 2026. This will allow CARB to maintain market stability in the outyears, thus providing greater certainty for long-term investments. (45d-382.3)

Comment: 95484 (b)(2)(B) - The proposed auto acceleration mechanism relies on two trigger criteria being simultaneously true: the Credit Bank to Average Quarterly Deficit Ratio exceeding three, and credits exceeding deficits for the given year. These conditions could be simultaneously true under market conditions that would not otherwise warrant an AAM triggering event, such as an anomalous net credit surplus year during a multi-year period of credit bank decline...

This outcome could be prevented through the adoption of a longer look-back period, such as the prior three years. This would reduce the chance that one anomalous year during a multi-year period of declining credits could not trigger an unadvised AAM event. (45d-391.34, 45d-391.35)

Comment: 5) We reiterate our previous comments and encourage CARB to include in 15-day changes adjustments to the AAM that would allow it to be more responsive to market conditions, while still retaining its conservative design. Specifically, we encourage:

- Moving the AAM forward a year, so that it reviews 2025 data and can be potentially triggered in 2026 and take effect in 2027
- Remove the restriction against applying it in consecutive years
- Lower the trigger to no more than 2-2.5x quarterly deficits, per ICF's recommendation

A responsive AAM will best support a smooth/sustained market signal and help avoid boom/bust cycles in investment that might otherwise come if AAM triggers are too slow to respond to market need and lead to long periods of low credit prices (the result of which is likely to be periods of credit price spikes, if low credit prices lead to a period of underinvestment in clean fuels production. (Apr-026.5)

Comment: The ABC believes that waiting four years to see these impacts is too long, and we recommend pulling the date for triggering the AMM forward by one year. The AAM should be based on 2025 data; the same year program amendments are implemented, with the trigger assessment occurring in May 2026 and the AAM being applied in 2027, providing the correct conditions are met. (Apr-056.3)

Comment: Electrify America to encourage 15-day changes that would modify the AAM so that it:

- Would be triggered when banked credits exceed 2-2.5 times quarterly deficits.

- Can apply to calendar year 2025 data, potentially be triggered in 2026, and the compliance schedule can be potentially pulled forward starting in 2027.
- Can be triggered in consecutive years if market conditions warrant.

These changes would allow the AAM to be more responsive to market conditions that warrant ratcheting program stringency, without creating undo risk for the program. (Apr-057.3)

Comment: DTE recommend the agency adopt the auto-acceleration mechanism earlier, as soon as 2025, to allow triggering as early as 2026 and ensure the current surplus is addressed promptly and efficiently. (Apr-061.3)

Comment: Neste continues to support the need for the AAM and continues to believe that it should be available in 2026 (using 2025 data) and not wait until 2027. It is essential that CARB have this mechanism in place should overperformance persist in the long term, and to balance out the credit market more quickly so that renewable fuel producers can feel more confident investing in new production. Neste reiterates support for ICF's recommendation that the AAM triggers be reevaluated to ensure a smoother reduction of the credit bank. By lowering the "Credit Bank to Average Quarterly Deficit Ratio" AAM trigger from 3 to 2.5, CARB can provide an even more predictable credit market. (Apr-066.7)

Comment: We have consistently supported the concept of creating an automatic acceleration mechanism ("AAM") as a tool within the LCFS and appreciate the inclusion of the AAM in CARB's proposal. We urge CARB to design the details of the mechanism to ensure that the AAM is triggered when the market truly needs it. As we have stated before, the AAM should be amended such that it could be triggered as soon as 2026 if the applicable trigger conditions are met. Additionally, the AAM should be triggered when both the "Credit Bank to Average Quarterly Deficit Ratio" exceeds 2.5 and annual credit generation exceeds the annual deficit generation for the compliance year preceding the year of the May 15 announcement. (Apr-069.3)

Comment: If a sufficient step-down is not implemented, the LCFS amendments should allow for the implementation of the AAM based on the 2025 data year. (Apr-082.16)

Comment: The details of the accelerator mechanism mechanics proposed by AJW at the May Workshop are well thought out and administratively feasible. A high credit-to-deficit (C/D) ratio and a high bank-to-deficit (B/D) ratio indicate an imbalance in credit supply and demand fundamentals. We encourage CARB to allow for a cumulative Credit/Deficit (C/D) bank trigger instead of waiting for annual C/D numbers. Also, as proposed, the C/D ratio should be adjusted from 1.0 to 0.8. If the B/D ratio can be triggered, then the bank is too large. However, if a C/D ratio is between 0.8-1, then there will not be a significant enough decrease in the bank to impact prices and lead to future investment.

A dual trigger, consisting of both a C/D ratio and a B/D ratio, as proposed by AJW, will likely strike an appropriate balance and only activate when there is a high likelihood of systemic long-run oversupply. The proposed trigger values should be reassessed appropriately based on historical data from the CA LCFS system. Once the trigger conditions are met, responding with a jump ahead in compliance targets is a straightforward and transparent way to increase stringency. Aligning the timing of correction with the existing process to address significant

undersupply (through the Credit Clearance Market) is appropriate and straightforward. (Apr-082.17)

Comment: In the AAM,

- allow for a cumulative Credit/Deficit (C/D) bank trigger, instead of waiting for annual C/D numbers, and adjust the C/D ratio from 1.0 to 0.8, and
- allow for the AAM to be triggered as early as 2025. (Apr-082.20)

Comment: The AAM remains crucial. Life Cycle Associate suggests triggering it when the credit bank exceeds quarterly deficits by 2.5 times within a year, as recommended by ICF. (Apr-084.2)

Comment: Trigger the Automatic Acceleration Mechanism (AAM) Off of 2025 Data
CARB should set up the AAM to trigger off 2025 data, allowing for the first year of AAM implementation in 2026, rather than 2027 as proposed in the draft regulations. (Apr-091.17)

Comment: Allow the Automatic Accelerator Mechanism (AAM) to trigger as early as possible, and at a lower trigger level. This will guard against the case where the near-term target step down is not sufficient to address the current oversupply. The AAM mechanism should be triggered when the credit bank is two times greater than quarterly deficits. If the AAM conditions are met, the corrective mechanism should be able to trigger as soon as possible (i.e., using the 2025 data). (Apr-098.5)

Comment: The AAM provides an important insurance mechanism, should the step down be insufficient to rebalance the credit bank, but it is not a substitute for attempting to set targets to achieve the maximum technologically feasible and cost effective GHG reductions, as required by state law. (Apr-098.9)

Comment: AMP strongly supports the addition of an AAM to the program, and encourage the following adjustments that would allow it to be more responsive to market conditions, without creating significant risks for the program:

- The AAM should take effect as soon as the regulations, with the first test occurring in 2026 to evaluate 2025 performance.
- We strongly believe the AAM trigger should be 1x quarterly deficits, rather than 3x, in recognition that 1) the LCFS is now a liquid and mature market, and 2) that liquid and mature markets are in surplus conditions when inventory is greater than 0.6x quarterly demand. However, with the other changes mentioned here, we believe a 3x trigger is workable.
- There should be no limit to applying for the AAM in consecutive years. The market can absorb this dynamic, and we see no reason to artificially limit the functioning of this important mechanism.

The AAM will help to strengthen the program and potentially help to avoid future market weakness driven by as-yet unforeseen trends in low carbon fuel supplies. These trends could include accelerated transportation electrification, widespread use of E15 or deployment of CCRUS, or any number of other factors. While the market is currently overachieving its

targets, ironically, overachieving targets in the near term may lead to sustained price weakness, which would inevitably lead subsequently to low levels of investment and sustained periods of underachievement and high prices. If the market swings from undersupply to oversupply, prices will be volatile, undermining public confidence in the program and jeopardizing long term goals. An AAM can help provide a clear, ongoing signal that there will be a market for low carbon fuels, providing greater certainty to investors and incentivizing continuous investments in clean fuels and ongoing greater emissions reductions, provided that it is designed appropriately. It is important to get its design right and ensure it is sufficiently responsive to market conditions, in order to allow it to fulfill this crucial role. (Apr-101.21)

Comment: Air Products and Chemicals supports the inclusion of the Auto-Acceleration Mechanism but believe the assessment should start in 2026 based on 2025 data to provide for a timely assessment of whether the increased stringency and associated stepdown are sufficient. (Apr-103.4)

Comment: The inclusion of an Automatic Acceleration Mechanism (AAM) is an important step towards balancing the safeguards in the program which already includes multiple safeguards to help rebalance the program if it is underachieving its targets, including a Credit Clearance Market, Advanced Credits, Carryback Credits, and Accumulated Deficits. The AAM is an important counterbalance safeguard for times when the program is overachieving its targets. However, absent a stronger step change proposed above, CARB should set up the AAM to trigger off 2025 data, allowing for the first year of AAM implementation in 2026, rather than 2027 as proposed in the draft regulations, and unchanged by the 15-day Amendments. This would ensure that credit prices rebound and the program continues to support transportation electrification in a meaningful way. (15d1-029.2)

Comment: The AAM proposed in the updated LCFS rules package is an absolutely essential reform to prevent a repeat of the boom-and-bust cycle that occurred after the 2017 LCFS amendments and to keep credits and deficits in balance. Promus joins other commentors in urging CARB to allow the AAM to trigger as soon as possible (before 2027) to prevent market instability within the next few years after the implementation of the new rules package. (15d1-041.3)

Comment: The 15-Day Package continues the proposed timeline for implementing the Auto Acceleration Mechanism (AAM), such that 2028 remains the first year for which the AAM can amend CI reduction targets. This is unreasonable given the current credit oversupply and corresponding market price. Without near-term action, we fear that the current low LCFS price will simply extend for three or more years, creating even more doubt about the program's long-term viability. We recommend that 2025's performance should be able to trigger the AAM. A 2025 data-year triggering would be able to impact CI targets in 2027. The AAM should trigger as early as possible as a backstop if the step down is not sufficient to address the current credit oversupply. (15d1-045.2)

Comment: Staff should address the potential for the Auto-Acceleration Mechanism (AAM) to overcorrect the market. I suggest not allowing an acceleration to occur in either 2031 or 2032 as the rate of CI decline for the benchmarks is already more than tripling starting in 2031 and

an acceleration that occurs in either of these years would increase the rate of target CI decline more than sixfold. Such a rapid CI stepdown may result in an overcorrection of the market with the credit price going to the ceiling, at which it may be stuck for many years. Under the above scenarios, credit price at the ceiling may result in a pass-through cost of approximately \$1.30 per gallon of gasoline in the early 2030s. Such a pass-through cost would likely be politically untenable for the program. (15d1-065.8)

Comment: While we believe a stronger 2030 carbon intensity target and more responsive auto acceleration mechanism (AAM) are necessary to achieve the state's 2030 targets identified in the 2020 Scoping Plan (15d1-069.2)

Comment: First, Phillips 66 supports a sustainable LCFS regulation, which allows compliance options and supports operation, expansion, and new project development of renewable fuel production and other transport decarbonization. While we recognize that the strong LCFS bank may stifle further investments in low carbon transport energy sources, we are concerned that the magnitude of the front-loaded reduction may serve to create instability in the program. Phillips 66 supports a step down of the program to allow the oversupply of credits to moderate. We caution against moving too much too quickly. Although the California LCFS credit bank has grown significantly in the last few years, with much more stringent standards ahead and only a small portion of diesel pool left for substitution with biofuels, the program may face challenges if the electrification of the vehicle parc does not occur at the pace anticipated by CARB. Under the proposed amendments, the LCFS now includes a mechanism to auto-advance the standards which we support. However, there is no provision to soften the standards if not enough credits are available to balance deficits. As such, Phillips 66 recommends that CARB reinstates a formal annual program review to evaluate the LCFS performance. CARB should consider adopting a similar process to the ones in place in Oregon and Washington under their LCFS programs. These processes require an annual fuel forecast and a mechanism to reevaluate the CI standards if credits are in a shortfall position. Furthermore, the state has emphasized its desire to keep fuel costs affordable, which requires a balanced approach for the establishment of the CI benchmarks. (15d1-079.1)

Comment: Additionally, we respectfully recommend that CARB target at least a 35% CI reduction by 2030 and allow for the Auto Acceleration Mechanism (AAM) to be triggered based on 2025 data. (15d1-094.3)

Comment: To ensure that CARB's current proposal does not exacerbate structural disincentives to SAF under the LCFS program, we suggest a modest step that would remove the applicability of the Auto Acceleration Mechanism (AAM) to the table of annual jet fuel benchmarks. The AAM applied to the gasoline and diesel benchmarks can act to control the credit supply by both reducing credit generation for alternative fuels and increasing deficits for fossil fuels. However, without any obligations on fossil jet fuel, the AAM would only undercut support for SAF without creating any corresponding demand. (15d1-111.2a)

Comment: Additionally, we believe a 2030 target of 30% can be achieved as noted in the ICF analysis and that the Auto Acceleration Mechanism should be able to trigger earlier. As a

member of the Coalition for Renewable Natural Gas (RNG Coalition), we support their positions on these two topics in their comments on the 15-day amendments. (15d1-111.4)

Comment: We support the 9% step-down in 2025 and the inclusion of AAM. However, we are disappointed that the first potential triggering of the AAM remains as in the 45-day package so that 2028 remains the first year for which the AAM can amend CI reduction targets. Instead we recommend that 2025's performance should be able to trigger the AAM. A 2025 data-year triggering would be able to impact CI targets in 2027. In short, the AAM should be allowed to trigger as early as needed to guard against the case where the step down is not sufficient to address the current oversupply, particularly since CARB did not include a more aggressive step-down in 2025, as recommended by ICF and advocated for by many stakeholders in comments on the 45-day package. (15d1-126.1)

Comment: we'd like to reiterate comments from our 45-day comment letter to encourage CARB to pull forward the effective date for triggering the Auto Acceleration Mechanism (AAM). The AAM should be based on 2025 data with the trigger assessment occurring in May 2026, and the AAM being applied in 2027 providing the applicable conditions are met, thus increasing the program stringency for 2027. (15d1-127.2)

Comment: We also support the inclusion of the AAM but are concerned that its first potential triggering remains, as in the 45-day package, with 2028 being the first year for which it can amend CI reduction targets. Instead, we recommend that 2025 performance should be able to trigger the AAM, which would then be able to impact CI targets in 2027. In short, the AAM should be allowed to trigger as early as possible, to guard against the case where the step down is not sufficient to address the current credit bank oversupply. This is especially the case since CARB did not include the more aggressive step-down in 2025 as recommended by ICF and as advocated for by many stakeholders in comments on the 45-day package. (15d1-155.1)

Comment: We are disappointed to see that the 15-Day Package continues the proposed timeline for implementing the Auto Acceleration Mechanism (AAM), such that 2028 remains the first year in which the AAM can amend the CI reduction targets. 2025's performance should be able to trigger the AAM to avoid further near-term market disruption. A 2025 data-year triggering would be able to impact CI targets in 2027. Simply put, the AAM should be allowed to trigger as early as possible, to guard against the case where the step down is not sufficient to address the current oversupply. (15d1-167.1)

Comment: EVCA supports the Auto-Accelerated Mechanism (AAM) as a valuable tool to pull forward CI units from future years, helping to balance the market and prevent an excessive accumulation of credits. We recommend implementing the AAM in 2026, rather than 2027, to more effectively address near-term imbalances in the LCFS credit market and support the program's goals. (15d1-182.1)

Comment: Effectuate the auto-acceleration mechanism in 2025 (15d1-199.6b)

Comment: Recommend strengthening Automatic Acceleration Mechanism (AAM) and allowing earlier implementation. (15d1-203.3)

Comment: ChargePoint supports the proposal to establish the AAM but recommends that CARB make the mechanism stronger. As proposed, the AAM would not have been triggered in any of the years after the 2018 amendments. These years include 2022, a year when the credit market price declined by ~50%. The AAM should be designed specifically to counteract this type of negative price movement, so a mechanism that would not have reacted in 2022 is not strong enough. To strengthen the mechanism, we recommend that ARB amend the first condition of the AAM to be reached when the credit bank to average quarterly deficit ratio is greater than 2.5. With this update the AAM would have been triggered in 2022 but not any of the other years following the 2018 amendments. Since these other years saw price increases or modest declines, the new threshold suggests a balanced mechanism that reacts only to large price decreases. (15d1-203.9)

Comment: Furthermore, we recommend that the AAM be allowed to trigger starting in 2026 based on 2025 data. The AAM is based on aggregate market data and can be operationalized immediately without needing to wait for the impact of other amendments to occur. Also, the market price continues to remain at low levels and the credit bank continues to build. If the AAM were in place currently, it would have been activated based on 2023 data with the current triggering conditions, so evidently the market is in a state that would benefit from AAM activation as soon as possible. (15d1-203.10)

Comment: That's because CARB maintained 2028 as the first year for which the AAM can amend CI reduction targets.

The AAM Should Be Able to Trigger Earlier

Instead, the AAM should be able to be triggered as early as possible and therefore are advocating for 2025's performance to be the first year for which it can be triggered. (15d1-206.2)

Comment: PROPOSED AMENDMENT: while we appreciate that CARB is keeping the AAM as a tool to be enacted in 2027, we believe this tool may be needed much sooner. This is exemplified with the credit price recently hovering around the mid-\$50s in direct reaction to the release of the "15-day Package." This is worrisome to a leading company investing hundreds of millions to support California's emissions reductions goals that needs credit prices to be in the six-digit range.

We strongly believe the AAM should be triggered as early as 2025 if the credit bank is awash with credits (i.e., the credit build is 2.5 times larger than the credit draw in any given quarter). This mechanism would dynamically respond to a potential future event where there is a significant underestimation of CI reductions in a given year. If left unaddressed or ineffective, the program cannot raise credit prices to levels private capital needs to further invest in low carbon fuel projects. (15d1-209.5)

Comment: We strongly support inclusion of an auto acceleration mechanism ("AAM") in the program, however we continue to believe minor changes are important to maximize its role in stabilizing the market, specifically:

Allow the first test to occur in 2026 to evaluate 2025 performance.

Set the credit bank trigger at 1x quarterly deficits, rather than 3x.

Allow the AAM to apply in consecutive years, should market conditions warrant. (15d1-212.4)

Comment: THE AUTO ACCELERATION MECHANISM IS A CRITICAL NEW COMPONENT OF THE PROGRAM, BUT CAN BE MADE MORE EFFECTIVE

Amp appreciates CARB's proposed amendment to incorporate an AAM into the program. We strongly support this element of the proposed amendments and encourage CARB to maintain the AAM as an element of the regulatory package the Board considers in November.

This mechanism will help to strengthen the program and avoid cyclical "boom-bust" investment cycles common to commodity markets. An AAM provides a clear, ongoing signal that there will be a market for low carbon fuels, providing greater certainty to investors and incentivizing continuous investments in clean fuels and ongoing greater emissions reductions. It will help avoid future market weakness driven by as-yet unforeseen trends in low carbon fuels supplies, which could include accelerated transportation electrification, widespread use of E15 or deployment of carbon capture, removal, utilization, and storage ("CCRUS"), or any number of other factors.

While the market is currently overachieving its targets, ironically, overachieving targets in the near term may lead to sustained price weakness, which would inevitably lead subsequently to low levels of investment and sustained periods of underachievement and high prices. If the market swings from undersupply to oversupply, prices will be volatile, undermining public confidence in the program and jeopardizing long term goals. An AAM can help provide a clear, ongoing signal that there will be a market for low carbon fuels, providing greater certainty to investors and incentivizing continuous investments in clean fuels and ongoing greater emissions reductions, provided that it is designed appropriately.

Still, we believe the AAM can be made more effective with minor adjustments, which specifically would:

Allow the AAM to take effect as soon as the regulation does, with the first test occurring in 2026 to evaluate 2025 performance.

Set the AAM trigger at 1x quarterly deficits, rather than 3x, in recognition that 1) the LCFS is now a liquid and mature market, and 2) that liquid and mature markets are in surplus conditions when inventory is greater than 0.6x quarterly demand.

Remove the limit on applying the AAM in consecutive years. The market should dictate when the AAM applies. (15d1-212.11)

Comment: To ensure that CARB's current proposal does not exacerbate structural disincentives to SAF under the LCFS program, we suggest a modest step that would remove the applicability of the AAM to the table of annual jet fuel benchmarks. The AAM applied to the gasoline and diesel benchmarks can act to control the credit supply by both reducing credit generation for alternative fuels and increasing deficits for fossil fuels. However, without any obligations on fossil jet fuel, the AAM would only undercut support for SAF without creating any corresponding demand. (15d1-215.2)

Comment: We Support Tightening the Automatic Acceleration Mechanism

We have consistently supported the concept of creating an automatic adjustment mechanism ("AAM") as a tool within the LCFS and appreciate the inclusion of the AAM in CARB's proposal. We urge CARB to design the details of the mechanism to ensure that the AAM is triggered when the market truly needs it. The AAM should be amended such that it could be

triggered as soon as 2026 if the applicable trigger conditions are met. Additionally, the AAM should be triggered when both the “Credit Bank to Average Quarterly Deficit Ratio” exceeds 2.5 and the annual credit generation exceeds the annual deficit generation for the compliance year preceding the year of the May 15 announcement. (15d1-220.5)

Comment: However, PG&E believes that CARB should allow for activation of the Auto Acceleration Mechanism (AAM) as soon as 2026, and at an average quarterly deficit ratio of 2.0, rather than 3.0 for the reasons outlined in our May 10 letter.¹ (15d1-224.10)

Comment: Adopt a proposed CI Automatic Acceleration Mechanism (AAM) but apply it in 2026 (using 2025 data) and not 2027 in order to address overperformance in the LCFS credit market; (15d1-228.11)

Comment: Adopt a proposed CI Automatic Acceleration Mechanism (AAM) but apply it in 2026 (using 2025 data) and not 2027 in order to address overperformance in the LCFS credit market.

Neste continues to support the need for the AAM and continues to believe that it should be available in 2026 (using 2025 data) and not wait until 2027. It is essential that CARB have this mechanism in place should overperformance persist even after the CI step down, and to balance out the credit market more quickly so that renewable fuel producers can feel more confident investing in new SAF production. Figure 6 below shows the actual reported CI reduction under the LCFS program and our forecast going forward. As shown above, the step down is not enough to draw down the credit bank in 2025, and the annual CI reduction targets are not enough to prevent overperformance of the program even with AAM. However, if the AAM were triggered earlier there are more possibilities of the credit market being balanced, attracting more low carbon fuels to the road/aviation sectors and accelerating electrification. Neste reiterates support for ICF’s recommendation that the AAM triggers be reevaluated to ensure a smoother reduction of the credit bank. By lowering the “Credit Bank to Average Quarterly Deficit Ratio” AAM trigger from 3 to 2.5, CARB can provide an even more predictable credit market. (15d1-228.27)

Comment: Support for the Inclusion of the AAM, and Proposal to Perfect the AAM

We strongly endorse the inclusion of the AAM in the rulemaking package. Given the large uncertainty inherent to any modeled forecast of a system as complex as California's transportation system, including this sort of safeguard is paramount to ensuring the continued ability for the LCFS to drive decarbonization outcomes.

We are pleased to see the latest proposal with a rolling four-quarter triggering mechanism in place of the rigid calendar-year method. This change will better reflect when overperformance justifies intervention. An aspect of this change which we would like CARB to clarify is the schedule to update the CI reduction targets when the triggering period is not a calendar year. If, for example, the AAM were triggered based on the period of 2027 Q2 - 2028 Q1 (meaning the market would have the period's data on 7/31/2028), the proposed rule does not specify if the CI targets would be amended for the 2029 calendar year (the proximate January 1) or not until the 2030 calendar year (the January 1 following the proximate May 15). §95484(c)1 of the regulation indicates that CARB will post updated CI schedules on May 15 of each year, meaning an off calendar-year triggering would not impact the CI targets for as long as 2.75

years after the beginning of the triggering period. This is too slow of a response to be a meaningful safeguard to market overperformance. §95484(c)2, however, supports the idea that new CI targets would go into effect on the proximate January 1, a year sooner than would result from waiting until the following May 15 to announce what the market already knows to be true well before then. We recommend that CARB provide guidance clarifying that the CI reduction targets are to be adjusted on the proximate January 1 to the data release demonstrating the conditions to trigger the AAM have been met and that updated CI reduction targets will be posted on 2/15, 5/15, 8/15, or 11/15.

An additional area we would like to see refinement in the weeks and months following the passage of this rulemaking is regarding the magnitude of the "acceleration" when the AAM is activated. Whereas the currently proposed rule advances CI reduction targets by one year, a stronger system would adjust future CI targets by the actual amount of overperformance relative to the CI target. While pulling forward the CI targets by one year certainly has appeal in its simplicity, there is no guarantee that such a magnitude would be the appropriate response in all cases and could represent an under- or over-correction. Instead, calculating the AAM's magnitude based on the degree to which the market is overperforming its targets and increasing future CI reduction targets by the same amount will ensure that the adjustment is appropriately calibrated for any degree of overperformance and allow the LCFS to continually drive decarbonization. (15d2- 166.2)

Comment: I am confused by the regulation text for the AAM in section 95484. Depending on how you squint at it, it appears as if the text can be interpreted in two very different ways. I'm hoping that you can quickly inform me as to the actual intent, so that I can write my comments appropriately.

So here is a hypothetical: The AAM gets triggered for the first time and announced on August 15, 2030. Does the first acceleration occur on January 1, 2031? Or does the first acceleration occur on January 1, 2032?

The reason that I ask is that sections 95484(c) and 95484(d) could be interpreted as saying two very different things. For a trigger announced on August 15, 2030:

Section 95484(c) seems to imply that on May 15, 2031 the updated benchmark schedule will be announced with the intent that this updated schedule will then supposedly go into effect on January 1, 2032. This interpretation seems to be consistent with your statement in the Notice about providing "earlier notice to stakeholders that the AAM has been triggered, providing further market certainty and lead time to LCFS participants."

However, sections 95484(c)(2) and 95484(d) also clearly read that the acceleration will take effect on January 1, 2031. Section 95484(c)(2) reads that the "updated benchmark schedule posted pursuant to 95484(c)(1) will override any prior benchmark schedules and will take effect January 1 of the calendar year after the Automatic Acceleration Mechanism was triggered." Since the AAM was triggered on August 15, 2030, this means the acceleration will occur on January 1, 2031. Section 95484(d) also reads that the benchmark "will be advanced by one year each time the Automatic Acceleration Mechanism has been triggered pursuant to section 95484(b)." This means that the benchmark for 2031 will be advanced by one year based on a trigger that is announced on August 15, 2030. This interpretation is not consistent with your stated objective of providing earlier notice to stakeholders but is a clear reading of the text. It doesn't make sense that you would wait until May 15, 2031 to announce an

updated benchmark schedule that has already gone into effect on January 1, 2031. (15d2-182.1)

Comment: The Auto-Adjustment Mechanism (AAM) should be triggerable in 2026.

We are supportive of the change to the AAM to base its triggering on data from the most recent four quarters of reporting rather than the calendar year and to have Staff publicize whether it has been triggered on a quarterly basis. However, to echo some of our previous comments and those of other stakeholders, we would suggest that the AAM should be able to be triggered a year earlier, in 2026.

While lower near-term credit prices may achieve the objective of reducing total program costs, the post-2030 targets will only be achievable through significant investments in the low carbon fuel sector this decade. Allowing the AAM to come into play at the earliest opportunity would lead to fewer surplus credits through the late-2020s and likely result in the higher prices needed to drive investment, thus mitigating pricing volatility with a smoother path towards more ambitious targets. (15d2-185.1)

Comment: Increase the flexibility of the Automatic Acceleration Mechanism (“AAM”) by accelerating the CI benchmark reduction proportional to how much the credit bank exceeds the proposed trigger threshold up to one full year; and (15d2-190.1)

Comment: Requiring acceleration of the benchmark reduction schedule by an entire year gives CARB too little room to maneuver. If the credit bank just barely reaches the threshold required to trigger the AAM, the benchmark reduction schedule leaps forward by an entire year, instead of considering a minor adjustment to maintain the credit market’s stability. This could lead to CARB overtightening the benchmark reduction schedule, leading to a saturation of deficits and more market volatility.

We recommend the AAM create more flexibility by allowing CARB to proportionally accelerate the benchmark reduction schedule based on how much the credit bank exceeds the trigger threshold, up to the CI benchmark for the following year. This would help maintain the stability of the credit market and thwart any potential overcorrection, which contributes greatly towards supporting long-term investment in transportation decarbonization. (15d2- 190.3)

Comment:

Base trigger on calendar year. WSPA recommends that CARB adjust the AAM trigger to reflect banking trends across the calendar year, rather than quarterly fluctuations. This approach would better align with program compliance requirements, which are based on a calendar year, and would be more representative of actual credit/deficit trends. Quarterly credit bank fluctuations may not necessarily reflect a meaningful trend when trying to determine when the AAM is triggered.

Provide sufficient stakeholder notice. Should CARB retain the proposed quarterly basis for the trigger in §95484(b), WSPA recommends that CARB update the proposed language in §§§§ 95484(c)(2), 95484(b)(1), 95484(b)(2), and 95484 (b)(2)(A) to better align with CARB’s intent to “provide earlier notice to stakeholders that the AAM has been triggered, providing further market certainty and lead time to LCFS participants.” For example, the currently proposed

language under § 95484(c) could be interpreted as resulting in *less time* for stakeholders for announcements made in August and November and potentially resulting in a second AAM trigger occurring before the first AAM has been implemented for resulting in a second AAM trigger occurring before the first AAM has been implemented for a full compliance year.

Clarify data requirements. CARB should clarify that the triggers calculated in § 95484(b)(2) must use *final reconciled quarterly transactions reports* (which are not due until three months after the quarter in question) rather than incomplete data that has yet to be reconciled (submitted within 45 days after the quarter in question). WSPA recommends the following proposed changes:

§95484(b)(1)

The Automatic Acceleration Mechanism cannot be triggered in the four quarters that immediately follow an announcement that the Auto Acceleration Mechanism has been triggered or in the calendar year following an update to the benchmark schedule pursuant to § 95484(c)(1).

§95484(b)(2)

The Automatic Acceleration Mechanism is triggered when the conditions in both subparagraphs (A) and (B) below are met, and if it was not triggered in the immediately prior four quarters or in (A) and (B) below are met, and if it was not triggered in the immediately prior four quarters or in the calendar year following an update to the benchmark schedule pursuant to § 95484(c)(1).

§95484(c)(2)

An updated benchmark schedule posted pursuant to § 95484(c)(1) will override any prior benchmark schedules and will take effect January 1 of the calendar year after the Automatic benchmark schedules and will take effect January 1 of the calendar year after the Automatic website per section 95484(c)(1).

§95484(b)(2)(A)

*Credit Bank*_{20xx}... is the final credit bank for the program as calculated at the end of the four quarters for which quarterly fuel transactions reports have been submitted per section 95491(b)(2) preceding the quarterly Automatic Acceleration Mechanism announcement; and *Deficits*_{20xx} is the total number of annual deficits generated under the program as calculated at the four quarters for which quarterly fuel transactions reports have been submitted per section the four quarters for which quarterly fuel transactions reports have been submitted per section 95491(b)(2) preceding the quarterly Automatic Acceleration Mechanism announcement.

§95484(b)(2)(B) would require similar changes to the definition of Credits and Deficits as proposed above. (15d2-195.23)

Comment: The updates to the Automatic Acceleration Mechanism language are confusing and unnecessary. An annual review of the credit bank is sufficient and provides ample notice for regulated parties when the AAM is triggered. Further, it is unclear how the updated language in 95484(b) interacts with the original language in 95484(c). 95484(c)(2) states that “an updated benchmark schedule . . . will take effect January 1 of the calendar year after the Automatic Acceleration Mechanism was triggered.” Does this mean that, if CARB announces that the AAM has been triggered on November 15, 2030, that a revised schedule would be posted on May 15, 2031, that is retroactive to January 1, 2031? These revisions also make it possible for the AAM to be triggered two years in a row, which was not the intent in the original

proposal. This serves only to add new uncertainty to the program and greater administrative burden for CARB staff. CARB should revert to the original language. (15d2- 207.24)

Comment: PROPOSED AMENDMENT: While we appreciate that CARB is keeping the AAM as a tool to be enacted in 2027, we believe the AAM would better serve the market if it could be applied immediately upon the LCFS Update’s implementation versus waiting to 2027. This is exemplified with the credit price recently hovering around the mid- to high \$60s in direct reaction to the release of both “15-day Packages.” The credit bank continues to build due to lower carbon fuels like renewable diesel expanding in the program, so implementing the AAM sooner will help work down the bank and increase pricing.

We strongly believe the AAM should be triggered as early as 2025 if the credit bank is awash with credits (i.e., the credit build is 2.5 times larger than the credit draw in any given quarter). This mechanism would dynamically respond to a potential future event where there is a significant underestimation of CI reductions in a given year. If left unaddressed or ineffective, the program cannot raise credit prices to levels private capital needs to further invest in low carbon fuel projects. (15d2-266.6)

Comment: However, the implementation schedule post-trigger could be further clarified. For example, if the AAM triggers based on 2027 Q2 – 2028 Q1 (and CARB has all needed data on 7/31/2028), would the acceleration event trigger on 1/1/2029 or would it wait until 1/1/2030? We recommend that CARB staff develop and publish examples through a future guidance document and allow for the correction to trigger as soon as possible after an oversupply is detected. (15d2-269.8)

Comment: The Auto Correct Mechanism (ACM) should be based on the most recent trailing 12- month data, not annual reporting period data, and that once the ACM has been triggered, the accelerated carbon reduction requirements should take effect for the next upcoming reporting quarter. (15d2-274.7)

Comment: *Changes to Auto-Acceleration Mechanism Triggering Criteria*

Proposed changes shift the timing of the determination of whether the proposed auto-acceleration mechanism (AAM) is triggered and when such a decision would be announced. Previously, this determination would occur only once each calendar year in May, the 2nd 15 day package proposes shifting this to a quarterly determination, with announcements in February, May, August, and November. CARB Staff have indicated that the purpose of this change is to allow greater advance notice of an AAM triggering event. Given the potential for the AAM to impose significant benchmark increases, providing advance notice could limit the risk of market volatility, or obligated parties finding themselves short of compliance credit.

We note that in discussions with LCFS stakeholders, researchers and analysts, there is substantial uncertainty regarding the function and limits of this provision. Several parties read the proposed language in such a way that would allow the AAM to be triggered more frequently, or more than twice before 2030. We reached out to Staff by email for clarification and were informed that CARB’s interpretation of this section is that it does not allow the AAM

to be triggered more frequently, and particularly not three times prior to 2030. We appreciate Staff's quick response and willingness to provide clarification on this matter.

While Staff were quite clear that the intent of this provision is to offer additional advance notice prior to AAM triggering events, the language in the 2nd 15 day package does not effectively convey this intent, in two key ways. First: there may be circumstances where quarterly determination of AAM triggering could actually reduce advance notice of target increases. For example, if the Executive Officer determines at the February and May determination dates that the conditions have not been met to trigger the AAM, but subsequent data change this determination such that an AAM triggering event is announced at the November determination date, the proposed amendments suggest that the target would increase the following January, which means obligated parties would be subject to the higher target with only 6 weeks of advance notice. While this sequence of events would require a specific, and unusual combination of market factors, it is not implausible that these factors could occur. (15d2-287.3)

Comment: Second, the language in the 2nd 15 day package can be reasonably read in such a way as to allow a third triggering event prior to 2030, if the following sequence of events were to occur.

May, 2027 - The Executive Officer determines and announces that the AAM has been triggered, based on data from 2026.

January, 2028 - The 2029 target is adopted, one year ahead of schedule, because the AAM has been triggered once..

August 2028 - The Executive officer announces a second AAM triggering event, based on data from 2027 and 2028.

January, 2029 - The 2031 target is adopted, two years ahead of schedule, because the AAM has been triggered twice.

November, 2029 - The Executive Officer announces a third AAM triggering event, based on data from 2028 and 2029

January, 2030 - The 2033 target is adopted, three years ahead of schedule because the AAM has been triggered three times.

In this scenario, which aligns with a reasonable reading of the language in the 2nd 15 day package (an interpretation many LCFS stakeholders arrived at independently), the AAM could be triggered three times in the 2020's, leading to a 43.5% CI reduction target in 2030. The last of these three triggering events would have been announced only 6 weeks before the target was officially implemented in January. In addition to not aligning with Staff's expressed intent, this outcome would create the risk of credit shortfall and significant gas price impacts to consumers. In our presentation at the May 23, 2023 LCFS workshop on auto-acceleration mechanisms, we discussed the possibility of overcorrection by AAM triggering events.³ This risk is especially present in the early 2030's when the CI target increases by 4.5% per year, but light-duty EV sales shares may still be significantly below 100%.

The proposed language from the 2nd 15 day package may need to be clarified to better reflect the intent of the proposal. Specifying that the target cannot be accelerated two calendar years in a row could accomplish this, as would a requirement that target increases would not take

effect until an adequate amount of time had passed (such as two or three quarters) to allow obligated parties the opportunity to update their compliance plans to reflect the higher target. (15d2-287.4)

Comment: making additional adjustments to the auto acceleration mechanism is needed to create more market uncertainty for certain low carbon fuel projects. Brightmark strongly recommends the AAM trigger begin as early as Q1 2025. (15d2-290.1)

Comment: To account for the credit oversupply, Brightmark supports more aggressive CI targets and allowing the AAM to be triggered as early as possible. (15d2-290.4)

Comment: If additional adjustments to the CI target and CI step-down are not considered, then CARB should implement an AAM as early as possible. Brightmark recommends the AAM trigger begin as early as Q1 2025. (15d2-290.5)

Comment: For CARB to promote a long-term, stable environment that encourages investment in new, and maintain existing, CI-reducing projects more aggressive targets, through an AAM triggered as soon as possible, are needed. (15d2-290.10)

Comment: Start applying the CI Automatic Acceleration Mechanism (AAM) proposed by CARB in 2026 (using 2025 data) and not wait until 2027 to address overperformance in the LCFS credit market should it persist;

Neste Supports Moving the Automatic Acceleration Mechanism (AAM) Trigger Review to Quarterly; The AAM Should Start in 2026 (95484)

Neste supports moving the AAM trigger review to a quarterly basis because it will bring more clarity to how the LCFS will respond to overperformance. Reviewing the AAM trigger on a quarterly basis will reduce speculation in the credit market by simply cutting the time between reviews of whether the AAM should be triggered. If, for example the trigger review deadline in May has just passed, but for some reason the credit bank starts increasing significantly during the second half of the year, (for example, a new large supplier opens up in the market), market participants would be left in the dark until May of the following year about whether or not the AAM will be triggered. Moving the review to a quarterly basis will allow market participants to know more quickly how the LCFS will respond to pressures in the credit market.

Neste continues to believe that the AAM should start in 2026 (using 2025 data) given how large the credit bank is today. Waiting until 2027 will delay possible emissions reductions and investments in new production. (15d2-300.8)

Agency Response: A change was made in response to these comments. Staff initially proposed to create the automatic acceleration mechanism (AAM) to “bolster market stability during periods where credit generation rapidly and consistently outpaces deficit generation” as stated in the ISOR (emphasis added). Stakeholders have provided arguments for both a more easily triggered AAM and the opposite. Proponents have highlighted conditions across the last two years that would indicate that a cumulative

credit to quarterly deficit ratio of less than 3 would have addressed market imbalance and stabilized credit prices, while opponents highlight concerns over triggering the AAM during periods when credit generation still exceeds deficit creation but may also be slowing, thereby making it more difficult to achieve more ambitious CI targets.

An AAM would play an important role in supporting LCFS implementation, deterring market manipulation, maintaining support for the program, and providing the certainty necessary for the long-term investments required to meet the State's decarbonization goals. It is also designed, like the maximum price and cost containment (credit clearance market or CCM) provisions, to help stabilize the market during periods of extraordinary changes, to maximize the efficiency and stability of the market on a continual basis, and to avoid credit price spikes. Based on staff's analysis of past trends and recognition of the unknown factors that will influence the market's ability to meet the greater stringency of the future CI targets, staff chose to maintain the proposed triggers for the AAM.

The mechanism is a market-following provision designed to increase regulatory clarity for the market in circumstances where a consistent and significant surplus of credits is observed. Staff are increasing the CI-targets to higher levels in 2025, in recognition of the large existing credit bank, and expect the market to internalize these targets in the near future, which is why the regulatory text prohibits the first AAM-related CI-target adjustments from being implemented until 2028, should market conditions trigger the AAM, and to avoid any credit price spikes. Since the AAM advances all future CI-targets by a year, it is important that the mechanism be responsive to consistent long-term market signals instead of quarterly market fluctuations which may represent a short-term trend that does not reflect the overall health of the market. Therefore, staff established two triggers that must be met to activate the AAM which are intended to identify long-term trends rather than short-term market fluctuations: 1. a cumulative credit to average quarterly deficit ratio of 3:1, and 2. credits growing faster than deficits. Staff chose to advance the entire benchmark schedule to make the impact of the AAM predictable, rather than create a mechanism to increase the benchmarks by the percentage the market achieved in excess of the annual target.

Staff acknowledge concerns about the possibility of the AAM occurring in 2031 or 2032 and the potential increase that could occur, but given that the ZEV regulation implementation is expected to result in significant electrification of fleets and credit generation during this timeframe, a 4.5% increase may be appropriate to continue efforts to achieve deeper decarbonization of the transportation fuel pool in the 2030s. Consistent with past practice, staff will evaluate CI targets and the state's progress on achieving its climate targets as part of development of the 2027 AB 32 Scoping Plan Update, which could demonstrate a need for regulatory updates to the LCFS before 2030.

Staff made one change to the AAM in response to public comments. This change was to modify the data period upon which the AAM may be triggered. Initially, staff proposed that this evaluation would be based upon the previous calendar year of data; the modified amendments change this to a rolling four quarter evaluation to determine

whether or not the AAM had been triggered. This change would not change the timing or frequency of when the compliance target schedule could be pulled forward (i.e., AAM announced May 15 of each year with the benchmark changes implemented January 1 of the following year, with a prohibition of the benchmarks being adjusted again by the AAM in the immediately succeeding calendar year), but would instead provide earlier notice for stakeholders with regard to future benchmark shifts as a result of the AAM and support investment and compliance planning.

Lastly, staff maintained that the AAM applies to all CI benchmark schedules, including for Fuels Used as a Substitute for Fossil Jet Fuel. Staff chose to maintain fossil jet fuel as an exempt fuel in recognition that removing the exemption did not guarantee that airlines would procure and use alternative jet fuel as a compliance response to the deficits generated from fossil jet fuel. Staff aligned the declining average CI benchmark trajectories across all three fuel pools (diesel, gasoline, and jet fuel) and the AAM applies to all three for consistency and to send a clear signal to transition to the lowest carbon intensity fuels throughout California's fuel pool, including in the jet fuel sector, in alignment with the State's decarbonization targets. See also responses to V-1 and V-4.

Regarding limits to the number of times the AAM can be triggered: staff continuously monitor the LCFS market, and revisit the program following each statewide climate change Scoping Plan update, which must be completed at least every five years. The next AB 32 Scoping Plan Update will be completed by 2027 with a public process beginning the year prior.

C-9 Multiple Comments: Neutral or Oppose Automatic Acceleration Mechanism

Comment: As shown by CARB's modeling, the proposed Auto-Adjustment Mechanism ("AAM") has the potential to result in draconian credit drawdown scenarios. Braya believes the AAM is an important tool, but cautions that the scenarios modeled, such as the 5% CI step-down along with a double trigger of the AAM, may result in significant renewable diesel volumes being diverted away from California to other markets or even discouraging further investment in this space depending on AAM forecasted implications. While Braya supports the development of tools to advance the LCFS program, we believe that a transparent step-down of CI targets, along with more updated and accurate iLUC data, is a critical path to achieving meaningful carbon intensity reductions on a timeline compatible with electrification goals and realities. (Apr-079.24)

Comment: Relying on the auto-acceleration mechanism to correct the credit glut will leave the policy with low credit prices until 2030, and then create a large swing in credit prices. (Apr-086.11)

Comment: Relying on the auto-acceleration mechanism to correct the credit glut will lead to unstable credit price, with a period of very low credit prices followed by a sharp spike in compliance costs. (Apr-086.5)

Comment: Given the significant implications associated with the AAM – especially if it could be triggered twice in rapid succession – WSPA recommends that CARB reconsider it as part of this rulemaking and instead seek more dedicated input from stakeholders. CARB's hypothetical scenario of triggering the AAM twice and the predicted minimum bank draw down

demonstrates the need to reconsider the AAM, or at the very least, to incorporate a reset mechanism to avoid unintended adverse impacts of an AAM, such as potentially drawing down more credits than are available. (Apr-094.20)

Comment: WSPA continues to encourage CARB to incorporate a robust consultation process with relevant stakeholders (e.g., fuel providers and distributors) to better understand potential issues and consider the possible unintended consequences during an annual review and before triggering the AAM. CARB premises these very aggressive CI reduction targets on the assumption that gasoline demand (and, therefore, CARBOB demand) is expected to decline quickly with an increase in light duty ZEV penetration. However, if ZEV penetration does not take place as quickly as CARB anticipates, the LCFS deficit generation will be significantly higher than CARB's scenarios and the program could become infeasible. (Apr-094.22)

Comment: AAM UNCERTAINTY WILL CREATE ADDITIONAL COSTS OF COMPLIANCE
The Automatic Acceleration Mechanism (AAM) amendments which change the ratcheting mechanism from an annualized assessment to a quarterly assessment, will create unnecessary compliance obligations from fuel marketers and add costs onto fuels for consumers in an effort to potentially meet compliance obligations which may occur. Any regulated entity under LCFS would need to prepare for potential AAM enforcement upon a quarterly basis within the program as opposed to a yearly basis, and the potential implications of the pull-forward further cloud the picture of what CI target compliance entities must comply. That uncertainty will, unfortunately, be passed to consumers of these fuels within California as compliance entities prepare for dramatic shifts in deficit costs per gallon of fuel on a relatively short time period. (15d2-304.5)

Comment: The Auto Acceleration Mechanism (AAM), as revised by CARB in the 2nd 15-day Change Notice, is both *poorly written* and poorly designed. If triggered at the wrong time, the AAM could result in a rapid increase in program stringency and a concurrent rapid increase in credit prices. Under such a scenario, **pass-through costs near \$1.50 per gallon by 2032 are quite possible.**⁴ (Footnote 4 Please see the last page of this document for a more thorough discussion of this conclusion.) (BH-015.2)

Comment: Below is my analysis of the revised AAM. Since you have refused to clarify the very confusing regulation language, I decided to analyze both potential interpretations. Unfortunately, both are problematic.

Problem with Using a Four Quarter Rolling Trigger for the AAM

Hypothetical Scenario A: In this hypothetical scenario, I assume that the updated benchmark schedule gets announced on May 15 following a trigger, and then the updated benchmark schedule goes into effect on January 1 following the May 15 announcement.

Trigger #(N+1) occurs on November 15, 2029. The updated benchmark schedule gets announced May 15, 2030, and the acceleration goes into effect on January 1, 2031. On January 1, 2031, there will be a 9% stepdown due to this acceleration.

Trigger #(N+2) occurs on February 14, 2031. The updated benchmark schedule gets announced on May 15, 2031, and the acceleration goes into effect on January 1, 2032. On January 1, 2032, there will be 9% stepdown due to this acceleration.

The result is that there will be a 9% stepdown in 2031 and another 9% stepdown in 2032. Moreover, the “N+2” trigger reflects market data that happens before the “N+1” acceleration takes effect. In other words, insufficient time is allowed to evaluate whether or not the “N+1” acceleration corrects the market.

Hypothetical Scenario B: In this hypothetical scenario, I assume that the updated benchmark schedule goes into effect on January 1 of the year following the trigger.

Trigger #(N+1) occurs on February 14, 2030, and the acceleration (9% stepdown) goes into effect on January 1, 2031.

Trigger #(N+2) occurs on May 15, 2031, and the acceleration (9% stepdown) goes into effect on January 1, 2032.

Similar to Hypothetical Scenario A, the result will be a 9% stepdown in 2031 followed by a second 9% stepdown in 2032. Again, insufficient time is allowed to evaluate whether or not the “N+1” acceleration corrects the market before the “N+2” trigger occurs.

Conclusion: The potential for 9% stepdowns to occur in consecutive years is a problem that needs to be corrected. Such a situation would increase the percent CI reduction from approximately 30% to approximately 50% by 2032 (or potentially earlier if additional accelerations occur prior to 2031). This would most likely result in a rapid change from credit oversupply to a large credit undersupply with the credit price going to the cap. A 50% CI reduction target with credit price at the cap would result in a pass-through cost to gasoline of approximately \$1.50. (BH-017.1, from email dated 10/23/24)

Comment: we want to call your attention to the fact that the actual impacts of the proposed changes are masked because the Proposal fails to disclose and analyze the effects of the future step-downs in the carbon intensity benchmark that will have wide-ranging effects on Californians. When asked for clarification about how the new changes to the auto-acceleration mechanism will work, staff has responded that it will wait until after the Board vote to explain this key feature of the program. (BH-030.11)

Comment: Three, super accelerating the CI step down in 2025 could increase consumer cost impacts and disincentivize longer term advancements in developing lower CI fuels. (BHT-64)

Agency Response: No change was made in response to this comment. Staff updated the CATS modeling for the Proposed Scenario in response to public feedback received on the regulatory proposal released along with the ISOR to match the currently proposed modifications to the initial regulatory proposal. As part of the updated modeling, staff additionally released scenario analysis of the proposed regulation with an assessment of the fuel mix and credit prices that could result if the Automatic Acceleration Mechanism is triggered in 2027 and implemented in 2028. The proposed regulation, with the AAM implemented in 2028, is expected to result in an average credit price of \$125 between 2025 and 2035, which makes it unlikely that the market

conditions would exist to trigger a second AAM. Even if the market met the conditions to trigger the AAM in 2028, the AAM could not be implemented again until 2030, thereby allowing a full two years for the market to adjust to the new targets before the CI targets could be accelerated again. In this way, the AAM is designed to advance the CI benchmark schedule only when there is rapid credit accumulation occurring from a large supply of low-CI fuels over an extended time period, conditions which would support California's regulatory and statutory objectives for faster decarbonization and that would warrant the CI reduction acceleration.

C-10 Automatic Acceleration Mechanism Equation

Comment: In (b), Auto-acceleration Mechanism, (2) CARB needs to clarify the definition of Credits20xx and Deficits20xx: does Credits20xx represent the cumulative total number of credits generated since 2011 ("the program") or does it represent the number of credits generated in a single year? Does Deficits20xx represent the cumulative total number of deficits generated since 2011 ("the program") or does it represent the number of deficits generated in a single year? WSPA requests that CARB explain the basis for the equation under 95484(2)(A). WSPA recommends that CARB conducts a formal annual program review which would consider not only historical data, such as the credit bank and the deficits and credits generated, but also a forecast of the fuel demand and production in the various category of fuels. This information would be used to assess how the benchmark would be set (higher, flat, lower) for the next compliance period(s). This would be more practical than borrowing credits from the future as described in section 95485 (c)(3)(C) (Advanced Credits). (45d-241.51)

Agency Response: A change was made in response to this comment. Staff updated the equation in section 95484(b)(2)(B) with the First 15-day changes package to specify "annual" deficits. With that update along with other updates to the subsection as part of the Second 15-day changes package, "*Credits20xx*" is the total number of credits generated under the program as calculated at the end of the four quarters preceding the quarterly Automatic Acceleration Mechanism announcement; and; and "*Deficits20xx*" is the total number of deficits generated under the program as calculated at the end of the four quarters preceding the quarterly Automatic Acceleration Mechanism announcement. Both of these values account only for the credits and deficits generated within the last four quarters preceding the quarterly Automatic Acceleration Mechanism announcement.

The equation for 95484(b)(2)(A) was established based on stakeholder input and a review of historical market dynamics that indicated that the market could potentially decarbonize much more rapidly than projected, as evidenced by the large current credit bank, which has grown as a result of years of credit generation persistently exceeding deficit generation. Staff has designed the trigger conditions established for the AAM, and the timing of how often the benchmarks can shift as a result of the AAM, to strike a balance of providing needed flexibility based on real world data without becoming overly-reactive to near-term trends.

No changes were made in response to the recommendation to conduct a formal annual program review. Such an annual review will be unnecessary due to the specified

quarterly publication of program information and general program transparency efforts consistent with Board direction in Resolution 24-14.

C-11 Multiple Comments: *Credit and Deficit Calculation*

Comment: In our previously submitted comment letter on 21 Dec 2022, we argued for the need for a more accurate crediting approach to better align LCFS crediting with real-world emissions as more efficient vehicles come to make up a larger share of California's total vehicle fleet.²⁷ Research published shortly before the letter was submitted identified and characterized a likely future quantification error in the LCFS credit generation method due to assumptions around the GHG impact of displaced fuel.²⁸ As higher-efficiency powertrains saturate a market segment, the current crediting method will become increasingly less accurate at matching LCFS credits to actual GHG impacts over time, within that segment. This is because the current LCFS credit quantification method assumes that each new high efficiency ($EER > 1$) vehicle will fully replace the travel activity provided by a fossil-fueled ICE vehicle. Over time, this assumption becomes less reflective of actual behavior. While the credit quantification error caused by this inaccurate assumption applies to all vehicles with an $EER > 1$, it will yield its greatest impact on estimates of emissions from EVs. In early years, when the fleet is overwhelmingly composed of ICE vehicles, the assumption of constant and complete displacement of ICE travel is quite defensible, but as EVs come to make up an increasing fraction of the fleet, it is increasingly likely that the travel activity provided by each charging event would otherwise have been done in a different EV, in which case no additional gasoline was displaced. In this case, the credits issued for EV charging would overestimate the actual GHG benefits of such charging, giving LCFS credits for emissions benefits that are not occurring and with costs passed on to gasoline consumers.

Resolving Credit Quantification Error With Fractional Displacement Crediting

Updating the outdated assumptions regarding fuel displacement can be accomplished by algebraically rearranging the existing LCFS quantification equation to separate it into two terms, one reflecting GHG impacts of fuel displacement and another reflecting GHG impacts of lower fuel CI on an equal-energy basis, this allows a displacement fraction term to be added. This term accounts for the fact that as new technologies come to make up larger fractions of a fleet or market segment, each additional vehicle will, on average, displace less travel by an older-technology one. The fraction of the vehicle fleet or market segment still made up of older-technology vehicles can serve as a useful approximation for this displacement fraction term, possibly with a temporal lag to account for the fact that old-technology vehicles are more likely to retire out of the fleet than new ones due to their relative ages.

We recognize that this problem is outside the scope of this rulemaking, as identified by CARB during the pre-rulemaking workshop. Adopting the fractional displacement approach in the next few years, however, would help ensure that medium- to long-term credit quantification matches real-world emission benefits, and helps mitigate potential LCFS credit oversupply in the 2030's that FPSM modeling projects to arise due, in part, to this credit overestimation error, without the need for precipitous action that could cause market disruption.²⁹ (45d-391.11)

Comment: Section 95486.1 Generating and Calculating Credits and Deficits Using Fuel Pathways

§95486.1 (a) - The equations specified in sub-parts (1)-(3) embed an assumption related to emissions benefits due to the displacement of fossil fuel by vehicles with an EER>1. As discussed in the section Fractional Displacement Crediting Approach for Fuels with EER>1, this assumption will become less appropriate over time given the growing presence of ZEVs and other vehicles with EER>1 in the fleet. Algebraically rearranging this set of equations to separate GHG reductions from fuel displacement effect from GHG reductions due to the lower CI of fuels on an equal energy basis provides a more clear and transparent representation of the GHG reductions being evaluated. Separating the terms also allows for a new term to be introduced, Displacement Fraction, that allows the replacement of the previous assumption of fuel displacement determined by EER ratio under all conditions, at all times. Equation 1, below, describes the proposed replacement for the equations in §95486.1 (a).

$$Credits_i^{XD}(MT) = (CI_{standard}^{XD} - CI_i) \times E_i \times C + (EER^{XD} - 1) \times CI_{standard}^{XD} \times E_i \times F_{displaced}^{XD} \times C_i$$

Where $CI_{standard}^{XD}$, CI_i , E_i , EER^{XD} , and C are unchanged from their current definition and $F_{displaced}^{XD}$ —“Displacement Fraction”—is the fraction of theoretical displacement to be credited under the given pathway. The fraction of the fleet still using the incumbent, higher-emitting technology (e.g., ICE) is a reasonable approximation here. Note that when $F_{displaced}^{XD} = 1$, this equation gives identical results as the equations currently used in §95486.1 (a). These issues are discussed in depth in Murphy (2022)39 (45d-391.41)

Agency Response: No change was made in response to this comment. LCFS defines baselines for each technology based on 2010 data, to reflect the pre-regulation state of technology adoption so that credits reflect improvements as compared to baseline technology deployments. As fleets transition to ZEVs in higher quantities, staff is open to considering potential revisions to the methodology for assigning EERs to reflect the current state of technologies in use.

C-12 Multiple Comments: *CI Target Reset/Deceleration*

Comment: An alternative approach is to start with very tight policies and give ARB the option of loosening the legislation. This would look like "We are triggering AAM twice today, but reserve the right to use an Auto-Deceleration mechanism starting in 2028" for example. (45d-012.1)

Comment: In order to address any credits-to-deficit imbalance resulting from overly aggressive CI benchmarks or the AAM, CARB should also incorporate a reset mechanism. This mechanism would strengthen the credit trading market by providing greater regulatory certainty and strike an appropriate balance between achieving meaningful reductions offering sufficient business, technology, and financial support to industry, which would ensure these accelerated targets are durable and achievable. Such a mechanism should be available in several circumstances tied to market activity signals and statutory factors, including: a recession or an accelerated growth period in California, a significant unforeseen event (e.g., a global pandemic), and growing affordability and supply reliability issues. Incorporating a reset mechanism would better effectuate SB X1-2's directive for State agencies to evaluate measures to ensure that petroleum and alternative transportation fuels are adequate,

affordable, reliable, and equitable, and would better fulfill CARB's duty under HSC § 38560 to ensure that its regulations are cost-effective. Consistent with SB X1-2, CARB must consider impacts to gasoline costs resulting from its regulations, including the LCFS program and other programs such as the Cap-and-Trade program. As the SRIA indicates that LCFS pass-through costs on gasoline will be well over \$1.00 per gallon beginning in 2037,²⁶ CARB must mitigate additional costs in adopting LCFS program updates. (45d-241.13)

Comment: Additionally, the proposed AAM action mechanism, advancing two years on the compliance schedule rather than one, can risk pushing the market into credit insufficiency in certain conditions, as we described during our presentation at the May, 2023 workshop on Auto Acceleration mechanisms. This risk magnifies as the yearly increase in CI target goes up, as it does after 2030 in the proposed compliance schedule. These risks could be mitigated by adopting an automatic relaxation mechanism in addition to the AAM; this mechanism would return to the previous compliance schedule when certain criteria were met, such as the Credit Bank to Average Quarterly Deficit Ratio dropping below 1. (45d-391.36)

Comment: CARB illustrated in its Standardized Regulatory Impact Assessment²⁸ a significant reliance on banked credits to achieve its proposed targets, resulting in a dramatic credit bank draw-down, leaving little time for regulated entities to innovate and bring additional lower-CI fuels to market that will add credits to the market and stabilize costs. WSPA has previously raised the need to incorporate a reset mechanism to ensure a modeled target does not become a model of how not to achieve emission reductions. A reset mechanism would bring greater regulatory certainty and strike an appropriate balance between achieving meaningful reductions and offering sufficient business, technology, and financial support to industry. A reset mechanism would also help ensure that these accelerated targets are durable and achievable. (Apr-094.18)

Agency Response: No changes were made in response to these comments and the SRIA was an early snapshot to look at cost impacts associated with different policy scenarios and does not capture real-world conditions. See response to H-1 with regard to potential pass-through compliance costs associated with the Proposed Amendments. In addition, the credit price ceiling and Cost Containment Mechanism (CCM) in the existing regulation:

- Enables regulated parties to comply even if a shortage of credits renders them unable to meet their annual compliance obligation.
- Contains compliance costs and cap credit prices. By implementing a strong and transparent price cap for LCFS credits, the cost containment threshold price allows regulated parties to achieve compliance at a predetermined maximum price, and protects regulated parties and consumers from the possibility of a low-probability but high-impact price spike driven by a tight supply of low-CI fuels or LCFS credits. It contains costs in the market year-round, even in the event of a credit shortage: regulated parties with a compliance obligation can purchase credits to satisfy their compliance obligation at a maximum cost containment threshold price in the year-end market, and therefore have little incentive to purchase credits at any point in the year at a price above the cost containment threshold price.
- Reduces market volatility. By limiting the potential increases in credit prices, the cost containment threshold price minimizes volatility during periods of market stress. The

CCM and price ceiling together create a clear and predictable relief to handle any credit shortage or price spike and actually reduces the risk that the market prices will reach the ceiling. The advanced crediting provisions also help to mitigate potential compliance concerns.

C-13 Multiple Comments: *Decoupling CI Reductions by End Use*

C-13.1 Comment: Increase Stringency of Diesel CIs

Comment: Increasing CI stringency for heavy duty vehicles will result in the accelerated adoption of CNG engines by fleets currently using diesel engines. Diesel power not only perpetuates the use of higher CI scored fuels, but they are responsible for driving demand for biodiesel which is overproduced and harms LCFS credit prices. (45d-204.1)

Agency Response: No change was made in response to this comment. The LCFS light-duty, medium/heavy-duty, and jet fuel market CI targets decline in tandem (as a percentage decline from baseline value) to provide flexibility for the market to attain the lowest-cost decarbonization strategies. Increasing the targets for one without bifurcating the market will create more demand for credits and could lead to faster decarbonization, but does not create a preferred response option, like the one listed of faster CNG vehicle uptake or other technology preferences voiced by stakeholders. GHG reductions across all sectors of transportation are needed simultaneously, and keeping percentage reduction targets consistent across end uses should help the market to prioritize the most cost-effective decarbonization strategies.

C-13.2 Comment: Decouple Diesel and Fossil Jet CI targets

Comment: CARB should also consider whether de-coupling the proposed CI benchmarks for diesel substitutes and fossil jet fuel substitutes, allowing the later to progress at a slower pace, would more appropriately reflect the current state of the industry and afford greater credit generation potential (and incentivizes) for SAF produced from existing feedstocks and production technologies. (45d-255.10)

Comment: In conjunction, we propose that CARB set the jet fuel benchmarks at a level and on a schedule that recognizes that SAF is an emerging, less mature market that has not benefited from higher fossil benchmarks and years of credit generation since program inception in 2010. In the early years of the LCFS program, CARB set small CI reduction targets for gasoline and diesel and modest annual increases to allow the industry (both fossil and alternative) time to complete their investments and ramp up production. CARB can evaluate the jet fuel benchmarks and set them in such a way that supports SAF as an emerging fuel and addresses airline industry concerns about the transition towards increasing low-carbon fuel use. This could include freezing the jet fuel benchmarks, resetting the 2030 jet fuel benchmark targets to their pre-amendment level of 20%, or decoupling the annual increases of the jet fuel benchmarks from those of gasoline or diesel. Notably, British Columbia has adopted a similar approach under their recent LCFS amendments, providing both a higher benchmark and a less aggressive compliance curve for aviation fuels, preserving credit generation opportunities for the emerging SAF industry. (15d1-111.2b)

Comment: In conjunction, we propose that CARB set the jet fuel benchmarks at a level and on a schedule that recognizes that SAF is an emerging, less mature market that has not benefited from higher fossil benchmarks and years of credit generation since program inception in 2010. In the early years of the LCFS program, CARB set small CI reduction targets for gasoline and diesel and modest annual increases to allow the industry (both fossil and alternative) time to complete their investments and ramp up production. CARB can evaluate the jet fuel benchmarks and set them in such a way that supports SAF as an emerging fuel and addresses airline industry concerns about the transition towards increasing low-carbon fuel use. This could include freezing the jet fuel benchmarks, resetting the 2030 jet fuel benchmark targets to their pre-amendment level of 20%, or decoupling the annual increases of the jet fuel benchmarks from those of gasoline or diesel. Notably, British Columbia has adopted a similar approach under their recent LCFS amendments, providing both a higher benchmark and a less aggressive compliance curve for aviation fuels, preserving credit generation opportunities for the emerging SAF industry. (15d2-302.9)

Agency Response: No changes were made in response to this comment. Similar to the dynamics explained in response C-13.1, although slowing the required jet fuel CI target reductions would result in additional credits for SAF, these investments might shift investment money away from technologies that have greater decarbonization potential. See also responses to V-1 and V-2 with regard to the partnership between CARB and the airline industry with regard to SAF use.

C-14 Multiple Comments: *Limit Credit Supply*

Comment: Rebalance supply and demand for credits by reducing credits that are misaligned with California's goals rather than focusing entirely on increasing stringency.

The low credit prices and growing bank of credits do not simply reflect success and signal a need ramp stringency faster but are instead sign of disfunction, as a huge share of credits are awarded to vegetable oil-based renewable diesel and manure biomethane pathways that do little or nothing to benefit California and create major problems elsewhere. A durable solution must address the root cause of the problem by limiting the supply of these counterproductive credits. Limiting supply will stabilize credit prices without such dramatic increases in overall stringency, which will reduce regressive passthrough costs to California drivers of gasoline powered vehicles. While passthrough costs have been very modest to date, CARB should carefully consider the impact of the LCFS on costs to drivers from increasing stringency. Support for transportation electrification has clear returns to California drivers (and people breathing the air) but the same is not true for bidding up the global price of vegetable oil or subsidizing manure digesters in other states. (45d-276.1)

Comment: CARB's choice to increase program stringency rather than restrict supply of combustion fuels will disproportionately harm low-income communities due to higher program costs and missed opportunities to expand access to zero emission transportation options. (45d-304.7)

Agency Response: Changes were made in response to these comments. Refer to *Response to Comments on the Draft and Recirculated Environmental Impact Analyses Prepared for the Amendments to the Low Carbon Fuel Standard* (hereinafter, CEQA

RTC) Master Responses 1, 2, 4; and agency responses to C-3, E-4, H-1, O-2, U-1, Z-1.3, BB-1, BB-8, and WW-2.

C-15 Multiple Comments: *Clarifications*

Comment: §95484 (b)(2)(A) defines *Deficits*_{20xx} as “the total number of deficits generated under the program...”. This could be misinterpreted as cumulative program deficits rather than total annual deficits for year 20xx. This should be clarified. (45d-391.33)

Comment: §95484 (d) Table 1 - The CI values shown in the table are slightly different from the CI values shown in Table 1 of the Initial Statement of Reasons. (45d-391.37)

Comment: §95484 (f) Table 3 - The CI benchmarks for 2019 to 2022 for SAF have been updated, but it is not clear whether these would be applied retrospectively or whether they imply any changes to past crediting. We assume no retroactive adjustments are implied, however this should be clarified. (45d-391.38)

Comment: 95486 (b)(2) - After 2028, fossil jet fuel will start generating deficits, however the equation for total deficit generation *Deficits*_{Gen}(MT) does not include a term for deficits from jet fuel. (45d-391.40)

Comment: §95489 (e)(1)(D)3. - Existing language specifies that use of lower-CI process energy, such as biomethane, can be credited for GHG reductions from the displacement of fossil fuels. It is unclear from this provision whether book-and-claim accounting can be used to provide this biomethane or if it must be directly supplied. (45d-391.65)

Comment: Carbon Intensity Benchmark for Fossil Jet Fuel (Table 3) Needs to be Updated in Draft Regulation. In Table 3 of the draft LCFS rule presented in the December 19th 45-day package, CARB does not appear to be using the fossil jet fuel CI of 89.43 g/MJ starting in 2025 as noted at the bottom of table. Neste requests that CARB update Table 3 to reflect the correct CI for fossil jet fuel starting in 2025. (Apr-066.16)

Agency Response: Changes were made in response to these comments. Staff updated §95484 (b)(2)(A) to specify that *Deficits*_{20xx} is the total number of annual deficits generated under the program as calculated at the four quarters preceding the quarterly Automatic Acceleration Mechanism announcement. Staff updated Table 1, Table 2, and Table 3 to reflect the proposed regulation’s percentage targets, as compared to the revised base year (2010) CI values for fossil gasoline, fossil diesel, and fossil jet fuel, respectively. Staff reverted the CI target values for years 2019 through 2022 in Table 3 to their original values. Staff retained the current exemption on fossil jet fuel (see Agency Response to V-1 for more context). Staff clarified subsection 95489 (e)(1)(D)3 with a modification as part of the First 15-day modifications package to specify that “lower-CI process energy must be physically supplied directly to the refineries.” The compliance targets for the jet fuel sector, reflected in Table 3, continue to track with the diesel compliance targets reflected in Table 2, consistent with the approach in the current/previous regulation.

D. Regulatory Alternatives

D-1 Multiple Comments: *Proposed Amendments*

Comment: CARB Staff's Proposal Passes Regressive Costs onto Drivers for Dubious Benefit

The staff proposal fails to include amendments to address the root causes of the supply glut from inappropriate credits. Nor do they address the program's lopsided support for polluting fuels over end-to-end zero emission pathways. Instead, as best we can tell, CARB staff's proposed fix to the problem of collapsing credit prices is simply to ramp up demand by increasing the program's overall stringency. And they will continue to fund fuels championed by the oil industry and industrial agribusiness, while disregarding the unequivocal opposition of environmental justice communities. (45d-379.10)

Comment: This would make the LCFS a more regressive and less credible climate policy. As other states and the Federal government consider taking up the policy, we urge you as Board members to avoid allowing the LCFS to go down this path. (45d-379.12)

Comment: In addition to dramatically increasing pressure on land conversion, agricultural intensification, and global food prices, the surge of soybean oil has been self-defeating for all the intended beneficiaries of the LCFS. Record-high crop fuel volumes translate to record-low LCFS credit prices. As a recent article in Argus Media (a trade press tracking biofuel commodities) notes: "Prices have groaned under the weight of new credits generated in excess of obligations that have doubled since the workshops began, to more than 18mn t — nearly enough to satisfy all the deficits generated in the 2021 compliance year. These credits do not expire."¹⁶

Recent analysis by the University of California Davis shows that there is no end in sight to the surge of lipid biofuels into the California market. Even in a period of low credit prices, renewable diesel has increased so rapidly in recent years that consumption of lipid biofuels already exceeds the maximum volumes projected by some experts and exceeded the volumes that other experts expected to see in the late 2020s.¹⁷ After evaluating recent trends, the University of California researchers found that "the upper bound on aggregate consumption [of lipid biofuels] may be the global supply of lipids, which is more than sufficient to fully displace all diesel and jet fuel consumption within the near term."¹⁸ New information on the availability of renewable diesel suggests that the ISOR's proposed CI targets and automatic acceleration mechanism are "unlikely to bring credit and supply demand into approximate balance before 2030" and meaningful upward pressure on LCFS credit prices is unlikely as long as there is a supply of inexpensive credits from renewable diesel.¹⁹ (45d-383.12)

Comment: You have more than enough information to address the damage of the LCFS when it comes to ethanol and CCS, and methane crediting, lifecycle assessment, and factory farm biogas. (45d-392.2.)

Comment: As it stands, CARB Staff's LCFS Proposal continues to disregard necessary public health and environmental justice protections. The Proposal ultimately fails to disclose impacts, make the LCFS more equitable and less reliant on outdated combustion fuels, and align the program with CARB's own air quality standards and ZEV goals. It is therefore not worthy of your vote. **We urge Board Members to vote NO on the proposed LCFS amendments and**

to send it back to staff with direction to fix the program consistent with the above recommendations in 2025. (BH-030.13)

Comment: Lastly, CARB's own Environmental Justice Advisory Committee has been advising staff to revise and revisit these types of standards for environmental justice and that should not be ignored. (BHT-33)

Comment: While WPGA supports LCFS generally, we cannot support the most recent amendments and respectfully request that CARB delay the vote or reject these amendments and continue to work with stakeholders on appropriate updates to the rule that protect consumers from unnecessary costs and improve carbon intensity reductions across all fuels. (BHT-230)

Agency Response: Changes were made in response to these comments. Refer to CEQA RTC Master Responses 1, 2, 4; and agency responses to C-3, E-4, H-1, O-2, U-1, Z-1.3, BB-1, BB-8, and WW-2.

D-2 Multiple Comments: *Suggesting Alternatives*

Comment: Be it further resolved that the EJAC recommends that CARB formally consider the Comprehensive EJ Scenario as a regulatory alternative in the LCFS rulemaking process. (45d-001.9)

Comment: Initiate a public process focused on options to increase the stringency, integrity, and scope of the LCFS:

- Evaluate and propose accelerated carbon intensity targets pre-2030 for LCFS.
- Evaluate and propose further declines in LCFS post-2030 carbon intensity targets to align with the Final 2022 Scoping Plan.
- Consider integrating opt-in sectors into the program.
- Provide capacity credits for electrolytic hydrogen and electricity for heavy-duty fueling.
- Evaluate and ensure full life cycle emissions from all LCFS pathways and each LCFS project, including all upstream and downstream
- Evaluate and ensure that credits issued pursuant to the LCFS are based on additional GHG emission reductions and were not already accounted for through other state or federal funding and incentive programs
- Ensure that LCFS pathways and projects do not disproportionately impact communities of color, low-income communities, or communities already disproportionately burdened by environmental degradation and do not conflict with efforts to ensure that regions attain state and federal air quality standards.
- Reevaluate the carbon intensity value of livestock and dairy gas based on a full life cycle analysis, an analysis of additionality for each project, and relevant regulatory programs.
- Evaluate whether to remove livestock and dairy gas from the LCFS based on the role of the LCFS in incentivizing herd concentration near pollution-burdened communities and in pollution-burdened regions, accurate GHG emissions analyses, and conformity with additionality requirements. (45d-200.12)

Comment: In its analysis supporting the proposed Amendments, CARB staff failed to address the concerns laid out in the Petition for Rulemaking, the Petition for Reconsideration, the Workshop on Methane, Dairies and Livestock, and Renewable Natural Gas in California, Comments on the 2022 Scoping Plan, legion comments in opposition to Tier 2 pathway applications for factory farm gas, and throughout Commenters' engagement in the LCFS rulemaking. CARB staff has also ignored the EJAC resolution and recommendations and rebuffed the EJ Scenario. (45d-368.30, 45d-368.31)

Comment: CARB has a pivotal opportunity this year to adopt new rules that align the LCFS with California's environmental justice commitments. Environmental justice, zero emission, and climate advocates have presented a clear alternative to the current policies that heap lavish rewards on the biggest polluters through the Comprehensive EJ Scenario. CARB should adopt those recommendations. Californians are ready for real change and want to see it before it's too late. (45d-6887-8607.1)

Comment: CARB has a pivotal opportunity to adopt new rules aligning the LCFS with California's environmental justice commitments this year. Environmental justice, zero-emission, and climate advocates have presented a clear alternative to the current policies that heap lavish rewards on the biggest polluters through the Comprehensive EJ Scenario. CARB should adopt those recommendations to stop moving California's climate policy in the wrong direction. (45d-6887-8607.3)

Comment: CARB has a pivotal opportunity this year to adopt new rules that align the LCFS with California's environmental justice commitments. Environmental justice, zero emission, and climate advocates have presented a clear alternative to the current policies that heap lavish rewards on the biggest polluters through the Comprehensive EJ Scenario. CARB should adopt those recommendations to stop moving California climate policy in the wrong direction. (15d1-043.4)

Comment: Failure to analyze an EJ Scenario that analyzes limits on biofuels and biomethane supply. Despite CARB's failure to accurately model the proposals of the EJ community in the ISOR and the many corrections provided in the People's Workshop, Staff fail to correct those errors and provide an EJ Scenario in the 15-day changes. This failure deprives Board Members of important information and analysis.

- CARB should include an updated EJ Scenario that accurately reflects the proposals of stakeholders. (15d1-222.8)

Comment: Staff's 15-day package fails to model an Environmental Justice Scenario; CARB should include an updated Environmental Justice Scenario that accurately reflects the proposals of stakeholders.

We are deeply concerned about the inadequacy of the EJ Scenario presented in the ISOR, and the complete absence of an updated EJ Scenario in the 15-day package. This omission is particularly troubling given the significant problems we and other stakeholders identified with the initial EJ Scenario modeling—issues that undermine the validity of CARB's findings and its commitment to addressing environmental and environmental justice concerns.

First, the modeling data for the EJ Scenario was only made publicly available two months after the close of the initial public comment period. This delay in access to crucial information severely limited stakeholders' ability to provide informed feedback on the scenario modeling. Such a lag in transparency is unacceptable, especially for a scenario that is supposed to reflect the critical needs and voices of the most impacted communities.

Second, once CARB finally made output files available to the public the day before the April Staff workshop, it became clear that the ISOR EJ modeling did not reflect actual EJ asks. As Stanford modelers explained in comments on Staff's April workshop,³⁹ and as panelists explained at the Peoples' Workshop, several significant discrepancies exist, including the following:

- **Transportation Electrification and ZEVs:** Despite EJ stakeholders advocating for increased funding for transportation electrification, the scenario did not model any changes in electrification. This omission is particularly problematic given the growing role of ZEVs within the LCFS framework. CARB developed the model with the knowledge that ZEVs would be a critical component of the regulation, yet the scenario fails to account for the billions of dollars expected to be generated through LCFS—funds that would logically have a substantial impact on ZEV penetration. It is inconceivable that CARB could suggest that such significant funding would have no effect on ZEV adoption. As evidenced by recent data, ZEV sales in California remain strong and are outpacing mandated goals, further underscoring the potential impact of increased funding on ZEV penetration⁴⁰.
- **Biomass-based Diesel Volumes:** EJ groups specifically requested that lipid diesel volumes be capped at 2022 levels to prevent further environmental harms. However, CARB's model inexplicably projected Renewable Diesel (RD) volumes at 60% below 2022 levels starting in 2024. This significant deviation from the requested cap undermines the entire premise of the EJ scenario, rendering any outputs or findings from this modeling effort fundamentally flawed. The failure to accurately represent the EJ ask in the model invalidates the results and dismisses the concerns of the communities that are most affected by these policies.

Third, despite the major flaws in the ISOR modeling of the EJ Scenario, Staff fail to include an updated EJ Scenario in the 15-day. Instead, Staff provide multiple "uncertainty" scenarios, including two that project CARB failing to meet its own ZEV regulations. None of the scenarios model outcomes that exceed the ZEV goals, despite current light-duty ZEV penetration rates surpassing the mandated targets. This omission reflects a lack of commitment to the aggressive pursuit of electrification that EJ groups have been advocating for and that the current market trends clearly support.

Given these significant issues with Staff's deficient analysis, we urge the Board to direct Staff to conduct a new and accurate EJ modeling effort that reflects the actual proposals of environmental justice and environmental stakeholders. This updated modeling must take into account the actual impacts of increased funding on ZEV penetration and must adhere to the stakeholder proposal to cap bio-based diesel volumes at 2022 levels. Staff's failure to do this modeling in the 15-day package not only misrepresents the potential outcomes of the LCFS but also marginalizes the communities that the EJ Scenario program reforms seek to protect.

We respectfully request that the Board demand a higher standard of accuracy and accountability in CARB's EJ modeling, ensuring that the policies and projections put forward genuinely address the needs and concerns of the most impacted Californians. (15d1-222.34)

Agency Response: Changes were made in response to these comments. The Initial Statement of Reasons (ISOR) and draft Environmental Impact Assessment (draft EIA) included consideration of a "Comprehensive Environmental Justice Scenario and Alternative 2: Focused Crediting Scenario, respectively, which reflected recommendations made by the EJAC's Comprehensive EJ Scenario. The ISOR also considered Alternative 2, which had stronger 2030 CI targets than the proposed regulation. Each of these alternatives and scenarios were rejected for the reasons stated in the ISOR and Draft EIA. Even though the scenarios/concepts as proposed were not adopted, staff made the following revisions to the proposed regulation that respond to a number of the suggestions made in the comments above:

1. Further limited crediting periods for avoided methane crediting from dairy and swine manure pathways by limiting pathways that were certified after the effective date of the regulation and before January 1, 2030 for up to two consecutive 10-year crediting periods,
2. Limited credits for biomass-based diesel produced from virgin soybean oil, canola oil, and sunflower oil for up to 20 percent of annual biomass-based diesel reported on a company-wide basis. Quantities of biomass-based diesel derived from these feedstocks in excess of 20 percent would not generate credits starting January 1, 2028 for companies that already have a certified biomass-based diesel fuel pathway, and upon the effective date for companies that do not have such a pathway. These proposals help ensure that other regions are able to access increasing volumes of low-carbon alternative fuels, while still allowing for California to displace up to 100% of the State's current fossil diesel demand with lower-carbon alternative diesel as the diesel pool shrinks with increasing ZEV populations. The proposed addition also avoids sending a long-term signal for prominent crop-based feedstocks such as virgin soy, canola, or sunflower oil to serve California demand, mitigating potential future land conversion or deforestation.
3. Increased the CI target step-down in 2025 from 5% to 9% and maintained the proposed automatic acceleration mechanism which can increase the CI benchmark stringency if specific long-term market conditions are met.
4. Proposed to eliminate crediting for fossil-based hydrogen starting in 2035.
5. Increased crediting for transit agencies.
6. Expanded ZEV infrastructure crediting to further support medium and heavy-duty vehicles. Staff has made changes in response to these comments. Regarding the comment asking for a public process develop a provision to provide capacity credits for electrolytic hydrogen and electricity for heavy-duty fueling, the HD-HRI and HD-FCI programs adopted in section 95486.4 guarantee LCFS credits to heavy-duty hydrogen and electric fueling infrastructure. The creation of this program underwent the rulemaking public process; comments regarding HD-HRI and HD-FCI can be found in section I of this document. While the hydrogen can come from any source as long as fleet-wide characteristics meets certain renewable and carbon intensity

limits, HRI credit generation calculations use a minimum carbon intensity of 0, which does not disadvantage electrolytic hydrogen compared to other hydrogen pathways.

For further discussion of staff's analysis of EJAC recommendations, Refer to CEQA RTC Master Responses 1, 2, 4; and agency responses to C-3, E-4, H-1, O-2, U-1, Z-1.3, BB-1, BB-8, and WW-2.

Staff evaluated the proposed amendment, with the 1st 15-day changes incorporated, and found that the modeled cost effectiveness improved as compared to the ISOR proposal – the proposed amendment costs \$29 per metric ton CO₂e reduced as compared to the ISOR at \$58 per metric ton CO₂e reduced. Additionally, the air quality benefits of the proposed regulation are modeled to be 9,107 tons of PM_{2.5} reduced, and 34,495 tons of NO_x reduced in aggregate through 2046, an improvement as compared to the ISOR. Both of these improvements are largely based on the additional renewable diesel quantities that are expected to come to the market as a result of the proposed regulation and reflect the updated biofuel feedstock supply curve (see Agency Response E-4 for further information).

D-3 Multiple Comments: *Alternative Rejections*

Comment: The ISOR's analysis shows that the more stringent Alternative 2 would deliver cost-effective additional emissions and public health benefits. Relative to the baseline, Alternative 2 reduces more greenhouse gas ("GHG") emissions on an accelerated timeline and abates more NO_x and PM_{2.5}. In turn, the air quality improvements lead to a variety of public health benefits 11 percent more valuable, in dollar terms, than those delivered under the baseline proposal. Crucially, while regulated entities incur greater costs under Alternative 2, its GHG abatement cost—\$58/ton—compares favorably with the baseline proposal's \$57/ton.⁵

Staff cite higher credit prices under Alternative 2 as a reason to reject it. Rivian acknowledges that higher credit prices necessarily raise compliance costs and could introduce greater pass-through costs to some extent for day-to-day consumers of fossil fuels. However, the ISOR itself estimates that the alternative delivers a valuable and cost-effective trade-off in terms of environmental and public health benefits. The LCFS is fundamentally an emissions reduction policy aimed at addressing climate change and air pollution. Cognizant of the rapidly worsening consequences of climate change and a persistent air quality crisis in the state, we believe CARB should take seriously the alternative that cost-effectively accelerates GHG reductions and maximizes air quality improvements in the shortest possible time.

Moreover, CARB should consider how the higher credit prices modeled under Alternative 2 would play in the full arc of the LCFS regulation and against the backdrop of California's broader goals. By 2045, the ISOR proposes a CI reduction target of 90 percent, supporting the 2022 Scoping Plan objective of carbon neutrality and an 85 percent reduction in GHG emissions by the same year. Higher credit prices in the near term will call further investment in to the market today to support compliance with much more ambitious CI targets in the outyears. We believe this is a compelling reason to consider additional stringency in the pre-2030 timeframe. (45d-228.9)

Comment: The ISOR rejects alternatives that include a cap on lipid biofuels based, in part, on model results that suggest that NO_x and PM emissions would not decline as much as under

the proposed amendments because there would be more reliance on petroleum diesel rather than renewable diesel. However, more recent research by CARB itself shows that there is no statistically significant difference in PM or NOx emissions between petroleum diesel and renewable diesel when used in New Technology Diesel Engines (45d-281.3)

Comment: Corrected Modeling Would Eliminate the Illusory Benefits of Unrestricted Biofuels.

In rejecting a cap on lipid-based fuels contemplated in both Alternative 1 and the Comprehensive EJ Scenario, CARB argues that restricting those fuels will not achieve the greenhouse gas or air quality benefits secured under their proposed scenario, which allows unrestricted growth in biofuels. But correcting for the aforementioned modeling errors and relying on up-to-date research on air emissions would likely eliminate the presumed air and climate advantages portrayed under Staff's proposed scenario. For example, relying on the same conservative methodology that CARB used in 2018 potentially negates all the climate benefits Staff estimated from rejecting the cap on virgin oils in Alternative 1.

Alarming, the ISOR invokes illusory public health benefits of using renewable diesel to justify rejecting a commonsense measure—capping lipid biofuels—that would deliver real air quality benefits by refocusing the LCFS' benefits on zero-emissions technologies instead of combustion technologies. (45d-383.23)

Comment: Alternative 1 was rejected in favor of the proposed amendments for two primary reasons, less GHG reduction, largely due to lower LCFS target stringency (28% vs. 30%) and less air quality benefit. Our 2023 modeling report clearly demonstrates that a 30% LCFS CI target in 2030 is compatible with lower levels of lipid-based fuel consumption consistent with vegetable oil feedstock caps. Our previous report found that with a 30% 2030 target, and total lipid-based fuel consumption less than 2022 levels, the LCFS program maintained positive credit balances throughout the 2020's; balances grew in 2028 and 2029 to the point where an AAM triggering event (under the proposed trigger criteria) was likely.¹⁶ This indicates that even with binding caps on total lipid-based fuel development, under our assumptions LCFS market is projected to provide ample compliance credit to support a target of 30% or higher by 2030; the conclusion of fewer GHG benefits is therefore at least partly due to the selection of a lower 2030 target, which is not a necessary feature of a crop or lipid feedstock cap. (45d-391.4)

Agency Response: Changes were made in response to these comments. Staff is proposing changes to eligibility of biomass-based diesel fuel pathways which also act as guardrails against potential land conversion for crop-based biofuels. As described on pages 15-16 of the Recirculated EIA,² staff is proposing to stop accepting applications for new biomass-based diesel fuel pathway applications starting on January 1, 2031, contingent on successful implementation of California's medium- and heavy-duty (MHD) zero emission vehicle regulations. Staff is also proposing to limit credits for biomass--based diesel produced from virgin soybean oil, canola oil, and sunflower oil

² CARB, 2024 LCFS Recirculated Draft EIA, 2024.

https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/recirculated_draft_eia.pdf

for up to 20 percent of annual biomass-based diesel reported on a company-wide basis (see response to section BB-1 and CEQA RTC Master Response 2 for a complete description of the proposed sustainability guardrails).

Together, these phaseout and credit cap conditions, along with the proposed sustainability requirements for third-party certification and empirical LUC mechanism to assign more conservative LUC penalties to feedstocks produced in higher-risk regions, combined with existing LUC carbon intensity impacts, represent a concerted policy package to address the concerns around crop-based fuels. The aggregate impact of these regulatory proposals is expected to send the market signals necessary to encourage growth of sustainable, low-carbon feedstocks to displace fossil fuels in California, while minimizing potential negative externalities such as land conversion or deforestation. As discussed in CEQA RTC Master Response 2, staff modeled a volumetric cap on biofuels and found that it would likely increase consumption of fossil diesel and result in more GHG and criteria pollutant emissions, as opposed to the crediting limitation approach that staff has proposed for soy/canola/sunflower oil.

Regarding Alternative 2, see Agency Response to D-2 for additional context for the proposed amendment selection.

Refer to CEQA RTC R22-26 for discussion of the air quality analysis of the proposed regulation and alternatives.

E. Modeling

E-1 Multiple Comments: *Greenhouse Gas Modeling*

Comment: Moreover, there are several faulty assumptions in CARB's analysis that result in the overestimation of GHG and air quality benefits of the Proposed Amendments in the Draft EIA. These faulty assumptions also lead to the incorrect conclusion that the Proposed Amendments scenario is more cost effective and provides more air quality benefits than Alternative 1. (45d-154.2b)

Comment: CARB incorrectly attributes 100 percent of the GHG emission reductions associated with consuming biofuels to the LCFS. Setting aside the argument that the CI values CARB calculates for crop-based biofuels are highly uncertain and likely significantly underestimated, CARB staff have changed the assumptions they use in attributing GHG emission reductions to the LCFS for biofuel. In the rulemaking for the 2018 amendments (see Attachment F page F-14), staff acknowledged that the federal Renewable Fuel Standard (RFS) and Biodiesel Blenders Tax Credit are primarily responsible for driving the production of biofuels. Through its design, the RFS essentially creates a volume mandate for biofuels, and therefore the total volume produced in the United States is effectively fixed by the RFS. In other words, if the LCFS ended today, the same amount of biofuel would be produced in the US. Because of this, the LCFS subsidy does not result in more production of biofuel beyond that incentivized by the RFS and blenders tax credit, but rather provides incentive to incrementally reduce the CI and shuffle the lowest CI production to California. Under the RFS,

corn ethanol is required to achieve a 20 percent CI reduction and biomass-based diesel is required to achieve a 50 percent CI reduction to qualify for the subsidy. Therefore, in the 2018 LCFS rulemaking, staff gave credit to the federal programs for a CI reduction of 20 percent for corn ethanol and 50 percent for biomass-based diesel, and only gave credit to the LCFS for CI reduction in excess of these values. For example, under these more appropriate assumptions, the LCFS took some credit for lower CI of fuels made from used cooking oil and tallow which have CI reductions of about 60 to 80 percent but took no credit for emission reductions from fuels made from soy and canola oil which have CI reductions of about 50 percent. Conversely for the 2024 amendments, staff appears to be crediting the LCFS for the full CI reduction (see page 38 of ISOR), effectively ignoring the contribution of the federal programs. This change in assumption results in an overestimation of the GHG benefits of the Proposed Amendments scenario in the Draft EIA. (45d-154.26)

Comment: The Draft Environmental Impact Analysis⁹ is also a departure from CARB's previous methodology. Previously, CARB only attributed emissions impacts beyond a 50% GHG reduction threshold to LCFS policy in updates to the 2018 LCFS rulemaking,¹⁰; i.e., emission reductions beyond the RFS' minimum emissions reduction threshold for BBD that could plausibly have been incentivized by the LCFS program. In the 2024 Draft Environmental Impact Analysis, CARB counted the full GHG reductions of BBD as fully attributable to the LCFS and has thus overstated them. For these reasons, it is likely that CARB has also overstated the benefits that the LCFS has on regional air quality and health outcomes. Developing a more accurate estimate would require additional modeling to disentangle the effects of the LCFS from other climate and federal biofuels policies. (45d-213.6)

Comment: The ISOR's analysis of the proposal and regulatory alternatives overlooks important evidence that would result in lower estimated climate and health benefits from biofuels. Including this evidence would likely increase the estimated benefits of a cap on crop-based biofuels... the analysis in the ISOR has several important omissions that cause CARB to overestimate the climate and air quality benefits of biofuels and thus overestimate the overall benefits of the proposal. Specifically, CARB did not consider the effects of biofuel reshuffling under the federal Renewable Fuel Standard. This omission results in inaccurate emission estimates, and it also conflicts with CARB's duty to ensure that emission reductions are real and in addition to those otherwise required by law. Additionally, CARB overlooked a federal Environmental Protection Agency study and other evidence that raise uncertainty about the climate intensity benefits of soybean-based diesel, and it failed to consider a study that it commissioned about the air pollution impacts of biomass-based diesel combustion. CARB should remedy these omissions and reassess the proposal as well as the regulatory alternatives that were rejected...

CARB overestimates the benefits of the proposal by disregarding evidence that would lower the calculated benefits of biomass-based diesel. First, the proposal does not consider the reshuffling of biofuel consumption into California under the federal Renewable Fuel Standard, and a fairer accounting of emissions reductions attributable to the LCFS would result in fewer climate benefits. Second, CARB has not considered evidence that land use change effects of crop-based biofuels are likely greater than what CARB's modeling estimates. Third, the

proposal overlooks a recent study, commissioned by CARB, that suggests biomass-based diesel has fewer air quality benefits than previously estimated.

A more thorough analysis of the climate and air quality impacts of biomass-based diesel would likely affect the comparison of regulatory alternatives. CARB compares the proposal to “Alternative 1,” a scenario with lower carbon intensity stringency and a cap on crop-based biofuels, and to the “Comprehensive Environmental Justice Scenario,” which involves a cap on crop-based biofuels and limits on livestock biogas. CARB concludes that the proposal performs better than these two alternatives in part because the proposal displaces more fossil diesel with biomass-based diesel, which creates improvements in greenhouse gas emissions and air pollution. Given that CARB’s dismissal of these regulatory alternatives relies heavily on the climate and air quality benefits of biomass-based diesel, CARB must update its analysis of the proposal and the comparison to regulatory alternatives. (45d-304.2)

Comment: The proposal overlooks the effects of biofuel reshuffling under the federal Renewable Fuel Standard, in violation of CARB’s duty to ensure emission reductions are additional.

CARB’s analysis of the greenhouse gas emissions reductions associated with increasing biomass-based diesel consumption takes credit for reductions that should be attributed to the federal Renewable Fuel Standard (“RFS”). The LCFS is not the only law that incentivizes production of biofuels. The federal RFS mandates production of increasing volumes of biomass-based diesel; it also allows for credit trading across regions, wherein overcompliance in one region can be used to offset undercompliance in another region. The interaction between the LCFS and federal RFS encourages biofuel producers to concentrate consumption in California because they can take advantage of the added LCFS incentives here.³⁰ This has led to California consuming an increasingly large share of the country’s biodiesel and renewable diesel, and in 2022 California consumed half of all the biomass-based diesel consumed in the U.S.³¹ Meanwhile, consumption outside California is declining.³² This dynamic means that a share of the biomass-based diesel consumption that CARB attributes to the LCFS is actually reshuffled from other states, where it would be consumed anyway due to the federal RFS.

CARB avoided this double counting problem in previous rulemakings by conducting an attribution analysis, but it provides no explanation why it removed the attribution analysis in this proposal. In the 2018 LCFS rulemaking, CARB calculated the greenhouse gas emissions reductions attributable to the LCFS in order to count only reductions where “complying with the LCFS can be argued to be the primary reason for the action.”³³ For biomass-based diesel, CARB only gave attribution to the LCFS for products with a carbon intensity below what the federal RFS required. Under this attribution analysis, CARB rightly took credit only for the emissions reductions that were additional to what the federal RFS required; consequently, the emissions reductions associated with biomass-based diesel were reduced. In the current proposal, CARB provides no attribution analysis and does not account for the LCFS program’s interaction with the federal RFS. The result of CARB’s backsliding is that emission reductions associated with biomass-based diesel appear larger than they should.

This faulty analysis not only overestimates the benefits of the proposal; it also conflicts with CARB's statutory requirement to ensure that emission reductions are additional. CARB must ensure that any greenhouse gas emission reductions achieved are "real"³⁴ and are "in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur."³⁵ By removing its attribution analysis for reductions associated with biomass-based diesel consumption, CARB has provided inflated emission reduction estimates. It takes credit for emission reductions that, without the LCFS, would occur anyway in other states due to the federal RFS production requirements. This constitutes a failure to ensure emission reductions are real and additional to reductions that are already required by law and would otherwise occur. (45d-304.10)

Comment: There are real questions about the greenhouse gas emissions reductions claimed in the ISOR. Notably:

- (A) The interaction with the federal Renewable Fuels Standard (RFS) is critical to understanding the actual impacts (and induced leakage) from this rule, but ARB does not articulate a clear approach for considering them or do so in a transparent manner.
- (B) The failure of the ISOR to cap lipid biofuels and its reliance on outdated indirect land use (ILUC) calculations raises real questions regarding the actual reductions achievable by the ISOR given unprecedented renewable diesel supply growth.

We recommend that ARB reevaluate GHG emission reductions and adopt a cap on lipid biofuels at a level that is consistent with the assumptions underlying its current ILUC estimate...

We recommend that ARB staff reevaluate the estimated GHG emission reductions of the proposed amendments to the LCFS, taking into account the potential for leakage effects... Contrary to ARB's prior practice, the ISOR is unclear on how the RFS is accounted for and appears to claim credit for emission reductions caused by the RFS. It also does not account for resource shuffling caused by the RFS and LCFS interaction. ARB should be transparent about how it accounts for this interaction if in fact that has changed since the 2018 LCFS amendments...

The SRIA indicates that impacts of the amendments to the LCFS account for the role of the RFS in the baseline¹⁴ However, no additional detail is provided to indicate how this is reflected in ARB's estimates, and how contributions from the RFS change under the proposed alterations to the LCFS. The SRIA states that GHG emissions are derived from "CATS outputs of the fuel quantities and average annual CI associated with each fuel."¹⁵ Importantly, the impacts of the RFS are not static and change in response to alterations to California's LCFS. It is not clear if and how exactly these dynamics are accounted for in the present rulemaking... The attribution approach, from the 2018 rulemaking in Appendix F Table F-12 at page 12, suggests that only emissions reductions below the thresholds set by the federal RFS should be attributed to the LCFS. For instance, all emissions reductions from bio-based diesel fuels down to a carbon intensity of 50g/MJ are attributed to the RFS, while only emissions reductions below the 50g/MJ threshold are attributed to the LCFS. For example, an additional gallon of bio-based diesel at 40g/MJ could be said to contribute an additional 10g/MJ of emissions reduction from what would have occurred under the RFS alone.

This provides a simplistic but defensible approach that should be taken and explicitly outlined in this rulemaking. However, attributing all emissions reductions from the diesel standard to the carbon intensity of BD or RD overstates the role of the LCFS, and would contribute to misleading conclusions in evaluating the impact and cost-effectiveness of the policy...

Today's RD growth has far outstripped that assumption and calls into question the validity of the ILUC calculation that relies upon it. Recently, US EPA surveyed ILUC estimates from a variety of sources – finding a range of 11 to 260 CO₂e/MJ.¹⁶ ARB's current ILUC value, 29 CO₂e/MJ, is in the very low range of these estimates. This fact, combined with the age and outdated assumptions that underpin this value, suggests that the ILUC estimate used to calculate CI for crop-based biofuels is too low – and perhaps significantly too low. This in turn will lead to overestimation of emissions reductions associated with the massive growth of RD in the fuel mix in California, by claiming benefits while causing harm elsewhere as forests are cut and peatlands are converted to support oil seed agriculture. (45d-366.4, 45d-366.5, 45d-366.6)

Comment: But even without the underlying tables, there are seriously questionable assumptions that more biofuels will deliver significant GHG and PM/NO_x reductions that depart significantly from past LCFS analyses, are counter to how other regulations are evaluated, and dismiss CARB's own research. (45d-383.19)

Comment: Staff's Proposal Double Counts Biofuel Benefits.

Staff's analysis should evaluate the impacts of the specific regulation, separate from the benefits of federal mandates or other State regulations that would occur with or without implementation of the current proposal. Inclusion of these benefits improperly overstates the impacts of the proposal and should be avoided. Past LCFS analyses adhere to this construct. In 2018, for example, Staff included an adjustment to the GHG and air quality benefits to "eliminate double counting of emission reductions that are more appropriately attributed to other State and federal programs such as Advanced Clean Cars and Renewable Fuel Standard."³² However, the ISOR attributes 100% of the PM/NO_x and GHG reductions associated with renewable diesel to the LCFS, even though much of these reductions are driven by federal mandates. Staff clearly detailed the methodology for attributing the incremental benefits of the LCFS and those to other programs in Appendix F of the 2018 ISOR and do not provide an explanation for changing the approach in the most recent ISOR.³³ Correcting this apparent oversight would significantly lower the purported benefits of relying on lipid biofuels. Other recently approved CARB regulations include methodologies detailing how Staff accounted for other initiatives in place.³⁴ (45d-383.21)

Comment: Upstream Benefits Should Not Be Attributed to the LCFS.

The ISOR attributes GHG and PM/NO_x reductions associated with reductions in upstream crude oil production in California to the LCFS. This is a significant departure from CARB's analysis in the 2018 amendment process that is not explained. The new assumption that the LCFS is responsible for declining oil production in California is vastly overreaching, as there is no evidence that the LCFS has a significant impact on production. A wide range of State policies are driving down oil consumption in California, and California's consumption and

production are not even linearly connected because oil production is driven by global trends rather than State consumption alone. As shown in Figure 2, the 2022 Scoping Plan notes that crude production in California has been on the decline since 1986 – more than two decades prior to the start of the LCFS.³⁵ For these reasons, CARB appropriately excluded upstream GHG and PM/NOx benefits from its cost-benefit analysis in the 2018 rulemaking.³⁶ The ISOR does not offer a clear discussion for why this change in approach is suddenly justified nor does it offer evidence for the LCFS's role in declining domestic production. (45d-383.22)

Comment: Several assumptions CARB made in the CATS modeling that all lead to a significant underestimation of future credit generation. Firstly, the CATS assumes a CI of 61 g/MJ for renewable diesel even though the average CI for renewable diesel in California is in the 30-40 g/MJ CI range. This inflated CI used in the CATS model leads to a significant underestimation of the credit generation from renewable diesel, and thus millions of credits annually are not accounted for in the CATS model. Secondly, CARB seemed to also assume renewable diesel would peak at 2.1 billion gallons per year and then slowly decrease, however renewable diesel is virtually at this volume as of 2023 and only continues to grow as new production comes online. This lower renewable diesel consumption assumed by CARB translates to a higher fossil diesel volume in the CATS model, resulting in higher deficits than what are actually occurring today. Neste also believes that this LCFS rulemaking will eliminate some bottlenecks for ZEV and H2 adoption, further increasing credit generation. This all results in the CATS underestimating credit generation from renewable diesel. (Apr-066.3)

Comment: Unexplained modifications in modeling and analysis. Ultra-low sulfur diesel (ULSD) volumes have varied considerably across the various iterations of analysis supporting the rulemaking process. ICF and others have highlighted specific oddities that call into question some of the changes made in the 15-Day Amendments regarding the volumes of ULSD, and the implications for modeled outcomes of the LCFS program that inform this rulemaking. Specifically: 1.) the baseline ULSD consumption in the most recently published analysis has decreased substantially from what was presented in April 2024; 2.) there is also an unexplained substantial decrease in the ultra-low sulfur diesel in the proposed scenarios, thereby making the most recent Proposed 15-Day Amendments relatively more attractive; 3.) it is unclear why both the starting baseline and the expected market changes in the modeled scenarios have changed so much between iterations. (15d1-185.2)

Agency Response: A change was made in response to these comments. Staff updated the supply assumptions for renewable diesel produced from waste and virgin oils, which increased the total quantity of renewable diesel in both the baseline and proposed scenario modeling. Counter to stakeholder comments about the inputs for the CI of RD, the CATS model has two pathways – one of which is for RD produced from waste oils and has a 33.74 g/CO₂e CI. The resultant CI of RD in CATS entering the market is the weighted average of virgin and waste RD that the model picks. Regarding upstream GHG emission reduction calculations, refer to CEQA RTC R15.1-65. Regarding the 2021 Low Emission Diesel (LED) Study: Biodiesel and Renewable Diesel Emissions in Legacy and New Technology Diesel Engines, please refer to CEQA RTC R22-26. Regarding GHG quantification for the proposed regulation, including interactions with the Renewable Fuel Standard, please refer to CEQA RTC Master

Response 5. Regarding land use change emissions quantification, please refer to CEQA RTC Master Response 2. Regarding the air quality analysis for the Proposed Amendments, please refer to CEQA RTC Master Response 4.

E-2 Multiple Comments: Criteria Air Pollutants

Comment: rather than simply claiming that all potentially significant impacts are unavoidable, require staff to think creatively and reevaluate which impacts can be mitigated or avoided through LCFS requirements. Throughout the Draft Environmental Impact Analysis (EIA), CARB frequently made the determination that the impacts associated with expected compliance responses are Potentially Significant and Unavoidable. Based on this determination, CARB staff will request that the Board issue a Statement of Overriding Considerations. CEQA places the burden on the approving agency to affirmatively show that it has considered feasible mitigation and alternatives that can lessen or avoid identified impacts through a statement of findings for each identified significant impact. I do not believe that CARB has adequately demonstrated that they have considered feasible mitigation and alternatives that could lessen or avoid several potential impacts on air quality. (45d-154.2a)

Comment: CARB staff are not using the latest data on tailpipe PM emissions from vehicles consuming renewable diesel. The ISOR and Draft EIA attribute health benefits to increased use of renewable diesel in California, especially associated with reduced PM2.5. This is based on a 2011 analysis, and ignores a more recent 2021 study prepared for CARB that looks at the NOx and PM from Biodiesel and Renewable Diesel Emissions in Legacy and New Technology Diesel Engines. The key finding in this more recent study is that air quality benefits from older engines are not observed in new technology diesel engines, which are now required in California for the on-road fleets. This undercuts one of the main justifications offered to reject limits on renewable diesel and results in an inaccurate portrayal of the criteria pollutant emission benefits of the proposed amendments in the Draft EIA. Ironically, because renewable diesel does offer PM reductions in older trucks that are still in use elsewhere in the US, concentrating most of US renewable diesel in California does not help Californians but it does harm others across the United States, many of whom reside in overburdened communities. A large percentage of renewable diesel currently consumed in California originates from a region of Louisiana known as Cancer Alley. Residents of Cancer Alley suffer from the additional pollution emitted by newly constructed or expanded renewable diesel refineries but do not benefit from the reduced tailpipe emissions that would occur if the renewable diesel were consumed locally instead of being shipped to California. (45d-154.25)

Comment: The proposal does not consider recent evidence that air quality impacts from biomass-based diesel are higher than previously estimated.

By overlooking recent evidence about biomass-based diesel combustion emissions, the proposal overestimates the air quality benefits of biomass-based diesel. A 2021 study prepared for CARB evaluated the NOx and PM emissions from biomass-based diesel used in legacy and new technology diesel engines.⁴⁴ It found that the air quality benefits of using renewable diesel in legacy engines did not occur in new technology diesel engines.⁴⁵ Given that CARB has taken steps to require use of new technology diesel engines, this study shows that the emissions benefits of using biomass-based diesel in on-road fleets are uncertain and

likely overestimated. CARB must account for this study in its evaluation of the proposal and the regulatory alternatives. (45d-304.12)

Comment: The emission factors used for biofuel production are likely not characteristic of biofuel production in California.

The proposal appears to calculate the air pollution impacts of renewable diesel, renewable gasoline, and alternative jet fuel using emissions factors from a simple oil refinery – specifically, Kern Oil & Refining Co.⁴⁶ This refinery is not characteristic of many refineries in California that are producing biofuels.

Because the Kern refinery is not a complex refinery, its emissions profile is likely very different from other biofuel-producing refineries. The Kern refinery includes a distillation process, a hydrotreater, and a small amount of reforming. Most biofuels in California are produced at refineries that are far more complex. Complex refineries include distillation, catalytic cracking, hydrocracking, alkylation, reforming, desulfurization, sulfur recovery, hydrogen production, coking, in addition to hundreds of thousands of seals for valves, flanges, pumps, and compressors, major storage tank farms, and more, all of which can produce emissions. To produce a more accurate estimate of air pollution from biofuel production, CARB should conduct a more thorough analysis of the refineries that will foreseeably produce biofuels and generate emissions factors that are more characteristic of those from the foreseeable set of biofuel refineries.

In sum, CARB's emissions assumptions are inaccurate and inadequate to support its adoption of the proposal. CARB's failure to assess federal renewable fuels requirements backslides from prior LCFS analyses and violates the additionality requirements. CARB's narrow assumptions about crop-based biofuels render the proposal's land use change analysis arbitrary and capricious. Complete information about emissions impacts from the transition to combustion of biofuels shows lower air quality gains, and CARB's omission of this relevant information is arbitrary and capricious. Finally, CARB must conduct a more thorough analysis of the refineries that will foreseeably produce biofuels before it can rely on any emissions factors for biofuel refineries. Given that CARB's dismissal of the regulatory alternatives relies heavily on the climate and air quality benefits of biomass-based diesel, CARB must update its analysis of the proposal and the comparison to regulatory alternatives. (45d-304.13)

Comment: Criteria pollutant emission reductions associated with the proposed amendments are likely overstated, both because (1) ARB relies on an incorrect assumption about the relationship between in-state oil production and in-state fossil diesel consumption and because (2) ARB relies on outdated assumptions about the California medium and heavy-duty fleets. Over the past fifteen years, ARB has moved aggressively to force diesel retrofits with strong emission controls as well as the advent of advanced technology diesel engines that incorporate stringent emission controls. ARB's own science shows that new and retrofit diesel engines fueled by RD and BD as opposed to fossil diesel do not have lower emissions. Yet the rule, relying on older science that focused on older un-retrofitted diesel engines, makes claims that the rule will provide significant criteria pollutant benefits. ARB staff should correct these assumptions and then recalculate an estimate of the potential criteria pollutant benefits of the different alternatives it has considered...

As we understand this language, ARB's analysis assumed that as post-2007 engines with diesel filters shifted to biodiesel from the reference fuel, PM2.5 emissions would decline to a similar extent as they did when pre-2007 engines switched fuels. However, more recent work – prepared by the same author for ARB in 2021 – found no statistical difference between PM2.5 emissions from biodiesel and ARB's reference fuel for post-2007 engines.¹⁸

We recommend that ARB integrate the best currently available science on the impact of newer diesel engines into its analysis of criteria pollutant benefits of the proposed LCFS amendments. In doing so, ARB should rely on its own pre-existing quantification of the fraction of the on-road diesel fleet today that lack emission controls relative to the fraction that has both selective catalytic reduction and diesel particulate filters.¹⁹ ARB should then ascribe benefits for older diesel engines consistent with the analysis in the ISOR while ascribing a much lower or negligible criteria pollutant benefit to newer advanced diesel engines or retrofitted engines. On net, we believe that this change will significantly reduce the benefit of RD and so reduce the loss of benefits from RD associated with a cap on liquid biofuels.

In its SRIA, ARB makes an assumption that incorrectly inflates the air pollution benefits associated with the proposed rule from the upstream oil and gas sector. ARB's "Assumption 1" is that "[o]il extraction operations in California decline at the same rate that demand for petroleum products declines."²⁰ While such a relationship is theoretically possible, there is also substantial evidence that suggests that these dynamics may be more complex than assumed in the SRIA.

California's production of crude oil has been declining for several decades, whereas diesel demand in California has stayed relatively stable over the last 40 years.²¹ And even if the two figures are related, the rate of decline may be different for crude oil production than for diesel demand, particularly in light of the many other factors that may influence both oil extraction and demand – including out of state activities and actors.²² In particular, the most important factors influencing oil demand in California are the cost to extract California's remaining crude oil resources and the global oil price. Given favorable market conditions, there is no reason to think that crudes from California will not be exported. Given the prevailing conditions, extraction is likely to continue its seemingly inexorable decline, whatever the design of the LCFS. We recommend that ARB eliminate its reliance on this assumption in evaluating the benefits of the proposed LCFS amendments and reduce the criteria pollutant benefits accordingly.²³ (45d-366.7)

Comment: Staff Ignores CARB's Own Research on the Air Quality Impacts of Biofuels.

Staff bases the estimated air quality impacts of biofuels on outdated data. In previous rulemakings, CARB asserted the following:

- BD has higher NOx emissions than fossil diesel.
- RD has lower NOx emissions than fossil diesel.
- RD NOx reductions "offset" the BD NOx increases at BD concentrations of 20% or less.
- BD and RD have lower PM emissions than fossil diesel.

- These findings were from older engines but assumed to apply to newer engines that now dominate the roadways (called New Technology Diesel Engines, or NTDE).

In 2021, CARB posted a study specifically looking at the impact of biofuels on NTDEs. That study found:

- BD NOx has higher emissions than fossil diesel.
- RD NOx has similar emissions to fossil diesel.
- RD cannot offset BD NOx impacts.
- BD and RD have similar PM emissions as fossil diesel.

However, Staff ignore their own 2021 findings in the 2023 LCFS ISOR, stating PM and NOx “emissions test data for renewable diesel in NTDEs were not available,” and “staff conservatively assumed use of renewable diesel in NTDEs results in no change in NOx emissions relative to conventional diesel.”³⁰ Neither of these statements is true. Data are available and a conservative approach would be to protect public health. It is inexplicable that CARB ignored its own, more recent research which measures precisely the question it claims to lack data for. CARB must amend this analysis to fix these egregious errors.

Additionally, the 2021 results were obtained even while using biofuels that do not meet ADF requirements for biofuels.³¹ Using a compliant fuel would likely lead to even higher NOx emissions. Indeed, Earthjustice strongly advises using a soy-based biofuel in future testing. (45d-383.20)

The estimate of fewer air quality benefits is likely due to assumptions on the impact of RD on emissions from diesel vehicles. While RD does provide significant air quality benefits in older vehicles that lack modern emission control devices, CARB’s 2007 Truck and Bus Regulation requires virtually all on-road diesels in California to have PM and NOx control devices, typically diesel particulate filters and selective catalytic reduction systems.¹⁸ A large, and increasing share of non-road diesels are subject to similar emission control regulations. Research supported by CARB found that RD provides no statistically significant emissions benefit when burned in diesels equipped with such devices.¹⁹ UC Davis research on the impact of increased targets in Oregon’s Clean Fuels Program found minimal air quality benefit from RD in 2030 due to the prevalence of modern diesels with emission control devices in their fleet, and forthcoming work on the relative air quality impacts of hydrotreated RD and hydrotreated SAF arrives at a similar conclusion.²⁰ The ISOR does not provide sufficient detail about the methodology used to arrive at its conclusions related to air quality impacts, so we are unable to replicate them, or confirm whether the emissions factors account for the presence of newer diesel engines that meet current regulatory requirements in the California fleet. The air quality work we, and our UC Davis colleagues have produced suggests that appropriately accounting for these effects would dramatically reduce the purported air quality benefit of higher levels of RD in 2030 and beyond. (45d-391.6)

Comment: Staff should be directed to correct the air quality assessment in the Draft Environmental Impact Analysis. It is disappointing to see staff rely on science and mathematics when it is convenient, but then ignore both when they don’t support their point of view. For example, staff clearly believes in statistics when a study shows that a higher rate in

growth of dairies with digesters is not statistically significant (see slide 47 of a recent CARB presentation on dairies), but they don't believe in statistics when a study shows that using renewable diesel in new technology diesel engines does not result in statistically significant reductions in tailpipe emissions (see page viii of the recent Low Emission Diesel Study prepared for CARB7). As a second example, staff continue to assume that a reduction in the consumption of fossil diesel in California will result in a proportional reduction in oil production in California and then attribute the reduced criteria pollutant and GHG emissions associated with the oil production decline to the LCFS (see page B-1 of the SRIA for equations). These calculations ignore the obvious fact that California oil production has been in terminal decline for decades (see figure 1 on page 7 of the California State Oil and Gas Supervisor Annual Report 2020) and oil production will continue to decline rapidly without the LCFS. Furthermore, staff has demonstrated no link between a decline in California refinery output and a decline in oil production in the State. CARB staff should provide the Board with the best available information to make an informed decision, not skew the data and calculations to support a pre-determined policy outcome. It is unfortunate to see CARB selectively use science and mathematics. (15d1-065.7)

Agency Response: No changes were made in response to these comments. Regarding land use change and sustainability provisions in the proposed amendments, please refer to CEQA RTC Master Response 2. Regarding greenhouse gas accounting in the Proposed Amendments, please refer to CEQA RTC Master Response 5. Regarding the LED study, refer to CEQA RTC R22-26. Regarding facility emission factors used in the air quality modeling, refer to CEQA RTC 163-17. Regarding assessment of mitigation measures, refer to CEQA RTC 299-16 and 18. With regard to petroleum extraction emissions quantification, refer to CEQA RTC 15.1-65.

E-3 Multiple Comments: *Cost Modeling*

Comment: Do not ignore the problem of pass-through cost to gasoline consumers. CARB should not be avoiding the discussion of pass-through costs, but rather should be considering all possible means to minimize the pass-through cost while preserving those credit generating opportunities that achieve real, additional emission reductions and/or accelerate the transition to zero emission transportation in California. (45d-154.6)

Comment: The LCFS is Creating Market Distortions with the National Renewable Fuel Standard. We note that the LCFS's continued reliance on BBD feedstocks will necessarily impact other states' ability to meet their own climate goals. Based on a modeling run of the CATS model based on CARB's default inputs published in summer 2023, the modeling suggests that BBD consumption could peak at 2.1 billion gallons in 2025, or more than 70% of the federally mandated BBD volume that year. Current trends in California suggest that California could be at risk of overtaking the volume of BBD mandated under the RFS, which could depress RIN credit prices or trigger the AAM. If the renewable diesel boom in California pushes national BBD consumption beyond annual RFS mandates, this could have significant implications on RIN markets. Gerveri and Irwin have modeled the possibility of a "RIN cliff", where RIN prices fall to \$0 per gallon if the BBD mandate becomes non-binding. Because BBD is the marginal unit of compliance under the RFS, these price implications extend beyond the BBD RIN category. Without an increase in federal BBD mandates or a contraction in BBD

supply, the value of BBD in the U.S. could steeply drop. This risk is even more likely if the AAM is activated given that current CATS modeling projections may understate the level of BBD required for LCFS compliance. (45d-213.7)

Comment: CARB's analysis underestimates revenue impacts to the State's gas tax revenues. CARB estimates that tax revenues will decrease by \$29.2 million⁹ due to "increase[s] in volume of renewable gasoline, ethanol, and renewable diesel fuel sold in the State,"¹⁰ but this estimate does not capture the significant revenue impacts associated with a 90% reduction in gasoline demand, which is the forecasted impact of the proposed amendments. The gas tax provides substantial funding for California's infrastructure projects, which will be needed to meet California's electrification goals and address associated increases in electricity demand. CARB has also adopted several rules designed to reduce gasoline demand (e.g., Advanced Clean Cars II, Advanced Clean Trucks, Advanced Clean Fleets), but has neither assessed the full impacts of this change nor has it addressed how to replace this funding, which leaves the State in a vulnerable position.

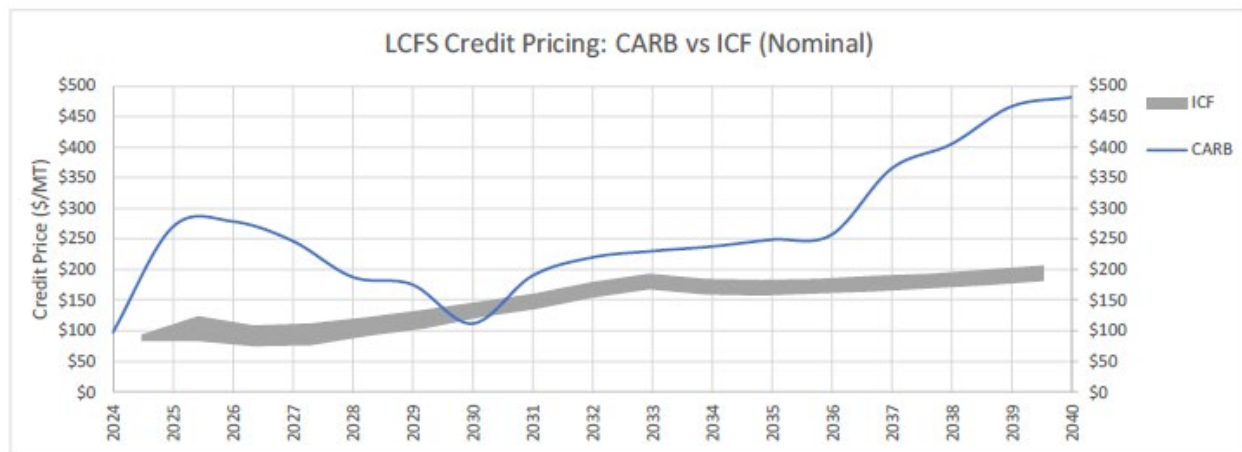
These significant cost increases conflict with ongoing efforts by the California legislature to ease cost burdens associated with California fuels. Senate Bill (SB) X1-2 (2023) directs State agencies to evaluate measures to ensure that petroleum and alternative transportation fuels are adequate, affordable, reliable, and equitable. The California Energy Commission (CEC) estimates that the LCFS Regulation already adds 11 cents per gallon to the cost of California gasoline.¹¹ The impacts of these price increases are significant for California consumers – California continues to face serious supply constraints for transportation fuels, leading energy affordability to be a pressing priority for many Californians. The legislature recognized the importance of these impacts in enacting SB X1-2. CARB must therefore ensure that its revised LCFS program does not further compromise the supply reliability of critical transportation fuels, a consequence of which could increase energy costs and further burden California drivers, conflicting with clear legislative priorities in SB X1-2.

CARB's proposed LCFS Amendments may exacerbate these cost issues by constraining the credit generation for fuels, such as crop-based biofuels and hydrogen, while simultaneously and significantly increasing and potentially accelerating program stringency. Credit prices are also approaching a maximum – CARB estimates that credit prices will reach the program ceiling in 2025 and 2026. As CARB emphasized in 2020, prices beyond this point would create "potential adverse impacts to California consumers."¹² CARB's proposed program amendments would add new limits to credit generating opportunities just as LCFS credit prices approach the price ceiling, exacerbating cost impacts. These combined measures undermine the program's cost-effectiveness, in violation of Health and Safety Code (HSC) § 38560, which requires CARB to ensure that its program amendments are cost-effective. Similarly, HSC § 43018 requires CARB to adopt only necessary, cost-effective, and technologically feasible regulations. California Government Code § 11346.2(b)(4) also requires CARB to consider "reasonable alternatives to the regulation that would lessen any adverse impact on small business," and reasonable alternatives that are "less burdensome." As part of these alternatives, CARB must consider "overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health."¹³ To comply with these provisions, WSPA urges CARB to revise its

proposed program amendments to create a more cost-effective, less burdensome regulatory program that protects a diverse energy portfolio. (45d-241.1)

Comment: To better understand potential market impacts, WSPA requests that CARB release information on how often the AAM could be triggered, using the modeling scenarios CARB developed with the CATS Model. In addition, we recommend that CARB incorporate a robust yearly review as a standard program feature to evaluate the impacts of these structural changes, including the annual status of the credit bank, and the effects on California energy prices. Energy pricing data is readily available, since LCFS-associated costs embedded into all wholesale gasoline sales are required to be reported on a monthly basis pursuant to SB 1322 and SB X1-2.25 CARB should also incorporate a robust consultation process with relevant stakeholders (such as fuel providers and distributors) to better understand potential issues and consider possible unintended consequences during this annual review and before triggering the AAM. (45d-241.12)

CF recommends that Staff make more transparent the credit price modeling so that stakeholders can understand better what is driving the magnitude of credit pricing and the patterns emerging from the data. Staff used an internal estimate of credit pricing as one of the primary reasons for dismissing a higher carbon intensity reduction target in 2030. Staff claim that a higher target will lead to higher costs faced by consumers associated with pass-through compliance costs. However, Staff's forecasting is flawed and effectively implies that the Low Carbon Fuel Standard program will bear the entire cost of subsidizing low carbon fuel production. This analysis is overly pessimistic because it overlooks the substantial value of the Clean Fuel Production Credit via the Inflation Reduction Act, robust pricing from the federal Renewable Fuel Standard, moderate commodity pricing (e.g., for gasoline and diesel), and increasing California carbon allowance prices. The figure below shows a range of ICF forecasted credit prices in grey compared to the Staff credit price forecast in blue line.¹



ICF makes three observations associated with the comparison between Staff's forecast and our forecast:

1. In the near-term future (by 2025), Staff is forecasting a four-fold increase in credit pricing. This forecasted credit price spike coincides with the introduction of the Clean Fuel Production Credit and other substantial Inflation Reduction Act incentives that

will be flowing to the low carbon fuel market and reducing pressure on the Low Carbon Fuel Standard program.

2. In a post 2030 environment, though the two curves are showing similar patterns of increasing credit prices, Staff's forecast is still \$60-65/ton higher than ICF.
3. Post-2035, Staff's forecasts are suggesting that a credit price of \$250 to nearly \$500/ton is needed to achieve program compliance. There is no reason that the credit price should ever need to be that high to induce the investments necessary to achieve compliance based on ICF modeling. (45d-335.3, 45d-384.3)

Comment: Regarding the CATS model, I'd like to highlight what I view to be an improper implementation of the credit bank. While the bank has nominally been included, banked credits are only made available at the price ceiling where the supply of credits is effectively unlimited already. This effectively means the CATS model ignores the entire bank. In reality, banked credits will be available at much lower prices, especially when considering the lack of ambition around this proposed rulemaking. Correcting this assumption would show much lower credit prices going forward, even leaving the rest of the CATS model unchanged.

I also believe the CATS model is showing a misunderstanding of the state of the renewable diesel market. California is already consuming more RD than the CATS long-term projections of RD supply. I don't have specific recommendations for fixing the model, but suggest interpreting the results with extreme caution in light of this. (45d-352.2)

Comment: Although ARB included a relatively robust distributional analysis in the SRIA, it was largely omitted from the ISOR. We believe that, particularly for the proposed amendments to the LCFS—that will increase the degree that gasoline prices are impacted by the LCFS, —a distributional analysis is essential to fully understanding the consequences of the rule for low and moderate-income Californians. The proposed LCFS amendments, through simultaneous increases in credit prices and elevated carbon intensity reductions for fuel suppliers, necessitate a detailed examination of their combined impact. We recommend that ARB staff revise the ISOR to incorporate a thorough and robust analysis of the effects arising from deeper CI reductions, higher credit prices and the newly proposed Automatic Acceleration Mechanism before presentation to the Board...

Estimates of the cost of installing and operating dairy manure methane digesters vary and range from as little as \$30/ton to as high as \$90/ton. Today, LCFS prices are in the middle of this range – as of this writing, \$65/credit. ARB staff has stated concerns that additional digesters will not come online consistent with their goals for the sector if book-and-claim, which critics point out does not consider additionality, is eliminated.

But ARB has also created a second pathway for digesters to access revenue from carbon markets in California – via a compliance grade offset in the cap-and-trade program.¹¹ Uptake of this opportunity has been limited: both because until very recently, allowance prices in cap-and-trade were below \$30, and also because during the same time, credit prices in the LCFS were close to \$200. However, ARB's own modelling¹² indicates that by 2030, the most likely outcome for all scenarios considered in cap-and-trade, so long as the program is extended, is that allowance prices will be at the price ceiling – in 2030 equal to \$110/ton. If LCFS credits have been sufficient to incentivize methane digester installation, it stands to reason that the much higher allowance and offset price would as well.

The interaction between the LCFS and the CAT is therefore critical in evaluating the emissions impact and affordability of the two programs. Because the current ISOR does not evaluate this crucial policy interaction between California's flagship climate policies, ARB cannot yet fully understand even near-term impacts from the ISOR. We recommend that ARB conduct an analysis of the joint impacts of proposed amendments to the LCFS and cap-and-trade and revise the ISOR to reflect these results.

Though ARB staff included a discussion of expected distributional effects in the Supplementary Regulatory Impact Analysis (SRIA) for the proposed amendments to the LCFS, it omitted the qualitative distributional analysis from the ISOR – a widely-circulated and relied-upon document for decisionmakers. The ISOR should, at a minimum, contain a robust discussion of expected distributional effects. To do so is essential, and aligns with the purpose of ISOR documents—to provide comprehensive and accessible information about proposed regulations. Moreover, clarity about distributional consequences improves the regulatory process for decisionmakers and the public. An improved and transparent understanding of these consequences will support CARB in its pursuit of environmental justice.

At minimum, the ISOR should incorporate a qualitative distributional analysis because a key function of the ISOR is to provide comprehensive and accessible information about proposed regulations – including explanations and justifications – to the public and decisionmakers. For the ISOR to be accessible and comprehensive, it must transparently discuss relevant information. Information about the distribution of effects is particularly relevant for the proposed amendments to the LCFS because, as discussed in the SRIA, low-income, disadvantaged, and rural communities may bear a disproportionate share of the costs of the amendments.²⁷

Information about distributional effects of the proposed amendments is also relevant because any social welfare analysis – which is commonly used to justify proposed regulation – should, at a minimum, contain a discussion of likely distributional effects.²⁸ Social welfare analysis without distributional analysis clouds the understanding of the possible consequences of proposed and alternative regulations for the public and decisionmakers. For example, if a report only contains information about aggregate effects, it could obscure that a historically marginalized group will be uniquely burdened by the costs of a rule. A clear discussion about this in the ISOR makes essential information accessible to the public and decisionmakers.

Moreover, the ISOR should include a distributional analysis because clarity about the possible distribution of effects is beneficial to the regulatory process. To begin, clarity about the full distributional consequences of a proposal allows regulators to evaluate their normative choices. For example, a clear distributional analysis that discusses a likelihood that the proposed amendments will increase the financial burden for low-income, disadvantaged, and rural communities while alleviating their pollution exposure reveals a regulatory choice to prioritize alleviating environmental burdens. (A normative statement that aligns with this choice could be “ARB should prioritize ameliorating pollution exposure”).

This transparency about expected consequences also allows regulators to more precisely identify action needed to alleviate inequitable social outcomes. For example, if the expected financial cost to low-income, disadvantaged, and rural communities is estimated to be overly burdensome, then decisionmakers can better prepare to provide material support to these communities.

Moreover, including a clear distributional analysis in the ISOR can provide an accountability mechanism for regulators with the public. For example, if ARB clearly communicates to the public that low-income, disadvantaged, and rural communities may be financially burdened, then the public can advocate for alternatives that avoid this consequence or for remedies to address it.

Finally, the clarity and additional benefits for the regulatory process associated with including a distributional analysis in the ISOR also support the pursuit of environmental justice – a core aspiration of ARB.²⁹ Environmental justice is defined in state law, which identifies meaningful engagement with the public as central to the pursuit of environmental justice.³⁰

Clear communication of the consequences of regulation is necessary for achieving that meaningful engagement.

This inclusive approach also ensures transparency about the full spectrum of expected consequences, facilitates informed decisionmaking and fosters meaningful public engagement. By incorporating distributional analysis into the ISOR, ARB can demonstrate its commitment to equitable regulatory practices and contribute to a more informed and participatory rulemaking process.

In summary, we recommend that ARB staff revise the ISOR to include distributional analysis because distributional analysis aligns with the goals of providing comprehensive and accessible information, improving the regulatory process for decisionmakers and the public, and pursuing environmental justice. (45d-366.8)

Comment: While this program has many benefits overall, it is also important to note that the LCFS program comes with a cost—this program is specifically designed to achieve greater emissions reductions from transportation fuels over time by effectively taxing higher-CI fuels while subsidizing lower-CI fuels.³ CARB must account for these costs in considering program revisions. (Apr-094.1)

Comment: While CARB estimates that renewable diesel volumes will grow to more than 3 billion gallons as a result of the CI target step-down that aligns more closely with our own projections modeled in our April 10th workshop comments, we find that none of the updates to the ISOR scenario and data published following the April 10th LCFS workshop make any adjustments to lipid fuel conversion costs or feedstock availability. In our previous comments, we noted that CATS model refinery conversion costs for renewable diesel were far higher than values reported in the literature and market data (roughly \$1,000 per ton), and had potentially mistakenly included feedstock cost within the conversion cost. Brown et al. (2020), Witcover and Williams (2020) and Pavlenko et al. (2019) estimate the levelized cost for hydroprocessed fuels, with estimates ranging from approximately \$3.50 to \$5.50 per gallon, adjusted for inflation.³⁹ Drawing from the analysis of Pavlenko et al. (2019), we estimated that the non-feedstock conversion costs alone were roughly \$300 per ton for soy renewable diesel, suggesting a slight price premium vs. conventional soy biodiesel (\$100/ton), but substantially lower than the original assumption.

ICCT's projections for RD growth published in our April workshop comments are consequently higher than CARB's estimates due to adjustments we made to the vegetable and waste oil supply curves and renewable diesel refinery conversion costs.⁴⁰ Recent changes to the

proposed amendments (i.e., 15-day package) may change this trajectory. Using the same conversion costs and feedstock supply curve as in ICCT's April 2024 comments, we estimate the compliance trajectory of lipid-based biofuel compliance (including SAF's) in response to the central compliance scenario modeled by CARB in the 15-day package. We find that there is overall a higher volume of renewable diesel consumed in the transport sector in the ICCT scenario, due to the lower production costs. Whereas the share of biofuels in the diesel mix peaks at 90% in the CARB proposal in 2025 and then declines, the ICCT scenario reaches 100% BBD blending in 2027 and stabilizes. This suggests that the CARB scenario may still be understating the impact of the proposal on lipid demand, and further, given that the bulk of the growth occurs before 2028, is stimulating demand before the vegetable oil crediting limit tightens. (15d1-219.25)

Comment: Revise proposals after analyzing the impacts on fuel supply, consumer costs, and for aviation (SAF) in particular. SAF production in the US and abroad is strongly linked to RD production when using HEFA technology. Unfortunately, most HEFA SAF plants cannot be designed to only produce SAF. The 15-day package changes the economics of RD/SAF plants.

Per the International Air Transport Association (IATA) that represents airlines globally, the aviation sector has a goal to achieve net zero carbon emissions by 2050 as part of their Fly Net Zero campaign ¹⁰. As shown below in Figure 2, IATA projects that SAF will represent at least 65% of the carbon emissions reductions in the aviation sector. The reason SAF represents such a large part of the aviation sector's decarbonization strategy is because there is no technology besides SAF that can decarbonize flights in the medium to long-haul categories. As shown below in Figure 3, the Waypoint 2050 study estimates that medium to long-haul flights represent ~73% of the aviation sector's emissions, and that SAF is the only viable decarbonization technology for such flights (see page 48 of report) ¹¹. Therefore it is essential that agencies such as CARB prioritize policies that incentivize the production and use of SAF so that necessary SAF investments can be made. To meet the decarbonization goals of the aviation sector, IATA has outlined the following four policy measures needed to boost SAF production. ¹³

- Diversify feedstocks
- Co-processing
- Incentives to improve the output mix at renewable fuel facilities
- Incentives to boost investments in renewable fuel production

This proposed 15-day package is counter to all four of IATA's recommendations for SAF policy measures because CARB is proposing to limit feedstocks, complicate investments in new SAF production such as co-processing, impact economic incentives for SAF and RD production and perhaps yield overall reductions in renewable fuel production. CARB could also cause California, and the U.S. as whole, to forgo the huge economic potential of domestic SAF production as outlined in a recent study ¹⁴. It is estimated that SAF expenditures could total nearly \$1.5 trillion between 2025 and 2050, and create an estimated 400,000 new jobs in the U.S. (15d1-228.18)

Comment: In addition, CARB's economic assumptions in drafting the proposed LCFS Amendment, as described in the Standardized Regulatory Impact Assessment ("SRIA"), anticipated that the costs of CARBOB producers would be passed along to consumers. CARB did not anticipate that this would occur with ethanol producers, reasoning that ethanol is a credit generator constituting 10% of each volume of gasoline.³ However, if the majority of ethanol now generates a CARBOB CI value under the Second Change, ethanol will be a deficit generator whose costs may be passed on to the consumer. (15d2-297.2)

Comment: In addition, CARB's economic analysis assumed local tax revenue from ethanol sales, even noting that declining gasoline excise taxes would be partially offset by higher volumes of ethanol.⁴ However, by assigning a CARBOB CI value to the majority of ethanol, it is far more likely that ethanol volumes into the state will significantly decline well before 2046 and the local tax revenues will not be offset as anticipated. CARB's economic analysis for the LCFS Amendment does not reflect the effects of the Second Change on ethanol in the state. (15d2-297.3)

Agency Response: Changes were made in response to these comments. See below for responses to the specific items raised in these comments:

Staff agrees that there is significant uncertainty with regard to future volumes of biomass-based diesel (BBD), given that BBD volumes have already exceeded the renewable volume obligation (RVO) established by EPA. Staff could not forecast future renewable identification number (RIN) prices in the modeling, and used historical RIN values as a snapshot in time to simulate the subsidy value provided by the renewable fuels standard program. Staff published Attachment C: LCFS Fuels and Credit Market Modeling, with the release of the 1st 15-day changes package, which highlighted the uncertainty associated with predicting future BBD volumes and modeled the potential impacts of less BBD consumption. As stated in Attachment C, "If key market factors align and credit generation exceeds what is needed to comply, the AAM may be triggered as designed to improve program efficacy. However, a 30% 2030 target provides a balanced path forward that achieves substantial greenhouse gas reductions while acknowledging the potential for future lags in ZEV adoption and RD consumption."

Staff did not model future market impacts or offset prices associated with any potential changes to the Cap-and-Trade regulation. At this time, there is no regulatory proposal to update the Cap-and-Trade regulation and using any future cap-and-trade impacts or prices in LCFS modeling would be speculative and inaccurate. It is also worth noting that there may be other local, state, and federal policies that require compliance action besides just the Cap-and-Trade Program. The comprehensive costs of achieving the state's climate targets are analyzed in the periodic updates to the AB 32 Scoping Plan. The 2022 Scoping Plan Update leveraged needed regulations to achieve the federal and state health protective air quality standards and layered in additional action to achieve the SB 32 and AB 1279 climate targets. That analysis also includes cost savings due to fuel switching for households and the avoided costs of climate damages and health impacts. The 2022 Scoping Plan Update is estimated to cut air pollution by 71%, cut greenhouse gas emissions by 85%, drop gas consumption by 94%, support

the creation of 4 million new jobs, and save Californian's \$200 billion in health costs in just single year 2045.

State taxes were calculated as compared to the regulation's baseline case which includes ZEV regulations. Each of CARB's regulations accounts for potential fiscal impacts to state and local government, and though outside the scope of this analysis, State policy efforts continue to explore replacement revenue sources in light of the need for the zero emission transition and the continuing need to fund vital services. Additionally, staff expect that ethanol will continue to enter the market after it becomes deficit-generating because 1) it incurs fewer deficits than gasoline and therefore can be used as a cost-saving strategy, 2) E10 was adopted in California prior to the establishment of the LCFS as a means of reducing air pollutants for regions in non-attainment of Federal ambient ozone standards, therefore suggesting that deployment of the fuel is not LCFS-dependent.

Regarding transparency around the CATS credit price output, staff held multiple public workshops to discuss the CATS model and also provided technical model documentation and the input and output workbooks associated with the proposed regulation and the alternatives and concepts within the ISOR, April Workshop, 15-day package, and EIA. Staff additionally met directly with stakeholders who conducted their own modeling to better understand the inputs and assumptions that led to differing outputs. In the near term, some stakeholders presented more bullish estimates of low-CI feedstock availability like waste and virgin biofuel oil feedstocks at moderate credit prices, while other stakeholders provided estimates that suggest global supply lines are already overextended, especially in regards to crop-based biofuel feedstocks.

Based on stakeholder comments regarding RD supply and pricing, staff reviewed the linear regressions used to estimate fixed/conversion costs, conversion efficiencies, and feedstock supply cost for RD, BD, and AJF in CATS, and made adjustments to the feedstock supply curve that better reflect current market data trends. Staff maintained the original CATS methodology for estimating production costs and feedstock availability since it reflects actual pricing data through 2022 from the spot market that may better reflect the post-pandemic labor and commodity markets.

As an optimization model, the CATS model would need specific values for banked credits. Since credit holders may choose to sell credits at prices of their choosing, such as bundled with other products, and market participants are likely to optimize the timing and price of their sale dependent on both current market conditions and their need to hold credits as a buffer/hedge against future prices, staff did not feel it was reasonable to speculate a particular sale price or set of prices at which banked credits would be sold and instead chose to assume that sellers would seek to obtain the highest value possible (the price ceiling). As stated by the commenter, banked credits may be sold below the price ceiling, and if sold in large quantities could result in lower credit prices than projected. Instead of raising targets to a level that would guarantee banked credits were fully sold, staff's proposed scenario includes a 9% step down that staff expect will help balance the market while leaving flexibility in light of rapidly shifting global market conditions. To try and reduce some of the uncertainty associated with credit production

outpacing deficit generation, staff incorporated a transparent AAM which will increase CI targets if credit generation continues to grow faster as part of a longer-term trend than deficit generation and holders of the credit bank are not incented to sell due to low market prices.

With regard to potential pass-through costs associated with the Proposed Amendments, see H-1. With regard to the cost-effectiveness of the Proposed Amendments, see response to comment E-4.

E-4 Multiple Comments: *CI Target Modeling*

Comment: We find that the model takes until 2025 to increase demand for BBD to present-day 2023 consumption, and the model’s inability to assess the AAM prevents us from evaluating how high near-term credit prices could further accelerate demand for BBD in the near-term. (45d-213.8)

Comment: analysis of the ISOR and supporting documentation, we found it challenging to identify and validate with certainty the assumptions regarding future EV volumes—and therefore future consumption of electricity as a transportation fuel—that underpin the agency’s modeling. Underestimating future EV volumes would result in a conservative policy recommendation.

Rivian consulted the ISOR, the Standardized Regulatory Impact Assessment (“SRIA”), and the California Transportation Supply (“CATS”) Model technical documentation cited by the SRIA.⁶ We did not find a downloadable data file plainly documenting the EV stock and electricity consumption estimates underpinning the modeling conducted to support the ISOR. We respectfully request that CARB furnish this information, providing stakeholders with an unambiguous understanding of the EV population and energy demand figures relied upon by the staff.

What the SRIA and CATS documentation do provide, however, are narrative descriptions of the key assumptions. Specifically, we understand that annual light-duty EV stocks follow the Scoping Plan’s Proposed Scenario while heavy-duty EV stock numbers reflect those in EMFAC2021 v.1.02.7. However, this raises at least two issues for clarification by staff.

- EV stock estimates in the Scoping Plan’s Proposed Scenario do not reflect those found in other sources, including the dashboard maintained by the California Energy Commission (“CEC”). According to the CEC, EVs numbered approximately 1.1 million in California at the end of 2022, the last year for which CEC data are available.⁸ Yet the Scoping Plan’s Proposed Scenario estimates just 738,428 EVs on the road that year.⁹ Similar discrepancies exist between the CEC and the Scoping Plan’s Proposed Scenario for EV sales. To the extent that the Scoping Plan’s assumptions consistently understate or are behind the curve of the true pace of vehicle electrification in the California market, it will affect the modeling of CI reduction targets.
- To the best of our knowledge, EMFAC2021 does not incorporate expected compliance with the Advanced Clean Fleets (“ACF”) rule.¹⁰ CARB promulgated ACF after finalization of EMFAC2021. Yet the SRIA states clearly that ACF is “represented in the baseline.”¹¹ The CATS documentation states that heavy-duty stock numbers,

specifically, flow from EMFAC2021 but that the BEV-FCEV split mirrors the adjustment factors used in the ACF's development.¹² Ultimately, we find the combined descriptions opaque and remain unsure of the MHD EV stock assumptions used in the ISOR. If staff modified EMFAC2021 or took other steps to account for ACF, the ISOR and supporting documentation should explicitly say so.

To clarify these issues, Rivian recommends that CARB publish its EV stock assumptions in a clear and digestible format for stakeholder review. At a minimum, publishing a clear database of model inputs aids transparency and would avoid confusion. An accurate, verifiable, and up-to-date picture of the on-road EV population in California is vital for developing an LCFS regulation that maximizes its potential. (45d-228.10)

Comment: Finally, CARB should consider the role that new federal incentives may play in deployment of heavy-duty electric vehicles. Federally, numerous heavy-duty electrification grants, demonstration programs, incentives, and infrastructure incentives were included in the Infrastructure Investment and Jobs Act of 2021.⁴⁷ The IRA also has established programs, such as the Clean Heavy-Duty Vehicles Program, to address climate change by reducing GHG emissions and improve the air quality through the acquisition and use of zero-emission vehicles.⁴⁸ The program directs EPA to award a total of \$1 billion through grants and rebates to eligible recipients (e.g., states and municipalities) to replace existing heavy-duty vehicles with clean zero-emission vehicles and develop zero-emission vehicle infrastructure. The funding can be applied to up to 100% of the incremental costs of replacing an eligible heavy-duty vehicle with a zero-emission vehicle. It can also be used for other activities such as purchasing, installing, operating, and maintaining infrastructure needed to fuel or maintain zero-emission vehicles. The federal government also recently launched its Commercial Clean Vehicle Credit providing up to \$40,000 per truck in tax credits.⁴⁹

CARB should ensure it utilizes the universe of manufacturers' significant public EV deployment commitments in implementing a stringent LCFS, and the agency can mitigate any retrenchment in those commitments by maintaining an adequate light-duty Clean Fuel Rewards program as discussed in Section II.c.i. below. (45d-353.1)

Comment: The rulemaking to date suffers from a lack of transparency because ARB staff has declined to release the CATS model input files upon which many of its conclusions are based. While ARB did release GREET modeling, which explains its views of life cycle accounting issues related to the rule amendments, the failure to release input and output files for CATS related to all alternatives considered for the ISOR fundamentally limits stakeholder opportunity to understand, let alone comment on, the proposals under consideration. We ask that before ARB staff brings the proposal before the Board, that staff release these files and allow an additional round of public comment... To Enable Fulsome Review of the Proposed Amendments, CARB Should Provide the Inputs to its CATS Modeling, Consider Extending the Comment Period, and Hold Additional Community Meetings... Written communication with ARB staff⁴ has indicated that they intend to release nothing more than the V0 sample input file published as a part of the public meeting to describe ARBs improvements to the CATS model (V0.2). The publicly-available CATS input file released on August 16th, 2023, is an example baseline that requires further modifications, such as current producers, market behavior and actual feedstock trends to resolve the model accurately. Without that information, stakeholders

will not have a meaningful opportunity to comment on the proposed amendments to the LCFS or the discussion of alternatives in the ISOR.

If ARB were to release these files, all parties to the rulemaking would also require additional time to evaluate and provide comment on the CATS model data – both the input assumptions and the output files for different alternatives. We therefore recommend that ARB release the CATS model data as soon as possible and then provide additional time for parties to comment prior to moving forward with the proposals contained in the ISOR. (45d-366.1)

Comment: As recently stated by Jim Bushnell with respect to the ARB administered cap-and-trade program, the LCFS is entering its “teenage years.”² This has several important implications – including a greater need to consider distributional impacts as the program matures, as well as the interaction between the cap-and-trade and LCFS programs and lastly, that combination’s cumulative impacts. The ISOR does not evaluate this interaction, even though there is a parallel rulemaking in its early phases to significantly strengthen the cap-and-trade targets to 2030. The impacts of these programs cannot be understood in isolation and ARB needs to evaluate them together to understand both environmental and socioeconomic impacts before the Board should consider votes on proposals to amend either program...

When the stringency of the LCFS is increased, any additional emissions reductions from the transportation create additional room under the emissions cap that may be filled by other sectors, if the emissions cap level is unchanged. In this way, increasing the stringency of the LCFS will further reduce emissions from transportation within California, but at the same time allow other sectors to emit more under the cap. The net will be unchanged emissions unless leakage occurs (see below).

Accordingly, a more stringent LCFS depresses cap-and-trade program allowance prices and allows emissions in other sectors to replace some of the reductions from the LCFS—reducing the effectiveness of the policy and altering the true emissions reductions it achieves. This has been referred to as the ‘waterbed effect’.⁵ Additionally, depressing cap-and-trade program allowance prices contribute to reduced revenue from the cap-and-trade program available for funding California’s climate programs through the Greenhouse Gas Reduction Fund. We recommend that ARB staff reevaluate the estimated GHG emission reductions of the proposed amendments to the LCFS, taking into account the interaction with cap-and-trade...

In combination with strengthened 2030 LCFS ambition and the potential for multiple triggers of the proposed LCFS Automatic Acceleration Mechanism due to the growth of RD supply,¹⁰ a scenario is likely in which cumulative consumer price impacts could be quite substantial by the late 2020s – amounting to significantly more than \$1.50 per gallon of gasoline. (45d-366.2)

Comment: We believe that given rates of change in the sector, a more cautious and short-term policy is more prudent. We recommend that ARB adopt a policy that sets incentives until 2035 and then reconsider the regulation in the early 2030s or thereabouts based on the facts at that point...

The future for medium and heavy-duty ZEV technology is much less certain, however. It may be that the challenges of electrifying these fleets are overcome through a combination of innovation and smart policy support. It may also be that some or even a large fraction of these

vehicles continues to rely on either liquid (RD and BD) or gaseous fuels (for example green or blue hydrogen). Despite what ARB staff CATS modelling in the ISOR and the recent 2022 Scoping Plan Update seems to indicate, how this transition will play out is fundamentally uncertain at this point – even for the early 2030s. (45d-366.3)

Comment: Unfortunately, Staff's use of the California Transportation Supply (CATS) model does not allow for electric vehicle (EV) deployment to be dynamically modeled, so the benefits of electrification pathways are fixed under all scenarios. But it is unrealistic to assume that re-focusing the LCFS's subsidy towards electrification pathways would have no impact on the breadth or immediacy of EV deployment. Researchers at Stanford found that capping lipid biofuels— as well as eliminating avoided methane credits—would unleash an additional \$19 billion from the LCFS to electrification pathways, and it is reasonable to assume that such a large infusion of funding will propel deployment of electric cars and trucks beyond current levels.³⁸ These zero-emission vehicles deliver real air quality benefits, yet that additional benefit is traded against illusory reductions that rely on faulty assumptions. (45d-383.24)

Comment: We are appreciative of CARB's recent updates to the California Transportation Supply (CATS) Model, which now incorporates the benefits of carbon capture utilization and sequestration (CCUS) in bioethanol production. This revision, prompted by incentives in the Inflation Reduction Act, significantly lowers the assumed carbon intensity of E85, facilitating a more substantial GHG reduction in California. The widespread use of E85, particularly in over 1.3 million flex-fuel vehicles within the state, underscores the potential for further emission reductions and supports our advocacy for enhanced FFV production and E85 availability. (Apr-033.2)

Comment: Renewable Diesel/Biodiesel Percentage on Slides 22-23: CARB seems to be assuming that the renewable diesel/biodiesel percentage will be in the 47% range in 2030, when in fact it is already 66% as of 4th quarter 2023³⁸. This is a rather large difference and should be updated in upcoming presentations/modeling. (Apr-066-14)

Comment: UCO Pricing Information on Slide 37: CARB seems to be using inflated UCO prices, and we recommend that CARB refer to Jacobsen or Argus for more accurate pricing data. CARB assumes about \$2000 per ton of UCO when the price is closer to \$1000 per ton. It must also be noted that any cap on crop-based feedstocks will put pressure on UCO and increase costs for consumers. (Apr-066-15)

Comment: Staff should evaluate at least one scenario in which diesel consumption is rapidly replaced by 100 percent bio-based diesel (by 2028) and evaluate the implications for global vegetable oil markets and LCFS credit markets.

The future trajectory of California's renewable diesel market is quite uncertain, subject to many factors, only a few of which are captured in the CATS model, and many outside the control of California regulators. It is not realistic to expect any model to accurately predict the future. However, for the purpose of evaluating the proposed LCFS amendments, it is extremely important to consider the very plausible scenarios that renewable diesel boom continues until the diesel market is saturated with bio-based diesel. (Apr-086.3)

Comment: A critical issue impacting CARB's insufficient step change proposals is that CARB's models provided in the latest workshop¹² systematically under-estimate credit generation in the near-term. The six modeled scenarios all show renewable diesel consumption falling, in some cases to nearly half the current rate of consumption, between 2024 and 2030; in the absence of a crop-based biofuel cap, there is no reason to believe that renewable diesel consumption would decline in this timeframe. (Apr-091.9)

Comment: The six modeled scenarios also show RNG volume declining between 2024 and 2030; again, in the absence of an accelerated phase out of Avoided Methane Crediting there is no reason to believe that RNG consumption would decline in this timeframe. (Apr-091-10)

Comment: The six modeled scenarios show light-duty electric vehicle charging not reaching the current rate of EV charging until 2026, again showing a systemic under-estimate of near-term credit production. Taken together, these systemic underestimates of near-term credit generation create a similar underestimation of the stepdown necessary to stabilize the LCFS program. (Apr-091-11)

Comment: CARB has provided little to no insight into its expectations on the impact of fuels that will shortly go from credit generators to deficit generators. The impact of this change on markets and the ability of some fuel supplies to manage this transition could significantly impact on the LCFS program. (Apr-094.19)

Comment: While we appreciate that CARB has based its transportation fuel mix projections in the proposed revisions on the 2022 Scoping Plan Update, it is still important that CARB plans for a scenario where these ambitious goals are not easily achieved. For example, reductions in Vehicle Miles Traveled (VMT) have fallen short of the ambitious targets in the Scoping Plan due to structural issues and challenges in changing behavior. (Apr-094.30)

Comment: The LCFS program faces challenges in reducing consumer demand for liquid transportation fuels due to ongoing permitting challenges, investment constraints, and growing electricity affordability concerns towards rapidly electrifying the transportation sector and buildings, which lead to continued reliance (and potentially increased reliance) on liquid fuels. Also, in recent quarters, as recently reported by the California Energy Commission,²⁹ zero emission vehicle (ZEV) demand has declined for three straight quarters, which may result in higher liquid fuel demand, and therefore higher LCFS deficit generation, than CARB's modeled assumptions. (Apr-094.31)

Comment: The proposed VMT reduction targets in CARB's draft 2022 Scoping Plan Update were 12% below 2019 levels by 2030 and 22% below by 2045 – presumably significant factors in CARB's modeling. The Recirculated Environmental Assessment to that Scoping Plan included even more aggressive VMT reductions. CARB's staff presentation, on slides 22 and 23, reflects a significant decrease in transportation energy usage from 2022 to 2045 despite the State's previous failure to achieve VMT reductions under Senate Bill (SB) 375 (2008). WSPA notes that the increased use of lower-CI fuels could provide GHG reductions with much greater certainty than VMT reduction assumptions. Particularly given that these types of VMT reductions are dependent on factors outside of CARB's purview (e.g., employment rates, fuel prices, job and housing balances, and availability of affordable housing). (Apr-094.32)

Comment: 85, Flex-Fuel Vehicles, and CCUS

Growth Energy appreciates CARB's August 2023 updates to the California Transportation Supply (CATS) Model that recognizes the value of carbon capture utilization and sequestration (CCUS) in carbon reduction during bioethanol production. (Apr- 096.2)

Comment: We also note several possible errors in CARB's modeling analysis, suggesting that additional analytical work may be necessary to update the model and properly evaluate the proposed 15-day changes. These include several issues: The CATS model inputs hard-code substantial increase in SAF deployment despite the removal of the aviation fuel obligation in the LCFS, as well as a simultaneous substantial decline in the benchmark for conventional jet fuel. In the model results, this leads to a decline in the average CI of jet fuel to approximately 74 gCO₂e/MJ by 2030 in the central scenario. The modelers assume that the hard-coded increase in SAF production will come from waste oils, despite the parallel exclusion of virgin vegetable oil-derived SAF's from crediting that is proposed for road sector fuels. (15d1-219.26)

Comment: As noted in our April comments, the model and inputs still do not correctly quantify the treatment of biomethane-derived CNG in the ISOR. Though certified pathways approved prior to 2030 are allowed to be grandfathered for multiple 10-year periods, the quantity of CNG credited abruptly declines to 0 in 2030 in the central scenario. (15d1-219.27)

Comment: The quantity of infrastructure credits is the same between the ISOR and the 15-day package, despite the change from the ISOR. (15d1-219.28)

Comment: There is likely a model input error for fixed-guideway transit, eCargo Handling Equipment, and refrigeration equipment. Starting in the mid-2020s, the model assumes that the credit generation for these pathways will remain fixed and stays constant each year. However, as the policy benchmark is declining each year, the difference between the electricity CI for these pathways and the benchmark should be narrowing, resulting in fewer credits each subsequent year. (15d1-219.29)

Comment: However, the modeling CARB presented as part of this 15-day package does not reflect that, making Neste question the accuracy of the environmental analysis for this 15-day package. Figure 5 below shows how fossil diesel fared in this 15-day package, and Neste would expect the April 9 the Proposed Scenario (pulled from 45-day package) shown in blue below to be identical to the August 12 the Baseline Scenario shown in green below. That is not the case, and there is no explanation for the decrease in fossil diesel use shown from 2023 through 2025 under the August 12 the Proposed Scenario shown in black.

Under the August 12 the Proposed Scenario (black line) CARB is showing three different things that cannot occur at the same time: 1) fossil diesel use to drop to 0.5 billion gallons consumed in 2025, 2) 0.5 billion gallons of fossil diesel, would mean RD use would be close to 3 billion gallons and/or significant electrification of heavy-duty trucks, and 3) credit price at \$150-220/tonne. First, if the annual fossil diesel use dropped to 0.5 billion gallons, and rest of the diesel needed would be replaced by RD or ZEVs, the credit market would be far from balanced in 2025 and the price far from \$150-220. Secondly, CARB is heavily underestimating overall diesel demand. With the current trajectory until 2025, Neste estimates liquid diesel demand to be 3.5 - 3.8 billion gallons. This means that in the 0.5 billion gallon fossil diesel scenario, RD usage should be ~3 billion gallons, which could theoretically happen, however it is very unlikely at current low credit prices. If overall liquid diesel demand dropped to 3 billion

gallons as modeled by CARB, then there should be 10x more heavy-duty ZEVs on the roads in 2025. This scenario is even less likely than RD usage of 3 billion gallons. CARB's modeling simply does not make sense and the implications are risky negative impacts to the diesel market and other unintended consequences from this 15-day package. (15d1-228.21)

Comment: ICF also found that CARB did not correctly calculate the fossil diesel baseline as part of the 45-day package. ICF determined that CARB should only add CH₄ and N₂O tailpipe emissions and not CO₂ because they are biogenic. The diesel baseline should therefore be 103.19 g/MJ and not 105.76g/MJ. This further changes the CATS modeling results because the diesel baselines shifts credit/deficit generation for diesel.

Agency Response: Changes were made in response to these comments.

Regarding renewable diesel volumes: Following the ISOR, staff updated renewable diesel supply curves based on stakeholder comments to better reflect market data and calibrate supply to volumes already entering the market in 2023, which resulted in an increase of renewable diesel supply within the modeling for both the baseline and the proposed scenarios. This change led the average annual biomass-based diesel (BBD) entering the market under the proposed amendments to increase from 925 million gallons to 2,569 million gallons (only 300 million gallons more than entered the market in 2023). The proposed amendments analysis shown in April reflected this change. While this didn't result in greater net GHG reductions (because the baseline scenario also reflected increased BBD use), it created additional low-cost credits to meet the annual CI targets.

Regarding comments related to exogenous and Federal incentives – please refer to CEQA RTC Master Response 5. See response to comment E-3 with regard to interactions with Cap and Trade.

Regarding comments about dynamic market conditions, including changing Renewable Fuel Standard (RFS) subsidy prices and federal tax credits, the CATS model is not a dynamic model, and staff are required to base their analysis on projections that align with existing CARB ZEV regulations. Staff released Attachment C to the First 15-day Notice: LCFS Fuels and Credit Market Modeling, to explore uncertainty scenarios associated with slower ZEV penetration in the market. Additionally, staff developed the automatic acceleration mechanism to be able to respond to rapid and prolonged credit generation.

Regarding zero emission vehicle (ZEV) populations modeled in CATS, staff updated the light-duty battery electric vehicle counts using 2022 market data and then adjusted the years 2023-2026 to fill the curve between 2022 and EMFAC's 2027 population estimates. For heavy-duty ZEVs, the EMFAC staff provided updated population estimates following approval of ACF for the analysis.

Regarding the credit impact of fuels switching from credit-generating to deficit-generating, staff's modeling accounted for this switch and suggests that even as deficit generators, biofuels are likely to continue to enter the market as fuel producers seek to minimize their cost of compliance by using lower-CI fuels than fossil. Minimizing compliance costs is not inherently bad, and in fact, CARB is statutorily mandated to find

cost-effective solutions to achieve statutorily-mandated climate and air quality targets. Affordability continues to be a guiding consideration in all of our regulatory activities, including the administration of the LCFS program, which is designed to create a flexible market where participating entities have many compliance options and can find the most cost-efficient way to advance clean, lower CI transportation fuels as one approach for California to achieve carbon neutrality mandates under State law. The LCFS is structured to create an economically efficient, least-cost pathway for diversifying the state's transportation fuels with lower CI fuels rather than pursuing more direct and potentially more costly direct regulatory measures. This flexibility is also advantageous because it means CARB can set outcome-based standards via the LCFS that still achieve low-cost compliance and effective GHG reductions regardless of uncertainties in the future in which we may see different and unexpected changes in the demand for fossil fuels, different levels of competition that will drive down alternative fuel costs in unknown ways; different rates of ZEV and alternative fuel adoption; new and innovative fuels that we are not aware of; new and unexpected climate policy changes at the Federal and State levels, and other unknown variables.

Regarding biomethane used in CNG vehicles, the modeling results show overall demand for CNG combustion in vehicles declining over time, with the remaining demand being met mostly by landfill biomethane as dairy biomethane is directed increasingly toward hydrogen and electricity production as evidenced in staff's published analysis of the proposed regulation.

Regarding VMT reductions: the proposed amendments hold VMT static overall and do not reflect the VMT reductions modeled in the 2022 Scoping Plan, as no Statewide regulation exists that mandates VMT reductions.

Regarding transparency, staff posted modeling input and output files for CATS modeling, as well as air quality and greenhouse gas emissions workbooks, for the major comment periods. Staff had 3 workshops specifically dedicated to the modeling work that supports staff regulatory analysis and staff also posted detailed technical documentation on the model, the modeling input sheets used to run the model, and the modeling tool that staff used. CARB staff did this to provide transparency in the modeling approach, and to solicit feedback that staff used to update and improve the model and publicly release updates over time.

In response to comment 15d1-228.21, see CEQA RTC Master Response 2 and responses to comments in letter R11 within the CEQA RTC.

Regarding off-road electrification, the credit quantity in the outputs is not an error. These credits are more difficult to estimate, and staff made a simple assumption that credits would hold steady in the future, which naturally assumes that electric charging of that equipment increases in tandem with the declining benchmark schedule.

In response to understanding the impacts of LCFS and Cap-and-Trade, there is no regulatory proposal to update the Cap-and-Trade regulation and using any future Cap-and-Trade impacts or prices in LCFS modeling would be speculative and inaccurate. It is also worth noting that there may be other local, state, and federal

policies that require compliance action besides just the Cap-and-Trade Program. The comprehensive costs of achieving the state's climate targets are analyzed in the periodic updates to the AB 32 Scoping Plan. The 2022 Scoping Plan Update leveraged needed regulations to achieve the federal and state health protective air quality standards and layered in additional action to achieve the SB 32 and AB 1279 climate targets. That analysis also includes cost savings due to fuel switching for households and the avoided costs of climate damages and health impacts. The 2022 Scoping Plan Update is estimated to cut air pollution by 71%, cut greenhouse gas emissions by 85%, drop gas consumption by 94%, support the creation of 4 million new jobs, and save Californian's \$200 billion in health costs in just single year 2045.

Regarding volumes of alternative jet fuel potentially coming from waste oils, please refer to section V-1 and V-2, which discuss the partnership between CARB and Airlines for America.

F. Air Quality

F-1 Biogas to Electricity

Comment: Converting biogas to electricity using internal combustion generators is a reasonably foreseeable compliance response resulting in local air quality impacts that could be avoided by requiring LCFS participants to use non-combustion alternatives such as fuel cell generators as a condition for generating credit. In fact, CARB staff in the air quality calculations assumed that dairy electricity projects would use fuel cells even though the regulation does not require it. I suggest making it official. (45d-154.20)

Agency Response: Changes were made in response to this comment. The Proposed Amendments provide a new opportunity for book and claim of biomethane to produce electricity, if that electricity is generated using a fuel cell. This provision incentivizes non-combustion fuel-cell technology for conversion of biomethane to electricity. Please also refer to CEQA RTC Master Response 4 with regard to the air quality analysis conducted in support of the Proposed Amendments.

G. Pricing

G-1 Multiple Comments: Improve Credit Prices

Comment: It is clear you want cleaner air, but at current LCFS pricing it does not support this initiative. Something needs to be done fast this year to improve the prices. (45d-005.1)

Comment: you should make sure to regulate the sector and take actions to make sure that California Low Carbon Fuel Standard Credit price can be constantly above the 200 USD/ton threshold and possibly hit 300 USD/ton to boost investments in the sector and make California a better environment. (45d-006.1)

Comment: Recommendation: Additional program modifications are needed to support credit prices and drive innovation and investment that supports California state goals. CARB has multiple options to support credit prices:

- Some fuel sector experts and advocates have called for further increases in stringency and earlier implementation of the Automatic Acceleration Mechanism as one way to address the oversupply issues undercutting the market.
- Many environmental advocates and community-based organizations are calling for caps on certain crop-based biofuels and as an important part of the solution.⁷

We recognize that this is a complicated topic with many details falling outside of our core area of expertise. Others are better positioned to weigh in on expected renewable fuel volumes, land use change, and localized health impacts. It is clear that additional program changes are needed to address the supply/demand imbalance that is undercutting credit prices and we believe there is value in better aligning this policy with California's goal of a zero-emission transportation sector. (45d-278.6)

Comment: Neste agrees with CARB that there is no causal relationship between the LCFS credit price and what consumers pay for fuel at the pump. (Apr-066.6)

Comment: The credit bank is projected to reach 30-35 million credits through the end of 2024 reporting, with the bank projected to increase in size by up to 7-12 million credits in 2024 alone. Increases of credits in the bank in 2024, because of delayed rule implementation, are causing downward price pressure needing immediate attention. (Apr-082.6)

Comment: The success of LCFS to date shows the market's ability to deliver together in partnership with CARB. The LCFS, at its core, is a market-based, fuel-agnostic regulation that does not pick winners and allows for all fuels to compete. Market and regulatory certainty are based on trust in California as a reliable place to sell low-carbon fuel and credits to meet and exceed climate goals. However, to continue to achieve aggressive targets, CARB must promote a long-term, stable environment to encourage investors and teams to create new and maintain existing CI-reducing projects. This requires that credit prices maintain a level for capital recovery of previous and future investments. (Apr-082.23)

Comment: Negative CI fuels require significant economic incentives and market certainty, which has eroded with current LCFS prices. Long-term depression of credit prices will lead to stranded assets and a lack of private investment in decarbonizing California's economy. CARB should send a strong signal by dramatically increasing the LCFS reduction targets and help return certainty to the market. (Apr-082.25)

Comment: Expeditious Amendment to the LCFS Supports Energy Transition in California. Lower LCFS prices will cause many EV charging companies to re-evaluate whether to expand deployment of DC Fast Chargers in California or instead to focus on other markets. In the absence of higher LCFS prices, we will see a longer period of transition where California is dependent on biofuels (with associated air pollution and land use change effects) while pushing out the ultimate transition to ZEVs. Accordingly, CARB should act expeditiously to ensure the program curve is based on updated data; and that the amendments ensure appropriate emissions reductions, program, stability, and active marketplace - that provides revenue to companies to invest in the acceleration of the energy transition in California. (Apr-091.20)

Comment: Consistent over-compliance with the annual CI reduction target since 2020 has led to an excess of banked credits that must be drawn down before credit prices begin to rise. 2 (15d1-219.2)

Comment: The substantial changes made in this 15-day package should also be rejected because they are projected by CARB to crash the LCFS credit market from 2029 through 2032, resulting in credit prices at \$0/tonne (see the Figure 7 below) 18. If credit prices decline to \$0/tonne, as CARB staff modeled in a scenario without the auto-acceleration mechanism triggered, the effects on California's carbon emission goals could be devastating. It would raise uncertainty for low-carbon investments. Even after credit prices rise in later years, it could take time for low carbon infrastructure to be rebuilt and market confidence in long-term price signals will have been damaged. California could also slide from being a market leader in low carbon fuels and technologies as the \$0 credit value would show that the lowest cost fuel would satisfy compliance requirements for the foreseeable future. This could stifle innovation in new pathways and technologies that could further lower emissions. (15d1-228.28)

Comment: *Impact of 2nd 15 day Package on Credit/Deficit Balance and LCFS Credit Price*

The changes proposed in the 2nd 15 day package are, for the most part, unlikely to have significant impacts on LCFS credit supply and demand as compared to changes proposed earlier. The relaxation of the 20% per-company cap on crop-based feedstock would be expected to slightly reduce credit generation by allowing greater fractions of crop-based (and therefore, higher-CI fuels) to be credited under the LCFS, while changes to HRI provisions may result in slightly more credits being generated from these pathways.

We note that the total effect of all proposed amendments, including the original proposal and both 15 day packages is unlikely to address the large oversupply of LCFS credits relative to deficits, and therefore are unlikely to result in significant increases in LCFS credit prices. We have submitted modeling results with previous comments, as well as a report detailing the methodology of the Fuel Portfolio Scenario Model (FPSM) used to conduct this analysis.² As a result, if the amendments proposed to date are adopted without any further change, and absent significant upheaval in U.S. biofuel markets, we would expect the LCFS credit price trends observed over the last two years to persist indefinitely. The credit prices these imply, predominantly in the \$50-75 range, have been identified by a wide range of stakeholders as inadequate to support the investments required for California to meet its long-term GHG reduction goals in the transportation sector. (15d2-287.2)

Comment: Long-term depression of credit prices will lead to stranded assets and a lack of private investment in decarbonizing California's economy. CARB should send a strong signal by dramatically increasing the LCFS reduction targets and helping return certainty to the market. (15d2-290.12)

Agency Response: Changes were made in response to these comments. The 2022 Scoping Plan Update directly identifies that the stringency of the LCFS CI benchmarks should be increased, both pre- and post-2030, which is the key change staff made in the proposed regulation. The objective is to send clear, long-term market signals to support investment in low-carbon fuel production and technologies that are needed to achieve deep emissions reductions in the transportation sector while supporting the

broader portfolio of zero-emission vehicle regulations and climate statutes. Another goal is to align the crediting opportunities in the LCFS with the fuel and technology pathways identified in the 2022 Scoping Plan Update and continue using this flexible compliance policy in lieu of more costly prescriptive regulations to decarbonize transportation fuels. As a means of increasing the flexibility of the program to be able to respond to rapid and unanticipated shifts in the market, such as significant overperformance of ACC II or ACF implementation, staff also proposes a mechanism that would automatically accelerate the carbon intensity benchmarks under certain conditions. Finally, in response to the near-term over-performance, staff has included a step down in the carbon intensity beginning in 2025. Staff's proposed regulation sets more ambitious CI target benchmarks and creates an AAM specifically to provide the certainty necessary for the long-term investments required to meet the State's decarbonization goals. See Agency Responses C-1 and C-4 for further context regarding rationale for the proposed CI targets.

G-2 *Create Containment Fund*

Comment: Lastly, another recommended mechanism that can be employed is an "ARB LCFS containment fund", this fund will have the power to buy credits in the market when prices are low, and sell them when prices are high. There would be a few other hurdles to work through, but a fund like that would surely allow market prices to converge faster, and would also help California reach its goals. (45d-012.2)

Agency Response: Changes were not made in response to these comments. Staff's proposed regulation aims to create additional market investment certainty while simplifying program implementation where possible. The creation of a containment fund would require the development of a new set of market mechanics and staff to manage the fund, which would increase program complexity and change the Agency's role from one of administrator to market participant. Staff's proposed regulation addresses the commenter's concern through existing program design.

G-3 *Cost Containment Mechanism Price Update*

Comment: I recommend resetting the LCFS price cap and encourage the Board to set credit multipliers for high priority fuels and projects. Currently the price cap for LCFS credits is \$253 and by 2045 will likely be more than \$400. As shown in Table 1 later in this document, the pass-through cost increases substantially over time if the credit price is at or near the ceiling. To help prevent excessive pass-through costs in the latter years of the program, I recommend resetting the price cap to \$200 and removing the annual inflation adjustment. Moreover, if the Board believes that \$200 is not sufficient to incentivize high priority fuels or emission reduction projects, then the Board should adopt credit multipliers that are specific to those fuels or projects. Using credit multipliers will allow the Board to fine tune the regulation to provide extra incentive for high priority fuels and projects without unnecessarily overcompensating other credit generators in the program. Some stakeholders will hypocritically cry out "blasphemy" at such a suggestion and that the LCFS must be "fuel neutral" or that credit multipliers will create an "uneven playing field". The truth of the matter is that transportation fuels policy in California has never been a level playing field because the LCFS subsidy is allowed to stack on top of federal subsidies. This is particularly true for the heavy-duty and aviation sector where the

LCFS stacking on the RFS, Biodiesel Blenders Tax Credit, and 40B tax credit for sustainable aviation fuel creates an unlevel playing field tilted heavily toward renewable diesel, biodiesel, sustainable aviation fuel, and renewable natural gas. A relatively low, fixed price cap with credit multipliers for high priority fuels and projects will allow the Board to truly establish a level playing field and equitably promote California's zero-emission transportation goals. (45d-154.4)

Agency Response: Changes were not made in response to this comment. The LCFS cost containment mechanism (called the Credit Clearance Market or CCM) in subsection 95485(c) initially established in 2015 set a CCM price cap at \$200 (2015 dollars) to ensure it would “keep pace with inflation and remain at a constant price, in real terms.” This logic still applies, especially in light of the pace of inflation from 2020 through 2023; if the funding ceiling were adjusted back to \$200 in today's money, the strength of the program's signal to invest in innovative technologies with significant decarbonization potential would be curtailed since wages, material costs, and interest rates have all led to higher energy production costs. By maintaining the established price ceiling, the proposed regulation maintains flexibility for technologies in early commercial deployment to enter the market if demand exceeds available lower-cost supplies. Additionally, the structure of the market has led to development and production of substantial low to moderate-cost low-CI fuels to meet consumer demand, and incentivizes production at-scale to reach decarbonization targets expeditiously.

Regarding potential cost pass-through, the LCFS is not a tax on fuel in California, and has never been a primary driver of California retail gasoline or diesel prices. See response H-1.

G-4 Cost Containment Mechanism Guidance

Comment: CalETC requests implementation assistance on the Credit Clearance Market (CCM) CalETC's members include large EDUs who will be impacted by the CCM. We respectfully ask for a guidance document (or, if appropriate, a user guide or FAQ) on the mechanics of the CCM. For example, what do deficit/credit holders functionally do once a CCM / Advanced Crediting phase is declared? Also, given the proposed increase from ten million to thirty million credits in the CCM, we request further discussion regarding possible practical issues down the road if only a small number of EDUs are trying to transact such a large volume in a mandatory compressed timeframe. (45d-186.8)

Agency Response: No changes were made in response to this comment. If necessary, staff will provide implementation assistance to EDUs with the CCM.

H. Gas Prices

H-1 Multiple Comments: Gas Prices

Comment: In addition to previously proposing several updates to increase the LCFS program's stringency, CARB is now re-evaluating those CI benchmarks – to accelerate them even further. While we appreciate the meritorious intent of doing so, WSPA is also concerned about the equally important consideration that doing so will likely impact California's gasoline prices. The State of California has previously acknowledged^{22,23} – and does currently

acknowledge²⁴ – that the LCFS program does have a direct cost impact to California consumers, which can disproportionately burden low- and moderate-income Californians the most. Any significant cost increases will also clearly conflict with SB X1-2 (2023), which directed State agencies to evaluate measures “to ensure a reliable supply of affordable and safe transportation fuels in California.”²⁵

WSPA is concerned that further accelerating the CI target benchmarks may exacerbate California’s pressing energy affordability challenges. Constraining credit generation opportunities for more affordable fuels (e.g., imposing new limits and regulatory burdens on crop-based biofuels) directly conflicts with the very fuels CARB credits with achieving sizable air emission benefits today. In addition, it can be reasonably assumed that pushing prices up towards the LCFS program’s price ceiling would result in “potential adverse impacts to California consumers.”²⁶ We urge CARB to heed this recognition and re-double efforts to find more cost-effective means of achieving emissions benefits. A technology-neutral approach is the best means of maximizing cost-effectiveness in a market-based program and would better align with CARB’s rulemaking obligations under California Government Code § 11346.2(b)(4)(A), which includes performance-based standards as an alternative to a technology mandate. (Apr-094.16)

Comment: It is true that an analysis of LCFS program data from 2010 through the present would show little if any visually detectable correlation between LCFS credit prices and retail gasoline prices. This conclusion, however, does not hold into the future. Per-gallon LCFS cost impacts can be estimated by multiplying the amount of credits or deficits per gallon times the relevant LCFS credit price. Per-gallon credit generation is a function of the target level, the CI scores of the fuel, and several constants including EER and fuel energy density.¹⁸ During most of the period covered by this analysis, the LCFS targets were extremely low. Targets were effectively frozen at 1% reduction from baseline through 2015 due to litigation, and did not hit 10% until 2022. Given these low targets, the per-gallon deficit generation would be extremely low as well, meaning that any impact from the LCFS would likely be lost among the significant natural variability in retail gasoline prices. Theoretically, there is no reason to think that costs on petroleum fuels, even if modest, wouldn’t be passed along to consumers, and emerge in an appropriately structured updated statistical analysis.

It is not appropriate to interpret the Bates White analysis as supporting the conclusion that the LCFS will have no price impacts in the future; since program targets are increasing, the per-gallon deficit generation will increase as well and with it, a commensurate increase in costs associated with LCFS deficits.

It should also be noted that even though the LCFS is expected to have a price impact in the future, this impact is expected to be smaller than normal seasonal gas price variability for most of this decade at least, and the benefits the program provide via slowing climate change, improving air quality, supporting the transition to renewable energy, and making critical investments in disadvantaged communities far outweigh the costs in most analyses. (Apr-163.20)

Comment: In addition to previously proposing several updates to increase the LCFS program’s stringency, CARB is now re-evaluating those CI benchmarks – to accelerate them even further. While we appreciate the meritorious intent of doing so, WSPA is also concerned

about the equally important consideration that doing so will likely impact California's gasoline prices. The State of California has previously acknowledged^{22,23} – and does currently acknowledge²⁴ – that the LCFS program does have a direct cost impact to California consumers, which can disproportionately burden low- and moderate-income Californians the most. Any significant cost increases will also clearly conflict with SB X1-2 (2023), which directed State agencies to evaluate measures “to ensure a reliable supply of affordable and safe transportation fuels in California.”²⁵

WSPA is concerned that further accelerating the CI target benchmarks may exacerbate California's pressing energy affordability challenges. Constraining credit generation opportunities for more affordable fuels (e.g., imposing new limits and regulatory burdens on crop-based biofuels) directly conflicts with the very fuels CARB credits with achieving sizable air emission benefits today. In addition, it can be reasonably assumed that pushing prices up towards the LCFS program's price ceiling would result in “potential adverse impacts to California consumers.”²⁶ We urge CARB to heed this recognition and re-double efforts to find more cost-effective means of achieving emissions benefits. A technology-neutral approach is the best means of maximizing cost-effectiveness in a market-based program and would better align with CARB's rulemaking obligations under California Government Code § 11346.2(b)(4)(A), which includes performance-based standards as an alternative to a technology mandate.

Measures that undermine the program's cost-effectiveness violate HSC § 38560, which requires CARB to ensure that its program amendments are cost-effective. Similarly, HSC § 43018 requires CARB to adopt only necessary, cost-effective, and technologically feasible regulations. California Government Code § 11346.2(b)(4) also requires CARB to consider “reasonable alternatives to the regulation that would lessen any adverse impact on small business,” and reasonable alternatives that are “less burdensome.” As part of these alternatives, CARB must consider “overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health.”²⁷ To comply with these provisions, WSPA urges CARB to revise its potential program amendments to create a more cost-effective, less burdensome regulatory program that protects a diverse energy portfolio, including for those fuels that are today contributing to significant emissions reductions efforts. (Apr-094.16)

Comment: Do not ignore the problem of pass-through cost to gasoline consumers. In both 2015 when CARB readopted the regulation and in 2018 when the targets were extended to 2030, staff estimated the maximum pass-through cost of the amendments to consumers of gasoline and transparently conveyed this information to the public. For the current rulemaking, CARB staff provided similar calculations and rationale in the SRIA.⁷ The estimation of pass-through cost uses the target CI reduction (converted to deficits generated per gallon of gasoline) multiplied by the estimated future market price for credits.⁸ A basic rule of thumb says that a 1 percent reduction in carbon intensity at \$100 credit price adds slightly more than 1 cent to the cost of gasoline. So, in late 2023 with a target CI reduction of 11.25 percent and a credit price of \$75, the pass-through was a modest 9 to 10 cents per gallon. Table 1 below shows future estimates of the pass-through cost under the amended regulation at a range of reasonable credit prices. These costs are in addition to the pass-through cost for the Cap-and-Trade program which could exceed \$1 per gallon in 2030 and reach \$1.50 per gallon in 2035.⁹

To put the pass-through cost in perspective, at a \$200 credit price, the LCFS could cost gasoline car drivers approximately \$250 a year in 2025, rising to whopping \$1150 a year by 2045.¹⁰ (45d-154.6)

Comment: CARB's analysis underestimates revenue impacts to the State's gas tax revenues. CARB estimates that tax revenues will decrease by \$29.2 million⁹ due to "increase[s] in volume of renewable gasoline, ethanol, and renewable diesel fuel sold in the State,"¹⁰ but this estimate does not capture the significant revenue impacts associated with a 90% reduction in gasoline demand which is the forecasted impact of the proposed amendments. The gas tax provides substantial funding for California's infrastructure projects, which will be needed to meet California's electrification goals and address associated increases in electricity demand. CARB has also adopted several rules designed to reduce gasoline demand (e.g., Advanced Clean Cars II, Advanced Clean Trucks, Advanced Clean Fleets), but has neither assessed the full impacts of this change nor has it addressed how to replace this funding, which leaves the State in a vulnerable position.

These significant cost increases conflict with ongoing efforts by the California legislature to ease cost burdens associated with California fuels. Senate Bill (SB) X1-2 (2023) directs State agencies to evaluate measures to ensure that petroleum and alternative transportation fuels are adequate, affordable, reliable, and equitable. The California Energy Commission (CEC) estimates that the LCFS Regulation already adds 11 cents per gallon to the cost of California gasoline.¹¹ The impacts of these price increases are significant for California consumers – California continues to face serious supply constraints for transportation fuels, leading energy affordability to be a pressing priority for many Californians. The legislature recognized the importance of these impacts in enacting SB X1-2. CARB must therefore ensure that its revised LCFS program does not further compromise the supply reliability of critical transportation fuels, a consequence of which could increase energy costs and further burden California drivers, conflicting with clear legislative priorities in SB X1-2.

CARB's proposed LCFS Amendments may exacerbate these cost issues by constraining the credit generation for fuels, such as crop-based biofuels and hydrogen, while simultaneously and significantly increasing and potentially accelerating program stringency. Credit prices are also approaching a maximum – CARB estimates that credit prices will reach the program ceiling in 2025 and 2026. As CARB emphasized in 2020, prices beyond this point would create "potential adverse impacts to California consumers."¹² CARB's proposed program amendments would add new limits to credit generating opportunities just as LCFS credit prices approach the price ceiling, exacerbating cost impacts. These combined measures undermine the program's cost-effectiveness, in violation of Health and Safety Code (HSC) § 38560, which requires CARB to ensure that its program amendments are cost-effective. Similarly, HSC § 43018 requires CARB to adopt only necessary, cost-effective, and technologically feasible regulations. California Government Code § 11346.2(b)(4) also requires CARB to consider "reasonable alternatives to the regulation that would lessen any adverse impact on small business," and reasonable alternatives that are "less burdensome." As part of these alternatives, CARB must consider "overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health."¹³ To comply with these provisions, WSPA urges CARB to revise its

proposed program amendments to create a more cost-effective, less burdensome regulatory program that protects a diverse energy portfolio. (45d-241.1)

Comment: The proposal reflects a choice by CARB to ramp up the stringency of carbon intensity targets instead of meaningfully restricting the supply of credits for combustion fuels through limits on biofuel and biomethane crediting. This decision will increase program costs without prioritizing much-needed incentives to expand access to zero emission transportation options. In the 2023 Standardized Regulatory Impact Assessment (“SRIA”), CARB projects that the proposal will pass through significant costs to gas prices. The ISOR instead focuses on the proposal’s minimal impacts on the average cost per mile for all fuels including clean fuels; however, this analysis fails to discuss that zero-emission vehicles are not equitably distributed in California. So far, affluent, white communities have been the main benefactors of government investment in zero-emission vehicles. Electric vehicles are still rare in low-income and rural communities and communities with the largest percentages of Black and Latinx residents.⁶⁷ CARB should prioritize increasing investment and reducing access barriers to ensure low-income communities receive benefits from the LCFS and do not disproportionately bear its costs.

By prioritizing expansion of combustion fuels like biofuels and biomethane, the proposal misses opportunities to accelerate equitable access to zero-emission vehicles and other zero-emission transportation options. Limiting the supply of these combustion fuels would increase credit incentives for electrification, and it would reduce the need to ramp up stringency of carbon intensity targets. Moreover, CARB should expand crediting opportunities that facilitate electrification. The proposal’s extension of incentives for light-duty vehicle refueling is a solid start, but CARB can take further action. For example, CARB should add a credit multiplier for zero-emission mass transit vehicles, including transit buses and school buses. These changes are critical to ensure that the program lifts up low-income communities rather than leaving them stuck in combustion vehicles paying the program’s costs. (45d-304.7)

Comment: As outlined in the Standardized Regulatory Impact Assessment (“SRIA”), the proposed Amendments will have a significant impact on gas prices.⁴¹ In the ISOR, Staff attempts to walk back this finding, contending that causation between credit prices and gasoline prices is uncertain and asserting that average transportation costs will fall.⁴² Increased gasoline costs will be borne disproportionately by lower income people, lower income communities,⁴³ and communities that are disproportionately Latino and Black.⁴⁴ Lower income households pay a higher share of income on gas, are less able to adjust their use of gasoline which they need to reach employment and educational opportunities, and lower income people and Latino and Black people have less access to electric vehicles.⁴⁵ (45d-368.7)

Comment: Gasoline prices in California are too high and the expansion of the LCFS will add more than 50 cents per gallon to the cost of California gasoline by 2026, according to CARB’s own estimates (CARB SRIA page 57 here:

https://ww2.arb.ca.gov/sites/default/files/202309/lcfs_sria_2023_0.pdf

California gasoline prices have consistently been \$1.20 more than American gas prices, despite the fact that state environmental fees and extra taxes add only 70 cents more per gallon. The burden on working families in California is too much. Currently, the LCFS adds

only 10 cents per gallon to a gallon of gas as part of the added fees. Quintupling that amount is unfair to drivers and will have dubious environmental benefits as the proposed acceleration of carbon intensity requirements is structured. (45d-089.1b)

Comment: An unfounded concern is that LCFS credit prices will adversely impact fuel prices. Appendix A illustrates that projected environmental and public health benefits, on a 2021\$/gallon basis in 2026 and 2030, are comparable to significantly higher credit prices than what we see now. Appendix B shows that historically the potential LCFS impact on gas prices is insignificantly less than other exogenous impacts on crude prices (the main driver of gas prices) and California refinery disruptions and issues. (45d-320.8)

Comment: It is important to note that research³ has concluded there is not a causal relationship between the LCFS and prices at the pump. Analysis of market prices demonstrates that the LCFS is not a significant driver of retail fuel prices in California, as the primary driver is the cost of crude oil. Lower carbon fuels are displacing Californians' exposure to foreign crude and delivering alternatives that bring home cost savings, in addition to the California jobs required to build low carbon fuel supply, clean fuel networks, and maintenance infrastructure of clean fuel vehicles. This conclusion is consistent with that in the ISOR on pages 82-83. This graph shows this lack of causal relationship over time: (45d-328.4c)

Comment: The costs of these ineffective subsidies are borne by drivers in California dependent on gasoline and diesel.

The Standardized Regulatory Impact Assessment (SRIA) discloses that the LCFS program's overwhelming subsidies for combustion-based biofuels are costs actually borne by drivers of diesel- and gasoline-powered vehicles. Over time, this cost at the pump increases from an average of \$0.37 per gallon through 2030 to an astronomical \$1.15 per gallon between 2031 and 2045 in 2021 values (the inflation adjusted pass through costs would be even higher). This cost will be increasingly imposed on low-income Californians least able to self-finance a transition to zero-emissions vehicles. While the ISOR claims that the SRIA overstated the correlation between credit prices and pass-through costs and attempts to obscure increased costs to gas and diesel consumers with decreased costs to electric vehicle drivers, there is no denying people and communities that are and will remain dependent on gasoline and diesel will pay at the pump for massive revenues primarily destined for investors in and producers of biogas and biofuels. (45d-379.8)

Comment: Absorbing the glut of inappropriate credits in the program with higher carbon intensity targets will increase the credit price, and in doing so will pass greater costs onto California drivers without commensurate climate benefit. Their money will disproportionately fund fuels that academics and environmental organizations have shown have questionable and even adverse climate impacts. (45d-379.11)

Comment: 1. What do Donald Trump and CARB staff have in common? They both assume that you are foolish enough to believe that pass-through costs do not exist. While Trump continues to double-down on the claim that tariffs do not increase the cost of goods, CARB staff continue to double-down on the equally false claim that assessing LCFS deficits does not increase the cost of gasoline. SAD! (15d1-065.2)

Comment: In the appendix to these comments, I have reiterated several suggestions from my 45-Day Comment Letter that will reduce the LCFS pass-through cost to consumers of gasoline. These actions involve limiting credit generation that does not advance California's long-term zero-emission transportation goals, eliminating excessive credit generation that only results in excessive profits, eliminating LCFS subsidies that do not result in additional global GHG emission reductions beyond what would already occur through other State and Federal programs, eliminating double-counting of LCFS credits and GHG reductions purchased through the voluntary carbon market for DAC and CCS projects, removing Enhanced Oil Recovery as an eligible sequestration method for out-of-state CCS and DAC projects, and minimizing the potential for credit price spikes. Cutting out unnecessary and ineffective credit generation will allow for less stringent targets and lower pass-through costs, without sacrificing real, additional GHG reductions achieved by the program. (15d1-065.3)

Comment: In addition to adopting the suggestions in the appendix, I encourage you to direct staff to split the LCFS program into two separate markets with two different percentage CI reduction targets. Credits generated in one market would not be fungible in the other market. One market would be restricted only to gasoline and substitutes and would have a less aggressive CI benchmark schedule, which will reduce pass-through costs to low-income gasoline consumers. The other market would include diesel, jet fuel, and their substitutes and would have a much more aggressive CI benchmark schedule to accommodate the high market penetration of renewable diesel, biodiesel, and negative CI dairy gas. Because of the more aggressive CI benchmark schedule, the diesel market will have much higher pass-through costs. Having two separate markets will insulate the gasoline consumer from high pass-through costs necessary to decarbonize the diesel side. Moreover, gasoline consumers in California should not be paying most of the cost to decarbonize the heavy-duty transportation sector when the State can more effectively pass much of those costs on to out-of-state consumers of goods passing through California ports.¹ While this is a major change that is likely not appropriate for a second 15-Day Change Notice, I do hope you will direct staff in the Board Resolution to consider it for future amendments. I fear that if CARB is unwilling to acknowledge that pass-through costs exist and take reasonable steps to address them, especially on the gasoline side, the LCFS may become hard to defend politically by 2035. (15d1-065.4)

Comment: In our Initial Comments we laid out that the proposed amendments would increase transportation costs for lower income people and people of color.¹¹ As explained in Jonathan S. Shefftz's Technical Memorandum, attached here as Exhibit 1, CARB's proposal to increase stringency to boost credit prices will cause real harm to California households, and staff's proposal to further increase that burden starting in 2025 makes the problem even worse. Taking a conservative approach in his analysis, Mr. Shefftz concludes that CARB's proposal will force households in the median and 20th percentile income ranges in San Joaquin Valley counties to bear significant financial burden. Mr. Shefftz's analysis shows that, for example, households in the 20th percentile of income in Kern county could end up spending nearly four times more of their annual income on gas in 2025 compared to 2024 (1.6% and 0.42%, respectively), and that is without even accounting for the change from 5% to 9% in 2025 that will exacerbate this spike.¹² By 2040 that number is projected to increase to over 3.3% of these household's annual income. Other counties see a similar impact on the most economically vulnerable households' annual income:

Fresno (1.38% of annual income for households in the 20th percentile of income in 2025, 2.88% by 2040)

Kings (1.42% in 2025, 2.95% by 2040)

Madera (1.54% in 2025, 3.21% by 2040)

Merced (1.56% in 2025, 3.25% by 2040)

San Joaquin (1.12% in 2025, 2.33% by 2040)

Stanislaus (1.23% in 2025, 2.56% by 2040)

Tulare (1.48% in 2025, 3.09% by 2040)

In sum, the cost of juicing the LCFS to increase credit generators' profit margins will be borne most heavily by lower income Californians, including lower income Californians in the San Joaquin Valley who are concurrently and disproportionately bearing the environmental, economic, and health costs of factory farming and factory farm gas production. (15d1-211.9)

Comment: Even with the relatively low LCFS credit prices that would be expected under such an outcome, gas price impacts to consumers may be significant, due to the higher target level, with approximately 20 to 40 cents per gallon maximum theoretical gas cost impact expected in 2030, and 30 to 60 cents per gallon expected by 2033.9 (15d1-251.5)

Comment: What do Donald Trump and CARB staff have in common? They both assume that you are foolish enough to believe that pass-through costs do not exist. While Trump continues to double-down on the claim that tariffs do not increase the cost of goods, CARB staff continue to double-down on the equally false claim that assessing LCFS deficits does not increase the cost of gasoline. SAD! (15d1-065.2)

Comment: In the appendix to these comments, I have reiterated several suggestions from my 45-Day Comment Letter that will reduce the LCFS pass-through cost to consumers of gasoline. These actions involve limiting credit generation that does not advance California's long-term zero-emission transportation goals, eliminating excessive credit generation that only results in excessive profits, eliminating LCFS subsidies that do not result in additional global GHG emission reductions beyond what would already occur through other State and Federal programs, eliminating double-counting of LCFS credits and GHG reductions purchased through the voluntary carbon market for DAC and CCS projects, removing Enhanced Oil Recovery as an eligible sequestration method for out-of-state CCS and DAC projects, and minimizing the potential for credit price spikes. Cutting out unnecessary and ineffective credit generation will allow for less stringent targets and lower pass-through costs, without sacrificing real, additional GHG reductions achieved by the program. (15d1-065.3)

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would have a much more aggressive CI benchmark schedule to accommodate the high market penetration of renewable diesel, biodiesel, and negative CI dairy gas. Because of the more aggressive CI benchmark schedule, the diesel market will have much higher pass-through costs. Having two separate markets will insulate the gasoline consumer from high pass-through costs necessary to decarbonize the diesel side. Moreover, gasoline consumers in California should not be paying most of the cost to decarbonize the heavy-duty transportation sector when the State can more effectively pass much of those costs on to out-of-state consumers of goods passing through California ports.¹ While this is a major change that is likely not appropriate for a second 15-Day Change Notice, I do hope you will direct staff in the Board Resolution to consider it for future amendments. I fear that if CARB is unwilling to acknowledge that pass-through costs exist and take reasonable steps to address them, especially on the gasoline side, the LCFS may become hard to defend politically by 2035. (15d1-065.4)

Comment: Why does your agency have so much power? Additionally, why are you raising prices on Californians yet again? (15d2-003.1)

Comment: Californians cannot afford an additional \$0.65/gallon gas tax. Do not increase our currently outrageous gas tax. (15d2-004.1)

Comment: Stop taxing our gas! Enough is enough! (15d2-005.1)

Comment: Enough is enough! We already pay more for gas than any other state in the nation. This negatively affects every single person in California...you are taxing us all to death (15d2-006.1)

Comment: You, the state of California, have already become the laughing stock of failed policies. Enough is enough. How do you sleep at night taking advantage of your people. You've seen what you can pull off with gasoline and appears to have doubled down on this carbon bs. Yes bs. God is watching. (15d2-007.1)

Comment: Enough! Please stop these insane gas taxes. They are crippling our economy. Most of us want to be good stewards of the environment, but there has to be a balance. It is shocking how unelected officials can have so much power. Please come to your senses. (15d2-008.1)

Comment: Dear CARB, Californians pay the most per gallon in the nation and yet we have oil reserves in our state. I was appalled to learn of this proposal of increasing the price of gas per gallon by 65 cents. My husband and I are teachers and despite our hard work it's getting harder to afford living in our beautiful state. Do not increase our gas prices once again. The effect on all of us in California is so costly. Sincerely,

Janet Saalberg (15d2-009.1)

Comment: stop with the gas tax and raising gas prices. California is already the highest in the US and now they want to make it even higher. Please help we can't afford food or electricity and now gas. (15d2-010.1)

Comment: It is already exceptionally hard to justify living in California with how expensive everything is and this would put it over the top. My family cannot afford to keep living here if

gas goes up by an additional \$.65. Not only will I not be able to drive anywhere but groceries will get even more expensive. (15d2-011.1)

Comment: CA policies on taxing and penalizing all companies involved in the production process has backfired wildly. This is a crusade to force adoption of EVs onto society. Overtime, adoption will happen, but what is happening now is like forcing a square peg thru a round hole.

Easing the operating environment for these companies is a better direction or there will be less supply and permanently higher prices. Bad for the consumer! (15d2-012.1)

Comment: California is making me broke I grew up here my whole 40 years of existence. I will never be able to afford a home here I can barely afford to eat food these days. Gas is already the highest in the nation even above Hawaii which is an island that does not produce any oil. Please stop forcing us to pay higher gas prices because you believe to know what's best for the environment. Yes I love the environment more than I love people but I can't afford it anymore. You are crushing the poor class and pushing on the chests of the middle class. You are not effecting the upper class because we know they have enough money to live 10 life times. You cannot raise the gas tax anymore. It's reached capacity. (15d2-013.1)

Comment: This is absolutely the most ridiculous, power hungry play ever! I have never thought I would see a States elected officials throw a temper tantrum because they don't always get their way and then abuse the power by financially abusing its citizens! (15d2-014.1)

Comment: I vehemently oppose any additional gas tax. Our state is an utter disgrace. We pay the 2nd highest rates in the nation due to poor leadership and corruption. Eventually the people will wake up and vote you all out of office. I will do everything I can to send this to everyone I know to send in their opposition. You cannot continue to abuse power this way and take advantage of us in an already weak economy. People are suffering to make ends meet and of course the idea Newsom and all the cronies have is to tax us more. It's pure evil. (15d2-015.1)

Comment: I strongly oppose the the new gas tax being proposed (15d2-016.1)

Comment: Please stop creating initiatives that ultimately increase the end price of gasoline for Californians. We already have the highest prices in the nation because of additional tax. Prices are being continuously raised through various legislative actions, yet the Governor blames the suppliers. With the highest taxes in the nation coupled with our current housing crises, massive budget defect, homelessness crisis, and a slew of other financial woes, now is not the time to put more pressure on hardworking Californians. Stop the madness! (15d2-017.1)

Comment: Our gas prices and taxes are the highest in the nation. You need to make do with the budget you have and not raise our gas prices anymore. (15d2-019.1)

Comment: If you think this is such a great idea, why are you waiting until three days after the election to impose it? (15d2-020.1)

Comment: Good morning. Gas prices in California are already the highest in the nation, primarily driven by our state taxes and mandated refining standards that are different from other states.

At the same time, California's housing and food costs have skyrocketed out of control and more people are struggling to get by than ever.

Any change to regulations that would increase gas prices further would disproportionately affect low and middle income people. Please vote against any changes to regulations that would increase gas prices - and I'd strongly encourage you to roll back whatever regulations you can to help bring our gas prices more in line with the rest of the country. (15d2-021.1)

Comment: This is insane, stop raising our gas prices! We do not support this!!! (15d2-022.1)

Comment: You are price gouging the people you are supposed to represent. If this was on the ballot, there is no way it would pass. You are unilaterally causing the highest gas in the country with your broad restrictions. If you need money for the deficit you created, find another way other than by taxation without representation. (15d2-023.1)

Comment: We have seen too many gas tax increases over the last few years please do not pass another one. We are all struggling and tax payers wouldn't approve this if voted on (15d2-024.1)

Comment: Why is it that we use more energy than any other state to make our gas that some say doesn't burn any cleaner? At what cost of emissions energy to make our fuels does it make sense? How much emissions are put off compared to other states per gallon in CA? What is the reason for the tax hike? What is it going to fix or how is it going to stop climate change? Do you realize this only hurts the lower income communities more by raising gas prices? The single mother that is trying to make ends meet that has to drive her kids to school then 20 miles both ways every day for work. This doesn't help our already struggling economy in CA. This will make everything worse by making everything more expensive and more difficult for the lower income families and communities.

Throwing money at something doesn't always work!

What is the reason for the CARB sticker on the boats? What do they mean and what do they actually accomplish for CARB? (15d2-025.1)

Comment: No on new .65 gas tax! (15d2-026.1)

Comment: What are you even thinking? Putting more regulations on companies that make gasoline including diesel fuel is totally wrong. We need less regulation and government intervention in what private companies do. Let consumers (the people) vote with their feet or their wallet vs more onerous policies set by your board. California gas prices are so I reasonably high due to your policies how can you even think of adding to the burden? Just stop please. (15d2-027.1)

Comment: California can not afford 1 cent of an increase in taxes on fuel. Get back to reality and stop gaslighting the citizens of our state! You can't keep taxing hard working citizens to

solve our horrendous actions of Newsom! It's unacceptable and unconstitutional to keep raising CA taxes! You all aren't elected by "we the people"! It's outrageous and you should all be ashamed at the harm you are doing to people who can't even afford to feed their families all over California! (15d2-028.1)

Comment: Please do not increase any standards or costs on our refineries. You would only be worsening the quality of life for everyone stuck living in California. (15d2-029.1)

Comment: Enough is enough! I object to the proposed upcoming gas tax. Californians pay more than their fair share. Gas in our state is insanely expensive. Our state representatives need to find another way to fund their bloated spending. (15d2-030.1)

Comment: Don't you dare raise prices on gas again. Enough is enough (15d2-031.1)

Comment: One bad decision does not deserve more and more!

California is in a definite downward spiral! You have lost a majority of the tax paying workers by your cumulative bad decisions and raising gas prices is not the answer ! (15d2-032.1)

Comment: Those of us that live in south Orange County that aren't the Uber wealthy are struggling to fill our tanks to get to work. Much less afford to buy an electric car. My electric bill is already outrageous. I have 1 kid in college and 2 more right behind her. I make just a little too much for financial aid but not enough to not live paycheck to paycheck. Please don't raise the gas prices. This hurts middle and lower class more than anything else. If we can't get to work, we can't thrive.

We've already cut cable and every other non essential. Getting to work is an essential. (15d2-033.1)

Comment: I am against the proposed low carbon fuel standard amendments. These amendments will raise the price of fuel. We in California are under a huge financial burden because of high gas prices. It's difficult to care for our family's needs when so much of our budget goes to pay for gas. (15d2-034.1)

Comment: I am very much against this bill. This is not only an incredibly high increase in cost to those of us who live here but it continues to show that the leaders of this state put the needs of the people last. It is ego and power over care for those of us who live here. We are the 2nd most expensive state to live in. Stop trying to fill your wallets and care for the people and do Not pass this. (15d2-036.1)

Comment: Our state's additional gas taxes are already crippling. It's adding to the unaffordability problem we are all facing and is an undue burden. (15d2-037.1)

Comment: How can you consider any more regulations that will increase gas prices in this state when we are already paying significantly more than just about everyone else in the country? When is enough enough? Where does the greed stop and when will concern for the people being impacted by these prices begin?

Please stop. (15d2-038.1)

Comment: To whom this may concern,

I am against an increase in the gas tax/fees in California.

Thank you,

Joseph Byrd (15d2-039.1)

Comment: Please stop raising our gas taxes. We are spread so thin in the state of California and you continue to just raise taxes. This impacts people of all works of life. Your madness needs to end. (15d2-040.1)

Comment: As a citizen of California I am registering myself a protester to the proposed gas increases. I do not agree with the basis for the increases or with the proposed increases to be passed along to us in the form of increased taxes on gas. (15d2-041.1)

Comment: Please don't pass the Low carbon gas tax

Gas prices are already too high - let the refineries make gas. This nonsense of the highest prices in the nation is killing the California economy- not all of us want to rely on electric vehicles that are overpriced and undependable - our power grid barely survives a normal summer and not all of us have the time to get to charging stations that are few and far between. This is nonsense and it needs to stop. (15d2-042.1)

Comment: I'm against any increases or additions to the current gasoline taxes. I believe California has a spending problem, not a revenue problem. I'm also opposed to any new taxes based on miles driven. We are already paying exorbitant amounts for vehicle registrations. (15d2-043.1)

Comment: We need LOWER gas prices in California. To pay for their gas, workers and business owners raise prices for everything, everyone is hurt both ways!

Please focus on individuals and families and do not tax gas any more! (15d2-044.1)

Comment: Do NOT add regulations that raise gas prices more! We are watching and aware! (15d2-045.1)

Comment: This tax increase on top of all the other taxes we pay on gas is going to create a financial strain on my family. I think it is irresponsible and unnecessary. Please do a better job of managing our taxes. We already have the highest gas taxes in the nation. (15d2-046.1)

Comment: we are tired of how much money we have to pay for fuel. It's ridiculous. Stop taking our money. (15d2-047.1)

Comment: Enough already. Cut back on what you give to people that are here illegally (15d2-048.1)

Comment: The California working class is struggling. It is so hard to live in this state, especially for those who have a family to support. California has the highest gas prices in the nation. I have not checked recently, but I imagine it's over three dollars more expensive a gallon than in some states. Why would anyone want to unnecessarily increase gas prices again with another nonsense fee or tax? You are crippling people. It won't be the rich you hurt as they can afford it. It's going to be low income people who typically drive farther or use their vehicles for work. In this economy people are struggling to may rent and put food on the table.

Have you not thought about how increasing gas prices is going to detrimentally impact the majority of people in the state? (15d2-049.1)

Comment: Please do not increase the fees or taxes that would raise gas prices once again. Everyone has already been squeezed hard enough by inflation and California already has the highest gas prices in the continental US. Stop doing this to us. We are tired. We work so hard and California keeps taking more and more. Please do not take this action in November. Please.

Sincerely,

Lauren Kramer

(Born in Long Beach, raised in Santa Ana, lifelong Californian) (15d2-050.1)

Comment: California legislators need to stop additional gas tax increases by CARB. Stop gaslighting citizens to believe the high prices are caused by oil companies. Hi gas prices in California are caused from Illegitimate taxes , fees and levies placed upon citizens by our legislators. No more increases in gas prices. (15d2-051.1)

Comment: I'm a resident of Costa Mesa, CA and I vote NO on regulations to raise the gas tax by 65 cents. Please vote NO on me and my family's behalf. We are a family of 7 struggling to pay for BASIC NECESSITIES. We DO NOT have extra funds to subsidize these regulations! (15d2-052.1)

Comment: I'm a resident of Costa Mesa, CA and I vote NO on future regulations to raise the gas tax by 65 cents. Please vote NO on behalf of me and my family. We are a family of 4 struggling to pay for BASIC NECESSITIES like our home, food, utilities, and our children's education. We DO NOT have extra funds to subsidize these regulations! (15d2-053.1)

Comment: Hello All,

California has the most expensive gas already with nearly \$1.50 of every gallon going to CA taxes. This increase of another possible\$0.68 makes the cost of gas prohibitive, especially to people who commute or are low income. Pair this with Newsom's ill conceived attempt to force storage levels on refineries and you have a power keg situation. The refineries will pass on the storage costs to consumers. So what, we'll have the cost of gas tax in CA nearing \$3 of every gallon? The level of bureaucratic absurdity in this policy is endemic of unelected officials making policies they don't understand, with wide ranging negative economic impact on all residents. These policies increase the cost of living, which will fuel the continued exodus of people moving out of state. It's time to stop making the cost of living in CA unreasonable. (15d2-054.1)

Comment: California gas taxes are already too high. I mostly drive to take my son to school. He would go to school near our home where he can ride his bike but he was not allowed to enroll due to California law (he cannot have vaccination for medical reasons but could not get a medical exemption). So if California puts an additional tax on gas, I am now paying even more for my child's education. I am a 4th generation California native. California needs to slow down its taxes or my family will be forced to leave. (15d2-055.1)

Comment: Dear California Air Resources Board,

I am writing to express my concerns about the recent proposal that could potentially increase gasoline prices by as much as \$0.65 per gallon. While I fully support California's commitment to reducing emissions and promoting environmental sustainability, I believe this particular measure may have significant adverse effects on individuals, families, and businesses across the state.

Raising gas prices by such a substantial amount would place an additional financial burden on California residents, especially those in lower-income communities who rely heavily on personal vehicles for commuting and essential errands. The proposal could also have a ripple effect on the economy by increasing transportation costs for businesses, which may then pass these costs on to consumers.

Additionally, this price increase could disproportionately affect rural communities where public transportation options are limited, making it even more challenging for residents to afford necessary travel. It is crucial to consider policies that do not inadvertently impact vulnerable populations or create significant financial strain.

Instead of raising gas prices, I urge CARB to explore alternative approaches that continue to advance our environmental goals without compromising affordability and accessibility for all Californians. Initiatives like investing in public transportation infrastructure and promoting carpooling programs that can also help reduce emissions effectively. (15d2-056.1)

Comment: The decisions and choices the state of CA are making do not reflect the people they represent. Consider the avg salary & then calculate what the cost is for that family to fill their tank each week.

We need better fiscal responsibility in all areas so that gas prices aren't used to make up for deficits.

I live in the Central Valley and pay the most for gas in an area that produces gas. How does that make sense?

Make your decision based on what is best for the people you serve.

Thank you (15d2-057.1)

Comment: It is absolutely unacceptable to consider an additional increase in gas prices or gas tax in CA! You are LITERALLY driving people out of the state!

I will not and do not support this!!! (15d2-058.1)

Comment: Is California trying to run everyone out of the state by acting like the government agencies know better than its citizens? I cannot believe this act is even possible three days after an election! Please stop trying to make life harder. I disagree with your policies and hope our state government will listen to the people and allow a vote! (15d2-059.1)

Comment: Hello, I am writing to voice my OPPOSITION to the proposed 65¢ gas tax.

Thank you,

Anita Munson (15d2-060.1)

Comment: No need for higher tax on gas. This state is consistently pushing taxes higher for the wrong reasons. It is destroying the middle and lower class income families. The state needs oversight and accountability about where the funds go. The streets are in shambles, the freeways have garbage and weeds growing all over them. It's obvious that the money is not being spent on fixing or taking care of our roadways. (15d2-061.1)

Comment: Please you cannot raise gas again. This is getting pretty hard to comprehend how you can not care about the people in your state and how they can or cannot get by. There is a reason people are leaving California. I do not think this is fair. Please do NT proceed. (15d2-062.1)

Comment: Dear CARB Commissioners,

I urge you to reconsider the proposed amendments to the Low Carbon Fuel Standard (LCFS), as they could raise gasoline prices further in an already challenging economic environment. California gas prices are the highest in the nation, and consumers are struggling with high inflation, reduced purchasing power, and wages that haven't kept pace over the past decade.

Now is not the time to burden Californians with additional costs at the pump. I encourage a balanced approach that considers consumer impact alongside environmental goals.

Thank you for considering public input on this matter. (15d2-063.1)

Comment: I'm a mom of 6. I'm already paying too much for gas. Other states do not have to pay this. In our home if we are over budget, we don't tax our kids. We cut the budget. That is just a normal, adult responsibility. If our state is out of money, please just change and limit how your spending money. Make the necessary sacrifices so we don't have to pay for your lack of management. (15d2-064.1)

Comment: Dear Sirs,

I defiantly oppose any further regulations put on companies such as Chevron in the state of CA. You have already pushed away every other company and Chevron is the only company left that will work with the state. These additional regulatory requirements you are adding will add .65-\$2.00 a gallon more in gas prices for the consumer and we cannot sustain another increase or tax!! We are all living paycheck to paycheck with multiple jobs, raising our kids and now this.

Please take Chevron seriously because they will walk IF you decide to add further restrictions and WE THE PEOPLE cannot afford it. Put aside the green new deal ideologies and start caring about the well being of your citizens in CA.

We are tax paying and law abiding citizens that do not want this!! (15d2-065.1)

Comment: We cannot afford any more hikes in gas prices in CA!! Quit working against the working class and make policies to protect working Americans! This is insanity..it's like kicking us while we are down. STOP (15d2-066.1)

Comment: STOP the California insanity! Do not burden the citizens more. (15d2-067.1)

Comment: Our fuel prices are higher than Hawaii. How is that possible? We have the highest fuel prices in the country. California is the absolute worst place to live. I would move out if I could. I will NEVER drive an EV. So suck it carb. (15d2-068.1)

Comment: Do not raise gas prices. We are already the highest in the Nation. Where is the audit for where all previous taxes collected on gas have gone to and or spent? Do not say our roads because they are still horrendous. You have no accountability for the decisions made. You should already have a list of where monies have been allocated to so no need to "pay" more for an audit. (15d2-069.1)

Comment: Please do not add taxes or fees to our gas prices.

It is difficult to make ends meet and these fees are exorbitant. (15d2-070.1)

Comment: Please please please I'm a mother of young children and we absolutely cannot take another hike in gas prices right now. (15d2-071.1)

Comment: In no way am I for this tax... instead I propose massive cuts to government agencies (not public safety agencies). Stop with the ludicrous climate regulations and overbearing wasteful spending for ILLEGAL aliens. Get control of existing budget... addition by subtraction formula. (15d2-072.1)

Comment: Come on! You got to think about what 65 cents would do to the economy in Ca. Are you people idiots or just dumb or a little of both. People who have drive to work in traffic or long distances can't afford the gas prices now because of your already in place statues. What about the truck drivers who transport all the goods?

College education or degrees just breed stupidity and no common sense. (15d2-073.1)

Comment: I urge you not to oppress the citizens of California with another Insane and Unnecessary tax on our gasoline usage! We do not need another .65/ gallon raise in the cost of gas in this State. We are already paying the highest gas prices in the nation. Stop the insanity!! (15d2-074.1)

Comment: I would like to know what the purpose of this regulation is and how me paying even more for fuel is somehow going to save the planet. Your climate agenda is crushing the middle/lower class (who fund your organization I might add). We already pay the highest prices in the country, and you want more regulation that will further increase those costs? Please help me understand the benefit of these proposed regulations. I have seen no good come from anything that CARB has done. What you have done successfully is forced hardworking Californians out of business and out of state. Congratulations! (15d2-075.1)

Comment: I am opposed to the \$0.65 addition to gas prices in CA. Please stop the madness and DO NOT PASS THIS!! (15d2-076.1)

Comment: We already pay an absurd amount of gas tax. You cause more local inflation and damage to family savings than any other unelected or elected agency. Please stop for the love of God. (15d2-077.1)

Comment: California already has some of the highest prices of gas per gallon in the nation. A hike of \$0.65 a gallon is incredibly ludicrous and unnaccwptable. Especially when proposed by

a board that is unelected. Do not proceed with this increase. Haven't we already seen enough young families, businesses and wealth leave our beautiful state?! (15d2-078.1)

Comment: Being a huge state in our county we can no longer hold our citizens victims to gas taxes. We can't assume everyone can buy new EV cars and punish them for not following the mandate. People are leaving our state bc you hand made it unsafe and unaffordable. We have refineries for a reason . Let's us them and stop punishing the citizens with unnecessary taxes that are even helping out anyone or anything substantial. (15d2-079.1)

Comment: Please don't raise gas prices anymore, I can't afford it. (15d2-080.1)

Comment: To whom it may concern,

CARB is the primary state agency responsible for actions to protect public health from the harmful effects of air pollution and to address global climate change. This increased gas tax you plan to add three days after the 2024 election has nothing to do with the idiots in Sacramento who didn't think about this whole electric car reality all the way through and how it would impact future

non-gasoline tax government revenue. So now that gas revenue isn't as high as it used to be, you are now "losing" revenue, so let's gouge those who still use the pumps. If you keep adding this and that tax, I wouldn't be surprised if the refineries will eventually refuse to do business with the state of California. Please do better! Think of the ramifications of this additional tax and how it will affect a lot of Californians. (15d2-081.1)

Comment: We are respectfully requesting you do not raise gas prices in CA. We are a family of four, including a newborn. We have good careers, but despite that, we continue to live paycheck to paycheck barely having enough money to pay for all necessities to live here. Please help the residents in California by not increasing gas prices. If not, you will continue to lose more and more people who will flee the state. Please stand up for the people who live here.

Thank you (15d2-082.1)

Comment: Please do not increase the price of gasoline. I can barely afford to fill my tank with the current prices.

I understand the reason behind the desire to reduce CO2 emissions but this is going too far. I do not support this additional tax. (15d2-083.1)

Comment: The burden in my family with the increase in gas prices for basic transportation to work and schools is off charts. The possible increase in basic products is an ongoing concern. Please do not raise gas prices. We deserve to live normal lives without the concern on how the future looks here in California. (15d2-084.1)

Comment: I'm writing to express my concerns about the potential \$0.65 increase in gas prices. I don't understand how you and others in Sacramento fail to see how constant taxation burdens the citizens of this state. How are people supposed to live and support their families under these excessive taxes? And for what? Most of our tax dollars are wasted, with no noticeable improvements. Our gas prices are already the highest in the nation, even compared

to Hawaii. Now, you're proposing an additional \$0.65 per gallon, and to implement it after the election. This is deceitful, and your lack of transparency is both concerning and unsurprising. For once, consider how your decisions are affecting the people you're supposed to support. (15d2-085.1)

Comment: I cannot believe that you guys think it's a smart choice to raise Californians taxes for gas when we are literally dealing with high inflation and barely making it by. This Hurts lower economical household at a much higher rate think about that (15d2-086.1)

Comment: Hello!

I oppose gas price increase in California. We are already struggling to afford what we are paying now.

We are one of the highest in the nation . (15d2-087.1)

Comment: Our citizens are already at capacity financially. Please please don't pass new legislation for any more gas taxes. We can't afford it (15d2-088.1)

Comment: Like seriously. Are you fucking kidding me. Gas is already more expensive in CA than HI. That's absurd. Any action taken to increase gas prices is an attack on California citizens. (15d2-089.1)

Comment: Gas prices are already killing us at the pump year over year and now you think raising prices an avg of .50 cents a galln is a good idea? What to push some green agenda? So push us all in to poverty to complete your vision of the future?

You are not elected by the people of this state therefore you shouldn't be taking money from us by taxation. Second, if you have a crap about the environment you'd bring back nuclear and not be solar projects that are destroying habitats in the desert. Lastly get on worthless Gov who's dropping billions on a train and start implementing actual policies that don't dive in to Marxism (such as yourselves).

The middle class and the poor can't afford your bs. (15d2-090.1)

Comment: Enough is enough. How do you sleep at night (15d2-092.1)

Comment: What makes you think that this help anything? Why are smog checks required on cars built after 1975? That is a 50 year old car. (15d2-093.1)

Comment: I do not want any more taxes added to fuel. I do not support gas taxes! (15d2-094.1)

Comment: Please stop the gas tax. We can't afford it. (15d2-095.1)

Comment: Stop raising gas prices! California gas is higher than any state in the country! STOP! money grab is evil! Stop tacking on additional tax to our gas! You are taking advantage!!! (15d2-096.1)

Comment: Where to begin?

How about this: with China on a coal-fired power plant building spree with no end in sight, this latest madness from you folks will have no measurable effect on air quality or climate change, but it will add more then \$0.50 to the retail cost of a gallon of gasoline & diesel.

Have you completely lost your minds? This latest round of insanity is nothing more than a regressive tax, by definition imposed on those who can least afford it. And you're doing this while the governor is trying to punish oil companies for the high price of gasoline -- yet you want to make it worse! (15d2-098.1)

Comment: CARB making a horrible decision for inflating/ adding on another gas hike. Despicable and foolish. Leave the hard working Americans alone. We will find the 'others' monies that are in pockets rather than our state soon. Repent and start walking truthfully because it will get a bit uglier. Don't pass that hike.

Thank you.

Good luck

- LP (15d2-100.1)

Comment: I am absolutely against this madness that the CARB is proposing that will raise gas prices. It is blatantly obvious that they do not care about the citizens of California and are only concerned with lining their own pockets. We already pay all this money for gas taxes and yet the roads are still in terrible shape. Stop lying to us and actually do something that will benefit us instead of hurting us... (15d2-101.1)

Comment: I am absolutely against this madness that the CARB is proposing that will raise gas prices. It is blatantly obvious that they do not care about the citizens of California and are only concerned with lining their own pockets. We already pay all this money for gas taxes and yet the roads are still in terrible shape. Stop lying to us and actually do something that will benefit us instead of hurting us... (15d2-102.1)

Comment: The upcoming gas increase is preposterous. This legislature took a budget surplus and quickly turned it into a deficit based on out-of-control spending. And now the taxpayers who already are dealing with huge inflation and an inability to keep up with increasing costs of food,utilities,etc are going to be subject to a crazy increase in gas. Our gas already is some of the most expensive in the country. Many people already have fled this state, and you will continue to push people out based on unaffordability. This legislature pretends it is for the everyday people, but this is a huge burden for the citizens of this state. Shame on you. (15d2-103.1)

Comment: The never-ending squeeze on Californians' wallets is exhausting. How can we survive like this? I am well educated, make a good living but still am starting to get crushed by the constant increases in gas, taxes, insurance. We already pay so much more for gas than other states so how can anyone in good conscience tell us it still is not enough? We cannot afford this. It should not even be on the table. This has to stop. You are driving people out of this state. (15d2-104.1)

Comment: We are struggling to make ends meet with the current inflation. This new tax is unreasonable and should be repealed. This gas tax will only increase the cost of everything as fuel is an aspect in almost every food and service. (15d2-105.1)

Comment: I am opposed to further taxes and price increases on our fuel. We are the highest of all states right now. I can barely afford to keep gas in my car. You continue to punish consumers. An approximate \$0.65 increase is unbelievable! Please evaluate carefully and consider your friends and neighbors who are struggling to make ends meet every month. (15d2-106.1)

Comment: California already has the highest gas prices in the United States and you have the unmitigated gall to even consider imposing higher prices on gas! Instead, you should be helping the good people of California by removing the taxes while we are struggling to pay for groceries. You scumbags keep poking us in the forehead with your incompetence, waste and corruption asking for a fight. (15d2-107.1)

Comment: No to another tax on gas!! (15d2-108.1)

Comment: I urge you NOT to adopt this proposed low carbon fuel standard Amendment! (15d2-109.1)

Comment: Dear CARB,

I oppose the increased gas tax possibly coming up. Our air is as clean as it's ever been, and we are taxed enough as it is living in CA.

Sincerely,

Greg Hanoian (15d2-110.1)

Comment: We as the people of California already pay exorbitant gas prices, more than any of those in our surrounding states. If you care at all for the people that you are supposed to represent you will not increase the price in a time like now. With inflation on everyday goods still hurting those who claim to care about most minority and lower income families, and gas prices amongst the highest in the nation. It is unacceptable that this is even coming up as an option. don't tax people on gas.! don't take essential everyday goods and make them a play toy for you to gain more money to spend without a thought! this tax increase coming up, shows your lack of awareness for those that live in your state, with the highest home prices, the highest gas prices, and some of the highest energy prices you are driving more U-Haul sales out of state with every allowance of these types of measures. put the people before your pocketbooks and say no to this increase in gas taxes!!! (15d2-111.1)

Comment: Ladies and gentlemen:

I implore you to oppose any increase to the gas tax in our state. We are already paying more than most other locales and just can't endure even higher prices at the pump.

The middle and lower classes are already hard-hit with inflated prices for groceries and other goods, and this will only get worse if fuel charges for moving goods from manufacturers and growers to retail sellers increase the prices of food and necessities.

Seniors on fixed incomes have no discretionary income to cover additional fuel charges. Workers can ill afford to pay more just for their commute.

Please do the right thing for Californians and stop the gas tax hike. Enough is enough.

Respectfully submitted...(15d2-112.1)

Comment: We can NOT afford to pay more for gas! Do not add more taxes and fees to our gas!!!! (15d2-113.1)

Comment: I am infuriated and opposed to this gas tax increase.. why are we the people paying for Sacramento's incompetence??? Robbing Peter to pay Paul is all you seem to be capable of doing.. (15d2-114.1)

Comment: It beyond me how you want to put even more taxes on gasoline. It extremely irresponsible to the people of California. Our reputation in CA is in jeopardy. (15d2-115.1)

Comment: I oppose any and all gas prices increase for any and all reason and any and all times. (15d2-116.1)

Comment: You are squeezing us for all we're worth and driving even more people from this state. Stop killing your middle class this is untenable. We are more than just your tax slaves. (15d2-117.1)

Comment: This decision to further micromanage the gas industry is a new level of our state's mismanagement. We already have the highest gas prices in the nation and increasing the cost of gas by 65 MORE cents per gallon is criminal. Democrats purport to care about the "little guy"-- the working poor and the middle class- and all you are doing is purposely making life more difficult for anyone who drives a gas-powered vehicle. Our state has nowhere near the infrastructure to maintain and increase the number of electric vehicles so your campaign to punish those of us who still use gas is insane..The level of arrogance and blind party-politics is truly reprehensible! (15d2-118.1)

Comment: Raising gas prices will put an additional strain on families like mine. Please reconsider!! (15d2-119.1)

Comment: Enough is enough. Stop making the workers in California slaves with your gas prices for your crazy woke policies. It should be voluntary and you'll see what people think of your policies. You son be happy til every tax payer leaves California. (15d2-120.1)

Comment: WE NEED TO STOP THIS GAS TAX - OUR GAS IS CRAZY HIGH ALREADY- WHYDO YOU NEED MORE TAXES. STOP (15d2-121.1)

Comment: Hello, I am writing as a citizen of California to oppose the increased fee stated above. California already has the most expensive gas in the nation and with the way this state is going increasing fees that will be passed on to taxpayers at the pump doesn't make sense. California government continues to increase fees and taxes only for the middle class to shrink. Please rethink adding additional fees that take money out of hard-working taxpayers.

Thank you. (15d2-122.1)

Comment: I oppose stricter limits on the carbon intensity of fuels. (15d2-123.1)

Comment: WE CAN NOT AFFORD HIGHER GAS PRICES!! (15d2-124.1)

Comment: We are hurting already to put food on the table and gas in our cars. Poor handling of our tax dollars does not give you the right to gouge us with higher gas prices. Vote no on any gas pricing increases that will hurt we the people. (15d2-125.1)

Comment: Please do not raise our gas tax again! Californian's already pay the highest gas prices, rent/mortgage, taxes in the nation. Average working citizen's are struggling. (15d2-126.1)

Comment: You cannot in your wildest dreams defend with reason why we should allow you to raise our gas taxes even more, again! On top of the multiple raises this past year and every single July even during Covid, most states repealed and or credited their people for the unjust living expenses already being dealt with. We the People will not stand idly by and be stuck with yet another tax hike on our already most insane prices in the country. Cease and desist with this nonsense. Please! (15d2-127.1)

Comment: Please, stop adding more oil regulations that will potentially higher the gas prices. Gas is already extremely expensive here in California. If you really care about the people of California, you need to stop this maddeness, we can't take this high prices anymore.

Sincerely,

Pino Bogedahl (15d2-128.1)

Comment: Please stop the insanity. (15d2-129.1)

Comment: We already pay too high of gasoline taxes in California. I urge the California government to oppose any new gasoline taxes. My home state is unrecognizable and far too expensive.

Please represent your constituents and the hard working Please represent your constituents and the hard working citizens of California.

Thank you. (15d2-130.1)

Comment: Gas is already too expensive - NO to additional taxes. (15d2-131.1)

Comment: We have one of the highest gas prices in the country. Why is this price increase is necessary? I vote against (15d2-132.1)

Comment: Stop increasing our gasoline! I can barely afford my life. (15d2-133.1)

Comment: I am against a rise in gasoline prices. (15d2-134.1)

Comment: This will have dire consequences on the citizens of California. We already pay some of the HIGHEST FUEL PRICES in the country due to having one of the highest fuel taxes in the country.

We pay almost the highest income taxes in the country, top to bottom not just the wealthy. Food prices are up about 50-75%

Housing costs are up nearly 100% over two years ago.

We cannot sustain a rule change on behalf of unelected bureaucrats, that have ZERO accountability to the people that will affect fuel costs in a state that relies heavily on transportation for commuting.

You have ZERO right to create rules that will affect the costs of products on people who did not elect you to create rules/laws.

We have a legislation to create rules and laws, you are not part of that body and should not have the ability to CREATE new rules on a whim. (15d2-135.1)

Comment: I vehemently oppose CARB increasing the gas tax with its rule. Californians already pay ungodly pricing at the pump that no other states do. (15d2-136.1)

Comment: To whom it may concern,

As a lifelong Californian, I have become aware how much you are taxing us. California does not show the taxes on our receipts for the gas that we pay and to increase any further our gas tax is absolutely ridiculous. You cannot continue to tax us like this! We are the highest state tax by gas in the entire country.

We are aware of what is occurring. This needs to stop now. (15d2-137.1)

Comment: No more gas price himes. (15d2-138.1)

Comment: We already pay the most for gas in this country. The economy is horrible, everybody is paying more and more for every day items, and despite already paying high gas prices, you want to increase that already high price!? Please do not do this to the citizens of California. (15d2-139.1)

Comment: Stop with all the regulation that is driving gas prices through the roof. You are hurting the people of CA with your bureaucratic power grabs. (15d2-140.1)

Comment: I am strongly against any further taxes on gasoline! As a matter of fact you need to roll back some of the taxes that already exist!! Our gas prices are RIDICULOUS! (15d2-141.1)

Comment: I am opposed to any amendment that would further increase the gas tax. CA has been leading the nation in the most expensive gas prices for far too long. We don't need another amendment that would keep the gas prices high. It's too hard to live in CA as it is currently, you should be trying to help your residents, not making it harder. (15d2-142.1)

Comment: We are already taxed to death and struggling in California. I am very much against more unnecessary taxes on gas. No more gas taxes. the highest gas prices by far. (15d2-143.1)

Comment: You are not an elected board. The only taxes and fees that should be raised are by the vote of the people. Vote NO on any additional fees or taxes placed on the refinery. This includes other EPA and air quality requirements as well. You should not have the power to create any regulations that raise anybody's fees or taxes. (15d2-144.1)

Comment: Please do NOT raise the gas tax. This may not affect the upper income class, but it is horrible for the poorest of our population. It not only increases the cost to fill our tanks but

will ripple through costs for small businesses. This in turn increases the costs of goods for everyone. PLEASE DO NOT RAISE OUR TAXES ON GAS !!! (15d2-145.1)

Comment: Stop! Stop raising the price of gas. It is outrageous and it needs to stop! In the words of our President and Vice President, "Don't!" Stop making our lives worse in this state! (15d2-146.1)

Comment: Californians already pay the highest gas taxes in the country, raising them even more is going to ultimately create a bigger purge of people fleeing this collapsing state. Less people=less tax revenue. This move to try and force citizens to all electric vehicles is futile, under the guise of "reducing carbon emissions". There aren't enough resources for it to be sustainable, which is already apparent when the government asks people not to charge their vehicles because of the burden on the grid. It makes absolutely no sense. How about we set it motion standards for the taxes that are already collected to be spent in a responsible manner?

Your entity was not elected by the people.

No more wasteful spending

No more taxes. (15d2-147.1)

Comment: Please consider the cost of living in California. This will increase gas costs to the public that is already suffering (15d2-148.1)

Comment: Do not raise our gas taxes. California has an extremely high gas tax already! (15d2-149.1)

Comment: Our gas taxes are already a National joke! Do NOT raise the gas tax!

Perhaps consider reducing spending??? (15d2-150.1)

Comment: I strongly oppose any gas tax to be implemented for any Californians. We already pay the highest gas in the nation, yet see little Benefit from these tax hikes. (15d2-151.1)

Comment: Dear Board Members,

As a teacher who has to commute to work daily (as home prices mostly prohibit service people from living near their work) higher gas prices will be quite detrimental. If your goal is to push people to leave California you are succeeding. My court in Gilroy has lost several households to Idaho and Texas. Please let us stay in California and keep teaching. Do not add more taxes to those who do not have a choice to not commute. (15d2-152.1)

Comment: I am against the carbon reduction proposal that will increase gas prices by as much as 65 cents per gallon. Please remove this from any future action. (15d2-153.1)

Comment: I am against the carbon reduction proposal that will increase gas prices by as much as 65 cents per gallon. Please remove this from any future action. (15d2-154.1)
(This is not a duplicate of 153.1)

Comment: The idea of raising the highest gas tax in the United States even more during one of the biggest inflation and recession times in recent history is absolutely insane. Vote no on this. It is a must. When people wonder why California is losing this is exactly the reason. Do

better managing the revenue from the current gas tax instead of inflicting more financial pain on residence that can't afford it. (15d2-155.1)

Comment:

Dear CARB Board Members,

I am writing to express my strong opposition to the proposed rule that could increase gas prices by an additional 45-65 cents per gallon. I believe this measure will disproportionately impact working-class families, small businesses, and rural communities who rely on affordable fuel for daily life.

In an already expensive state, a significant gas price hike will exacerbate the financial burden on Californians struggling with high living costs. Increased transportation costs will also drive up the price of essential goods and services, further harming those who can least afford it. For many residents, public transportation or electric vehicle options are either unavailable or financially out of reach, making gasoline a necessity, not a choice.

Additionally, California has the highest gas taxes in the nation, and the proposed rule seems to overlook the cumulative economic strain already placed on residents. I believe CARB can pursue its environmental goals through alternative means that do not place such an immediate financial burden on families and businesses.

I urge CARB to consider solutions that balance environmental objectives with the economic well-being of all Californians, such as further investment in sustainable fuel research, incentivizing cleaner technologies.

Thank you for your attention to this important matter.

Sincerely,

Aracely Covarrubias (15d2-156.1)

Comment: CA residents can't afford any more taxes. Find the money elsewhere. (15d2-157.1)

Comment:

To the Esteemed Unelected Board,

It's time to take a pause on new measures that lead to higher prices of an everyday necessity. The California economy is already too expensive for most people who live here, and adding another 45-65 cents per gallon of gas is ludicrous and out of touch with the reality of everyday Californians.

Thanks,

Vote 'no' and give Californians a break. We need it.

A tired voter and taxpayer (15d2-158.1)

Comment: I oppose any additional taxes and price increases for gasoline and diesel. Maybe California should manage their funds better instead of taxing citizens out of their hard earned income that's forcing many to leave the state altogether. Enough is enough. (15d2-159.1)

Comment: I'm against any new has increases and please repeal the already \$1.08 tax on our had in california. Thank you. (15d2-160.1)

Comment:

To whom it may concern:

As a resident of California, I am deeply opposed to the gas tax increasing. Our state currently pays the most in the country for gas. If other states can off gas for less money, why then do lawmakers perpetually want to tax their constituents more for gas? It feels a lot like taxation without representation, not unlike the taxation without representation with which the Founders dealt.

Please remember you serve the people of this great State. Many voices are speaking up in oppositio to this gas tax, like mine.

Thank you for your time.

Kerry Johnson (15d2-161.1)

Comment: As a life long Californian and senior I must protest the continued taxation of California citizens. Stop taxing us incessantly and cut spending (15d2-162.1)

Comment: Don't you DARE add more taxes and make gas prices worse than they already are!!!

No one can afford anything in CA as it is, and adding more taxes will only make things worse. Stop with the nonsense, and find ways to CUT taxes, not raise them

Sincerely,

A Normal Person trying to survive. (15d2-163.1)

Comment: Do not raise gas prices again. The people of California are already suffering with the highest gas prices in the nation, mainly due to gas taxes. Please figure out how to streamline the many agencies so the taxes already being charged can more efficiently and effectively be spent. Living in California is becoming more and more intolerable with the huge inflation and constantly increasing Taxes. (15d2-164.1)

Comment: I understand you are proposing amendments to the Low-Carbon Fuels Standard (LCFS) program. I urgently request you delay the vote until updated cost projections are provided to the public.

The carbon emitted by the ships bringing foreign oil to our state FAR EXCEEDS the carbon emitted by all our vehicles in this state combined, yet you are forcing our oil wells and refineries IN THIS STATE to restrict their utilization and capacity. This process is costing me

dearly at the gas pump. Now you want to make it worse with your amendments, without due consideration to the impact on me and all of us as citizens.

Reconsider your policies at every level and bring back robust IN-STATE oil production. (15d2-165.1)

Comment: The continued lack of empathy in regards to the continued taxation on gasoline is phenomenal. You are crushing us with artificial increases and it bring the State to a grinding economic halt. (15d2-174.1)

Comment: I feel this is like a double edged sword. Larger tax should reduce consumption but obviously increase costs. If we all drive less this helps improve air quality and increased taxes SHOULD be used to benefit road conditions. (15d2-175.1)

Comment: The governor of CA is not in touch with the citizens of this state! I'm happy he can afford essentials, but many cannot! We already pay the highest taxes and have endured terrible inflation. Please consider repeal of the last gas tax and prevent further taxes! Seniors and many others are suffering! (15d2-176.1)

Comment: The state doesn't have budget problem, just a spending problem. You can just keep adding taxes to our fuel cost, this will hurt the lower income and retirees. (15d2-177.1)

Comment: I am retired on a fixed income and the proposed increase in tax would cause financial hardship for me. Please don't increase the gas tax. Thank you (15d2-178.1)

Comment: I am against the carbon reduction proposal that will increase gas prices by as much as 65 cents per gallon. Please remove this from any future action. (15d2-179.1)

Comment: I am against the carbon reduction proposal that will increase gas prices by as much as 65 cents per gallon. Please remove this from any future action. (15d2-180.1)

Comment: If I were a venture capitalist or fuel producer evaluating whether to invest in some of the projects described above, the current public uproar and reaction from some legislators (even democrats) over gasoline price impacts would make me pause to consider whether an investment with a payback of more than a few years is advisable. Will the legislature terminate the LCFS or freeze targets if pass-through costs from the LCFS and Cap-and-Trade get out of hand? Will a future governor step in and tell CARB to amend the regulation to get control over ever-increasing gasoline costs? Biofuel, RNG and fossil fuel stakeholders have successfully convinced staff to largely leave credit generation unmodified. They have done this by arguing that major changes to the regulation or limits on credit generation will inject significant uncertainty into the market and potentially strand assets. I argue that by not making strategic changes to the program to limit pass-through costs, by not cutting out unnecessary and ineffective credit generation, by not making changes necessary to convince the public and the legislature that CARB is a good steward of their money, CARB is injecting even more uncertainty into the market. (15d2-183.11)

Comment: Comment received during 2nd 15-Day Comment Period. Comment submitted by Clerk on Commenter's behalf.

"I'm not a Republican, but I agree with this:

<https://src.senate.ca.gov/sites/src.senate.ca.gov/files/10.15.2024%20SREP-AREP%20Letter%20to%20>

Where's your accountability to the general public? Shame on you."

<https://www.arb.ca.gov/lists/com-attach/51-lcfs2024-2nd15day-VGVSZAEuVTdSYQgm.pdf>
(15d2-229.1)

Comment: Please postpone the vote until you are transparent on what the price of gas will be increased by. Isn't fuel high enough? Isn't inflation high enough for us to deal with already?
Thanks (15d2-231.1)

Comment: California motorists are already paying \$1.50 more per gallon for gasoline than the national average price of the other 47 continental states. It is with this in mind that we write you again with serious concerns about the proposed amendments to the Low-Carbon Fuels Standard (LCFS) program that will drive up fuel prices. We regret that the California Air Resources Board (CARB) refuses to release any analysis of how its proposed LCFS amendments will affect gas prices in California.

Sincerely, from a 75yo who would like to afford to stay in California. (15d2-232.1)

Comment: DON'T RAISE THE TAX ON GASOLINE!

Californians are currently paying \$1.50 more per gallon for gasoline than the national average. Now, new amendments proposed by the California Air Resources Board (CARB) under the Low-Carbon Fuels Standard (LCFS) program could make this even worse, driving prices up by as much as \$0.85 per gallon soon and up to \$1.50 per gallon by 2035. (15d2-233.1)

Comment: I'm writing to request that your upcoming vote regarding Low Carbon Fuel Amendments be delayed, or shelved entirely. (15d2-238.1)

Comment: There needs to be a full public review and disclosure of the updated pricing impact, resulting from this regulation. Californians already pay the highest fuel costs in the country, with taxes & regulations driving the cost up substantially. The cost of fuel impacts everything we consume, in addition to the cost of our own transportation needs. There is only so much the consumer can bear, and actions like this proposed amendment directly adds to the everyday cost of every household and individual in the state. These actions only tend to add to the out of state migration of financially able residents, as well as those who can simply no longer afford the California financial burden. (15d2-238.2)

Comment: New amendments proposed by the California Air Resources Board (CARB) under the Low-Carbon Fuels Standard (LCFS) program could drive fuel prices up by as much as \$0.85 per gallon soon and by up to \$1.50 per gallon by 2035.

Please delay all votes on this topic until clear information regarding the costs of these amendments has been provided to the voters of California.

Our fuel prices are already the highest in the Continental United States, and we cannot afford for them to go any higher, especially with potential price shocks on the horizon due to instability in Russia, Iran, and other unfriendly fuel producing nations. (15d2-245.1)

Comment: Further to the concerns raised by my representative Greg Wallis and his colleagues in his letter to The Honorable Liane Randolph Chair, California Air Resources Board dated October 15, 2024, when can the voting public expect to see updated cost projections for the proposed amendments to the Low-Carbon Fuels Standard (LCFS) program? Full disclosure of long-term financial impacts and the need for greater public participation is required before changes as significant as these are voted upon and enacted.

Please DO NOT proceed with the planned LCFS hearing until representative Wallis and other representatives have had an opportunity to better understand the cost implications of the proposed changes. The last thing California needs is more costs for the people of this state! The high cost of living in California is already causing sizeable numbers of people to leave the state. That should be a big red flag for Chairman Randolph and other regulators that are considering policy changes that only serve to drive costs higher with limited benefit. (15d2-246.1)

Comment: I am requesting the CARB delay the vote until updated cost projections are provided to the public. Actually, I think this particular rule making should be presented to the citizens as a Proposition ballot measure; as any tax, bond issue, etc. would be.

Our gas prices are already obscene, compared to a lot of other states. Further increases in that differential could result in unintended political and social consequences. The public hasn't been made aware of the changes that will further increase our costs, much like a tax. I think more time should be given for science to develop some alternatives, as further modifications are probably producing smaller improvements at increasingly greater costs.

The supermajority in the legislature is walking a fine line, along with many of our state boards and committees. I believe we are reaching the limits of traditional liberalism, as governmental revenue vs. spending or personal income vs. expenses are reaching a point of financial destabilization. (15d2-247.1)

Comment: Please delay the vote on the above-referenced proposed amendments until updated cost projections are provided to the public. (15d2-248.1)

Comment: Please delay the upcoming vote until updated cost projections are provided to the Public.

Californians are currently paying \$1.50 more per gallon for gasoline than the national average. Now, new amendments proposed by the California Air Resources Board (CARB) under the Low-Carbon Fuels Standard (LCFS) program could make this even worse, driving prices up by as much as \$0.85 per gallon soon and up to \$1.50 per gallon by 2035.

Stop this from happening.

CARB has not been transparent about the real impact these changes will have on fuel costs. This is a continuation of UN Sustainability Goals which aims to further bring the economy of our State, and nation, down instead of raising third world nations up. The result in our State will be more homeless and poverty-stricken people who will have no private transpiration for work. Please keep our population from more poverty.

I am urging that you delay your vote and provide clear information before moving forward with policies that could make living in California more unaffordable. (15d2-249.1)

Comments: I understand you are proposing amendments to the Low-Carbon Fuels Standard (LCFS) program. I urgently request you delay the vote until updated cost projections are provided to the public. The carbon emitted by the ships bringing foreign oil to our state FAR EXCEEDS the carbon emitted by all our vehicles in this state combined, yet you are forcing our oil wells and refineries IN THIS STATE to restrict their utilization and capacity. This process is costing me dearly at the gas pump. Now you want to make it worse with your amendments, without due consideration to the impact on me and all of us as citizens.

Reconsider your policies at every level and bring back robust IN-STATE oil production. (15d2-250.1)

Comments: I am writing to request, delaying the vote on "Proposed Low Carbon Fuel Amendments". Raising taxes on gasoline raises the cost of all essential commodities. CARB needs to provide updated cost projections to the public. (15d2-251.1)

Comments: California's gas prices are already \$1.50 higher than the rest of the nation. Consumers are strapped with the high cost of living and taxes in our state. Not to mention, the federal burden being imposed on us through inflation, high interest rates, and astronomical and spiraling out of control national debt of \$35 Trillion growing by the minute.

PLEASE DELAY THE VOTE UNTIL COST PROJECTIONS ARE PROVIDED TO THE PUBLIC. We need full transparency here and without cost projections we have no idea what we're being strapped with. (15d2-252.1)

Comments: California motorists are already paying \$1.50 more per gallon for gasoline than the national average price of the other 47 continental states. It is with this in mind that we write you again with serious concerns about the proposed amendments to the Low-Carbon Fuels Standard (LCFS) program that will drive up fuel prices.

We regret that the California Air Resources Board (CARB) refuses to release any analysis of how its proposed LCFS amendments will affect gas prices in California. As Los Angeles Times columnist George Skelton wrote over the weekend:

"A year ago the air board (CARB) estimated that the new regulation could raise gas prices by 47 cents a gallon because of refinery costs passed on the consumers. A separate study placed the pump cost much higher - 65 cents a gallon. Now the air board has backed off its 47-cent price hike estimate. And it refuses to offer a revised forecast . . . So an unelected bunch of regulators can arbitrarily adopt new rules without weighing the costs to consumers? Doesn't seem right. Seems a bit irresponsible and arrogant."

We concur with Skelton's assessment that CARB is being irresponsible at the expense of everyday Californians struggling with the affordability of basic needs. You need to Stop This Attack On CA Citizens. You Already Steal To much Money From us And Waste it! (15d2-306.1)

Comment: Impacts on consumer fuel prices: California's state legislature is currently in a rare special session called by Governor Newsom, focused on rising fuel prices. The governor's

office noted that the session has been convened in part “to avoid supply shortages that create higher prices at the pump for consumers.”²

As a producer of biofuels blended with petroleum products, ADM is concerned about the impacts the proposed LCFS amendments may have on fuel costs. An arbitrary cap on crop-based feedstocks and redundant, hastily designed sustainability requirements will quickly lead to the very supply shortages Gov. Newsom cites. It will force most biofuels out of the California market, and families and businesses across California would pay this price most dearly. This is likely why Democratic State Assemblymember Corey Jackson (D-Perris) recently said, “For me, this special session has been about ensuring that gas prices are going down... And certainly, if CARB is creating regulations that will increase gas prices, we’re going to have to take a look at that and see if we have to rein in their authority.”³

According to data from the U.S. Energy Information Administration, California fuel prices indeed far outpace the national average.

Gasoline (90% petroleum, 10% ethanol) is the most-used transportation fuel in California, with 97% of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2022, 13.6 billion gallons of gasoline were sold, according to the Department of Tax and Fee Administration.⁴ The average California regular grade gasoline price per gallon in 2023 was 36% higher than the national average. Families and businesses bear the burden, and supply and demand realities indicate that further restricting supply in the fuels market is likely to steepen the increase even further in the years ahead.

The story on diesel fuel (including biodiesel and renewable diesel) is much the same. Diesel is the second largest transportation fuel used in California, representing 17% of total fuel sales. According to the State Board of Equalization, in 2022, 3.6 billion gallons of diesel were sold.⁷ The average California diesel price per gallon in 2023 was 27% higher than the national average. Business and industry initially bear the burden of these price spikes, but the costs are passed onto consumers, who are hit twice – directly for gasoline and indirectly through everyday commerce that is dependent on diesel-powered heavy-duty trucks, rail, off-road construction equipment, and marine transport.

All the while, the state is implementing Advanced Clean Cars, Advanced Clean Trucks, and Advanced Clean Fleets programs to increase electric vehicle sales and use in the state. Coupled with these programs is a scheduled phase-out of new internal combustion engine (ICE) vehicle sales in 2035. Drivers and industries will continue using ICE vehicles well beyond 2035, and a traditional fuels market will be necessary to fuel them. The pressure being applied to that market under the latest LCFS proposed amendments now will intensify in the decades to come.

We repeat here our call for a workshop where diverse stakeholders can discuss the impact of these new proposals. In parallel with that workshop, CARB should update its last fuel price estimate (of at least 47 cents higher) to account for the additional supply restrictions the Board is considering. Indeed, as Assemblymember Blanca Rubio (D-Baldwin Park) asserted, “While the Legislature is currently working to address petroleum price spikes through the public process, it is unfortunate CARB is unwilling to provide an estimate of the monetary impacts

amendments to the LCFS will have. This process is intended to be public and collaborative.”¹⁰ (15d2-307.3)

Comment: Please do not approve any more fuel price increases based on LCFS standards. We, the average Californian consumers, can no longer afford any further increases to our cost of living. Home and property insurance has skyrocketed and there is no relief or leadership on this matter. Property tax increases every year. Food and household goods are double what they were in 2020. The cost to register our cars increases every year. Utility bills have gone up to scary levels. We already pay the highest fuel cost in the nation and this would only be a regressive tax that negatively affects the lower middle class, working class and the working poor. This is all unsustainable unless CARB also advocates for some sort of fuel cost subsidy for Californians making less than 120k per year, which is a fantasy. So, in lieu of further insanity, please just vote "NO" on any further fuel tax increases. (BH-001.1)

Comment: For consumer price impacts, proscriptive estimates by the California Air Resources Board (CARB) and various others projected up to \$1.80/gallon in advance of previous rulemakings. The actual current assessment is 10 cents/gallon.²

The media and public advertising barrage of competing claims on the cost of the LCFS program and the price that consumers pay have overshadowed some fundamental realities:

A definitive study on consumer price impacts by Bates White showed that there is no correlation between LCFS program credits prices and retail gas prices³. An FAQ from CARB updated this analysis to show that this lack of correlation has continued.⁴

The primary drivers of gas prices are the cost of petroleum, followed by fuel taxes and fees added directly to price of a gallon at the pump

LCFS and cap and Trade combined compliance costs have remained consistent over time, consistently increasing carbon reductions for the same cost⁵

The LCFS has diversified the fuel market, which has created price competition to ease the burden on drivers.⁶ For example, renewable diesel is regularly cheaper at the pump than petroleum diesel and can be used in existing vehicles, which has resulted in replacing almost $\frac{3}{4}$ of the diesel in California with renewable and waste sources; ethanol has been up to \$2.50/gallon cheaper than gasoline for flex-fuel vehicles that can use E85; home charging for EVs is significantly cheaper per mile.

The overall compliance cost of the LCFS is minimized by a more flexible and fuel technology-neutral approach to decarbonization.

As presented in CARB's April 10 workshop, a more restrictive program that reduces opportunities for credit generation by limiting viable and affordable low-carbon fuels achieves fewer carbon reductions, raises health effects and associated costs, relies more heavily on petroleum-based fuels, and raises the cost of the program overall

In turn, a more restrictive and costly LCFS program increases both the likelihood and potential magnitude of consumer price impacts (BH-004.2)

Comment: Californians already pay TOO MUCH for fuel - the highest prices in the nation. This new regulation will make gas even MORE UNAFFORDABLE. We're already struggling significantly because of high prices.

I urge the governor to take action against gas prices going even higher. (BH-005.1)

Comment: Our current gas prices in California and regulations are crushing the people. This has to stop. I have a son who is driving 45 minutes away from his home and family to work. More increases of gas pricing will cause many to lose their jobs because they will not be able to afford to drive. Stop This NONSENCE!!! (BH-009.1)

Comment: The maximum pass-through cost of the LCFS to gasoline consumers can be estimated and is a simple function of the LCFS credit price and the percent CI reduction target. This is the calculation that CARB staff performed in the Standardized Regulatory Impact Assessment or SRIA, which resulted in an estimated cost of 47 cents per gallon in 2025. The maximum pass-through cost estimate assumes that the oil companies comply with the regulation by purchasing credits at the current market value.

The current, actual pass-through cost is relatively small at approximately 10 cents per gallon of gasoline. This actual cost has been acknowledged by CARB and is being reported by refiners to the California Energy Commission (CEC) as part of mandatory reporting under SB 1322. This reported cost is nearly identical to the maximum pass-through cost estimated using the current percent CI reduction target and credit price. Therefore, one can conclude that petroleum companies are passing the full maximum cost onto gasoline consumers, even if some of them comply at a lower cost through producing their own alternative fuels and generating their own credits. In other words, oil companies are at worst breaking even but are more likely generating a profit off the regulation.

Why? Because they can. The California gasoline market is not competitive and with the recent conversion of two refineries into renewable diesel production and the imminent closure of a third, it is likely that petroleum companies will retain their current market power in the near and medium-term future. Therefore, it is highly likely that they will continue to pass the full LCFS cost onto consumers.¹ This and the fact that the regulation provides such generous crediting for a host of technologies that actively perpetuate liquid combustion fuels (e.g., liquid biofuels, avoided methane crediting for dairies and swine feedlots, CCS and direct air capture) have oil companies expressing grudging support for the program, when only ten years ago they vehemently opposed it. Oil companies are currently some of the largest investors in these credit-generating opportunities that perpetuate internal combustion over the transition to zero emission vehicles. One of the goals of the current LCFS amendments is to restore a more robust credit price in order to drive further decarbonization of the transportation sector. CARB is proposing to accomplish these goals by rapidly increasing the CI reduction targets from the current 12.5% to a minimum of 30% in 2030, 52.5% in 2035, and 90% in 2045. As the credit price and percent CI reduction targets increase, the maximum estimated pass-through cost also increases. For example, if the percent CI reduction target doubles and the credit price increases from \$67 to \$100, which is very possible by 2027², the maximum pass-through cost will triple to nearly 30 cents per gallon. So, we can reasonably conclude that approving the LCFS amendments will increase the pass-through cost above the current 10 cents per gallon.

Future LCFS credit prices are highly uncertain but can be bounded based on historical prices in the program. Over the past eight years, prices have ranged from a recent low of about \$60 to a high in 2020 just below the program price cap. So, I propose a reasonable bound for future credit prices would be a low of \$60 to a high at the current program price cap, which is approximately \$260. Using this credit price range and the minimum targets to be set by the proposed amendments, I estimate pass-through ranges of \$0.15 to \$0.64 in 2025, \$0.19 to \$0.84 in 2030, and \$0.34 to \$1.47 in 2035.³ (BH-015.1)

Comment: If it were only high-income Californians paying the cost of the program, then I would be much less opposed to high pass-through costs. The truth of the matter is that, over time, those driving gasoline cars and paying the LCFS cost are likely to be increasingly lower income. Unless the State can somehow ensure that lower-income drivers purchase EVs at a faster rate than higher income drivers, the LCFS will become more regressive over time.

Claims that the regulation does not and/or will not increase the cost of gasoline are, in my opinion, absurd. CARB staff increasingly use a graphic that shows no statistical relationship between LCFS credit price and gasoline prices. CARB's implication that this graphic is somehow relevant to the discussion of LCFS pass-through cost is simply sophomoric. The existence of pass-through costs means that gasoline prices are higher than they otherwise would have been without the regulation, not that there should be a statistical relationship between credit prices and gasoline prices. CARB's use of this graphic is akin to Senator Inhofe bringing a snowball to the US Senate floor and implying that climate change is not real because it snowed in Washington DC. (BH-015.3)

Comment: Fortunately, there are [many actions](#) that CARB can take to reduce the pass-through cost to consumers of gasoline. These actions, many of which were also proposed in the "EJ Scenario" put forth by the EJAC, involve limiting credit generation that does not advance California's long-term zero-emission transportation goals, eliminating excessive credit generation that only provides excessive profits, eliminating LCFS subsidies that do not result in additional global GHG emission reductions beyond what would already occur through other State and Federal programs, and minimizing the potential for credit price spikes through more effective program design. Cutting out unnecessary and ineffective credit generation will allow for less stringent targets and lower pass-through costs, without sacrificing real, additional GHG reductions achieved by the program. Unfortunately, CARB has decided not to take these actions. (BH-015.4)

Comment: The maximum pass-through cost to a gallon of gasoline from the LCFS regulation can readily be estimated. This cost is a function of the LCFS credit price and the percent carbon intensity (CI) reduction target for that year. The equation to estimate the maximum cost is based on the program concept that an entity, who generates LCFS deficits (i.e., the refiner or importer of gasoline) or receives the LCFS deficits through purchase of fuel from the refiner or importer (i.e., a gasoline distributor at the rack), will purchase LCFS credits from an alternative fuel producer/importer to offset those deficits. One then assumes that the producer or distributor passes the cost of purchasing credits on to the consumer of gasoline. To estimate the maximum pass-through cost, one simply calculates the number of deficits generated by a gallon of gasoline and multiplies that by the current market price of a credit.

The number of deficits generated by a gallon of gasoline is directly proportional to the percent CI reduction target for that year.

For example, in April 2024 the percentage CI reduction mandated by the program was 12.5% and the average credit price was \$67. At a 12.5% CI reduction target, a gallon of gasoline will generate approximately 0.00134 deficits. Multiplied by the cost of a credit needed to offset the deficit (\$67 in April 2024) results in a maximum pass-through cost of approximately \$0.09 per gallon of gasoline. California SB 1322 requires refiners to report cost data to the California Energy Commission (CEC) and the LCFS pass-through cost is one of the items required to be reported. In April 2024, refiners reported an LCFS cost of \$0.10 per gallon of gasoline, which indicates that refiners were passing on the maximum cost of the LCFS to consumers. In other words, refiners were not absorbing some of the LCFS cost by reducing their profit margin, nor were they graciously passing a reduced cost to consumers because they are generating credits at lower than the market value (e.g., through producing liquid biofuels or reducing refinery emissions). It makes sense that they pass the full maximum cost (and likely profit off the LCFS) because they can. Producers and importers of gasoline in California have a lot of market power, a conclusion readily acknowledged by many economists as well as the State in its efforts to control gasoline prices. Moreover, the market power of refiners and gasoline distributors will remain strong as more refineries shut down or convert to renewable diesel production and stop producing gasoline.

CARB, in a recent FAQ document posted at the LCFS website, acknowledged the current, actual pass-through cost of \$0.08 to \$0.10 per gallon. However, what CARB does not acknowledge in the FAQ is the relationship between pass-through cost and both LCFS credit price and percent CI reduction targets. They also do not acknowledge that the amendments will definitely increase the percent CI reduction target and likely increase the credit price. So, if the percent CI reduction doubles and the credit price increases to \$100 (which is very possible by 2027), a 10-cent per gallon pass-through becomes a 30-cent pass-through. If the percent CI reduction target quadruples and the credit price quadruples (which is possible by the early 2030s as discussed below), a 10-cent per gallon pass-through becomes \$1.50 per gallon.

So, at this point we can conclude that the maximum pass-through cost can be readily estimated from knowledge of the percent CI reduction target and the LCFS credit price. We can also conclude that refiners are currently passing this maximum cost on to consumers, as reported to the CEC and acknowledged by CARB. And we can also presume that passing the maximum cost onto consumers continues in the near to medium term future as several California refineries stop producing gasoline, the market for gasoline in California remains very tight, and oil companies retain the upper hand over consumers.

So, most of what I have previously discussed regards the program as it exists today. In order to answer the question about the anticipated cost of LCFS (should the amendments get approved by the Board), one needs to know the future percent CI reduction targets for each year and estimate future credit prices. The minimum percent CI reduction targets for each year are set by CARB in the LCFS regulation amendments, so those data points are known. However, future LCFS credit prices are not known. This is after all a market-based program. Future credit prices can, however, be reasonably bounded by historical ranges in credit price. Over the past eight years, credit prices have ranged from a recent low of about \$60 (a period

of significant credit oversupply) to a high of \$210 in 2020 (a period of moderate credit undersupply). This \$210 credit price was near the program price cap in 2020 of \$217 and is the equivalent of more than \$250 today. The price cap is indexed for inflation and is currently \$261.52. So, I argue that a reasonable bound for future credit prices is \$60 to \$260. Please note that over the period from 2013 to 2015, credit prices were often lower than \$60, but during this period the targets were frozen by court order and the program future was in doubt. So, I have disregarded this price data as not being representative of potential credit prices in a program that is not legally threatened, targets are annually becoming more stringent, and a significant oversupply of credits, should one occur, will be corrected by the proposed Auto Acceleration Mechanism. If approved by the Board, the amendments will set the percentage CI reduction target at 22.75% in 2025. Assuming a credit price range of \$60 to \$260 results in a maximum pass-through cost range of approximately \$0.15 to \$0.64 per gallon in 2025.

By 2030, the minimum percent CI reduction target is proposed to be 30%, by 2035 this increases to 52.5%, and by 2045 this increases to 90%. Assuming a credit price range of \$60 to \$260, this equates to a maximum pass-through cost range of \$0.19 to \$0.84 per gallon in 2030, \$0.34 to \$1.47 in 2035, and \$0.58 to \$2.51 in 2045. Please note that these values are in 2024 dollars and have not been indexed for future inflation. Also note that I use the term “minimum percent CI reduction targets” here as the proposed LCFS regulation allows the percent CI reduction targets to be automatically adjusted upwards (without a concurrent Board vote or review) if the LCFS market becomes oversupplied with credits. This feature, the Auto Acceleration Mechanism, is not in the current regulation.

Now obviously these cost ranges are quite large, because it is hard to predict how the market will perform in the future. It is hard to predict how fast electric vehicles will be adopted, how much renewable diesel and jet fuel will be provided to the state, how quickly dairy digester projects will be built, how quickly direct air capture projects will be built, etc. The LCFS credit price reflects both the current supply and demand for credits as well as where market participants predict that supply and demand will be in future years. If electric vehicle adoption in the State lags the requirements in the Advanced Clean Cars (ACC) and Advanced Clean Trucks (ACT) regulations or if other alternative fuels are not supplied as quickly as anticipated, deficit generation may be greater than credit generation, and the credit price may increase to near the program price cap. This is what happened after the 2018 LCFS amendments when credit prices increased to near the price cap and stayed there for nearly two years. In this situation the pass-through cost would be near the top of the ranges shown above. Conversely, if future electric vehicle adoption exceeds expectations under the ACC or ACT regulations

and/or if renewable diesel or dairy gas supply exceeds expectations, then the market may be oversupplied with credits and credit prices could be near the bottom of the range. Under such a scenario, a properly designed Auto Acceleration Mechanism

(coupled with a properly designed CI target trajectory) will set an effective credit price floor by triggering periodically, accelerating the CI reduction target, and rebalancing the market.

So, where do I expect credit prices and pass-through costs to be in the future? What follows is admittedly educated guesswork but is informed by my over 13 years of experience working on the LCFS, supervising modeling efforts for the 2018 amendments, and acting as branch chief overseeing the program in 2019 and 2020. Many stakeholders, including both fuel producers

and expert modelers, believe that CARB has not been aggressive enough in setting the minimum CI reduction targets in the proposed amendments. These market participants and modeling experts also believe that the Auto Acceleration Mechanism will be triggered by 2028 and perhaps multiple times by the early 2030s. If this is true, which I don't doubt because these are smart people, then I would expect credit prices over the next three years to remain above but near the bottom of the historical range, perhaps between \$80 and \$120. If my crystal ball is accurate, pass-through costs will range from approximately \$0.20 to \$0.35 per gallon over the next few years.

But after 2028, I believe there is a good chance that credit prices increase and possibly increase rapidly. This expectation is based on the proposed trajectory for the percent CI reduction targets coupled with the potential of the Auto Acceleration Mechanism

(because of a design flaw introduced in the 2nd 15-day Notice) to accelerate targets in consecutive years. Between 2025 and 2030, the minimum percent CI reduction targets increase at a low annual rate of 1.45% per year (i.e., the minimum percent CI reduction target increases from 22.75% in 2025 to 30% in 2030). But starting in 2031, the percent CI reduction targets increase at more than 3 times this rate (i.e., increase from 30% in 2030 to 52.5% in 2035, an annual rate of 4.5% per year). When this transition occurs from a low annual rate of target change to a high annual rate, the generation of deficits and therefore the demand for credits will increase much more rapidly. This alone may result in increasing credit prices and pass-through costs. Moreover, if the Auto Acceleration Mechanism is triggered at just the wrong time⁵, the annual rate at which the targets increase could be 9% for not just one but two consecutive years. Under this scenario, it is quite possible that the percent CI reduction target accelerates to 50% by 2032 and the market could quickly shift from a position of being oversupplied with credits to a position of being significantly undersupplied. This would likely cause credit prices to increase rapidly. Therefore, a pass-through cost of \$1.50 per gallon in the early 2030s is certainly not outside of the realm of possibility. (BH-0.15.5)

Comment: The maximum pass-through cost of the LCFS to gasoline consumers can be estimated and is a simple function of the LCFS credit price and the percent CI reduction target. This is the calculation that CARB staff performed in the Standardized Regulatory Impact Assessment or SRIA, which resulted in an estimated cost of 47 cents per gallon in 2025. The maximum pass-through cost estimate assumes that the oil companies comply with the regulation by purchasing credits at the current market value.

The current, actual pass-through cost is relatively small at approximately 10 cents per gallon of gasoline. This actual cost has been [acknowledged by CARB](#) and is being reported by refiners to the California Energy Commission (CEC) as part of mandatory reporting under [SB 1322](#). This reported cost is nearly identical to the maximum pass-through cost estimated using the current percent CI reduction target and credit price. Therefore, one can conclude that petroleum companies are passing the full maximum cost onto gasoline consumers, even if some of them comply at a lower cost through producing their own alternative fuels and generating their own credits. In other words, oil companies are at worst breaking even but are more likely generating a profit off the regulation.

Why? Because they can. The [California gasoline market is not competitive](#) and with the recent conversion of two refineries into renewable diesel production and the imminent closure

of a third, it is likely that petroleum companies will retain their current market power in the near and medium-term future. Therefore, it is highly likely that they will continue to pass the full LCFS cost onto consumers.¹ This and the fact that the regulation provides such generous crediting for a host of technologies that actively perpetuate liquid combustion fuels (e.g., liquid biofuels, avoided methane crediting for dairies and swine feedlots, CCS and direct air capture) have oil companies expressing grudging support for the program, when only ten years ago they vehemently opposed it. Oil companies are currently some of the largest investors in these credit-generating opportunities that perpetuate internal combustion over the transition to zero emission vehicles. (Footnote 1 The estimated pass-through cost of the LCFS and Cap-and-Trade programs is reported daily to oil companies in widely used petroleum market newsletters published by OPIS, Argus, and others.)

One of the goals of the current LCFS amendments is to [restore a more robust credit price](#) in order to drive further decarbonization of the transportation sector. CARB is proposing to accomplish these goals by rapidly increasing the CI reduction targets from the current 12.5% to a minimum of 30% in 2030, 52.5% in 2035, and 90% in 2045. As the credit price and percent CI reduction targets increase, the maximum estimated pass-through cost also increases. For example, if the percent CI reduction target doubles and the credit price increases from \$67 to \$100, which is very possible by 2027², the maximum pass-through cost will triple to nearly 30 cents per gallon. So, we can reasonably conclude that approving the LCFS amendments will increase the pass-through cost above the current 10 cents per gallon. (Footnote 2 In 2027 the proposed percent CI reduction target is 25.65%, more than double today's 12.5% target)

Future LCFS credit prices are highly uncertain but can be bounded based on [historical prices](#) in the program. Over the past eight years, prices have ranged from a recent low of about \$60 to a high in 2020 just below the program price cap. So, I propose a reasonable bound for future credit prices would be a low of \$60 to a high at the current program price cap, which is approximately \$260. Using this credit price range and the minimum targets to be set by the proposed amendments, I estimate pass-through ranges of \$0.15 to \$0.64 in 2025, \$0.19 to \$0.84 in 2030, and \$0.34 to \$1.47 in 2035.³ (Footnote 3 Please note that these values are in 2024 dollars and have not been indexed for future inflation.) (BH-015.1)

Comment: If it were only high-income Californians paying the cost of the program, then I would be much less opposed to high pass-through costs. The truth of the matter is that, over time, those driving gasoline cars and paying the LCFS cost are likely to be increasingly lower income. Unless the State can somehow ensure that lower-income drivers purchase EVs at a faster rate than higher income drivers, the LCFS will become more regressive over time.

Claims that the regulation does not and/or will not increase the cost of gasoline are, in my opinion, absurd. CARB staff increasingly use a [graphic](#) that shows no statistical relationship between LCFS credit price and gasoline prices. CARB's implication that this graphic is somehow relevant to the discussion of LCFS pass-through cost is simply sophomoric. The existence of pass-through costs means that gasoline prices are higher than they otherwise would have been without the regulation, not that there should be a statistical relationship between credit prices and gasoline prices. CARB's use of this graphic is akin to Senator Inhofe

bringing a snowball to the US Senate floor and implying that climate change is not real because it snowed in Washington DC. (BH-015.3)

Comment: The maximum pass-through cost to a gallon of gasoline from the LCFS regulation can readily be estimated. This cost is a function of the LCFS credit price and the percent carbon intensity (CI) reduction target for that year. The equation to estimate the maximum cost is based on the program concept that an entity, who generates LCFS deficits (i.e., the refiner or importer of gasoline) or receives the LCFS deficits through purchase of fuel from the refiner or importer (i.e., a gasoline distributor at the rack), will purchase LCFS credits from an alternative fuel producer/importer to offset those deficits. One then assumes that the producer or distributor passes the cost of purchasing credits on to the consumer of gasoline. To estimate the maximum pass-through cost, one simply calculates the number of deficits generated by a gallon of gasoline and multiplies that by the current market price of a credit. The number of deficits generated by a gallon of gasoline is directly proportional to the percent CI reduction target for that year.

For example, in April 2024 the percentage CI reduction mandated by the program was 12.5% and the average credit price was \$67. At a 12.5% CI reduction target, a gallon of gasoline will generate approximately 0.00134 deficits. Multiplied by the cost of a credit needed to offset the deficit (\$67 in April 2024) results in a maximum pass-through cost of approximately \$0.09 per gallon of gasoline. California SB 1322 requires refiners to report [cost data](#) to the California Energy Commission (CEC) and the LCFS pass-through cost is one of the items required to be reported. In April 2024, refiners reported an LCFS cost of \$0.10 per gallon of gasoline, which indicates that refiners were passing on the maximum cost of the LCFS to consumers. In other words, refiners were not absorbing some of the LCFS cost by reducing their profit margin, nor were they graciously passing a reduced cost to consumers because they are generating credits at lower than the market value (e.g., through producing liquid biofuels or reducing refinery emissions). It makes sense that they pass the full maximum cost (and likely profit off the LCFS) because they can. Producers and importers of gasoline in California have a lot of market power, a conclusion readily acknowledged by many economists as well as the State in its efforts to control gasoline prices. Moreover, the market power of refiners and gasoline distributors will remain strong as more refineries shut down or convert to renewable diesel production and stop producing gasoline.

CARB, in a recent [FAQ document](#) posted at the LCFS website, acknowledged the current, actual pass-through cost of \$0.08 to \$0.10 per gallon. However, what CARB does not acknowledge in the FAQ is the relationship between pass-through cost and both LCFS credit price and percent CI reduction targets. They also do not acknowledge that the amendments will definitely increase the percent CI reduction target and likely increase the credit price. So, if the percent CI reduction doubles and the credit price increases to \$100 (which is very possible by 2027), a 10-cent per gallon pass-through becomes a 30-cent pass-through. If the percent CI reduction target quadruples and the credit price quadruples (which is possible by the early 2030s as discussed below), a 10-cent per gallon pass-through becomes \$1.50 per gallon.

So, at this point we can conclude that the maximum pass-through cost can be readily estimated from knowledge of the percent CI reduction target and the LCFS credit price. We can also conclude that refiners are currently passing this maximum cost on to consumers, as

reported to the CEC and acknowledged by CARB. And we can also presume that passing the maximum cost onto consumers continues in the near to medium term future as several California refineries stop producing gasoline, the market for gasoline in California remains very tight, and oil companies retain the upper hand over consumers.

So, most of what I have previously discussed regards the program as it exists today. In order to answer the question about the anticipated cost of LCFS (should the amendments get approved by the Board), one needs to know the future percent CI reduction targets for each year and estimate future credit prices. The minimum percent CI reduction targets for each year are set by CARB in the LCFS regulation amendments, so those data points are known. However, future LCFS credit prices are not known. This is after all a market-based program. Future credit prices can, however, be reasonably bounded by [historical ranges](#) in credit price. Over the past eight years, credit prices have ranged from a recent low of about \$60 (a period of significant credit oversupply) to a high of \$210 in 2020 (a period of moderate credit undersupply). This

\$210 credit price was near the program price cap in 2020 of \$217 and is the equivalent of more than \$250 today. The [price cap is indexed for inflation](#) and is currently \$261.52. So, I argue that a reasonable bound for future credit prices is \$60 to \$260. Please note that over the period from 2013 to 2015, credit prices were often lower than \$60, but during this period the targets were frozen by court order and the program future was in doubt. So, I have disregarded this price data as not being representative of potential credit prices in a program that is not legally threatened, targets are annually becoming more stringent, and a significant oversupply of credits, should one occur, will be corrected by the proposed Auto Acceleration Mechanism. If approved by the Board, the amendments will set the percentage CI reduction target at 22.75% in 2025. Assuming a credit price range of \$60 to \$260 results in a maximum pass-through cost range of approximately \$0.15 to \$0.64 per gallon in 2025.

By 2030, the minimum percent CI reduction target is proposed to be 30%, by 2035 this increases to 52.5%, and by 2045 this increases to 90%. Assuming a credit price range of \$60 to \$260, this equates to a maximum pass-through cost range of \$0.19 to \$0.84 per gallon in 2030, \$0.34 to \$1.47 in 2035, and \$0.58 to \$2.51 in 2045. Please note that these values are in 2024 dollars and have not been indexed for future inflation. Also note that I use the term “minimum percent CI reduction targets” here as the proposed LCFS regulation allows the percent CI reduction targets to be automatically adjusted upwards (without a concurrent Board vote or review) if the LCFS market becomes oversupplied with credits. This feature, the Auto Acceleration Mechanism, is not in the current regulation.

Now obviously these cost ranges are quite large, because it is hard to predict how the market will perform in the future. It is hard to predict how fast electric vehicles will be adopted, how much renewable diesel and jet fuel will be provided to the state, how quickly dairy digester projects will be built, how quickly direct air capture projects will be built, etc. The LCFS credit price reflects both the current supply and demand for credits as well as where market participants predict that supply and demand will be in future years. If electric vehicle adoption

in the State lags the requirements in the Advanced Clean Cars (ACC) and Advanced Clean Trucks (ACT) regulations or if other alternative fuels are not supplied as quickly as anticipated, deficit generation may be greater than credit generation, and the credit price may increase to near the program price cap. This is what happened after the 2018 LCFS amendments when credit prices increased to near the price cap and stayed there for nearly two years. In this situation the pass-through cost would be near the top of the ranges shown above. Conversely, if future electric vehicle adoption exceeds expectations under the ACC or ACT regulations and/or if renewable diesel or dairy gas supply exceeds expectations, then the market may be oversupplied with credits and credit prices could be near the bottom of the range. Under such a scenario, a properly designed Auto Acceleration Mechanism (coupled with a properly designed CI target trajectory) will set an effective credit price floor by triggering periodically, accelerating the CI reduction target, and rebalancing the market.

So, where do I expect credit prices and pass-through costs to be in the future? What follows is admittedly educated guesswork but is informed by my over 13 years of experience working on the LCFS, supervising modeling efforts for the 2018 amendments, and acting as branch chief overseeing the program in 2019 and 2020. Many stakeholders, including both fuel producers and expert modelers, believe that CARB has not been aggressive enough in setting the minimum CI reduction targets in the proposed amendments. These market participants and modeling experts also believe that the Auto Acceleration Mechanism will be triggered by 2028 and perhaps multiple times by the early 2030s. If this is true, which I don't doubt because these are smart people, then I would expect credit prices over the next three years to remain above but near the bottom of the historical range, perhaps between \$80 and \$120. If my crystal ball is accurate, pass-through costs will range from approximately \$0.20 to \$0.35 per gallon over the next few years.

But after 2028, I believe there is a good chance that credit prices increase and possibly increase rapidly. This expectation is based on the proposed trajectory for the percent CI reduction targets coupled with the potential of the Auto Acceleration Mechanism (because of a design flaw introduced in the 2nd 15-day Notice) to accelerate targets in consecutive years. Between 2025 and 2030, the minimum percent CI reduction targets increase at a low annual rate of 1.45% per year (i.e., the minimum percent CI reduction target increases from 22.75% in 2025 to 30% in 2030). But starting in 2031, the percent CI reduction targets increase at more than 3 times this rate (i.e., increase from 30% in 2030 to 52.5% in 2035, an annual rate of 4.5% per year). When this transition occurs from a low annual rate of target change to a high annual rate, the generation of deficits and therefore the demand for credits will increase much more rapidly. This alone may result in increasing credit prices and pass-through costs. Moreover, if the Auto Acceleration Mechanism is triggered at just the wrong time⁵, the annual rate at which the targets increase could be 9% for not just one but two consecutive years. Under this scenario, it is quite possible that the percent CI reduction target accelerates to 50% by 2032 and the market could quickly shift from a position of being oversupplied with credits to a position of being significantly undersupplied. This would likely cause credit prices to increase rapidly. Therefore, a pass-through cost of \$1.50 per gallon in the early 2030s is certainly not

outside of the realm of possibility. (Footnote 5 In an analysis of the most recent regulation language that I emailed to CARB, I demonstrate that the revised AAM trigger timing (four quarter rolling trigger) can readily result in accelerations occurring in consecutive years. If this happens in the early 2030s, a single acceleration will result in a 9% stepdown and accelerations occurring in consecutive years would result in an 18% stepdown. Moreover, as discussed in the hypothetical scenarios presented in the analysis, the second 9% stepdown could be triggered before the first 9% stepdown goes into effect. In other words, there would be no feedback to determine whether the first acceleration corrects the market before the second is triggered. Making matters worse, both triggers could be based on market performance relative to the much lower slope of the 2025-2030 target decline (the 1.45% annual decline), but the acceleration could double the higher 4.5% annual decline. I will happily provide my analysis to those interested.) (BH-015.5)

Comment: The Inland Valley Daily Bulletin had a article Gov. Newsoms gas hikes hit hardworking Californians this week. We do not need a gas hit a again with more taxes on gas. Also the lost of the Philips Refinery next years is going to put more pressure for higher gas prices. The Governor needs to start care the working people and not his agenda. (BH-016.1)

Comment: STOP New Low Carbon Fuel Standard! Lower our gas prices (BH-020.1)

Comment: California's gas prices have long been the highest in the country. Instead of passing new low carbon fuel standards (LCFS) that could increase them even more, for which no cost estimate has been given, let's look at other ways to reduce our carbon footprint. (BH-021.1)

Comment: Just passing new LCFS without a cost estimate is just punishing the poorest Californians that cannot afford EVs, let alone have a place to charge them if they rent. EVs may be part of the solution, but way better would be to have a society like Japan where people can live without a car to get to most places. (BH-021.7)

Comment: Stop this Low Carbon Fuel nonsense. Lower our gas prices (BH-022.1)

Comment: Gas prices at the pump are already the highest in the nation, costing \$1.47 more per gallon than the national average due to California's high gas tax and the required special gasoline blend. And with the Governors latest proposals on California's refining industry prices are likely to go even higher

CARBs proposal will further increase gas prices by 50 cents per gallon or more. CARB's own projection last year estimated that their low carbon fuel standard (LCFS) would increase prices by 47 cents per gallon, yet CARB is unwilling to confirm or update this estimate and is moving forward regardless. This increase would be devastating for those struggling to get by with current prices and inflation on everything from food to electricity. Everyone in california with the exception of the very wealthy are already struggling with California's gas prices and sustained inflation may reconsider their future in the state if gas prices rise even further. Even those who don't drive would feel the impact through increased supply chain costs and potential disruptions further driving up costs on groceries and everything else that includes a transportation component. I urge CARB to consider the serious impact this proposal would have on those who have work for a living and are barely making ends meet. Thank you for your time. (BH-024.1)

Comment: Cancel the proposed +50¢ to 70¢ cost per gallon "Low carbon Fuel Standard"

I'm a California resident and I am asking the California Air Resources Board CANCEL the proposed "Low carbon Fuel Standard", another scheme to injure those of us who remain in California. Another 50¢ to 70¢ cost per gallon on TOP of the absurd fuel taxes we pay already? NO. Cancel this proposed "Low carbon Fuel Standard". Thank you CARB, have a good day! (BH-032.1)

Comment: I am writing to you to urge you not to endorse the restrictions on the "carbon intensity of fuels" proposal that is currently before you. This will cause the price of gas to increase at the pump. The citizens of California already have one of the highest gas prices in the nation. A increase in fuel prices will cause a spike in inflation throughout the state since everything that is transported to stores or for manufacturing is affected by gas prices. This spike in inflation will remain forever and not subside. I know you feel that CARB does not set fuel prices, but any cost increase to the gas companies will be passed on to the consumers.

Let's let technology by the auto manufacturers like autos with better fuel economy, lower emissions and gas/electric hybrids achieve the results you desire.

Don't try to force us to drive less by adopting a policy that spikes gas prices.

The people of California will become very angry if that is the end result of this policy. (BH-039.1)

Comment: How does CA propose to limit other pollution from violating its airspace? No matter what you propose within the state the influences of the surrounding airspace will effect the data presented here and no comments on that subject are presented. Our infrastructure cant support current EV demands. Funding of these amendments while assured taxpayers will not see it in the gas pump, but CA notoriously has pushed the taxpayers on behalf of "good intentions and the environment. (BH-043.1)

Comment: Please lower the price of hydrogen because it has tripled in the last few years and the number of working stations has shriveled up. I waste time and mileage finding available stations and the situation has caused me to park my hydrogen car because I can't travel to provide my job function in covering southern California.

I was duped by Toyota into buying through lies and deception and I am now stuck paying for a car that is unusable! Please help me! (BH-046.1)

Comment: When we speak with our small business members throughout California, they express great concerns about the cost increases associated with these LCFS proposed amendments. Specifically, they cite the potentially massive gasoline price hikes and the adverse impacts those increases will have on their businesses and the rippling effect it will have on all Californians, without actually improving the air quality of the state. Originally CARB had indicated that these amendments could increase prices at the pump by some 47 cents a gallon. Later, CARB revised that number, which seems to have been confirmed today, and indicated that the cost increase may be negligible. What changed? What is the new methodology or inputs that account for that revision?

Currently, California pays the highest prices for gasoline at the pump--about a \$1.69 over the national average. Tacking on an additional 50 cents to that number would be crushing to small businesses.

Employees and employers who already face inflationary hardships and soaring rents would find their already expensive commutes even more economically challenging.

Additionally, the downstream economic impact on the entire supply chain could be staggering, further driving up the costs of goods and services throughout California.

It's challenging to understand how these amendments will improve the lives of Californians. NFIB believes that these amendments will not improve our air quality but will certainly exacerbate the economic woes of our small business owners and their employees.

NFIB respectfully asks for a no vote on these proposed amendments. (BH-053.2)

Comment: Please be respectful of the California families trying to survive the increased costs of all goods by not again increasing the cost of fuel. (BH-056.1)

Comment: I urge you to NOT approve of the Proposed Low Carbon Fuel Standard Amendments. This will significantly increase the price of fuel, resulting in an unjust punishment of the most marginalized,

low-income population. Individuals who need to travel great distances to work will be unjustly impacted resulting in an even greater economic disparity in our great state. DO NOT approve of the proposed low carbon fuel standard amendment. (BH-057.1)

Comment: Don't do this, it'll make no difference to anything except our costs. California inflation all by itself. Like always it'll affect low income people you claim to care about. Use common sense. (BH-067.1)

Comment: First, I haven't seen a commenter that will be concerned about life without dairy or the economic impact on the California resident for these programs. We know if passed it will raise gas prices at least 0.47 / per gallon. Not acceptable. On this day November 8, 2024, I did hear some inland commenters have a concern with pollution. Now, pollution is one that has minimal debate from either side, we want less. I happened to be on leave from work today, but nobody seems to represent my concerns or my community. Really, wouldn't you wonder why so many working people didn't get to go to public comments much or most of the commenters are MAKING MONEY from LCFS. Person after person is making money from what was called an "important climate issue" today. That should concern you. This state is not prepared for an all electric cars. But, could be worked on together with input from regular people whether or not they believe in climate change or not and want less pollution and clean air. Companies like Ford scrapped their percentage electric car production, they will make less. That should be a concern, but didn't hear that today. We just had a Presidential Election where inflation and cost of living was the number one issue. Was Climate Change number 2? No, Immigration was number 2. The President Elect gained in almost EVERY county in America, saying we need to make America more affordable.

So I am hoping you figure out a way forward WITHOUT financially burdening the California Resident with higher gas prices and removing their/our freedoms. It is not acceptable to raise the costs of California refineries while we try to find ways to have an agreement.

Okay, lets take a look at this:

Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete (Gov. Code, §§ 11346.3, subd. (a), 11346.5, subd. (a)(7), 11346.5, subd. (a)(8)):

"The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons..."

Well, this just isn't true, mathematics and economics would reveal that if the price of gasoline goes up - everything goes up. Right off the bat if transportation costs rise there is an economic impact. (BH-071.1)

Comment: Strengthening the program's equity provisions to promote investment in disadvantaged, low-income and rural communities;

What is this equity crap? I did hear inland folks with a pollution concern, and I get that.

The other side of the LEGITIMATE coin is making regular people that want to go to work, raise their kids, maybe have some fun here and there not be able to do so.

Do you want to turn more Californians into disadvantaged low-income people that are just trying to get by? Let's say I can financially handle it. Can the low-income people handle it? (BH-071.3)

Comment: These Californians are concerned about the potential increase in fuel costs, with estimates indicating a rise of 65 to 85 cents per gallon. (BH-079.2)

Comment: We can not afford another increase right now. Everyone is nearly getting by with the high cost of food and electricity. Not to mention the increase in our car insurance and home owners insurance. We can not afford for our gas to increase again. California needs to look out for our citizens not further cripple them Financially. (BH-082.1)

Comment: I understand that the board members have six figure salaries and not understand the hardship 90% of Californians are facing with current gas prices.

You are paid by taxpayers, which means you are supposed to do what's best for us. If current gas pricing is already stressing 90% of us and our budgets, then why would you ever entertain raising it more?

If you vote for your amendment, you will be put California into an economic tailspin and more residents will flock out of California. (BH-086.1)

Comment: We are seniors on a fixed income and cannot afford any additional taxes, fees, etc. The proposed restrictions on the oil companies will only result in any costs to them to be passed on to us consumers. (BH-087.1)

Comment: Please do NOT raise our gas prices by enacting this Low Carbon Fuel action! We/I cannot afford it! It won't have a noticeable impact on global warming. Why would kill the residents in California for something that won't make an impact.

NO, No, NO!! (BH-094.1)

Comment: According to CARBS' own estimates, the price of a gallon of gasoline is projected to rise by a minimum of 47 cents a gallon, and the price of diesel is projected to rise even more.

These price increases will have a direct impact on Californians' daily lives. It will cost them more to drive to work, and it will raise the prices they pay for everyday goods and services, as businesses will surely pass down their increased operating costs to the end consumer. (BH-095.2)

Comment: Please reconsider an increase in the gas tax in California. The additional tax rests on the argument that it disproportionately affects low- and middle-income residents who rely heavily on personal vehicles. California already has some of the highest gas prices in the nation, and a higher gas tax would place an additional burden on individuals struggling with the high cost of living. Small businesses, which often rely on transportation, would also face increased operating costs, potentially leading to higher consumer prices and reduced economic growth. Although some may argue that the revenue would improve infrastructure, but there are alternative funding options, such as redirecting budget surpluses or reassessing spending priorities, which wouldn't directly harm working families. Rather than making life in California even more expensive, the state should explore fairer, less regressive solutions to infrastructure funding that consider the financial strain on everyday Californians. (BH-096.1)

Comment: The proposed restriction on the carbon intensity of fuels would lead to higher costs passed through to consumers. These restrictions will cause even more California families into financial distress. The financial pain is real and we are at a tipping point. (BH-098.1)

Comment: I am writing to express my concerns regarding the proposed increase in taxes and fees on California gasoline. These additional costs will inevitably lead to higher prices for goods and services, as businesses will need to pass on the increased fuel expenses to their customers. This will have a negative impact on businesses' bottom lines, potentially leading to lower profits and even job losses. I urge you to reconsider this proposal and find alternative ways to address the state's financial needs without placing an undue burden on businesses and consumers. (BH-101.1)

Comment: Also, we agree with CARB's comment in the October FAQ. Retail gas prices have been at historic highs, steadily climbing since 2020, while LCFS credit prices actually have been on a steady decline during that same time. There are also external studies that agree on this point. There is no direct link. (BHT-71)

Comment: So let me be clear, the task before us is to transition our society from Fossil Fuels, and the GHC applauds CARB's work thus far through the LCFS to keep us on track to achieve de-fossilization of transportation quickly, efficiently, and cost effectively. I'll linger on that one one bit to also remind us that fuel prices at the pump are a reflection of the prices of barrels of oil that are set in a global market that is controlled by a cartel OPEC and OPEC+. So I think

we need to remind ourselves that, you know, when we do see those fluctuations, they aren't being driven by LCFS (BHT-100)

Comment: There have also been a lot of claims about the cost of the LCFS Program and the price that consumers pay. Previous fuel price production -- projections have way overshoot the markup to \$1.80 a gallon. The actual number is 8 to 10 cents at the moment, even while carbon intensity reductions are more than three years ahead of schedule. Californians also benefit from fuel market competition. A big reason 70 percent of our diesel is now from renewables or waste sources is that it is regularly cheaper than conventional diesel and can be used in existing vehicles. Some oppose the package want to further limit credit opportunities to favor particular fuels and technologies. From realities of supply and demand, more credit generation brings down cost and conversely fewer credits available points to higher costs. It is safe to say that the higher LCFS cost would increase both the likelihood and potential magnitude of consumer price impacts. This package strikes a balance to accelerate progress on climate goals while reducing health impacts, decreasing pollution exposure disparities, fostering electrification, and promoting fuel competition. For these reasons, we urge a yay vote on the amendments before you today. (BHT-117)

Comment: We build homes, we fix roads, and we serve you when you dine out. To do this we must drive hours each day to work to put food on the table for our families. This measure before you will cause us financial pain. The Governor has pushed us to drive electric vehicles. Electric vehicles are simply very expensive. (BHT-148)

Comment: What you're doing is killing the economic ability of the lower income people to rise up to the level that they can afford this stuff, because you're hurting them the worst with this. More of their percentage of their income is going to go to all these taxes and everything, and rules and regulations you propose. Please stop it. (BHT-177)

Comment: I urge you to consider when implementing the LCFS the immediate impact it has on a small California business. The Governor, the Legislature, and the CEC have all recently put increasing emphasis on retail gasoline prices. Now, is not the time to jeopardize the continued operation of current local fuel providers. (BHT-192)

Comment: Price volatility is already a significant concern and these changes could make gasoline and other essential fuels even more expensive for Californians. (BHT-199)

Comment: NFIB believes these amendments will not improve our air quality, but will certainly exacerbate the economic woes of our small business owners and their employees. (BHT-211)

Comment: Stopping avoided methane crediting is important, because it is not fair to force Californians to pay for those pass -- for the pass-through costs of those avoided methane credits. Disproportionately, low-income communities of color residing in inland rural areas will pay those pass-through costs. Jim Duffy, the former LCFS Branch Chief, has estimated these pass-through costs and they are significant, so has Danny Cullenward. Leadership Counsel has submitted the expert analysis of economist Jonathan Shefftz who found that low-income San Joaquin Valley residents would pay significantly higher percentages of their income for these pass-through costs, forcing low-income Californians to pay the pass-through costs of avoided methane credits is just plain wrong. (BHT-229)

Comment: So as move forward, just one example jumps out to me of how disingenuous some parts of this latest amendment are, and that is in the cost of gasoline. And Mr. Duffy pointed this out -- well, I just saw his letter yesterday but I'd already started working on this a month ago. And I found this report at CEC that they have every year SB 1322 that CARB had mentioned very briefly and suggested that that pointed to a five to ten cent possible rate in gasoline when, in fact, the base cost it puts into gasoline every single month is \$0.58. (BHT-246)

Agency Response: Changes were made in response to these comments. Among other changes, the Proposed Amendments as modified increase credit generation opportunities for zero emission transportation, do not include deficit generation for fossil jet fuel, and incorporate a 2025 near-term CI benchmark step-down that would not eliminate the credit bank.

The LCFS is not a tax on fuel in California, and has never been a primary driver of California retail gasoline or diesel prices. The LCFS is designed to support diversity of cleaner fuels to meet consumer demands.

The LCFS does not add any additional tax on transportation fuels and any increase in price at the pumps is a cost passed-through to consumers from fuel producers for compliance with the Program. CARB considers the potential 47-cent pass-through compliance cost estimate cited by many critics of the program to also be an overestimate. This estimate was part of an early step in the rulemaking process by which all regulatory agencies with major regulations evaluate preliminary scenarios for very specific cost impacts to help inform and shape a formal regulatory proposal,³ and did not reflect the final proposal proposed by staff. To comply with these requirements, CARB used an internally-developed model called the California Transportation Supply Model (CATS). The CATS model is a cost and compliance optimization model developed to help estimate fuel supply that may be delivered to California under different policy scenarios. The focus of the model is how the fuel mix may change under different policy scenarios. The model was not designed to predict the future or future gas prices, nor was it designed to simulate the complexities of the broader California transportation fuel market, which includes a wide diversity of transportation fuel producers, marketers, and retailers. The model is not designed to predict future credit prices and cannot assess any cost pass-through by compliance entities. To CARB's knowledge, no model currently available can accurately predict future credit prices for the LCFS, future transportation fuel prices, or passthrough cost for retail gasoline or diesel costs.

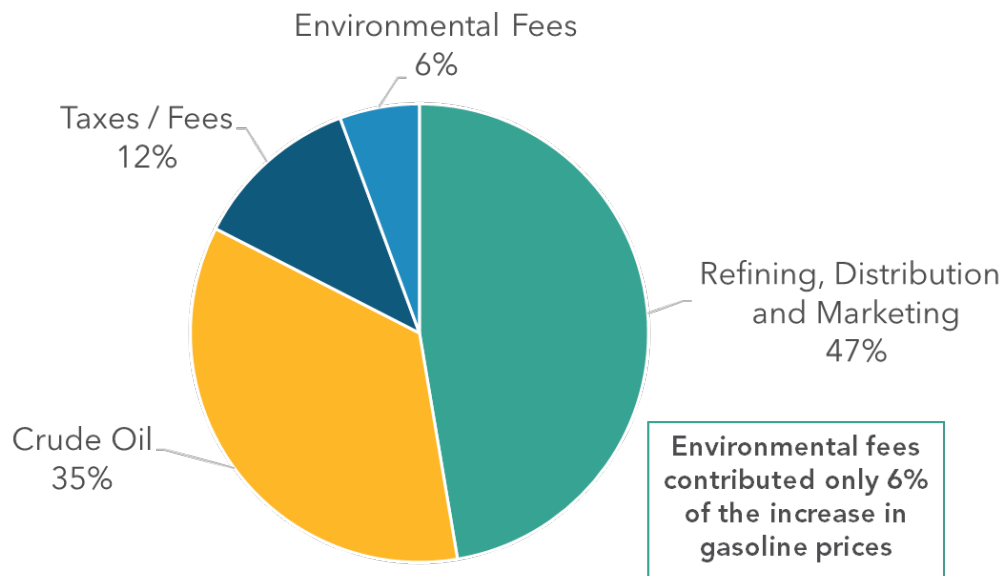
State agencies have examined data⁴ on retail gasoline prices between 2019 and 2023. The LCFS and other environmental programs contributed to roughly 6% of the increase

³ A state agency must conduct a Standardized Regulatory Impact Assessment (SRIA) when it estimates that a proposed regulation has an economic impact exceeding \$50 million.

⁴ CEC, California Oil Refinery Cost Disclosure Act Monthly Report, last accessed December 11, 2024. <https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/california-oil-refinery-cost-disclosure>

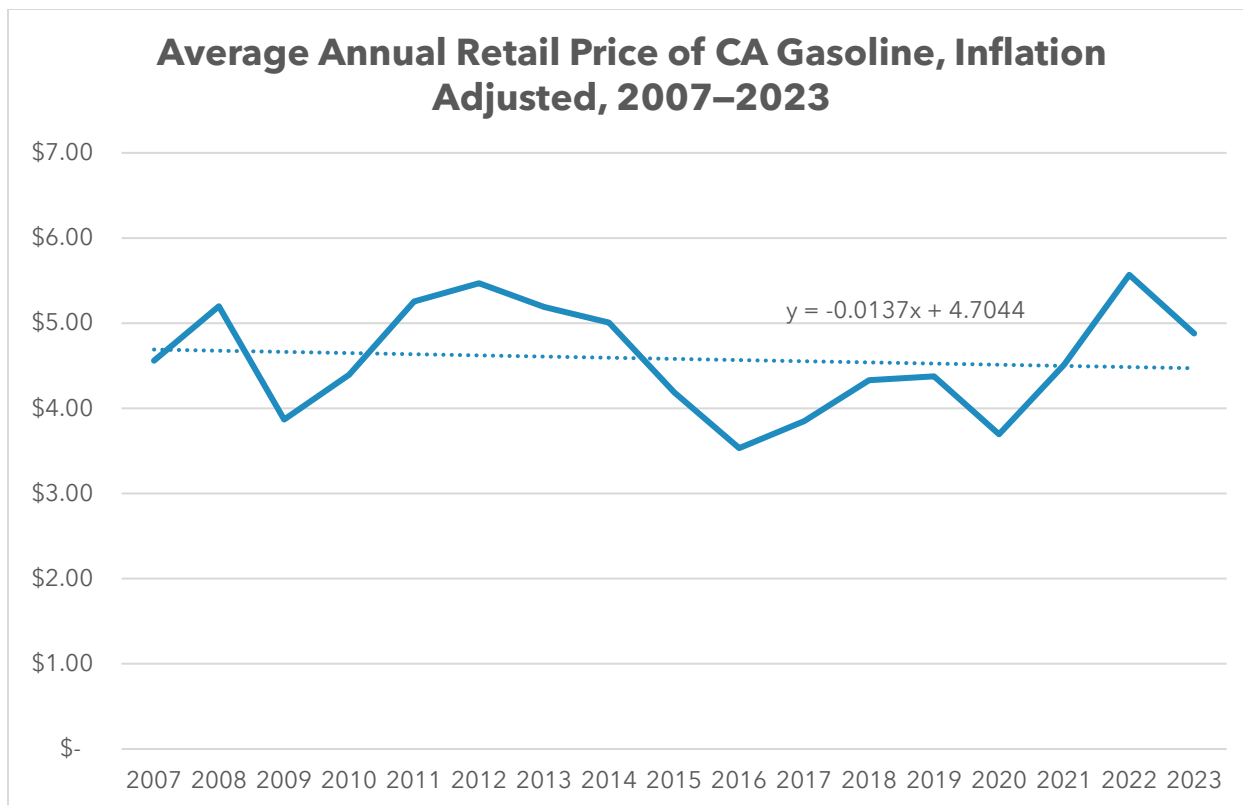
in retail gasoline prices during this time period. Federal, State, and local taxes and fees accounted for 12%. These costs are largely stable and far lower than the other variables that impact the volatility of retail gasoline prices, including the cost of crude oil and the market behavior of petroleum refiners, which influences over 80% of the retail gasoline price paid by consumers.

% of increase in Gas Prices (2019 to 2023)



Another review of data over the longer term provides better context for how gasoline retail prices change when controlling for factors such as inflation. Over the years 2007 to 2023, the years in which California implemented multiple climate policies (including the LCFS⁵) and also implemented additional fees and taxes to support transportation projects, California's reformulated gasoline prices averaged \$4.58 per gallon. In 2006, the year prior to California's implementation of AB 32 and prior to establishment of additional gasoline taxes/fees, the average price of reformulated gasoline in California in inflation-adjusted 2023 dollars was \$4.34. This is an approximately 6% difference in average prices paid from 2006 levels over the past 16 years.

⁵ LCFS benchmarks first came into effect in 2011.



This historical analysis helps to emphasize the challenge in attempting to predict what future gasoline prices may be and why CARB has consistently asserted^{6,7} that we cannot predict future gasoline prices, given the potential for unexpected changes in the demand for fossil fuels; different levels of competition that will drive down alternative fuel costs in unknown ways; different rates of ZEV and alternative fuel adoption; new and innovative fuels that we are not aware of; new and unexpected climate policy changes at the Federal and State levels, and other unknown variables. All these unknowns make speculating on what future fuel prices will be not only inherently incorrect but also misleading.

For cost evaluations in the SRIA developed for the LCFS, staff utilizes estimated LCFS credit prices as an imperfect surrogate to understand compliance costs for regulated entities and assumes all companies face the same costs for compliance and pass all of the costs of compliance on to consumers. We know that LCFS credit price projections may not reflect reality. For example, in 2018, when CARB most recently updated the LCFS, CARB staff developed the statutorily required SRIA prior to the rulemaking. That

⁶ CARB, Staff Report: Initial Statement of Reasons, 2014. Pages VII-5,6.
<https://www2.arb.ca.gov/sites/default/files/barcu/regact/2015/lcfs2015/lcfs15isor.pdf>

⁷ CARB, Staff Report: Initial Statement of Reasons, 2018. Page EX-9.
https://www2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/isor.pdf?_ga=2.74469586.1551735187.1735237126-1247114534.1637271786

2018 LCFS SRIA, as with the more recent 2023 LCFS SRIA,⁸ included credit price estimates from the proposed regulatory updates, as well as potential upper-bound cost pass-through estimates resulting from the projected LCFS credit price changes. Unsurprisingly, the actual credit prices the program experienced over the last 5 years do not match what was estimated by the 2018 LCFS SRIA. The 2018 LCFS SRIA projected that credit prices would be approximately \$125 per ton in 2024; in reality, the *actual* average credit price in 2024 has been \$60. Faster-than-expected increases in the availability of lower cost low-carbon fuels, ZEV adoption, and availability of less-expensive LCFS credits have resulted in lower credit prices than CARB staff predicted in 2018, just 5 years ago. In addition to the inherent difficulty in accurately predicting credit prices, independent analysis shows little relationship⁹ between credit prices and retail prices, which makes drawing conclusions between estimated/uncertain future credit prices and retail prices even more speculative.



The LCFS will have compliance costs that will vary across regulated entities. Just like all climate action will have impacts to the cost of pollution sources, but the exact cost is unknown due to a variety of factors. For retail gas prices, there is nothing to prohibit fuel

⁸ CARB, *FAQ: The Standardized Regulatory Impact Assessment for the Low Carbon Fuel Standard*. Last accessed December 2024. <https://ww2.arb.ca.gov/resources/documents/faq-standardized-regulatory-impact-assessment-low-carbon-fuel-standard>

⁹ Bates and White, *Low Carbon Fuels Standards Market Impacts and Evidence for Retail Fuel Price Effects*. Pages 1-2. 2022. https://www.bateswhite.com/media/publication/226_BW%20LCF%20Report%20-%20April%202022.pdf.

producers from passing on any costs for any regulation and what is ultimately passed on to consumers is determined by each company. Data published by third-party commodities markets experts indicate about a \$0.10 LCFS cost pass-through per gallon of gasoline that is consistent with the self-reported data by the fuel producers under Senate Bill 1322 that also reflects an LCFS cost pass-through of \$0.08 to \$0.10 per gallon of gasoline.

These values represent current costs being reported to the California Energy Commission (CEC) and third-party aggregators. The data also show that there is a price difference between branded and unbranded gasoline.¹⁰ LCFS applies to both equally, indicating other factors are inducing differences in prices even for the same fuel, subject to the same regulation, depending on the way it is marketed to consumers.

However, the LCFS reduces energy costs by diversifying and expanding the fuel supply, which is not reflected in the preliminary estimate cited by many critics. The LCFS provides a market for a significantly increased number of clean fuel producers, allowing for greater competition and lower fuel rates when compared to the significantly smaller number of petroleum fuel producers today, thus putting downward pressure on energy prices. The lack of competition in the fuels market is one of the issues clearly identified by experts and stakeholders, and the LCFS is directly responsible for reversing a decades-long trend of fuel production market consolidation. The LCFS also directly supports the transition away from fossil gasoline and diesel expenditures and increases the use of more efficient vehicles and low-carbon fuels, which will save money for Californians. CARB's analysis shows that in 2045, over 75% of the State's transportation fuel expenditures will go to non-fossil alternative fuels like electricity, hydrogen, and low-carbon biofuels, and that Californians will be paying \$0.12 per mile traveled, for an overall 42% savings in fuel costs per mile statewide. For the light-duty sector, the savings will be even more pronounced, with costs going from \$0.19 per mile to \$0.08 per mile by 2045, a reduction of over 50%, as the light-duty sector transitions away from fossil fuels and becomes mostly ZEVs supplied by electricity and hydrogen.¹¹¹² This analysis is more complete than the narrowly focused assessment in the SRIA as it integrates both costs and savings for consumers. More importantly, recent data on vehicle fleets and vehicle miles traveled shows that it costs approximately \$0.11 less to drive per mile in an electric vehicle versus a gasoline vehicle.

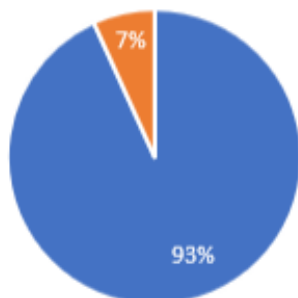
¹⁰ CARB, *LCFS Facts*. 2024. <https://ww2.arb.ca.gov/sites/default/files/2024-11/LCFS%20Facts.pdf>

¹¹ CARB, *Staff Report: Initial Statement of Reasons (ISOR)*, 2024. <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/isor.pdf>

¹² California Air Resources Board, *Low Carbon Fuel Standard Fuel Prices FAQ*. 2024. https://ww2.arb.ca.gov/sites/default/files/2024-10/LCFS_Fuel_FAQ.pdf

Transportation Fuel Expenditures

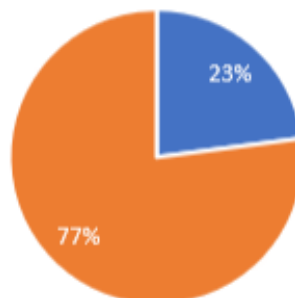
2021:
\$73.7B



■ Fossil ■ Non-Fossil

Transportation Fuel Expenditures

2045:
\$50.2B



■ Fossil ■ Non-Fossil

On a related note, the LCFS supports investment in efforts to transition away from fossil fuel combustion to achieve the state's air quality and climate mandates. To date, the private investment resulting from LCFS implementation has provided approximately \$300 million to support public transit, close to a \$1 billion for light duty zero emission vehicles, and displaced the fossil diesel with cleaner fuels for over 70% of the demand in the state. The Program has also supported financial assistance for ZEV purchases at the state and local level and equity focused programs administered by the electric utilities. The Proposed Amendments would supercharge private investment in clean fuels and infrastructure into the billions and provide opportunities to leverage federal incentives, further reducing costs to Californians in the transition away from fossil fuel combustion. The associated health benefits are expected to be a health cost savings of almost \$5 billion. There is an additional estimated billions in revenue that would accrue to California businesses from the updated Program. Importantly, electric utilities would be able to continue to utilize revenue from credit sales to invest in programs within their regions to support equity projects, such as funding for zero emission drayage trucks and zero emission school buses.

Lastly, failing to address combustion of fossil fuels, which are a root cause of climate change and poor air quality in California, will only continue to exacerbate the costs Californians face from the increasing severity of wildfires, floods, agriculture disruptions, and other climate-driven impacts that drive high public health costs, lost lives and property, ever-increasing insurance costs, loss of economic output, and other damages. The cost of action to meet California's climate goals is estimated to be one-fourth the cost currently paid from the health impacts of fossil fuel's air pollution alone. The Fifth National Climate Assessment released in 2023 ranks California among the top five states suffering economic effects from climate-related natural disasters. Climate impacts are happening with more frequency and intensity than expected and will continue to pose health and economic impacts to the state.

The World Health Organization has reported, exposure to air pollution alone “causes 7 million deaths worldwide every year and costs an estimated \$5.11 trillion in welfare losses globally”¹³ and the health costs of climate change outweigh the costs of taking action to meet our climate goals by 4 to 1. In approving the 2022 Scoping Plan Update, the Board found that just the air pollution reductions that come from mitigating GHG emissions in California would result in \$78 billion in health savings in 2035 and \$199 billion in health savings by 2045 for California residents. A significant portion of these health benefits come from reducing the combustion of fossil fuels used in the transportation sector. Furthermore, these health benefits are greatest in disadvantaged communities and areas with preexisting air quality challenges like the San Joaquin Valley and the South Coast Air Basin. When costs associated with climate damages are also factored in, the costs of inaction are even higher than these numbers describe. By 2035, according to the Governor’s Executive Order N-79-20 and regulations adopted by the Board, California will have a significant portion of zero-emission cars and trucks deployed to support our climate and air quality objectives. By 2035, as ZEV purchases increase and legacy combustion vehicles phase out, CARB estimates that approximately 1 in 2 light-duty vehicles and 1 in 4 medium- and heavy-duty trucks on the road will be ZEVs. Failing to achieve these targets means that California will not be able to realize the estimated \$78 billion in health savings. These are the hidden health costs experienced by Californians for the combustion of gasoline and diesel used every day in California.

CARB is responsible for finding cost-effective solutions to achieve statutorily mandated climate and air quality targets, including the statutory requirements to reduce GHG emissions at least 40% below 1990 levels by 2030 (SB 32), reduce methane 40% below 2013 levels by 2030 (SB 1383), reduce anthropogenic GHG emissions 85% below 1990 levels by 2045 (AB 1279), and achieve carbon neutrality no later than 2045 (AB 1279). CARB is the regulatory agency charged with implementing regulations and taking other actions to achieve these statutorily-required GHG emission reductions. CARB is also required, under AB 32, to prioritize measures that are cost-effective and technologically feasible.

The LCFS and the amendments represent a cost-effective and technologically feasible approach to achieving the statutorily required GHG reductions and ensuring affordable, reliable, adequate, and equitable fuel supplies continues to be guiding considerations in all of CARB’s regulatory activities, including the LCFS. The LCFS is designed to create a flexible market where participating entities have many compliance options and can find the most cost-efficient way to advance clean, lower CI transportation fuels. The LCFS also creates price-mitigating effects by inducing diversification and expansion of fuel supply. For example, electricity, renewable diesel, and ethanol currently provide affordable alternatives to petroleum diesel and gasoline. Just as importantly, the LCFS provides a market for a significantly greater number of clean fuel producers, allowing for

¹³ World Health Organization, *Health benefits far outweigh the costs of meeting climate change goals*. 2018. <https://www.who.int/news/item/05-12-2018-health-benefits-far-outweigh-the-costs-of-meeting-climate-change-goals>.

greater competition and lower fuel rates when compared to the significantly smaller number of petroleum fuel producers today, thus putting downward pressure on energy prices.¹⁴ The lack of competition in the fuels market is one of the issues clearly identified by experts and stakeholders during the recent special session and public hearings,^{15,16} and the LCFS is directly responsible for reversing a decades-long trend of fuel production market consolidation.

Because LCFS is designed to diversify the transportation energy options for consumers and add competition to help reduce costs, the fossil fuel industry and surrogates often use misleading or incomplete information to attack programs and policies that could reduce industry profits. The specter of high retail gas prices is often used to slow down or even derail policies designed to protect public health and the environment.¹⁷ The extreme and sensationalist estimates of retail cost increases of 65 cents per gallon, or higher, without bringing appropriate attention to underlying estimation weaknesses by industry, their lobbyists, and others that oppose the state's climate policies, is a classic example.

CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. The effects on the economy include affordability for the state's residents. As part of adopting the amendments to the LCFS regulation, the Board directed the Executive Officer to assess any impacts of these regulation amendments on retail gasoline prices every 6 months, with a written assessment every 12 months, beginning 6 months from the effective date of these regulation amendments, and to collaborate with the California Energy Commission in that effort. If the Executive Officer determines that the regulation has caused consistent retail gasoline price increases that impact consumers, then the Executive Officer shall, within 120 days, propose to the Board measures to mitigate those economic effects on consumers.¹⁸

The State is looking into measures that could lead to lower gas prices without compromising environmental protections. California is pursuing a multiagency effort to study and plan for a managed transition away from fossil fuels toward ZEVs and clean alternatives, through development of the Transportation Fuels Assessment and Transportation Fuels Transition Plan. The focus is on ensuring that the supply of transportation fuels is affordable, reliable, equitable and adequate for California's needs. Governor Newsom also directed CARB to accelerate studying how California could

¹⁴ CARB, FAQ, 2024. https://ww2.arb.ca.gov/sites/default/files/2024-11/LCFS_Fuel_FAQ.pdf

¹⁵ CEC, DPMO Spot Market Reform Letter, 2024. <https://www.gov.ca.gov/wp-content/uploads/2024/08/DPMO-Spot-Market-Reform-Letter.pdf>

¹⁶ *CEC Holds Hearing on Recent Gasoline Price Spikes and Measures to Protect Consumers*

¹⁷ Anecdotal narrative on past use of this attack strategy going back to opposition to banning leaded gasoline and early climate action available here: [California Must Not Abandon its Climate Leadership - Legal Planet](#)

¹⁸ [Resolution 24-14](#)

increase ethanol blending in gasoline, which could help to lower prices up to \$0.20 per gallon.¹⁹²⁰

I. Base Credit Spending Requirements (CFR, Holdback Equity)

I-1 Multiple Comments: *Allow Residential EVSE Owners and Aggregators to Generate Electricity Credits*

Comment: At minimum, awarding base + incremental credits to EVSE owners for L2 communal parking in multi-unit dwellings would make the most substantial impact in any single property category, as a communal charging option in multi-unit/rental residences can open up the opportunity for low-to-middle income drivers to adopt EVs with greater ease. Growth in communal L2 charging in multiunit dwellings can also help support CARB's broader goal of achieving a greater volume of distributed charging points rather than fewer, congested charging points. Yet, from the regulator's perspective, it is important to drive advances in innovative, clean infrastructure and not to merely spur adoption of existing supply chains. To that end, another element that could further justify awarding EVSE/network owners with base + incremental credits could be that the award is premised on the installation of bi-directional chargers for multi-unit and/or single-family residences. Bi-directionality is a value-add that would further both grid resilience and California's climate goals. (45d-238.1)

Comment: We respectfully appeal to CARB to consider awarding base + incremental credits to qualified EVSE owners/aggregators that are able to report actual, metered utilization data. This base + incremental credit qualification would prioritize best available data whenever it is available. In turn, this would likely lead to more stringent credit generation, as the metered credits would be based on actual utilization rather than estimated utilization. In this way, the aggregator/EVSE owner can be rewarded for providing CARB with the best available data. (45d-238.2)

Comment: We would like to respectfully reiterate the importance of allowing owners of residential EV charging infrastructure to participate in residential base credits. This is a crucial issue when it comes to addressing the equity gap in California, incentivizing electrification, and awarding the best available utilization data. (Apr-123.1)

Comment: As presently dictated, residential base credits for EV charging—which make up the majority of residential credit value—default to utilities. We believe this procedure inadvertently undermines the state's transportation electrification goals. This inefficiency manifests across two main categories: i) failure to properly incentivize LDV electrification across all income levels in an equitable fashion; and ii) failure to award the best available utilization data. In light of the April 10th workshop, we again strongly appeal to CARB to consider awarding base + incremental residential credits to the owners and operators of residential EV charging Infrastructure.

¹⁹ California Energy Commission, *Senate Bill X1-2 Implementation*. 2024. <https://www.energy.ca.gov/proceeding/senate-bill-x1-2-implementation>

²⁰ Office of the Governor, *Letter to CARB*. October 25, 2024. <https://www.gov.ca.gov/wp-content/uploads/2024/10/10.25.24-letter-to-CARB.pdf>

For California to reach a majority ZEV transportation pool, it will need to incentivize low- and moderate-income households to convert to LD EVs from gasoline-fueled cars. Many of these households rent within multi-unit developments and struggle paycheck-to-paycheck. For these individuals, cash-on-hand is a top priority. Unless a policy-based program incentivizes an economically vulnerable citizen to take the financial risk to make a fuel switch, that citizen has little reason to adopt a new type of vehicle.

For individual drivers, incentives need to address both the EV purchase as well as readily available charging infrastructure—without the latter, the former becomes an impractical purchase. According to multiple studies, EV drivers prefer to charge their vehicles at home. Therefore, the need for economic incentives is particularly pressing for residential charging infrastructure, which can cost a Californian between \$1,000 and \$4,000 to operationalize in a new, single-family home—on top of the vehicle purchase. For retrofits, such as those in multi-unit developments, the financial outlay is much more burdensome, with costs ranging from \$3,000 to \$15,000 per charger. Unlike EVs themselves, which represent a depreciating but resellable asset class, there is no viable secondary market for EV charging infrastructure. Thus, residential charging infrastructure, once installed, is a sunk cost.

In spirit, California's LCFS is exactly the type of policy-based incentives program that can award property owners who take on the risk to adopt residential EV charging infrastructure. However, in practice, the program does not sufficiently award the primary financial risk taker in this process but instead awards the state's utilities. California's utilities no doubt contribute in an outsized way to the state's total energy ecosystem, but these entities bear little-to-no financial risk when a property owner or EVSP owner/operator decides to put up the capital to install residential EV charging infrastructure.

Rather, amending CARB's current regulations to award base credits + incremental credits to residential property owners that install EV charging infrastructure would represent a more equitable program and likely lead to much greater gains in overall EV adoption in California. (Apr-123.4)

Comment: As it stands, utilities are supposed to funnel base credit profits into rebate programs, which ostensibly support electrification and offer EV incentives for low-income communities. In this way, it can be argued that rebates are an incentive for the property owner. While this structure is well-intentioned, any diluted incentive, such as an indirect rebate still requires the buyer to put up a significant amount of capital before achieving any sort of payback—which, in a rebate scenario, could be an incomplete payback over a long period of time. For low-income and moderate-income Californians, this indirect rebate structure will likely result in many homeowners opting to save their cash or pay down existing debt, rather than take on greater financial risk by investing in EV charging infrastructure. The California Energy Commission reported that, as of the end of last year, only 3.8% of light duty vehicles on the road were battery-electric powered—versus 87.5% of vehicles being gasoline fueled. For context, Tesla Model Ys and Model 3s far and away comprised the majority of that battery-electric powered 3.8%. These statistics offer further proof that the current rebate structure may not be sufficient on its own. (Apr-123.5)

Comment: The main rationale for awarding base credits to utilities appears to be premised upon a well-justified fear of administrative overburdening. That is, if every single homeowner in

California became a LCFS account holder, administrative capacity would likely be overwhelmed in short order. However, we believe that creating credit volume floors and an “approved vendor” process can incentivize aggregation and limit the potential for any account creation overload that might overwhelm a regulatory agency.

Such an approach would be similar to many Renewable Portfolio Standard (RPS) programs, which delegate account creation to approved installers/aggregators that bundle home system-generated credits, while still passing on the actual credit earnings to homeowners. Aggregators can also help reduce the overall upfront cost to the homeowner by way of upfront payments and reduced installation costs. (Apr-123.6)

Comment: Utility-generated base credits do not rely on the best available data. Unless a utility operates a residential charge point, or the homeowner has charging infrastructure sub-metered, utility-derived utilization data is based on averaging and does not reflect real, specific utilization. Therefore, as financial instruments, utility generated base credits are not representing actual kW/CO₂e value per charger but rather represent a best guess of kW/CO₂e value per charger. From a market perspective, this lack of stringency in base credit generation is unlikely to help mitigate depressed credit prices. On the other hand, as noted in our previous letter, residential property owners with on-site EV charging infrastructure—as well as EVSE developers, network operators, and some OEMs—have access to real utilization data specific to each charge point/vehicle. This data is exact and not based on averages. Therefore, the instrumentalizing of kW/CO₂e value in credits generated by residential property owners or network operators leads to exact metrics and, thus, more stringent crediting volumes. (Apr-123.7)

Comment: In short, we believe that California’s LCFS will be most effective if it rewards the primary financial risk taker in EV charging infrastructure installation—that is, the property owner paying for the installation. This risk taker also has the added value of providing access to the best available data. However, should CARB decline to address this equity gap in the near term. We respectfully request that CARB, at minimum, award base + incremental credits to owners of EV charging infrastructure in residential multi-unit dwellings. Considering single-family homeownership has become cost-prohibitive for many Californians, multi-unit dwellings and rentals are the single most important property type to incentivize, as a communal charging option in multi-unit/rental residences can open up the opportunity for low-to-middle income drivers to adopt EVs with greater ease. (Apr-123.8)

Agency Response: No changes were made in response to these comments. Staff is not proposing to award base credits for residential EV charging to EVSE owners, with the exception of electric vehicle supply equipment (EVSE) located in non-dedicated parking spots at multi-family residences. The base crediting provisions result in reinvestment of credit proceeds to promote transportation electrification, and a large portion of these proceeds is invested in low-income, disadvantaged or rural communities, benefitting the residences mentioned by some of the commenters. The base credits will also support a statewide rebate program for zero emission trucks, if not allocated to the original equipment manufacturers (OEM) pursuant to section 95483(c)(1) of the regulation. This rebate will help to reduce the up-front costs of

purchasing a zero emission truck and is focused on small fleets that are not subject to the Advanced Clean Fleets regulation.

I-2 Multiple Comments: *Allow Small POU's to Opt in to LCFS without Rate Options that Encourage Off-Peak Charging*

Comment: The LCFS Should Not Require Specific Rate Structures in Order to Generate Base Credits 285.1 285.2 Section 95483 (c)(1)(A)1. stipulates that to generate base credits, an electric distribution utility (EDU) “must provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid”. Currently most medium and large POU's offer rate options to encourage off-peak charging. However, due to the nature of the local communities they serve, some POU's do not face the need to impose such a rate structure. Further, some of California's smaller POU's do not have the infrastructure needed to implement such rates. Maintaining reliable, safe, and affordable electric service is paramount to California's POU's. The rate structure of each POU is developed in a public process, with full approval of each POU's Governing Board. As part of this, each POU considers alternative rate structures as needed. However, if the LCFS regulation continues to require a specific rate option in order to be eligible for base credits, some POU's may continue to not participate or opt-out of the LCFS. Such a result would be inconsistent with California's clean transportation goals. (45d-285.1)

Comment: The requirement in section 95483 (c) for EDUs to specifically provide rate options is inappropriate and will potentially have negative consequences for transportation electrification programs in areas with low EV adoption. Rates are adopted by POU Governing Boards through a public process and developed to balance system needs and system costs. The five largest utilities in the state already offer rate options to encourage off-peak charging, as do most medium-sized POU's. However, there are POU's that are either 1) unable to adopt such a rate option due to current limitations in metering infrastructure, or 2) do not yet have a need for such a rate option. Adopting rate options to encourage off-peak charging is an ongoing consideration for all utilities as the deployment of transportation and building electrification increases. It can take years to develop and approve new rate structures. In the meantime, such POU's can encourage off-peak charging through non-rate mechanisms. Requiring a rate option as an eligibility requirement to access base credits could potentially cause POU's to drop out of the LCFS program and, therefore, cease funding for transportation electrification programs in those territories. Therefore, NCPA recommends striking the following from 95483 (c)(1)(A):

~~(1) EDUs seeking eligibility to generate base credits must provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid;~~

(45d-303.9)

Comments: CARB did not clarify or remove the requirement in section 95483 (c) for EDUs to specifically provide rate options, despite the requirement being inappropriate and potentially delaying or stopping transportation electrification programs in areas with low EV adoption. CARB should provide clarification in the FSOR that the language in 95483 (c) is meant to encourage a variety of methods for encouraging off-peak charging, as needed by individual utility areas, and does not explicitly require the adoption of a formal rate. (15d2-265.8)

Comments: NCPA supports the additional language in section 95483 (c)(1)(A)(6) to clarify the process for redistributing unallocated base credits to small POU's that have joined the LCFS program by March 31, 2025. These accumulated credit proceeds will help provide additional funding for the state's smallest utilities to design and launch transportation electrification programs. (15d2-265.10)

Agency Response: No changes were made in response to these comments. Rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid are an important tool for helping to reduce peak loads, reduce greenhouse gas emissions from EV charging, and help with sustainable adoption of EVs. As the commenters noted, most utilities already meet this requirement. Staff encourages utilities that face significant barriers to meeting this requirement to meet with staff to discuss the issues at detail.

I-3 Multiple Comments: *Support for Base Credits to OEMs*

Comment: A reliable, simple, and widely available purchase incentive is sorely needed. A restructured light-duty CFR would certainly help in this regard. Again, gauging the need for an incentive against California's stated objective to, "rapidly increase the number of zero emission vehicles on the road" points towards a reconsideration of a light-duty CFR. Automakers are uniquely well positioned to carry forward a revamped CFR that is much more effective, resilient to credit price fluctuations, and with dramatically lower overhead costs by virtue of our existing expertise in administering these sorts of programs. We look forward to working with CARB to revamp a future CFR that, as noted above, will be increasingly necessary to meet the challenge of achieving higher rates of EV adoption. (45d-158.1)

Comment: In addition to the opportunity of launching a revamped CFR as described above, automakers will also be central to implementing other programs identified by CARB staff in the ISOR (and elsewhere) as important to supporting transportation electrification, such as, "smart" managed EV charging programs (including demand response), improvements in EV charging convenience and efficiency, Vehicle-to-Home and Vehicle-to-Grid technologies, approaches for mitigating battery degradation, etc. All of these programs have a clear and central role for automakers and thus justify a significant allocation of base credits to fund these activities alongside those allocated to the electric utilities for similar purposes. The current structure, restricting automakers to Incremental Credit generation only, with the low and decreasing market value of those class of credits (along with the proposed increased costs to register those credits), will lead to automakers abandoning the LCFS program altogether. (45d-158.5)

Comment: Maximize the Impact of Residential Charging Base Credits

In previous comments, workshop input, and engagement with CARB, Rivian advocated consistently for a fresh approach to the use of revenue earned from residential EV charging base credits. We welcome staff and Board consideration of alternative structures and uses for base credit revenue.

Rivian previously recommended regulatory amendments that allow for EV manufacturers to share in base credit generation. Clean fuels policies are intended to be market-based systems that create incentive structures for private sector investments by the providers and users of

clean transportation fuels. In the light-duty vehicle sector, the two most important market participants are vehicle manufacturers and their customers. Consistent with the core principles of the LCFS, the policy should encourage the participation of these market actors and reward them for making investments in EVs.

Rivian's preferred approach would incentivize automakers to empirically substantiate its vehicles' residential charging activity with telematics data by allowing manufacturers to earn base credits in return. With a sufficiently large allocation of base credits, manufacturers whose vehicles generate credits (light-duty and medium-duty) could operate the Clean Fuel Reward ("CFR") more efficiently and sustainably than under the utility-led framework. (45d-228.7)

Comment: Rivian recommends that the Board award a durable and significant share of holdback credits to automakers on the condition that the revenues fund investments to advance transportation electrification and lower the total cost of EV ownership. These investments could include all or some of the following, with an appropriate carveout for administrative costs: • Annual dividend checks returned to customers, paying out the value of charging credits. • Rebates on home EVSE purchases. • Public charging infrastructure deployment. • Vehicle-grid integration ("VGI") technology development and implementation.

CARB could establish a 'menu' of investment options for automakers including several of the above categories, or others, to provide flexibility for participants. The regulation could prescribe additional detail. Automakers would report to the Board annually on their expenditures. (45d-228.7a)

Comment: No industry is investing more than automakers to develop the EV market. By 2030, the auto industry will invest more than \$500 billion globally in everything from critical minerals and critical mineral processing, to battery cell and pack production, to vehicle development, certification, and production, to charging stations and consumer education. Moreover, automakers are developing telematics, vehicle-to-home (V2H), and vehicle-to-grid (V2G) technologies that benefit the electric grid. Nonetheless, automakers are excluded from receiving any of the base residential charging credits generated by their investment. CARB regulations should provide automakers "pre-approved" uses for the credit proceeds like those provided to the utilities. For example, the following pre-approved projects parallel those provided for non-equity utility holdback credits (c)(1)(A)5.b.:

- i. Investments to improve EV efficiency, charging time, and EV charging convenience.
- ii. Investments in V2H and V2G technology development including
 1. Encouraging the optimization of EV charging through education and technology to improve the ability of customers to charge at times of lowest cost.
 2. Providing incentives to encourage drivers to participate in managed charging, demand response, V2H, or V2G programs.
 3. Supporting the development and use of vehicle bidirectional charging.
 4. Other innovative approaches to promote and manage EV charging and discharging to benefit customers and the grid, including methods to reduce battery degradation from V2H, V2G, and fast charging events.
- iii. Hardware and software that reduces the cost of EVs.

(45d-233.2b)

Comment: Recent market trends reveal some emergent headwinds in consumer uptake of BEVs and the clear consensus is that purchase incentives are *increasingly* important as automakers seek to move mainstream car buyers into plug-in electric vehicles. It is indeed automakers that are unambiguously best positioned to design and administer purchase incentives and other programs to boost consumer EV uptake in California. These activities are core to our business. The proposed changes to the LCFS program recognize this intrinsic product consumer relationship that we curate and leverages LCFS credit value to bolster EV adoption. (15d1-162.1)

Comment: Base credit generation from EV charging is unique in its ability to incentivize the *utilization* of zero-emission battery electric vehicles (i.e., more eVMT and more GHG reductions) and not just the initial sale of those vehicles. Thus, CARB's proposed changes including automakers as LCFS base credit generators, alongside electric utilities, provide that needed direct incentive to drive further technology innovation, new consumer-facing programs, and further strengthen the market pull for deploying more BEVs, and more utilization of those BEVs, in the state of California. (15d1-162.2)

Comment: Auto Innovators continues to support CCFR directed to LD EVs. However, rather than providing the LCFS credits to utilities, participating EV automakers and a third-party administrator selected by CARB (CFR Program Administrator) should administer the program and provide the EV Purchase reward. Automakers have decades of experience administering vehicle rebates and can do so far more efficiently than utilities. To provide a stable and predictable EV incentive, CARB and automakers should set the CCFR EV purchase reward annually based on estimated revenue from LCFS credit generation from residential EV charging. Unlike utilities that require minimum cash reserves (around \$10 million) and thus needed to quickly change the CCFR program, participating automakers could continue the CCFR throughout the year and then adjust the CCFR reward in subsequent years. (45d-233.2a)

Comment: We believe that CARB should allocate part of the base residential credits from EV charging to automakers. OEMs are uniquely positioned to use this revenue to provide benefits in support of EV adoption. OEMs can move fast to execute programs, increasing the benefits from this spending. Splitting this revenue between OEMs and IOUs will provide new opportunities for collaborating between the two industries, unlocking opportunities for the electric vehicle space. (45d-287.1)

Comment: As a path forward, Tesla has worked with other OEMs to develop a program structure that is workable and would eliminate many of the issues burdening the prior CFR program. In short, this plan consists of: A) Committing all CFR revenue towards light duty incentives; B) Put all EVs on the road before Jan. 1, 2025, into a "community pool." A 3rd party administrator would receive the base credits from those vehicles and sell the credits; C) The significant CFR revenue currently unused by the utilities would go to the community pool; D) OEMs would receive base credits from their fleets sold after Jan. 1, 2025; and E) If any OEM has a CFR outlay shortfall greater than their base credit revenue, the OEM will receive a "make whole" payment from the community pool administrator (ensuring automakers are not punished for rapidly expanding their EV sales). (Apr-91.16)

Comment: CARB is at risk of missing an opportunity to double-down on the regulation's signature strengths in support of growing the light-duty (LD) electric vehicle (EV) market. Specifically, CARB should use the current rulemaking to reform and restore the LD Clean Fuel Reward (CFR) by giving automakers the opportunity to manage the reward program using proceeds from residential charging base credits. This represents the highest and best use of those credits, consistent with the foundational principles of the LCFS regulation and cognizant of the reality that LD EV sales now count on mainstream consumers. Sustained and broadly available purchase incentives for car buyers remain as important as ever for achieving California's EV goals. The Joint Automakers recommend reestablishing the CFR program as a point of purchase incentive. This program incentivized residential customers – the very customers who generate the LCFS credits that fund this program – to choose electricity rather than gasoline to fuel their vehicles. Moreover, the CFR was provided at the time of purchase, avoiding the weeks- or months-long wait associated with other rebate programs. It also provided an ongoing revenue stream, rather than dependency on the annual state budget allocation. Lastly, it was one of the few remaining financial incentives in California for LDVs. Its demise came at a time when EV sales were becoming more dependent on purchases by mainstream consumers. These consumers need more encouragement than early adopters to purchase an electric vehicle. Automakers are currently excluded from receiving any of the base residential charging credits generated by their investment. (Apr-99.1)

Comment: The Joint Automakers continue to support CFR directed to LD EVs. However, rather than providing the LCFS credits to utilities, participating EV automakers and a third-party administrator approved by CARB (CFR Program Administrator) should administer the program and provide the EV Purchase reward. Automakers have decades of experience administering vehicle rebates and can do so far more efficiently than utilities. Indeed, utilities are sitting on credits worth over \$400 million that should have gone to CFR incentives. Automakers know more about their delivery and sales plans than anyone and can leverage that knowledge to better forecast CFR program expenses. Automakers also have direct access to the best data on home charging rates and can leverage that data to better forecast CFR program revenues. (Apr-99.2)

Comment: To provide a stable and predictable EV incentive, CARB and automakers should set the CFR EV purchase reward annually based on estimated revenue from LCFS credit generation from residential EV charging. Unlike utilities that require minimum cash reserves (around \$10 million) and thus needed to quickly change the CFR program, participating automakers could continue the CFR throughout the year and then adjust the CFR reward in subsequent years. (Apr-99.3)

Comment: The Joint Automakers commit to working with CARB and other stakeholders on setting the minimum percentage of residential base EV charging credits that would be required to support a resilient minimum CFR with the remainder dedicated to equity projects. While details would still need to be worked out, the Joint Automakers recommend the following actions: 1. Split the residential base EV charging credits between equity projects and the automaker-managed CFR. 2. Put all CFR revenue towards light-duty vehicles. 3. Allocate base credits to participating automakers from their fleets sold starting January 1, 2025. 4. Put all EVs on the road before January 1, 2025 into a "community pool". A third-party administrator would receive the base credits for those vehicles, sell the credits, and then add the revenue to

the community pool. If any automaker had CFR outlay shortfall greater than their base credit revenue, the automaker would get a “make whole” payment from the community pool administrator. 5. Add the existing balance in the utility CFR program (estimated at over \$400 million) into the community pool. (Apr-99.4)

Comment: The workshop did not directly address questions raised by the ISOR regarding the use of residential charging base credits. This is an important aspect of the regulation that merits further discussion. (Apr-116.1)

Comment: While Rivian finds that the MHD CFR concept has promise, we continue to believe that a reconstituted LD CFR, administered by automakers, is the highest and best use of base credits. If CARB elects to move forward with the MHD CFR, important questions still need to be settled, including in what amount rebates should be issued. We propose a tiered rebate structure and amounts below. (Apr-116.2)

Comment: We appreciate that staff had many topics to address in the April workshop and with limited time and significant public interest in other aspects of the regulation, Rivian understands the need to prioritize certain topics. Nonetheless, the ISOR introduced a significant revision to the allocation and use of base credits. Discussion of the proposed changes to base credits in a workshop setting would have been valuable. The previous approach to using base credits has been dogged by significant implementation challenges and, with the CFR now suspended, has unfortunately run into a dead end. There is a genuine debate to be had about the best path forward for this aspect of the regulation.

Even if CARB moves forward with the ISOR proposal, many issues remain open and unresolved—for example, the structure of the MHD rebate program. We offer thoughts on this below. But first, Rivian wishes to reiterate the value of reforming and restoring the LD CFR program as automaker-run incentive. (Apr-116.7)

Comment: Rivian has recommended regulatory amendments to allow EV manufacturers to share in base credit generation. Clean fuels policies are intended to be market-based systems that create incentive structures for private sector investments by the providers and users of clean transportation fuels. In the light-duty vehicle sector, the two most important market participants are vehicle manufacturers and their customers. Consistent with the core principles of the LCFS, the policy should encourage the participation of these market actors and reward them for making investments in EVs.

Rivian’s preferred approach would establish automakers as the priority generators of base residential charging credits. With a sufficiently large allocation of base credits, manufacturers whose vehicles generate such credits (both light- and medium-duty) could operate the Clean Fuel Reward (“CFR”) directly, and more efficiently and sustainably than under the utility-led framework.¹ Since CARB decided to sunset the Clean Vehicle Rebate Project, the CFR would be the last universally available EV purchase incentive in the state—a key tool for sustaining the EV market’s growth into the mainstream of the consumer market. (Apr-116.8)

Comment: The workshop did not address the future of residential base credits, however, and we believe this important aspect of the LCFS requires more discussion. An automaker-run LD CFR still stands out as the highest and best use of base credits. But if CARB decides to move forward with the MHD CFR concept, implementation details need to be resolved. We propose

that vouchers be awarded in the amount of \$10,000 for medium-duty ZEVs, \$40,000 for Class 4-8 ZEVs, and \$80,000 for Class 7-8 tractor ZEVs. As a manufacturer of MHD EVs, Rivian stands ready to support the design and implementation of an MHD CFR. (Apr-116.15)

Comment: On the LD electric vehicle side, we do believe that LD vehicle incentives are still necessary as the market transitions from early adopter to mainstream buyers, and that a robust and Clean Fuel Reward (CFR) program is needed. Auto OEMs are best situated in the market to make an impact by administering the CFR program at the point where the customer makes a purchase decision. (Apr-187.4)

Comment: Tesla strongly supports the 15-day Amendments allowing the Executive Officer to assign a portion of base credits to Original Equipment Manufacturers (OEMs). Tesla has long argued that OEMs should play a larger role in turning base credits for residential charging into drivers of additional adoption of electric vehicles (EV) and appreciates CARB staff's efforts to allow the Executive Officer to assign base credits to OEMs. CARB's proposal will lead to increased direct investment in EV deployment in California. While the Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information is relatively clear cut in stating that the Executive Officer can act if "model year 2024 ZEV sales for vehicle classifications subject to the Advanced Clean Cars regulation are less than 30 percent of new vehicle sales,"⁸ the actual regulatory language is less clear, stating that the Executive Officer may act "if the share of new zero emission vehicle sales for model year 2024 zero emission vehicles certified under California Code of Regulations, title 13, section 1962.2 is less than 30 percent."⁹ Tesla recommends modifying the regulatory language to add clarity: "if the share of new zero emission vehicle sales for model year 2024 that are zero emission vehicles certified under California Code of Regulations, title 13, section 1962.2 is less than 30 percent." CARB should also clarify that this trigger for the Executive Officer to act is a one-time event and that OEMs will continue to receive base credits through the life of the program, or until there is a public amendment process. In addition, the current language is discretionary when regulatory certainty is necessary. Instead of giving the Executive Officer the discretion ("may") to direct base credits to OEMs for "up to 45%" of those credits, Tesla believes the regulation should affirmatively state that if zero emission vehicles do not make up 30% of Model Year 2024 sales in California, the Executive Officer shall direct 45% of base credits to eligible OEMs. Clarity is essential when designing a market-based program for all participants and the public and Tesla encourages CARB to create that certainty by making the above suggested amendments. (15d1-029.3)

Comment: The 15-day changes would provide additional benefit by allowing CARB's Executive Officer to "direct up to 45% of base credits to eligible OEMs, if the share of new zero emission vehicle sales for model year 2024 zero emission vehicles certified under California Code of Regulations, title 13, section 1962.2 is less than 30 percent." Mercedes-Benz wholly supports this addition which would give automakers the opportunity to earn up to 45 percent of the base credits and suggests that CARB also add a minimum percentage that would be guaranteed to go to automakers. Mercedes-Benz would also ask CARB to specify the criterion to which this percentage will be based, and to hold this amount fixed over time to provide certainty for OEMs. Lastly, it would be important to understand CARB's rationale for setting 30 percent as a threshold. We agree that "continued consumer facing support for the light duty vehicle sector is important," but we believe that support is needed well beyond this threshold

due to continued concerns over adequate and reliable infrastructure and the need to incentivize the mainstream market. (15d1-34.1)

Comment: Due to the recent and ongoing low prices for credits in the LCFS program, Californians who purchased EVs were unable to receive a rebate under the Clean Fuels Rewards program. Additionally, without the rebate, the higher purchase price could have turned consumers away from purchasing an EV. If OEMs are directly able to capture revenue from the base credits generated by their own vehicles, rebates for EVs would reach consumers under all LCFS credit market conditions and potentially in higher amounts. Under current rules where electric distribution utilities (EDU) are allotted the entirety of base credits, the Clean Fuels Rewards program has been insufficiently funded. This represents a lost opportunity in advancing LCFS goals as well as other CARB priorities such as Advanced Clean Cars II's (ACCCII's) Zero Emission Vehicle (ZEV) requirement. Incremental credit proceeds, while helpful, are insufficient to provide enough revenue for OEMs to meaningfully increase EV rebates or provide for any of the other proceed usage requirements detailed in the proposed section 95483(c)(1)(B). Conversely, Kia routinely and extensively provides rebates on their vehicles for various reasons. Kia has the ability, the know-how, and the incentive to support customers with direct rebates. New proceeds from base credits will position Kia and other OEMs to increase their ability to provide rebates on EVs. This will reduce EV transaction prices; increasing EV adoption and the use of low-CI electricity as a transportation fuel. This is a double benefit to consumers as low-CI electricity is generally more affordable than gasoline and other liquid transportation fuels. (15d1-054.2)

Comment: The regulation allows that the "Executive Officer may direct up to 45% of base credits to eligible OEMs," but there is no definition of "eligible OEMs". Presumably this includes all OEMs producing and selling light-duty plug-in electric vehicles in California, but clarification would be helpful. (15d1-080.2)

Comment: The regulation appears to allow the EO to direct anywhere from 0 percent to 45 percent of the base credits to eligible OEMs, but there is no indication of the criteria that might be used to determine the portion direct to OEMs. Clarifying the criteria would make the regulation more transparent. The regulation is also not clear if the portion assigned to OEMs is fixed or could change year-to-year. Presumably the portion cannot change since OEMs and utilities need long-term stable fundint to efficiently administer EV market support programs. (15d1-080.3)

Comment: Finalize the Proposed Changes to Residential Base Credits Rivian finds the proposed amendments to base credit generation very encouraging, reflecting fresh thinking about this critical aspect of the LCFS. Clean fuels policies are intended to be market-based systems that create incentive structures for private sector investments by the providers and users of clean transportation fuels. In the light-duty vehicle sector, the two most important market participants are vehicle manufacturers and their customers. Consistent with the core principles of the LCFS, we have long argued that the policy should encourage the participation of these market actors and reward them for making investments in EVs that displace as much fossil fuel use as possible. To that end, Rivian applauds the newly proposed amendments that would—subject to certain conditions and the Executive Officer's approval—allow for EV manufacturers to share in base credit generation. The proposed rules represent a valuable

evolution of the LCFS' residential credit pathway, positioning the policy to play an even more meaningful role in the growth of California's EV market at a pivotal moment. In fact, we believe the proposal promises at least two key benefits.

1. Allowing automakers to earn a share of base credits establishes an incentive for automakers to go above and beyond minimum sales requirements. This is important for achieving climate and air quality goals on an accelerated timeline while also positioning the state to achieve its longer-term EV sales targets as the market grows into the mainstream.

2. Vehicle manufacturers enjoy close relationships with their customers and are the best positioned entities to effectively and efficiently pass through credit value in the form of market-enhancing investments. By establishing a 'menu' of investment options, the proposal establishes important flexibility in this regard while establishing clear guardrails around credit revenue spending. Whether in the form of consumer rebates, charging infrastructure investments, new spending on marketing, or other approved projects, EV makers like Rivian stand ready to reliably and impactfully invest base credit revenue for the benefit of our customers and the EV market. For these reasons, we strongly support the proposed modifications and urge the Board to approve these provisions at the November hearing. Should market conditions trigger these provisions, Rivian would look forward to engagement with the Executive Officer and the staff—as well as more formal agency guidance—to inform implementation. Among other things, we would encourage a focus on stability and predictability in the base credit allocation. We support leaving that allocation to the Executive Officer's discretion, but to best aid industry in making investment with credit revenue, CARB should provide automakers with as much notice as possible of base credit allocations and make adjustments on a reasonable and consistent timeline—not more than annually, in our view—and on a predictable basis. CARB could take other steps now to prepare for a smooth implementation of these provisions. To be consistent with existing practice and to avoid the need for reregistration of vehicles by market participants, we recommend that the regulation specify that an OEM or their designee may register with the Executive Officer to generate the allowed share of base credits. (15d1-107.3)

Comment: Allocating a greater share of credit generation to BEV-producing OEMs expands opportunities for incentives and infrastructure growth for electric vehicles and other projects which support transportation electrification in California. CARB allocates “up to 45% of base credits” without establishing criteria or a framework for determining the applicable percentage. GM recommends that CARB establish criteria for credit allocation which will bring increased regulatory certainty to the LCFS program. GM recommends increasing the statewide share of all new zero emission vehicle sales threshold from 25% to 50%. While California leads the US in EV sales having reached 25% market share, the EV transition is far from complete. Substantial progress is needed to meet CARB's complementary regulatory programs, which will require 51% ZEV sales in 2028 leading to 100% by 2035 under Advanced Clean Cars II. Increasing the opportunity for credit generation will ensure that OEMs continue reinvestment into EV infrastructure within California. (15d2-204.4)

Comment: Rivian continues to be extremely encouraged and supportive of the proposal to allow EV manufacturers (“OEMs”) to share in base credit generation. Our prior comments highlighted several important benefits of this proposal, and we reiterate those points here by

reference.¹ Achieving California's bold EV goals will require every tool at the state's disposal as well as collaboration across industries and stakeholders. CARB's proposal allows for just that, creating opportunities for both automakers and utilities to participate in growing the EV market in ways that reflect their unique market positions.

Final OEM project decisions will necessarily need to reflect the Executive Officer's determination on the allocation of credits as well as market prices and resulting revenue. Nonetheless, Rivian is already considering several possibilities for market-enhancing investments, including expansion of the Rivian Adventure Network. Consider that other OEMs would also be capitalized to fund new initiatives, and it quickly becomes clear why this proposal is potentially so effective and powerful. Automakers will be heavily incentivized to use their base credit revenue to innovate and compete for EV sales.

For instance, the CARB proposal also creates the conditions to address the issue of take-home fleet vehicles. Unlike depot-charged fleets, existing rules that allocate all base credits to utilities prevent take-home fleets from capturing credits from residential charging activity. This is a key blind spot of the LCFS. The cost-benefit analyses for both the ACT and ACF regulations assume fleets will capture charging credits to help 'pencil' the business case for electrification. The proposed changes to base crediting open the door to potential solutions. For example, EV manufacturers could partner with take-home fleet customers to ensure that credit value flows to the fleet owner, whether in the form of an upfront purchase rebate, ongoing dividend, or other benefit. CARB's proposal would facilitate nimble innovation that current program rules simply do not allow.

The latest modifications help solidify aspects of the regulatory language. Explicitly including "OEMs of battery-electric and plug-in hybrid electric vehicles" as opt-in entities in §95483.1 (a)(1)(D) affirmatively positions OEMs as opt-in entities for purposes of base crediting. We also welcome amended language providing for an approval process for administrative costs that exceed 7 percent of total spending. (15d2-225.2)

Comment: We find that further clarification of the regulation would be valuable, however. Aspects of the currently proposed regulatory language appear potentially inconsistent and could cause confusion or misinterpretation regarding vehicle and OEM eligibility.

§95483 (c)(1)(B) specifies that the Executive Officer may direct base credits to OEMs of "**light-duty** battery-electric or plug-in hybrid electric vehicles" (emphasis added), a term defined elsewhere in the regulation as a vehicle with a gross vehicle weight rating of less than 8,500 pounds.

§95483.1 (a)(1)(D) makes no such distinction in identifying which OEMs may opt in to the program, referencing simply OEMs "of battery-electric or plug-in hybrid electric vehicles..." (15d2-225.3)

Comment: This is an important point of clarification because several automakers, including Rivian, manufacture passenger EVs with a GVWR exceeding 8,500 pounds. As written, §95483 (c)(1)(B) could raise questions about applicability and implementation for automakers of passenger vehicles that straddle the light- and medium-duty boundary. A distinction along these lines would also be inconsistent with both our understanding of the regulatory intent and

the longstanding practice of calculating base and incremental credits as a function of residential charging load irrespective of vehicle type.

We recommend avoiding ambiguity by using consistent language throughout. CARB could accomplish this, for example, through a technical amendment to §95483 (c)(1)(B) as suggested here with strikethrough and underlined text.

Base Credits to OEMs. The Executive Officer may direct up to 45% of base credits to eligible OEMs of light-duty battery- electric or plug-in hybrid electric vehicles, if the statewide share of all new zero emission vehicle sales for model year 2024 zero emission vehicles certified under California Code of Regulations, title 13, section 1962.2 is less than 30 percent of total light-duty vehicle sales subject to that regulation for all OEMs in California, based on data reported pursuant to that regulation.

Avoiding reference to specific vehicle classifications would ensure consistency with §95483.1(a)(1)(D) and the base credit calculation methodology.

Alternatively, CARB could use a future guidance document to resolve any ambiguity. (15d2-225.4)

Comment: We continue to support regulatory provisions that allow up to 45 percent of the base credits generated by LD EV residential charging to the automakers (aka, “OEMs”) producing those vehicles, since OEMs are in the best position to promote EV sales. However, regardless of who receives the funding (OEMs or utilities), LCFS credit revenue generated by LD EVs should be used to promote the LD EV market. (15d2-234.2)

Comments: A. EDU Holdback Allocations Must Be Protected

However, the Second 15-Day Changes did not clarify how the Executive Officer will redirect future base credits from the EDUs to the OEMs, if such an allocation is triggered. Small POU transportation electrification programs depend on LCFS base credits; a loss of credits would severely impact and limit future program offerings. The current language only specifies an allocation of “up to 45% of base credits” – if 45% of base credits are re-allocated evenly from each EDU, small POUs will lose nearly half of all their base credits.

The FSOR should clearly state that the provision's intent is for the OEM allocation not to impact the number of holdback credits issued to each EDU, and the Executive Officer should ensure that the holdback credit allocations for individual EDUs are not negatively impacted. (15d2-265.5)

Comment: One area of particular importance is the opportunity for automakers to earn Base Credits for plug-in electric vehicles (“PEVs”). Accordingly, we greatly appreciate that this important provision remains in staff’s LCFS proposal and urge Board approval of this provision. Automakers are well positioned to efficiently utilize LCFS credit proceeds to accelerate the EV transition. (15d2-280.1)

Comment: Ford supports the proposed changes to direct up to 45 percent of the base credits generated by light-duty electric vehicle residential charging to the automakers producing those vehicles, which is outlined in the comments submitted by the Alliance for Automotive Innovation as well. Automakers are uniquely positioned and motivated to effectively invest

revenue from the LCFS program to advance the electrification of transportation. In California, automakers face the strictest emissions requirements in the world, and a primary limiting factor on the adoption of electric vehicles is consumer concerns about costs and availability of charging infrastructure. With additional revenue from LCFS, automakers can help relieve these concerns, and doing so improves the financial performance of automakers' electric vehicles.

With additional revenue, Ford could provide strategic support for residential charging—where most people charge most of the time—and for efforts to integrate electric vehicles into the grid and help ensure these vehicles reduce the grid's carbon intensity while also reducing the cost of electricity for Californians. On this point, Ford supports the comments submitted by the Vehicle-Grid Integration Council ("VGIC") and encourages CARB to include vehicle-grid integration ("VGI") programs as an approved usage for both Base Credit revenue and Electric Distribution Utilities ("EDU") holdback funds. Ford is currently participating in a small-scale pilot program with Sacramento Municipal Utility District to test VGI. With additional revenue, Ford would like to bring these types of VGI programs to additional customers in California in partnership with the California utilities, thus, helping further electric vehicle adoption by creating new value streams for electric vehicle customers and, at the same time, helping to support the electric grid by administering VGI programs in coordination with utilities in order to meet the utility goals of increased resilience, infrastructure upgrade deferral, and increased renewable energy utilization.

To date, Ford has only reported residential charging for a small number of Ford drivers in California which has limited the ability to fully utilize the LCFS program's potential to invest and support the customer's EV transition. CARB's proposed amendments would improve Ford's ability to invest in electrification to support EV affordability for customers. Further, Ford requests that CARB consider the fact that Ford does not include a customer's vehicle in the LCFS Incremental Credit program unless and until that customer opts into the program. Ford participates in the Zero-Carbon Intensity pathway in order to offer our customers' the value of carbon free charging at home through the pathway with Renewable Energy Credit purchases, but this adds additional cost into the business case for Ford's participation in the LCFS. We take this approach to help ensure compliance with California privacy laws, and beat customer expectations, given that Ford may need to share with CARB the customer's vehicle identification number and location. As a result, Ford's participation has been limited to generating about 1,200 credits since it began participating in December 2021. This contributed to 3,457 MWh of renewable electricity from solar and wind energy projects via renewable energy credits. However, if all Ford vehicles were eligible to participate as part of the proposed Base Credit generation, we anticipate that Ford would generate almost six times that number of credits for calendar year 2025, equating to approximately 15-16 times the amount of carbon reduction for residential charging. Ford is eager to find ways to participate in the LCFS in a more substantial way while maintaining our high standards for customer privacy. (15d2-303.1)

Comment: Additionally, as detailed in the below comments, VGIC reiterates its support for: Adding an option to allocate base credits to auto original equipment manufacturer ("OEM"). (15d2-305.4)

Comment: VGIC reiterates its support for allowing base credits to be allocated to the auto OEMs.

As discussed above, base credits have traditionally been generated by and allocated to the EDUs to spend on the California Clean Fuel Reward program and utility holdback programs and projects. However, the California Clean Fuel Reward program has been suspended since 2022 due to low funds. CARB now proposes to pivot the program to focus on medium- and heavy-duty vehicles instead of light-duty.

At the same time, funding light-duty and other projects may remain an appropriate policy direction. VGIC reiterates its support for allowing CARB to allocate up to 45% of base credits to the auto OEMs if less than 30% of model year 2024 new light-duty vehicle sales are ZEVs. Significant increases in light-duty ZEV sales are needed to reach the Advanced Clean Cars II 35% sales requirement in 2026. Allocating base credits to the OEMs to provide additional funding for the ZEV transition will allow California to move towards its clean transportation goals.

If credits are allocated to the OEMs, VGIC reiterates its support for pausing the requirement that EDUs continue to the California Clean Fuel Reward program and allowing the EDUs to focus on holdback programs. As discussed above, utility holdback projects can provide valuable incentives for EV adoption, equity goals, and VGI initiatives. (15d2-305.7)

Comment: And if there are going to be light-duty base credits assigned to the OEMs, we're going to really make sure that those are done in an equitable way with real guardrails for spending those credits for low and moderate income consumers really to make sure that we have an equitable path forward, if those credits are going to be used. (BHT-012)

Comment: . Electric Transportation: “BE IT FURTHER RESOLVED that the Board directs the Executive Officer to report back to the Board before base electricity credits will be transferred from Electrical Distribution Units to Original Equipment Manufacturers (OEMs), and present a plan to develop additional requirements, limitations, or guidance to ensure the credits to OEMs prioritize similar levels of equity-focused electrification programs, including but not limited to the establishment of a Clean Fuel Reward program for medium- and heavy-duty electric vehicles.” (BH-034.9)

Comment: The LCFS is helping to unlock an EV future for Californians while tackling climate emissions across the transportation sector. Rivian supports several key aspects of the proposed amendments to this important regulation, including revised CI targets, the transformative extension of capacity credits for EV infrastructure, and new rules that would allow automakers to share in the generation of residential base credits. (BH-054.1)

Comment: As a medium duty ZEV manufacturer, we appreciate the calls for establishing an MHD rebate program using LCFS credit revenue. But we are concerned that there are many unanswered questions about how such a program might be designed and implemented. Moreover, such a rebate program would likely not be up and running for quite some time. We believe the staff proposal to allow OEMs to earn a share of base credits is more fully developed at this stage and would allow for much more rapid and efficient reinvestment of credit proceeds. It's a smart idea to help our growing industry sustain its momentum. (BH-054.3)

Comment: We also support the amendment that allows up to 45 percent of the base credit generation by light-duty ZEV residential charging. Such regulatory provisions would be complementary in advancing ZEV markets. (BHT-137)

Comment: The staff proposal grants the Executive Officer unilateral authority to ship electricity-based credits to OEMs. We recommend the EO develop guardrails and requirements for OEMs to ensure equity projects continue, including establishing a clean fuel reward for medium- and heavy-duty trucks. (BHT-158)

Comment: Auto Innovators has long supported LCFS and continue to do so, including the proposed modifications in the 15-day notice that would allow automakers to generate base residential EV charging credits.

The LCFS Program should promote EVs and expand the market to all communities. However, this will not be the case if the LCFS proceeds from light-duty EVs are used to fund medium- and heavy-duty EV projects. We support providing up to 45 percent of the base credit generated by light-duty EV residential charging to the automakers producing those vehicles, since automakers are best positioned to promote EV sales. (BHT-193)

Comment: But regardless of who receives the funding, LCFS credit revenue generated by light-duty EVs should be used to promote the light-duty EV market.

The LCFS can greatly assist in resolving both of those issues which is why Auto Innovators strongly supports the LCFS and has continued to engage with CARB on advancing and evolving this policy so that it supports the EV transformation that underpins California's climate goals. (BHT-194)

Comment: Specifically, we want to show our appreciation for the inclusion of automakers to earn a portion of base credits for residential charging.

These changes, as proposed, align well with California's other electrification initiatives, such as Advanced Clean Cars II, ZEV requirements and related EV Investments. Automakers are California's most vested stakeholders in delivering a hundred percent zero-emission vehicle sales by 2035. We are therefore in the best market position to efficiently and effectively use these credit proceeds to help California achieve this historic accomplishment. (BHT-197)

Comment: As a medium-duty ZEV manufacturer, we appreciate the calls for establishing a medium- and heavy-duty rebate program using the LCFS as credit – LCFS credit revenue. But we believe the staff proposal to allow OEMs to earn a share of base credits is more fully developed at this stage and will allow for much more rapid efficient reinvestment of credit proceeds. (BHT-223)

Comment: And even within the funding for electrification, we are especially disappointed to see CARB's cannibalization of funds to electrify medium- and heavy-duty vehicles, some of the dirtiest on Californias' roads, for light-duty vehicles that are already heavily subsidized.

The current proposal would unnecessarily prioritize light-duty vehicles by shifting funds that would otherwise have helped electrify up to a hundred thousand Class 8 trucks in the next decade. This is a financial and environmental cost to California that it cannot afford at this time. California must maintain its commitment to electrify its dirtiest vehicles on our roads. These

last-minute amendments would thwart these efforts and represent a significant setback to the state at a worst possible moment, just as California girds itself to defend its clean air goals. (BHT-153)

Agency Response: Changes were made in response to these comments. In the First 15-day changes to the staff proposal package, staff proposed modifications to section 95483(c) of the Regulation to allow the Executive Officer to assign a portion of base credits to Original Equipment Manufacturers (OEM) of electric vehicles. The qualification for this consideration is if model year 2024 ZEV sales for vehicle classifications subject to the Advanced Clean Cars regulation are less than 30 percent of new vehicle sales. This 30 percent threshold is approximately equivalent to the midpoint between existing ZEV sales in California and the model year 2026 target of approximately 35 percent in 2026 under ACC II; failure to achieve this threshold would suggest that the State is behind in its ZEV adoption goals. This threshold is based upon the statewide share of all new ZEV sales in aggregate, rather than any individual OEM's sales shares. Staff agrees with commenters that continued consumer facing support for the light duty vehicle sector is important to help achieve the state's air quality and climate goals as soon as possible.

Staff proposed that the Executive Officer may direct up to 45 percent of base credits to OEMs. Of the total quantity of credits made available to OEMs, credits issued to each individual OEM would be based on that OEM's share of ZEV sales in the prior calendar year, pursuant to section 95486(c)(1)(A)1. If base credits are issued to OEMs, the utilities will no longer be required to contribute to a statewide rebate program. Even if the maximum possible base credits are issued to OEMs (45 percent of total base credits), the total credits available for holdback programs by the utilities should be unaffected. The Board has directed the Executive Officer to report back on any detailed proposal for the use of the 45 percent of base credits.

I-4 Multiple Comments: *Opposition To Automakers as Generators of Base Residential Credits*

Comment: Base Credits to Original Equipment Manufacturers ("OEMs"):

CARB must resolve ambiguity regarding the potential carveout in Section 95483(c)(1) for OEMs by:

- Ensuring that any reallocation of base credits will protect EDU holdback funding
- Establish guardrails around the Executive Officer's discretion via a one-time option by March 15, 2025, and Board oversight.

The 15-Day Changes introduces an optional carveout of residential base credits for Original Equipment Manufacturers ("OEMs"). Specifically, "The Executive Officer may direct up to 45% of base credits to eligible OEMs, if the share of new zero emission vehicle sales for model year 2024 zero emission vehicles certified under California Code of Regulations, title 13, section 1962.2 is less than 30 percent."⁸ If the Executive Officer directs base credits to eligible OEMs, the 15-Day Changes stipulates that the requirements of section 95483(c)(1)(A)2 – i.e., for opt-in EDUs to contribute a minimum percent of base credits for residential EV charging (or net

base credit proceeds) toward a Clean Fuel Reward program – no longer apply. There are several challenges that must be resolved to avoid negative consequences.

a) Any base credits allocated to OEMs come from the EDU minimum percent CFR contribution and preserve EDU holdback allocation. SDG&E believes that CARB’s intent is that any base credits that would be allocated to OEMs would essentially take from the minimum percent of base credits for residential EV charging (or net base credit proceeds) that would have otherwise been remitted to the statewide program. However, the plain language of the 15-Day Changes stipulates otherwise. Specifically, “If the Executive Officer assigns a portion of base credits to OEMs pursuant to section 95483(c)(1)(B), the EDUs are assigned the remaining base credits” (emphasis added). This wording indicates that the Executive Officer would assign 45% of the entire pool of base credits to OEMs and then divide the remaining 55% among the EDUs. Further, the 15-Day Changes provides that, “If the Executive Officer directs base credits to eligible OEMs, the requirements of section 95483(c)(1)(A)2. do not apply.” Simply put the requirements for the EDU contributions to the CFR do not apply. However, this section contains the requirements for EDU contribution to the statewide program:

EDU Category	% Contribution
Large Investor-owned Utilities	50%
Large Publicly-owned and Medium Investor-owned Utilities	25%
Medium Publicly-owned Utilities	10%
Small Publicly-owned Utilities and Small Investor-owned Utilities	0%

While these requirements would cease to apply as currently written in the 15-Day Changes, they provide a level of clear proportionality that is absent from the OEM carveout. This scenario could significantly decrease the allocation of base credits for EDUs that currently remit less than 45% of their credit proceeds to the statewide program. For example, small POUs and small IOUs currently have 0% contribution to the statewide program and, therefore, holdback 100% of LCFS revenues; the 15-Day Changes suggests that their allocation of base credits could be reduced. This is a critical nuance in language that can significantly reduce EDU holdback funding rather than simply redirect CFR funding. If the intent is to allocate CFR funding to the OEMs, SDG&E recommends stating that clearly in the language so that no EDUs are adversely impacted by the OEM carveout. Therefore, CARB should (1) establish in the regulation that individual and aggregate utility holdback credits will not be reduced as a result of this directive, and (2) clarify in the regulation that in redirecting credits to the OEMs, the Executive Officer would allocate only that portion of the credits dedicated for CFR according to the table in section 95483(c)(1)(A)(2), but not to exceed 45% of the total base credits.

b) The Executive Officer should have deadlines for initiating the allocation of base credits to OEMs. As written, the 15-Day Changes enables the Executive Officer to direct base credits to OEMs at any time. Should the final order allow the Executive Officer the discretion to allocate base credits to OEMs, SDG&E recommends that the regulation stipulate a deadline to allow certainty and cost-effectiveness for the statewide rebate program. Otherwise, the EDUs risk developing, funding, and administering a program only to have it lost funding upon the Executive Officer’s decision to redirect base credits to OEMs. This concern is especially acute considering the shift in the statewide program’s complete focus from light-duty to medium- and

heavy-duty EVs. SDG&E recommends that the 15-Day Changes be revised to allow the Executive Officer to issue a onetime decision no later than the March 15, 2025. (15d1-100.3)

Comment: Reallocating the base residential credits away from the utilities – the fuel providers that are required to spend at least half of their funds on equity projects – to the non-fuel supplying automakers that will use the funds to incentivize the purchase of new cars, is a significant departure from both CARB’s and the state’s equity goals. The proposal in the 15-day changes to provide the option for allocation of electric distribution utility (“EDU” or “utility”) base residential credits to the automakers is contrary to the intent and purpose of the LCFS and sets a concerning precedent. The entire premise of the LCFS is that clean fuel providers earn credits for the production and supply of low-carbon fuels, and high-carbon fuel providers must purchase credits to offset the carbonemitting fuels from which they profit at the cost of all Californians, especially those in disadvantaged communities. By allocating credits to the automakers – entities that are not fuel providers – CARB is directly undermining the premise of the regulation. Siphoning credits earned by a clean fuel provider such as utilities disincentivizes low-carbon fuel suppliers from further investing in low carbon fuel technologies, infrastructure, and programs. The CA Utilities are particularly concerned that throughout the robust, deliberative, and multi-year regulatory process, this concept has neither previously been introduced nor vetted. We urge CARB to reconsider the potential consequences of such a drastic change before adopting this language. However, if CARB does go forward, specific changes must be made to the 15-day changes to maintain the integrity of the LCFS program and ensure that the utilities will be able to effectively administer programs funded by LCFS proceeds, as discussed below.

- 1) CARB Should Establish that Individual and Aggregate Utility Holdback Credits Will Not Be Reduced if the Executive Officer Redirects Credits from the Statewide Clean Fuel Reward Program to the OEMs

The Draft Order provides that, “If the Executive Officer directs base credits to eligible OEMs, the requirements of section 95483(c)(1)(A)2. do not apply.”¹ Put simply, the requirements for EDU contributions to the CFR do not apply. However, those requirements include a table specifying the EDUs’ contribution towards the statewide program:

EDU Category	% Contribution
Large Investor-owned Utilities	50%
Large Publicly-owned and Medium Investor-owned Utilities	25%
Medium Publicly-owned Utilities	10%
Small Publicly-owned Utilities and Small Investor-owned Utilities	0%

The requirements provide a level of clarity regarding proportionality that is absent from the carveout for OEMs. There is no mention of how base credits would be redirected from the EDUs to support the OEM allocation. For example, according to the table above, small publicly owned utilities and small investor-owned utilities have 0% contribution to the statewide program. Without additional clarity on the contribution process, there is concern

that CARB will take 45% from each EDU's base credits to support the OEMs effectively reducing the holdback credits available to many utilities.

The determination of individual EDU allocations is based on section 95486.1(c)(1)(A), or the ratio of non-metered residential EVs assigned to an EDU over total number of non-metered residential EVs. Under the proposed 15-day changes, if the total base credit equals 100 million metric tons ("MMT"), OEMs will get 45 MMT, and EDUs will get the remaining 55 MMT. For example, if large POU's make up approximately 10% of the base credits they would receive 5.5 MMT for holdback. In contrast, under the 45-Day proposal, large POU's would contribute 25% to CFR and keep 75% or 7.5 MMT for holdback. This scenario would significantly affect EDUs. For example, a medium-sized utility like Burbank would expect to receive 25% fewer credits, even though their contribution to the CFR program would cease. This would make it difficult, if not impossible, for some EDUs to conduct their holdback and equity holdback programs. Because all of Burbank's TE programs and infrastructure projects are funded by LCFS proceeds, a reduction in the credits could result in:

- Fewer investments in TE customer programs and public TE infrastructure projects.
- An impact on electric rates, if ratepayer funds need to be used to partially fund the TE programs and projects.

Similarly, SMUD, as a large POU, would expect to contribute 25% of its base credits to the CFR and retain 75% for holdback under the proposed regulation. However, if 45% of SMUD's base credits were reassigned to OEMs, the holdback percentage would drop to 55%. Like many POU's, SMUD's transportation electrification programs are primarily supported through LCFS credit revenues. Such a reduction would, for example, challenge already stressed budgets and jeopardize SMUD's ability to maintain transportation electrification programs, expand EV charging infrastructure, increase electric mobility investments in low-income and equity communities, and avoid or limit rate impacts from distribution grid upgrades to support long-term growth in EV charging. 3 This problem is even more exaggerated for small POU's such as the City of Ukiah, the City of Lompoc and the City of Lodi. Under current regulation, small POU's are not required to remit any percentage of their credit proceeds to the CFR and if the regulation is adopted as written, they will receive 45% fewer credits. Therefore, CARB should (1) establish in the regulation that individual and aggregate utility holdback credits will not be reduced as a result of this directive, and (2) clarify in the regulation that in redirecting credits to the OEMs, the Executive Officer would allocate only that portion of the credits dedicated for CFR according to the table in section 95483(c)(1)(A)(2), but not to exceed 45% of the total base credits. (15d1-108.2)

Comment: Establish a one-time deadline of March 15, 2025, for the Executive Officer's determination whether to reallocate base credits to the OEMs and clarify that utility contributions to the CFR would cease. Ensure Board oversight of the Executive Officer's discretion to reallocate base credits to the OEMs. 2) The Regulation Should Establish a Deadline of March 15, 2025, for the Executive Officer's Discretion to Reallocate Base Credits to the OEMs and Clarify that EDU Contributions to CFR Would Cease Should the final order allow the Executive Officer the discretion to allocate base credits to OEMs, a shot clock is necessary to provide certainty and transparency regarding the Executive Officer's decision and the impact on the CFR program. It must be clear in the regulation that this potential allocation

is a one-time option that must be executed by March 15, 2025. If it is not executed by March 15, 2025, this option expires. This deadline is necessary for the utilities to develop and implement the proposed statewide eMDHD CFR program without the looming possibility that some unknown percentage of funds may be redirected at any future time via a nontransparent and arbitrary process. In addition, the CFR Governance Agreement requires medium and large EDUs to transfer credit proceeds to the CFR program by March 31. In addition, if this provision is enacted CARB must clarify no further contributions to the Clean Fuel Reward program shall be made, and the administrator of the Clean Fuel Reward program shall implement the windup procedures set forth in the statewide program Governance Agreement. Requiring the Executive Officer's decision by March 15 will ensure that the EDUs have enough time to initiate a timely transfer of credit proceeds to the CFR program, if needed. To remedy this situation, the CA Utilities request that CARB modify §95483(c)(1)(B) as shown in Appendix A. 3) The Regulation Should Ensure Board Oversight of the Executive Officer's Discretion to Reallocate Base Credits to the OEMs Reallocating the base residential credits away from the utilities – the fuel providers that are required to spend at least half of their funds on equity projects – to the non-fuel supplying automakers that will use the funds to incentivize the purchase of new cars, is a huge departure from both CARB's and the state's equity goals. As such, checks and balances are needed in the form of ongoing Board oversight. There is precedent for Board oversight of program implementation in the current regulation under §95483(c)(1)(A)(2) regarding the utilities' implementation of the CFR program: 4 The Executive Officer will review the implementation of any Clean Fuel Reward program, including the actual credit value contribution of each utility to the program, and present a report to the Board by January 1, 2027, with recommendations for further increasing utility contributions to the Clean Fuel Reward program. Given that the EDUs' implementation of the CFR could essentially be replaced via an OEM allocation of base credits, then so too should the CARB Board have oversight here. Specifically, the final order should require the Executive Officer to review the implementation of any OEM program and present a report to the Board annually, beginning January 1, 2027, with recommendations for continuing or decreasing allocations to the OEMs. (15d1-108.3)

Comment: The 15-Day Changes introduced a new provision that will allow the Executive Officer the option to direct up to 45 percent of base credits to OEM of electric vehicles. LADWP has several concerns with this provision if enacted:

As written, the allocation of 45 percent of EDUs' base credits to OEMs is expected to result in a decrease in EDU holdback credits when compared to the 45-Day Proposal. This conclusion is based on the following interpretation and sample calculation:

- Section 95483(c)(1)(A) states, "If the Executive Officer assigns a portion of base credits to OEMs pursuant to section 95483(c)(1)(B), the EDUs are assigned the remaining base credits."
- Section 95483(c)(1)(B) states, "If the Executive Officer directs base credits to eligible OEMs, the requirements of section 95483(c)(1)(A)2. do not apply." 95483(c)(1)(A)2 contains the CFR percent contribution requirements, which will also not apply.

- Based on the above cited sections, LADWP understands that if the total base credit equals 100 million metric ton (MMT), OEMs will get 45 MMT and EDUs will get the remaining 55 MMT.
- Determination of individual EDU allocations is based on section 95486.1(c)(1)(A), ratio of non-metered residential electric vehicles assigned to an EDU over total number of non-metered residential electric vehicles.
- Large POUs make up approximately 10 percent of the base credit and would receive 5.5 MMT for holdback.
- In comparison, large POUs would contribute 25 percent to CFR and keep 75 percent or 7.5 MMT for holdback under the 45-Day Proposal.
- Based on the Notice of Public Availability of Modified Text, CARB staff stated that, “If the OEMs receive base credits, utilities will no longer be required to contribute to a Clean Fuel Reward program, and credits available for holdback equity projects are unaffected.” For clarification, the language in the regulation needs to be amended to capture CARB’s intent.

OEMs are currently not subject to the equity spending requirement. To be consistent with CARB’s equity goals, LADWP recommends including equity spending provisions for OEMs. For example, OEMs can provide rebates for used electric vehicles with additional rebates based on the income of the customer or provide options that would make the cost of replacing critical components (i.e. batteries and motors) of used electric vehicles comparable to internal combustion vehicles, ensuring that purchasing and maintaining electric vehicles would remain reasonably priced for the customers. (15d1-208.4)

Comment: Potential diversion of utility LCFS credits to EV manufacturers needs additional clarification and guardrails. (15d1-224.4)

Comment: The 15-Day Draft includes a new provision that would give CARB’s Executive Officer (EO) the option to divert up to 45% of utility base residential credits to EV Original Equipment Manufacturers (OEMs) if the share of new light-duty ZEV sales for model year 2024 is less than 30%. Overall, PG&E raises concern that this provision was added with no prior public process, notification or workshop, and that providing LCFS credits to entities that are not fuel suppliers represents a significant and novel deviation from a core, underlying principle of the LCFS program to date. Should the provision stand, the proposed language should be clarified to minimize negative potential impacts to the programs these credits currently fund. (15d1-224.20)

Comment: Confirm and clearly articulate that OEMs could only receive credits from the pool that would otherwise have been deposited by a utility to support the state-wide rebate program (California Clean Fuel Reward, CCFR).

- Explanation: The percentage of credits that a utility must contribute towards the CCFR program differs depending on utility size and absent this clarification, could mean a reduction in the credits that utilities can “holdback” for their territory-specific TE programs. (15d1-224.21)

Comment: Include a deadline of March 15, 2025 by which the EO must decide whether to divert credits to OEMs in order to provide certainty and allow utilities to plan for and expend resources to launch a newly re-focused MHD CCFR program without having those funds diverted mid-stream. o Explanation: Requiring the Executive Officer's assessment by March 15 will ensure that the EDUs have certainty on whether to move forward with the MHD CCFR program as well as provide enough time to initiate a timely transfer of credit proceeds to the CCFR program by the contribution deadlines, if needed. (15d1-224.22)

Comment: Ensure Board oversight of the Executive Officer's discretion to reallocate base credits to the OEMs. Explanation: The decision to divert credits to OEMs – who are not subject to equity spending requirements or the additional regulatory oversight by the CPUC/local governing boards – is a departure from the premise of the LCFS program and should be subject to Board oversight. The final order should require the Executive Officer to review the implementation of any OEM program and present a report to the Board annually, beginning January 1, 2027. (15d1-224.23)

Comment: Diverting credits from utilities to Original Equipment Manufacturers will perpetuate historic barriers to access to electric vehicles and charging infrastructure for low-income communities and communities of color. (15d1-240.5)

Comment: Changes to section 95483 give the Executive Officer discretion to direct up to forty-five percent of base credits otherwise obligated to go towards Electrical Distribution Utilities (EDUs) to be used for specified purposes if sales of new zero emissions vehicles represent less than a thirty percent of certified zero emissions vehicles. Under these changes, OEMs must use base credit benefits towards specified eligible projects to support transportation electrification. However, the eligible uses are flawed in the following ways:

- There are no additionality mechanisms to ensure that rebates and incentives are actual, and not otherwise reflected in price spikes.
- There are no equity mechanisms to ensure that OEM's will subsidize EV charging infrastructure in historically underserved communities, or that rebates and incentives will be offered to underserved communities.
- There are no requirements for OEM marketing, education, and outreach to be targeted to reach historically underserved communities.
- It is unclear what alternative OEM projects can be developed, and what, if any, equity requirements the Executive Officer can apply. (15d1-240.37a)

Comment: While the eligible credit projects require "multilingual marketing, education, and outreach," a promising acknowledgement of the need for language justice, there are no further equity requirements. As it stands, affluent, white communities have been the main benefactors of government investment in zero-emission vehicles. Electric vehicles are still rare in low-income and rural communities and communities with the largest percentages of Black and Latinx residents. Further, these same communities bear the brunt of criteria pollutant harms related to fossil fuel based medium and heavy-duty vehicle use. Without clear requirements, there is little to no incentive for OEMs to work to ensure that credit projects such as installing EV charging infrastructure, or rebates and incentives are not inequitably distributed in line with

existing barriers to access to these benefits. Particularly in light of the equity requirements that public utilities are subject to under the California Public Utilities Commission, the shift of credits to OEMs without any equity requirements will continue to leave low-income communities and communities of color experiencing inequal access to electrification and heightened pollution burdens. While the changes specify that credit proceeds cannot be used to pay the cost of regulatory compliance, support lobbying costs, employee bonuses, shareholder dividends or settlement costs there is no promising regulatory requirement to show that the credit proceeds are not used for marketing, education, or outreach that would otherwise happen to promote the sales of OEM vehicles, or that rebates and incentives will not be otherwise offset by price increases. CARB should prioritize electrification investment that reduces access barriers to ensure low-income communities receive benefits from the LCFS and do not disproportionately bear its costs. (15d1-240.37b)

Comment: Base Credit and Equity Provisions: Watered Down Commitments

Several organizations have consistently asked CARB to ensure that the LCFS prioritizes funding for the communities most harmed by fossil fuel pollution. Unfortunately, rather than strengthening these commitments, the LCFS Proposal weakens them. The revisions allow less equity spending for most utility funds and keeps the first 15-day Proposal provisions crediting Original Equipment Manufacturers rather than funding additional medium- and heavy-duty zero emission vehicles ("ZEVs"). These funds are California's best and most reliable funding source to support a just transition, yet CARB seems to favor funding multi-billion-dollar companies that are already required to transition to ZEV s rather than helping those most in need. (15d2-173.9)

Comment: Second, we note that changes to the "base" credit allocation for residential EV charging may have the unintended effect of reducing much-needed support for equitable electrification through LCFS "holdback" funds, including investment in heavy-duty vehicle and infrastructure deployment. We stress the need for continued policy and funding support for heavy-duty electrification to enable successful implementation of both ACT and ACF. (15d2-217.5)

Comment: B: Clean Fuel Reward Program Timing Is Unclear

The Executive Officer should coordinate with the EDUs on the timing of the OEM allocation decision so that the utilities have appropriate time and information to determine whether to implement the revised CFR program.

If the amendments to the LCFS program are adopted on November 8, 2024, it is unclear whether the EDUs should move forward with planning a modified medium- and heavy-duty Clean Fuel Reward program or if they should await a decision by the Executive Officer. With limited LCFS funds and staff resources available, it would be unfortunate for the EDUs to spend months planning a new program that won't actually be launched. This uncertainty would also negatively impact medium- and heavy-duty fleet owners, who won't know if or when funding will become available. (15d2-265.6)

Comment: We view the following as significant elements of the proposals that warrant closer scrutiny by the board: Lack of equity focus on proposed base credits for auto manufacturers. (15d2-275.4)

Comment: Specify that if an automaker incentive program is approved for use of base credits, incentives are directed only to low- and moderate-income consumers. While CARB included voluntary equity programs under the Advanced Clean Cars II program, the LCFS direction must target incentive programs for vehicle purchases to consumers of limited means to close the ZEV equity divide.

CARB staff will broaden the scope of the OEM base credit requirements to include equity-based provisions, such as income-eligibility requirements to focus use of OEM base credits that benefit low- to moderate-income consumer choices. (15d2-275.8)

Comment: The Board should ensure that the EO develop guardrails and requirements for OEMs to ensure the support for equity projects continues, including establishment of a Clean Fuel Reward for medium and heavy-duty trucks. (BH-034.5)

Comment: Prioritize electrification funding for medium- and heavy-duty vehicles and grid upgrades that lower air pollution and ratepayer costs. Instead of offering support to those most in need, CARB Staff's latest proposal allows 10-20% less equity spending for most utility funds and keeps the first 15-day Proposal provisions crediting Original Equipment Manufacturers rather than funding additional medium- and heavy-duty zero-emission vehicles. Siphoning roughly \$10 billion in funding from accelerating medium- and heavy-duty electrification towards mere compliance for light-duty electrification will reduce desperately needed air quality benefits for freight communities while perpetuating historic barriers to electric vehicle access for low-income communities of color. This is out of step with what California needs. (BH-030.7)

Comment: The LCFS should really be focused on expanding ZEV adoption to provide direct and meaningful benefits to communities most affected by pollution. CARB has been urged by advocates today and previously, including its own advisory committee, to use LCFS funds in a manner that equitably transitions our leads to zero emission and benefits are most disadvantaged.

However, the proposed changes redirecting funds away from electrifying medium- to heavy-duty trucks for passenger vehicles. Stripping up to \$12 billion from freight-impacted communities. By backtracking on the original December proposal, the LCFS removes valuable rebates to help improve the public health and air quality of impacted communities in lieu of OEMs for light – and in support of light-duty for limited -- with limited guardrails to benefit low-income and disadvantaged communities.

We ask you to prioritize environmental justice communities over the polluting industries and ask you for a vote no and ask for the LCFS to go back and fix the concerns raised by our partners. (BHT-069)

Agency Response: No changes were made in response to these comments. The default condition in the LCFS regulation is that all base credits will be generated by the utilities; see response to I-3 with regard to the conditions in which the OEMs could potentially receive a portion of the base credits. Staff disagrees that providing a portion of the base credits to OEMs would perpetuate barriers to access of electric vehicles and infrastructure for low-income communities and people of color, as suggested by commenters. OEMs are well-suited to utilize base crediting revenue to provide rebates for electric vehicles and support charging infrastructure installation. As described in the

response to I-3, credits for OEMs will not decrease credit availability for holdback equity projects designed by utilities. With regard to comments about CARB oversight of potential future OEM base crediting, the proposed regulation requires annual reporting of OEM base credit spending, similar to the requirements for utility base crediting proceeds spending reports. In addition, subsection 95491(e)(5)(A)4. of the proposed amendments requires annual reporting of the following information for each OEM receiving base credits and implementing rebate projects: *“For rebate projects specifically, OEMs must provide for each county where an OEM EV was sold, the average price for each model-year sold with and without the base credit rebate at all locations where the rebate is available, including direct sales and dealerships.”* This requirement is intended to provide transparency on vehicle pricing for OEMs participating in the base crediting provisions to ensure that benefits of the LCFS are being passed along to the consumer of the vehicles. Lastly, the deadline proposed by several commenters of March 15, 2025 for the Executive Officer’s determination of whether or not to allocate base credits to OEMs is not practical. Model year 2024 data will not be verified and available to staff until Q3 2025. Staff will work with utilities in the first half of 2025 to address any implementation questions or concerns related to the timing of this potential EO determination. Finally, the Board has directed the Executive Officer to report back on any detailed proposal for the use of the 45 percent of base credits.

I-5 Multiple Comments: *Restart the CFR program as Soon as Possible*

Comment: CARB should also restart the CFR program quickly. The revenue intended for the CFR program is currently pooling up at the electric utilities instead of incentivizing and accelerating consumer adoption of electric vehicles (EV). (Apr-91.14)

Comment: The regulation appears to eliminate the California Clean Fuel Reward (CCFR) as soon as any portion of the base credit is direct to OEMs. Since the EO could direct anywhere from 0 percent to 45 percent of the base credits to eligible OEMs, it seems the CCFR could be eliminated even though only a small portion (e.g., 1 percent) of the base credits are directed to the OEMs. We agree the light-duty vehicle CCFR is unnecessary if 45 percent of the base credits are directed to the OEMs. However, if only a small portion is directed to automakers, the utilities should continue to administer the light-duty vehicle CCFR. We recommend modifying section 95483(c)(1)(A)2 and 3 to read “unless 45 percent of the base credits are allocated to the OEMS pursuant to section 95483(c)(1)(B) to read “If the Executive Officer directs 45 percent of the base credits to eligible OEMs, the requirements of section 95483(c)(1)(A)2. do not apply.” We estimate the utilities have collected over \$400 million for the CCFR program. However, they eliminated the reward beginning September 1, 2022. CARB should direct the utilities to reestablish the light-duty vehicle CCFR until those funds are exhausted, or have those funds allocated to the OEMs to use in their own rebate programs. (15d1-080.4)

Comment: PG&E also supports the following changes made in the second 15-day changes related to utility programs: Clarification that unspent funds allocated to the state-wide Clean Fuel Rewards (CFR) program will be returned to electric utilities for use in holdback projects

should utility base credits be allocated to original equipment manufacturers (OEMs) and the CFR program ceases. (15d2-221.4)

Comment: NCPA supports CARB's clarification that if base credits are allocated to the original equipment manufacturers (OEMs), base credit proceeds previously allocated to the Clean Fuel Reward (CFR) program that remain unspent will be returned to the Electric Distribution Utilities (EDUs). (15d2-265.4)

Comment: In our February 20 and August 27, 2024, comment letters, CalETC expressed concern with some implementation issues which we believe are important to improve clarity and operations for the utility holdback programs and medium-and heavy-duty Statewide Clean Fuel Reward (CFR) program. We understand from CARB staff that these remaining items can be resolved through language in the Final Statement of Reasons and future guidance documents. We look forward to ongoing collaboration with staff following adoption of the regulation. (15d2-264.5)

Comment: Specifying that base credit proceeds previously allocated to the Clean Fuel Reward program by Electrical Distribution Utilities (EDUs) that remain unspent will be returned to those EDUs if base credits are allocated to the original equipment manufacturers (OEMs). (15d2-276.5)

Comment: LADWP specifically supports the following proposed additions and clarifications because they will help utilities expand and continue transportation electrification programs:

- a. Specifying that base credit proceeds previously allocated to the Clean Fuel Reward program by EDUs that remain unspent will be returned to those EDUs if base credits are allocated to the original equipment manufacturers. (BH-014.1)

Comment: Specifying that base credit proceeds previously allocated to the Clean Fuel Reward program by Electrical Distribution Utilities (EDUs) that remain unspent will be returned to those EDUs if base credits are allocated to the original equipment manufacturers (OEMs). (BH-018.5)

Agency Response: See responses to I-3 and I-4. The default approach of the Proposed Amendments for base credits from residential EV charging is to create a new statewide reduction in price for zero emission trucks. In the Second 15-day modifications package, staff specified that base credit proceeds funds previously allocated to the Clean Fuel Reward program by Electrical Distribution Utilities (EDUs) that remain unspent will be returned to those EDUs if base credits are allocated to the original equipment manufacturers (OEMs). This modification is designed to ensure that those funds are accurately accounted for and utilized to promote transportation electrification.

I-6 *Clarify Use of Residential Charging Base Credits*

Comment: The regulation also states that any entity is eligible to generate incremental credits for improvements in carbon intensity of electricity used for residential EV charging, which would seem to include OEMs. If this is in fact the case, we recommend modifying section 95483(c)(1)(E)(3) to read "For non-metered residential EV charging, an EDU or OEM is eligible

to generate incremental credits for supplying low-CI electricity to the EVs in its service territory. (15d1-080.5)

Agency Response: No changes were made in response to this comment. This edit was unnecessary as the regulation clearly identified OEMs as eligible for residential incremental credits in section 95483(c)(1)(E)(2).

I-7 Multiple Comments: *Support for Transition of Clean Fuel Rewards program to Medium- and Heavy-Duty Vehicles*

Comment: Use utilities' base residential LCFS credits to promote equity in zero-emission personal mobility and deployment of clean medium and heavy-duty vehicles. LCFS base residential credit proceeds generated by EDUs from electricity used as a transportation fuel should be used to effectively and equitably hasten the adoption of zero-emission electrified transportation, with a focus on disadvantaged and low-income communities. (45d-101.5)

Comment: SCE, as the Program Administrator for the statewide Clean Fuel Reward Program, supports CARB's proposed amendments to transition the statewide program from an incentive for all new passenger EVs to one that will support the adoption of electric MDHD vehicles in the coming decade. However, it is necessary that CARB make minor changes to the vehicle eligibility in the draft amendments to ensure that that next iteration of the program can effectively implement CARB's ambitious plans for the commercial vehicle sector. (45d-178.10)

Comment: In parallel, allocating remaining base credits to funding a CFR for qualified MHD EVs is potentially promising. As a general proposition, Rivian strongly supports targeting additional incentive dollars at fleet buyers of MHD EVs. If the proposal to establish an MHD CFR can create a reliable and sustainable purchase incentive in place of the existing light-duty CFR, with its many challenges, it will be a welcome achievement. (45d-228.7b)

Comment: We applaud CARB's significantly increased focus on equity investments in the proposed revisions, (45d-251.1)

Comment: We want to express our strong support for the major LCFS expenditure changes being proposed by CARB, specifically: Changing the scope of the statewide Clean Fuel Reward from a light-duty rebate to a medium and heavy-duty rebate. Catalyzing medium and heavy-duty electrification will begin to reduce these harms, in addition to helping California meet its climate goals. The transition to zero-emission medium and heavy-duty transportation is essential to meeting air quality and climate standards; this transition is well behind the pace of the light-duty sector, so the proposed re-prioritizing of the CFR is appropriate. (45d-251.2)

Comment: We support the staff proposal shifting the Clean Fuel Rewards program's focus to rebates for medium- and heavy-duty vehicles and the proposal to increase the equity-based focus of light-duty charging credits. (45d-277.2)

Comment: NCPA supports the revisions to the California Clean Fuel Reward program to prioritize electrification of MHD vehicles and to update the required transfer percentages for utilities. The regulatory language should be amended to clarify that both new and used MHD vehicles are eligible for funding, to provide flexibility for future funding needs for the MHD market. (45d-303.12a)

Comment: LCFS crediting for medium- and heavy-duty vehicle charging will support the deployment of necessary infrastructure to help California realize the full benefits of the Advanced Clean Trucks and Advanced Clean Fleets rules. (45d-327.10)

Comment: Use utilities' base residential LCFS credits to promote equity in zero-emission personal mobility and deployment of clean medium and heavy-duty vehicles. LCFS base residential credit proceeds generated by EDUs from electricity used as a transportation fuel should be used to effectively and equitably hasten the adoption of zero-emission electrified transportation, with a focus on disadvantaged and low-income communities. (Apr-39.4)

Comment: Equity is an important benefit to using LCFS credits to help low income people obtain EVs, rather than having the credits go to refineries and large dairies. (Apr-59.4)

Comment: EDF supports the proposal to provide rebates for heavy-duty fleets under the Clean Fuel Reward program heavy-duty rebate. The focus on new and used rebates for medium- and heavy-duty trucks that are exempted from the Advanced Clean Fleets regulation will chart a path towards electrification for the segments of the trucking sector that are most challenging to transition. This program will be particularly important for small fleets and independent owners/operators, for whom up-front purchase price can be a major barrier to electrification. (Apr-190.2)

Comment: Restore the originally proposed Clean Fuel Reward program for MDHDV rebates funded by base credit generation in lieu of the August proposal to issue base credits to light-duty OEMs. (15d1-219.8)

Comment: The proposed change to base electric vehicle crediting greatly changes the scope and scale of LCFS support for medium and heavy-duty electrification. Whereas the ISOR reserved a significant portion of base credit generation from electrical distribution utilities (EDU's) to be set aside for the Clean Fuel Reward program to fund purchase rebates for the purchase of medium- and heavy-duty ZEV's, that funding is now being set aside for light-duty vehicle OEM's if LDV ZEV sales fall below a threshold of 30% for 2024—a high benchmark designed to be failed. This change constitutes a meaningful blow to CARB's ambition to support the challenging MDHDV electrification transition, which is still in its early stages and which faces stronger barriers than the comparatively more mature ZEV LDV industry. The proposed changes shift a substantial quantity of funding from MDHDV ZEV's towards LDV with little justification and unclear trade-offs. Based on CARB's modeling outputs in the central scenario, this could amount to approximately 7.5 million credits by 2030 in CARB's central scenario. Depending on LCFS credit prices, this could range from approximately \$375 million to \$1.2 billion in value based on an LCFS credit price range of \$50-\$150, but with far less oversight on how this money would be spent. Examples of allowed activities in the 15-day package include rebates, marketing, installing charging infrastructure, and projects that promote transportation electrification; however, it is unclear how these would be enforced and whether it would lead to meaningful changes to OEM behavior as these are already routine activities. There is also no guidance on how long this credit diversion would remain in place or how money would be allocated across OEM's. At a minimum, ICCT recommends providing more clear guidance for how this program would be administered, offer a sunset date prior to 2030, and reduce the share of credits reinvested to OEM's. However, given the state of MDHDV ZEV deployment and the need to support California's ambitious Advanced Clean

Trucks and Advanced Clean Fleets rules, we recommend restoring the Clean Fuel Reward program and the use of base credits to support MDHDV rebates in order to maximize the effectiveness of the LCFS and use it as a lever to support MDHDV decarbonization. (15d1-219.37)

Comment: The LCFS, as noted in the presentation, really a critical driver for funding for medium- and heavy-duty electrification. That has to be our main focus here. And we want to voice support for the base credits reverting to medium- and heavy-duty vehicle deployment in California. (BHT-11)

Comment: And now more than ever, it's essential that we use our clean transportation dollars wisely, so when it comes to spending the credits that are accrued from residential EV charging, we think that money should mostly go to medium- and heavy-duty vehicles, particularly in the disadvantaged communities that are most burdened by toxic diesel exhaust. If any of that money goes to light-duty incentives, we don't recommend that it is spent that way, but if it is, we think that that should only be targeted to the low- and moderate-income Californians who need assistance in making that transition to ZEVs. And if we can't bring everybody along, it will not be a successful transition. (BHT-127)

Agency Response: Changes were made in response to these comments. See responses to I-3 and I-4. In addition, the proposed definition of Clean Fuel Reward in section 95481 was updated to include new and/or used vehicles.

I-8 Multiple Comments: *Opposition To Transition of Clean Fuel Rewards Program To Medium- and Heavy-Duty Vehicles*

Comment: We would respectfully ask CARB to examine the principle of rate class cross-subsidization in the staff proposal; namely, to explore the validity of taking resources (LCFS credits) generated by and within the residential light-duty vehicle segment and transferring those assets over to another rate class (commercial) and different vehicle class altogether. This asset transfer should be examined both within the context of existing deposits of LCFS credits (and credit sales revenues) generated by residential light-duty EV charging as well as any future residential credit generation. This takes on additional importance when examining the extent of the need to accelerate light-duty EV adoption, as CARB's staff note, "...with just over 20 years to transition from today's significant fossil fuel usage to a future of clean fuels and technology." (45d-158.3)

Comment: GM recommends that CARB reinstate Clean Fuel Rewards for light-duty EV adopters. Light-duty EV adopters represent the best opportunity for reducing carbon intensive transportation applications, including the harder to transition used vehicle market. Residential light-duty EV charging funds the Clean Fuel Reward program and this program is highly incentivizing to light-duty EV purchasers as it is available at the time of purchase as an "on the hood" incentive. It is paramount that the Clean Fuel Reward program is mechanized reliable for light-duty vehicle purchasers. We urge CARB to reconsider its proposal to allocate the Clean Fuel Reward to medium and heavy duty electric vehicles. (45d-180.2)

Comment: While we support the LCFS, we do not support the changes that would take revenue generated by light-duty (LD) electric vehicle (EV) residential charging and use it to subsidize utilities and businesses operating medium- and heavy-duty vehicles. Instead, this

funding should be used exclusively to develop the light-duty and residential EV market through infrastructure, vehicle incentives, and public education. Auto Innovators recommends reestablishing the California Clean Fuels Reward (CCFR) program as a point of purchase incentive. Less than four years ago, this program was established with unanimous support from automakers, utilities, and CARB to provide a point of purchase reward of up to \$1,500 for new EVs. The CCFR was reduced to \$750 and then eliminated altogether on September 1, 2022. This program incentivized residential customers – the very customers who generate the LCFS credits that fund this program – to choose electricity rather than gasoline to fuel their vehicles. Moreover, the CCFR was provided at the time of purchase, avoiding the weeks- or months-long wait associated with other rebate programs. It also provided an ongoing revenue stream, rather than dependency on the annual state budget allocation. Lastly, it was one of the last remaining financial incentives in California for LDVs. Its demise came at a time when ZEV sales were becoming more dependent on purchases by mainstream consumers. These consumers need more encouragement to purchase an electric vehicle than early adopters. (45d-233.1)

Comment: Keep the design of base residential credits and the current program rules (e.g., limits on credits, size of charging plazas) and extend the program to 2035. (45d-279.5)

Comment: It may be premature to stop supporting the purchase of LDEVs, however. While current EV market trends indicate increasing availability and declining purchase costs for many EV models, the majority of vehicles sold in California remain ICE powered, and significant consumer awareness deficits exist between EVs and conventional ones. Additionally, if the per-vehicle level of incentive plays a critical role in affecting individuals' vehicle purchase decisions, conventional economic theory would suggest that higher levels of incentive may be required to reach higher sales fractions. While the Advanced Clean Cars 2 rule sets binding targets for LDEV sales and registration, it may be premature to assume that they can be simply or efficiently met without continued, or even increasing levels of incentive. The definition proposed in the draft amendment text forecloses any future use of Clean Fuel Reward incentives to support continued progress in LDEV market penetration. (45d-391.18)

Comment: Credits generated from light-duty electric vehicles should be reinvested into the still developing light-duty electric vehicle market. While California leads the US in EV sales having reached 25% market share, the EV transition is far from complete. Substantial progress is needed to meet CARB's complementary regulatory Credits generated from light-duty electric vehicles should be reinvested into the still developing light-duty electric vehicle market. While California leads the US in EV sales having reached 25% market share, the EV transition is far from complete. Substantial progress is needed to meet CARB's complementary regulatory programs, which will require 51% ZEV sales in 2028 leading to 100% by 2035 under Advanced

Clean Cars II. Funding generated from residential EV credit generation should be directed to the light-duty EV market by investing in infrastructure deployment, vehicle incentives and public education. Funding generated from residential EV credit generation should be directed to the light-duty EV market by investing in infrastructure deployment, vehicle incentives and public education. We urge CARB to reconsider its proposal to allocate the Clean Fuel Reward to medium and heavy-duty electric vehicles and instead reserve these light-duty credits for reinvestment in light-duty EV purchasers. (Apr-53.2)

Agency Response: Changes were made in response to these comments. See responses to I-3 and I-4.

I-9 Multiple Comments: *Avoid Dividing CFR Between Light-Duty Rebates and Medium- and Heavy-Duty Rebates*

Comment: In restarting the CFR program, CARB should ensure that the incentive is a meaningful enough amount to move consumer behavior. Under the current proposal, CARB would switch most of the CFR revenue to a medium- and heavy-duty vehicle incentive while also leaving the door open for a smaller, light-duty incentive. Tesla's modeling indicates that splitting the base credit revenue between a light-duty CFR and a medium/heavy duty CFR would result in on-the-hood incentives that would be too small to effectuate significant behavior change in either category. To effectively transition the vehicle market, the CFR program should dedicate the applicable base credit revenue to only one vehicle sector - either light-duty or medium/heavy duty. (Apr-91.15)

Comment: In addition, the staff proposal to split the CFR program between LD and MHD vehicles will blunt the impact of the program in LD by generating too-small rewards. (Apr-187.5)

Agency Response: Changes were made in response to these comments. See responses to I-3 and I-4.

I-10 Multiple Comments: *Support for Reduction of CFR Contribution Proportion*

Comment: (2) adjust the minimum contribution of large investor-owned utilities (IOUs) towards the Clean Fuel Reward program to 50% of their base residential credit proceeds. (45d-178.2), (Apr-71.2)

Comment: LADWP supports the proposed reduction in the Publicly Owned Utilities' (POUs') minimum base credit contribution required to fund the Clean Fuel Reward and the corresponding increase in the holdback credit which will help fund LADWP's transportation electrification programs. (45d-237.3)

Comment: We want to express our strong support for the major LCFS expenditure changes being proposed by CARB, specifically: Altering the minimum base credit contribution required to fund the Clean Fuel Reward from 60% of total base credits to 40% with a corresponding increase in holdback credits, and expanding the proportion of holdback credit proceeds required to be invested in disadvantaged, low-income, rural, and tribal communities. Together these provisions represent a significant increase in the overall percentage of LCFS credit proceeds invested towards transportation equity investments for low-income households. This

smart strategy will both help CARB meet its equity goals and its transportation electrification goals, by focusing investments on the light duty market segments that are least able to transition to EVs without additional assistance. Both the light-duty equity and medium-heavy-duty investments take on even more importance due to the Governor’s proposed cuts in budgetary support for ZEV incentives. (45d-251.3)

Comment: The amended section 95483(c)(1)(A)(6) of the Proposed Regulation Order makes several changes to the use of proceeds from residential base credits issued to electrical distribution utilities (“EDUs”). NCPA supports the revisions to the percentage allocation of base credits to holdback credits as it will further transportation electrification programs tailored to community needs and invested in hard-to-reach communities, including disadvantaged and low-income communities. (45d-303.5)

Comment: LADWP supports the proposed reduction in the Publicly Owned Utilities’ (POUs’) minimum base credit contribution required to fund the Clean Fuel Reward and the corresponding increase in the holdback credit which will help fund LADWP’s transportation electrification programs. (45d-237.4) (15d1-208.3)

Agency Response: No changes were made in response to these comments. Staff appreciates the support for the proposed amendments.

I-11 Multiple Comments: *Reduction of Administrative Costs and ME&O for the CFR Program*

Comment: The Proposed Amendments propose to reduce the allowed administrative costs on utility Holdback programs from 10% of total portfolio costs to 5%. This reduction in allowable administrative costs on utility Holdback programs will make it extremely difficult, if not impossible, to administer these programs given that these programs are designed to reach the most underserved individuals and communities. As Table 2 below shows, while SCE was able to operate its Clean Fuel Reward Program (CFRP) Rebate in years 2017-2020 with administrative costs at 5% or below, the moment SCE converted its program to a used EV rebate program with a targeted low-income rebate in 2021, SCE’s administrative costs nearly tripled. While some of the 14% administrative cost in 2021 is the product of a combination of close-out costs from CFRP and launch costs from SCE’s Pre-Owned EV Rebate (POEV), it required just under 11% administrative costs to implement POEV in 2022.

Table 2: SCE’s LCFS Holdback Program Administrative Costs over Time

	2017	2018	2019	2020	2021	2022
Administrative Costs	\$461,428	\$339,590	\$489,074	\$1,678,204	\$1,091,169	\$1,002,251
Total LCFS	\$10,554,478	\$14,881,205	\$28,876,538	\$32,210,342	\$8,037,704	\$9,274,919
Administrative % of Total	4%	2%	2%	5%	14%	11%

SCE files the data in Table 2, which is public, in April of each year with both CARB and the California Public Utilities Commission (CPUC). While SCE has not compiled its calendar 2023 report, the administrative costs for SCE’s LCFS Holdback programs from Q1-Q3 of 2023 were 89%. The targeted requirements of utility Holdback programs necessarily make them more expensive to operate than broad, unrestricted incentive programs. Thus, CARB should reject the Proposed Amendment’s 5% cap and instead retain the 10% allowable administrative costs for utility Holdback programs, as authorized in the current version of the LCFS Regulation. (45d-178.8)

Comment: (1) CalETC opposes the proposed 5% cap on administrative costs for both holdback programs and the statewide California Clean Fuel Reward and recommends that the cap remain at 10%. Given their focus on addressing the most underserved individuals and communities, utility holdback programs are necessarily more expensive to operate than broad, unrestricted incentive programs given higher levels of customer support and additional expenses like income verification needed to ensure the funding is reaching the people that most need it. So, while it may be possible to implement utility Holdback programs with a 5% administrative cost cap under the narrow definition considered in Guidance 20-03, CalETC recommends that, with the exception of small EDUs that have annual electricity sales of less than 2000 GWh, the cap on equity holdback administrative costs should revert to 10% as allowed in the current Regulation, and that the definition should be expanded to include all associated program administrative costs, with the exception of start-up costs and education and outreach costs. CalETC has proposed a definition of EDU Program Administrative Costs in the Appendix that should be included in the Definitions and Acronyms section of the Regulation. Furthermore, the process requires a contract with a community-based organization, which is limiting. CalETC's request to expand the definition of administrative costs to include things such as third-party implementer costs and DINI costs while imposing a cap of 10% is more conservative than the requirements of the Energy Efficiency Policy Manual while still allowing the utilities the budgets needed to effectively operate their LCFS funded programs. CalETC has confirmed with CARB staff that ME&O costs for holdback are not included as part of administrative costs in any LCFS guidance document. In addition, as noted above, the CPUC does not include ME&O as part of administrative costs for other programs, including current LCFS programs. We recommend that ME&O should be excluded from administrative costs in the new LCFS regulation to reduce uncertainty and improve clarity. See the Appendix for our proposed amendments. CalETC also recommends that the allowable cost cap for the statewide Clean Fuel Reward, which currently includes ME&O costs, be reverted to 10% from the 5% that is in the proposed regulation. (45d-186.1)

Comment: The Cap on Administrative Costs and ME&O for the CFR Program Should Remain at 10% The Proposed Amendments lower the combined cap on administrative and ME&O costs for the Clean Fuel Rewards (CFR) program from 10% to 5%. Such a change would reduce the ability to manage and promote the CFR program. Making the public aware of programs available to aid the transition to transportation electrification is key to the success of the CFR program and ME&O funding is key to informing consumers of the program. (45d-285.3)

Comment: Additionally, the Proposed Order's 5% cap of CFR admin costs should be rejected, and the cap should instead revert to 10% on allowable combined administrative and ME&O costs for the Clean Fuel Reward program, as authorized in the current version of the LCFS Regulation and CPUC Resolutions. (45d-303.12b)

Comment: Administrative Cost Caps: CARB should maintain the cap for both the holdback projects and the statewide rebate program at 10%, as this is currently accepted by both CARB and the CPUC. There is no data to support lowering the cap to 7%. The 15-Day Changes maintains a reduced cap of 5% on administrative costs to support the Clean Fuel Reward program¹¹ and 7% for holdback credit projects.¹² SDG&E recommends that the 15Day Changes preserve the cap on administrative costs for both the holdback projects and rebate

program at 10%, as this is currently accepted by both CARB and the CPUC. Based on how utilities currently track and report program administrative costs, the reduction of allowable administrative costs for utility holdback programs from 10% to 7% in the proposed amendments will make it extremely difficult, if not impossible, to administer these programs. Smaller utilities may only be able to implement a portfolio of small programs that will never benefit from the economies of scale that larger programs achieve. Meanwhile, CPUC shift in policy away from utility-specific ratepayer-funded programs, with a sunset of December 31, 2026, for these programs, places the larger IOUs in a similar predicament. While there is an option in the Regulation that allows the utilities to exceed the administrative cost caps with advanced approval from the Executive Officer, this is likely to create administrative challenges for CARB and utility staff if each utility must make a request each year that they expect to exceed the proposed 7% cap. SDG&E recommends that, for medium and large EDUs, the cap on equity holdback administrative costs should revert to 10% as allowed in the current regulation. (15d1-100.4)

Comment: Exempt holdback programs administered by EDUs with less than 2000 GWhs of annual sales from a cap on administrative costs, or make them subject to a higher cap, such as 20%. While small EDUs can design and implement programs specifically tailored to their community needs, administrative costs for these EDUs may naturally result in a higher percentage of costs due to the small scale of programs and the utility's limited staff resources, particularly if the definition of administrative costs is expanded. We do not support the alternative solution of having a process where small EDUs would seek an exemption (EO approval) due to the cost and time burden. Small EDUs have very different LCFS program needs due to their very small size and lack of budget and staff. (15d1-103.13)

Comment: PG&E also supports the following changes made in the second 15-day changes related to utility programs:

Increase of utility holdback equity project administrative caps from 7% to 10%. (15d2-221.2)

Comment: As the Program Administrator for the statewide Clean Fuel Reward Program since 2019, SCE can attest that not only is reducing the allowable administrative costs on the statewide Clean Fuel Reward from 10% to 5% an impediment to operating the program, but also does not comport to cost controls on other large utility programs. For example, the IOUs energy efficiency program portfolios, which have administered billions of dollars of incentive funds throughout the state with oversight from the CPUC, are operated under guidelines established in the Energy Efficiency Policy Manual (Version 6 published in April 2020 at this link). As shown in Table 3 below, Appendix C of the Energy Efficiency Policy Manual lists the cost caps (hard requirements) and targets that the CPUC established for the operations of these programs.

Table 3: Energy Efficiency Policy Manual APPENDIX C Cost Category Caps

Budget Categories	Cap	Target
Utility program administrative costs	10%	
Third-party / Gov't partnership administrative costs		10%
Marketing & outreach costs		6%
Direct implementation non-incentive (DINI) costs		20%
Evaluation, measurement & verification (EM&V) costs	4%	

In addition to being separate from ME&O costs, administrative costs, as defined in the Energy Efficiency Policy Manual, explicitly exclude third party implementer fees, ME&O costs, and also exclude direct implementation non-incentive (DINI) costs (which include activities such as software licenses, rebate processing, contractor training, etc.). By comparison, the Statewide Clean Fuel Reward program currently counts all of these costs towards its 10% Administrative and ME&O cost cap. When the CPUC authorized SCE to administer the Statewide Clean Fuel Reward program in Resolution E-5015, it found that “A 10% cap of administrative funds is generally within the range of spending for other customer programs the utilities implement,” and ordered SCE to “administer no more than 10% of the total Clean Fuel Reward program budget on administrative and marketing, education, & outreach spending, which must include all administrative spending related to the Clean Fuel Rewards program.” A 10% administrative cap on utility LCFS programs aligns utility LCFS programs with other similar utility programs and ensures the programs can operate as effectively as they will need to in order to help the state achieve its ambitious transportation electrification objectives. (45d-178.9)

Comment: Depending on which activities qualify towards the definition of administrative cost, the proposed reduction in allowable administrative costs for holdback credit equity projects to 5 percent of total spending on holdback credit equity projects may be too low, as proposed in section 95483(c)(1)(A)5.c. There is a misalignment on what is considered administrative cost between CARB’s programs (i.e. LCFS guidance and Cap-and-Trade guidance), and other regulators (i.e. CPUC’s Energy Efficiency Policy Manual). LADWP recommends that CARB staff clearly define and list examples of activities that are considered administrative and consider keeping the allowable administrative cost at 10 percent for holdback credit equity projects. (45d-237.6)

Comment: The Cap on Administrative Costs for Holdback Credit Equity Projects Should Remain at 10% The Proposed Amendments reduce the administrative cost cap for equity projects from 10% to 5%. While CMUA understands and agrees with the intent to direct as much funding as possible into project development, reducing the administrative cost cap to 5% of project expenditures could limit the ability of POUs to implement these important programs. The success of such programs can be directly attributed to the efforts to develop and administer the programs. CMUA remains concerned that it is not possible to effectively administer these programs if administrative costs are limited to just 5% of project spending. CMUA agrees with comments offered by the Northern California Power Agency (NCPA), that reducing the administrative cost cap will be particularly difficult for smaller utilities that have fewer resources to support the deployment of EV charging infrastructure. Cutting the administrative cost cap in half further limits the ability of smaller utilities to participate in the LCFS program. (45d-285.4)

Comment: The costs associated with the development and implementation of equity programs are vital to the success of such programs, and reducing the current cap from 10% to 5% is unrealistic and inconsistent with the needs for administering such programs. Smaller utilities, in particular, have higher administrative costs and fewer resources to administer programs that support the adoption of EV technology and deployment of EV infrastructure in equity communities. Administrative costs contain a number of fixed costs that cannot be simply cut in half due to a change in the regulation, and those fixed costs may naturally require a higher percentage of program costs for smaller utilities. Furthermore, programs run by small utilities

will never benefit from the economies of scale that a larger program like the Clean Fuel Reward will experience. CARB should maintain the current cap of 10% for administrative costs and its current guidance detailing what costs are included. If CARB finds it necessary to amend its definition of administrative costs or its cap, it should include a distinction between large EDUs and small and medium EDUs. (45d-303.6)

Comment: Retain the 10% administrative cost cap for Holdback programs, because 5% is insufficient. (Apr-71.7)

Comment: Reverting to a 10% cap on equity administration spend for holdback programs, expanding the definition of administrative costs to include program-specific costs aligned with how utilities report for other regulators, and clarifying that this excludes start-up costs and marketing, education, and outreach (ME&O) costs. (Apr-151.9)

Comment: Administrative Cost Caps: CARB should maintain the cap for both the holdback projects and the statewide rebate program at 10%, as this is currently accepted by both CARB and the CPUC. There is no data to support lowering the cap to 7%. The 15-Day Changes maintains a reduced cap of 5% on administrative costs to support the Clean Fuel Reward program¹¹ and 7% for holdback credit projects.¹² SDG&E recommends that the 15Day Changes preserve the cap on administrative costs for both the holdback projects and rebate program at 10%, as this is currently accepted by both CARB and the CPUC. Based on how utilities currently track and report program administrative costs, the reduction of allowable administrative costs for utility holdback programs from 10% to 7% in the proposed amendments will make it extremely difficult, if not impossible, to administer these programs. Smaller utilities may only be able to implement a portfolio of small programs that will never benefit from the economies of scale that larger programs achieve. Meanwhile, CPUC shift in policy away from utility-specific ratepayer-funded programs, with a sunset of December 31, 2026, for these programs, places the larger IOUs in a similar predicament. While there is an option in the Regulation that allows the utilities to exceed the administrative cost caps with advanced approval from the Executive Officer, this is likely to create administrative challenges for CARB and utility staff if each utility must make a request each year that they expect to exceed the proposed 7% cap. SDG&E recommends that, for medium and large EDUs, the cap on equity holdback administrative costs should revert to 10% as allowed in the current regulation. (15d1-100.4)

Comment: Requesting an increased cap on administrative costs for utility Holdback Programs and statewide Clean Fuel Rewards. While we appreciate that CARB increased the administrative costs for electric distribution utility (EDU) holdback programs to seven percent, we do not support this change, and request 1) that the seven percent administrative cost cap for utility holdback programs be raised to ten percent and 2) the five percent administrative cost cap for the electric medium-and heavy duty vehicle Clean Fuel Reward be raised to ten percent. We note this recommendation is a simpler solution than the recommendations from our previous letter:

a. Administrative cost caps are a complex issue. And this issue has not been workshopped. Given the complexity, we recommend maintaining the current 10 percent administration cost cap on holdback programs and statewide Clean Fuel Reward. It is important to note that the CPUC has decades of experience in regulating billions of dollars in energy efficiency program

portfolios and their requirements on administrative costs, marketing, education and outreach costs, and related costs are both thoughtful and strict. They require a ten percent administrative cost cap for energy efficiency programs which is appropriate for CARB's regulation of LCFS programs too. Additionally, as the EDU's LCFS programs grow in size and amount spent, we expect many projects will be added, and many additional partners (community-based, equity-oriented organizations) will be engaged. In that scenario, the EDUs may require a cap of more than 10 percent for holdback programs. Regarding examples on why a 10 percent administrative cost cap is needed for utility holdback programs please see August 27 letters to CARB from individual utilities. Also, the February 20 letter to CARB from CalETC (Appendix B) provides additional justification, and Appendix A in this letter on this topic is slightly different than our proposed amendments in our February 20 letter.

b. The proposed statewide Clean Fuel Reward for electric medium and heavy duty EVs (eMHDVs) is a new program that should not be hampered by a five percent administrative cost cap especially since this market is complex with many submarkets and types of customers that will be hard to reach with rewards. We note that CARB's concerns about administrative costs were addressed when the CPUC authorized the utilities to implement the Clean Fuel Reward in 2019, finding that "a 10% cap of administrative funds is generally within the range of spending for other customer programs the utilities implement," and ordered SCE in Resolution E-5015 to "administer no more than 10% of the total Clean Fuel Reward program budget on administrative and marketing, education, & outreach spending, which must include all administrative spending related to the Clean Fuel Rewards program." The CPUC found that including ME&O in the 10% cap was reasonable for a program of this size; the potential scale of the Clean Fuel Reward is no larger today than it was in 2019, and the same rationale should apply today. In addition, the utilities should not have a lower cap (i.e., five percent) for this program than the automakers (i.e., seven percent) for a similar program for light duty EVs. (15d1-103.10)

Comment: Additionally, PG&E supports the cap on administrative costs for utility holdback programs to 7%. However, if CARB does not intend to expand the definition of administrative costs to include program-specific costs aligned with how utilities report for other regulators, and clarify that this excludes start-up costs and marketing, education, and outreach (ME&O) costs, it is critical that this cap increase to 10%, for the reasons detailed in our February 20th letter² and in the CalETC Board letter being submitted concurrently. Administrative cost caps are a complex issue and vary significantly depending on definitions of what is and is not included, and with increasing requirements to focus on harder-to-reach customers, flexibility is critical to ensure programs are effectively run and equity goals are attained. (15d1-224.12)

Comment: We also believe OEMs should be able to receive the same 10% administrative cost allowance as other entities. According to the Summary of Proposed Modifications, the administrative cost allocation was increased in response to public comments that a 7% limit would not be sufficient to implement projects. EDUs and OEMs will be undertaking similar holdback credit equity projects with their LCFS proceeds so it does not make sense to limit one entity type's use of those funds. (15d2-185.4)

Comment: Addition of a ten percent administrative cost cap to the utility holdback programs instead of five percent. (15d2-276.8)

Comment: Addition of a ten percent administrative cost cap to the utility holdback programs instead of five percent. (BH-014.5)

Agency Response: Changes were made in response to these comments. Staff increased the maximum administrative spending to 10 percent of total spending on holdback credit equity projects annually, in response to public comments that a 7 percent administrative cost limit would hold back the ability to implement the wide variety of projects allowed within the holdback equity spending categories. Staff did not increase the maximum administrative spending for the Clean Fuel Reward program and believes that 5 percent is sufficient for implementation of that program. The Proposed Amendments retain the option in subsection 95483(c)(1)(A)4.b. for EDUs to submit a request and justification for why higher administrative spending is necessary, subject to review and approval by the Executive Officer. The same opportunity is available for OEMs receiving base credits and seeking to spend higher than 7 percent for their administrative costs.

I-12 Clarify Definitional Change in CFR from LDV to MHDV

Comment: Other considerations in proposed definitions and acronyms include:

“Clean Fuel Reward” is a statewide program established by EDUs to provide a reduction in price on new light duty EV purchases or leases for new medium- or heavy-duty electric vehicles that are not subject to the High Priority and Federal Fleets requirements as specified in, title 13, California code of Regulations, section 2015(a)(1) in California. The Clean Fuel Reward is funded exclusively through LCFS proceeds generated by EDUs from electricity fuel.

WSPA requests that CARB confirms that the intent of this definitional change is to no longer generate Clean Fuel Rewards for light duty vehicles. (45d-241.45)

Agency Response: No changes were made in response to this comment. The definitional change reflects the shift in focus from a statewide reduction in price that supports light-duty vehicles to supporting medium- or heavy-duty vehicles instead.

I-13 Make Medium-Duty EV Pickups Eligible for CFR

Comment: Clearly make medium-duty (“MD”) EV pickups eligible for the CFR. MD pickups comprise approximately 60 percent of the MD truck and van market and those in turn account for the majority of all MHD vehicle sales.¹⁸ Moreover, MD pickups are the workhorse of many fleets. A variety of EV pickup models now exist in the marketplace and can serve fleet needs. However, the state’s main MHD EV incentive program, HVIP, categorically excludes pickups from incentive support. To achieve the state’s targets for MHD electrification, EV pickups must receive the same policy support as other categories of MHD vehicles. CARB should direct that the full range of MHD EVs, including pickups when purchased by ACF-exempt fleets for fleet use, be eligible for the reformed CFR. (45d-228.7c)

Agency Response: No changes were made in response to this comment. The vehicles eligible for the Clean Fuel Reward under the Proposed Amendments are new and/or used commercial medium- or heavy-duty electric vehicles that are not subject to the

High Priority and Federal Fleets requirements as specified in, title 13, California Code of Regulations, section 2015(a)(1) in California.

I-14 Multiple Comments: *CFR Award Size Should Account for Vehicle Class*

Comment: Tier rebates by vehicle class. CARB should direct that the CFR provide rebates tiered by vehicle class—making the most of the available resources and reflecting the often-substantial difference in the purchase price of MHD vehicles. (45d-228.7d)

Comment: As stated in our comments on the ISOR, allocating non-holdback base credits to a CFR for qualified MHD EVs could be beneficial. As a general proposition, Rivian strongly supports targeting additional incentive dollars at fleet buyers of MHD EVs. However, as we noted previously, many key issues remain unresolved including rebate amounts, how the program would be managed day-to-day, and how the proposed CFR would interact with other incentives.

Rivian proposes the following rebate amounts and tiered structure as a starting point for discussion. If a vehicle is eligible to satisfy ACT or ACF obligations, it should be eligible for the MHD CFR if purchased by a qualifying business, non-profit, or other entity for fleet use.

Class	Rebate Amount
2b-3	\$10,000
4-8	\$40,000
7-8 Tractor	\$80,000

Table 1. As a starting point for discussion, Rivian proposes these rebate amounts and tiered structure for a potential MHD CFR program.

We estimate that LD base credits could annually fund many thousands of rebates in these amounts, sufficient to support all ZEV sales to ACF-exempt fleets statewide. However, we request and would welcome staff analysis of various scenarios for the proposed CFR to better inform both Board and stakeholder understanding of what the base credit pool could support. (Apr-116.9)

Comment: The workshop did not address the future of residential base credits, however, and we believe this important aspect of the LCFS requires more discussion. An automaker-run LD CFR still stands out as the highest and best use of base credits. But if CARB decides to move forward with the MHD CFR concept, implementation details need to be resolved. We propose that vouchers be awarded in the amount of \$10,000 for medium-duty ZEVs, \$40,000 for Class 4-8 ZEVs, and \$80,000 for Class 7-8 tractor ZEVs. As a manufacturer of MHD EVs, Rivian stands ready to support the design and implementation of an MHD CFR. (Apr-116.15)

Agency Response: No changes were made in response to these comments, because no changes are necessary. The proposed requirement that the CFR “provide a reduction in price for [specified] new and/or used commercial medium- or heavy-duty

electric vehicles” is adequately specific. Staff look forward to working with administering EDUs and other stakeholders to implement the updated CFR program to maximize its beneficial impacts.

I-15 Ensure CFR is “Stackable” with Other Incentives

Comment: Allow fleets to combine the CFR with other incentives, including HVIP vouchers. To maximize the benefits and simplicity of the reformed CFR, it should be offered on the hood and by right to qualified fleet purchasers and made ‘stackable’ with other incentives, including HVIP vouchers. ‘Stack-ability’ is not just a matter of maximizing incentives for fleets, though that is a worthy objective in and of itself. It also provides certainty for fleets when budgeting for vehicle procurements, while streamlining program implementation for administrators who would not need to verify whether applicants have already applied for or received other incentives. (45d-228.7e)

Agency Response: No changes were made in response to this comment. However, staff sees no issue with combining support from CFR with HVIP or other incentive programs. LCFS credits can generally be stacked with other incentives to provide a stronger financial signal for investment in cleaner fuels.

I-16 Allow MHD ZEV Manufacturers to Participate in Governance of CFR

Comment: Invite MHD ZEV manufacturers to participate in the governance of the CFR in partnership with the utilities. As Rivian understands the proposal, the new CFR would be administered by the utilities much like the existing light-duty CFR. Light-duty manufacturers have historically been included in the CFR’s governance structure in an advisory capacity. We recommend that the new CFR be guided by a collaboration between the utilities and MHD manufacturers. CARB should direct that a steering committee be formed comprising utilities and all major MHD ZEV manufacturers to collaborate on the details of the program’s design and implementation. (45d-228.7f)

Agency Response: No changes were made in response to this comment. Staff is committed to working with all affected stakeholders as implementation details related to the CFR are further developed. Collaboration between utilities and vehicle manufacturers will be important for successful implementation of the program.

I-17 MHD CFR Should Include ACF Non-Exempt Fleets

Comment: As part of this analysis, we also recommend that staff examine and reconsider the tradeoffs involved in limiting the CFR’s scope. The proposed focus on ACF-exempt fleets is well intentioned but essentially mirrors fleet eligibility restrictions under HVIP. We appreciate that smaller fleets might face relatively greater resource constraints and show a reduced appetite for risk, meaning that policymakers need to consider additional measures to spur the purchase of MHD ZEVs by those operators. But the MHD transition is still in the earliest phases across all fleet sizes and the economics of ZEV purchases remain challenging even for the best-resourced fleets. The ACF regulation will clearly drive many additional ZEV sales, but Rivian believes that providing purchase incentives to all buyers is worthy of consideration.

Purchase incentives might encourage fleets to turn their vehicles over more quickly than is required or to over-comply with the Milestone Pathway. At a minimum, Rivian recommends that CARB consider limiting the rebate to ACF-exempt fleets in a later year to account for the delayed implementation of ACF. (Apr-116.10)

Agency Response: No changes were made in response to this comment. Staff focused the proposed CFR program on medium-and-heavy-duty vehicles exempt from ACF because those vehicles face the greatest risk of being left behind with combustion engine vehicles. These fleets also tend to be smaller, and may face greater hurdles to adoption of ZEVs than larger fleets with more resources. Fleets may take full advantage of the newly-expanded infrastructure crediting opportunities, as well as credits for dispensed electricity and hydrogen, regardless of whether or not they are subject to ACF.

I-18 *Include Executive Officer Intervention in CFR*

Comment: CalETC requests that the regulation allows the Executive Officer to approve certain modifications to the CCFR that can improve program responsiveness and efficacy...CalETC respectfully requests that the final regulation allow the Executive Officer to make modifications to the electricity provisions of the LCFS, including the ability to add tools other than rebates or new technologies (such as financing assistance) to the statewide Clean Fuel Reward program if requested by the Clean Fuel Reward Steering Committee. CalETC also respectfully requests that such exception requests to the Executive Officer be handled expeditiously, and staff be adequately resourced to handle these exceptions. (45d-186.7)

Agency Response: No changes were made in response to these comments. The primary purpose of the Clean Fuel Reward concept created by the LCFS is to provide reductions in price for electric vehicles, which is accomplished by the proposed regulatory text.

I-19 *Multiple Comments: Support for Use of Base Credits for Equity Projects*

Comment: Most of the LCFS program should be directed toward helping low income people who currently need to drive many miles, i.e. gas superusers, switch to an EV. Currently most of the electricity credits go to charging with renewables and/or to biomethane, which are less cost effective ways to spend the LCFS funds. Addendum IV discusses this in more detail. CARB has a choice to make. The LCFS program can continue its massive biofuel subsidies, or it can redirect LCFS to focusing its credits electric vehicles—cars, trucks and buses— as well as EV chargers. This redirection would be a great improvement for equity and environmental justice as well as for the climate. (Apr-59.7)

Comment: PACT is encouraged by the staff's proposed amendments to the holdback equity credit investments, which specify opportunities for utilities to use holdback credits for a diverse array of M/HD investments. PACT appreciates this expanded list, which will encourage wider and more diverse utility investments in the transportation electrification sector. With respect to M/HD fleets and infrastructure, PACT supports the staff proposal to expand LCFS rebates for drayage vehicles to include other M/HD or off-road vehicles and investments in grid-side distribution infrastructure. PACT also supports the staff proposal to require that at least 75% of such credits be invested in transportation electrification.

The CPUC decision concerning holdback revenue utilization, developed in consultation with CARB, determined that holdback credits should be focused on funding for transportation electrification programs that address equity and resiliency. Funding for M/HD electrification projects is an appropriate use for holdback credits because M/HD electrification will create e-miles which have considerable equity benefits for all communities and corridors where M/HD ZEV fleets travel. (Apr-92.6)

Comment: Mercedes-Benz also supports the requirement that funds from these credits be put towards efforts to support transportation electrification and prefers that this requirement remain broad, including but not limited to charging infrastructure, vehicle incentives, etc. As mentioned above, Mercedes-Benz is investing in our own charging network to ensure adequate and reliable charging for our customers, as well as all EV drivers. The ability to select options on how to invest LCFS base credits, i.e., into charging stations or vehicle incentives, is an important flexibility that will enhance the funds as well as benefit all EV drivers. For example, if the funds would result in only a small vehicle incentive, then the ability to use these funds towards growing our charging network would enable us to expand it even further, again providing a benefit not only to Mercedes-Benz drivers but to any driver of an EV. (15d1-34.2)

Comment: SDG&E supports the proposed changes to parameters surrounding the implementation of EDU Holdback Credit Equity Projects. These include changes proposed to preserve the existing 10% cap on administrative costs to ensure appropriate resources are available to implement programs; clarify that medium-sized investor-owned utilities must spend 50% of holdback credit proceeds on equity projects as opposed to 75%; allow for rollover of unspent funds to future year budgets; and expand the acceptable uses of holdback equity spending to include various “make-ready” improvements that facilitate zero-emission vehicle adoption. The proposed changes will provide greater flexibility for utilities to support their customers with a more affordable transition to ZEVs. (15d2-273.2)

Comment: CalETC supports the following changes to subsection 95483(c)(1)(A), which are critical to the ongoing successful implementation of programs by all utilities:

Specifying that base credit proceeds previously allocated to the Clean Fuel Reward program by Electrical Distribution Utilities (EDUs) that remain unspent will be returned to those EDUs if base credits are allocated to the original equipment manufacturers (OEMs). CalETC supports this proposed amendment because these banked credits will significantly expand the utilities’ holdback programs, including programs to support medium- and heavy-duty EV adoption, which will be especially needed if CARB does not create the statewide medium- and heavy-duty Clean Fuel Reward program.

Addition of “panel and service upgrades” to the equity holdback project list.

Addition of coordination with “a community-based organization, or a California Community College” to the re-skilling and workforce development projects to the equity holdback project list.

Addition of a ten percent administrative cost cap to the utility holdback programs instead of five percent.

Changing the holdback equity requirement from “proceeds” to “spending” and further specifying that if an EDU does not spend the required percentage on equity projects in a calendar year, the shortfall of spending will roll over to their total equity spending requirement for the following year.

Clarifying that non-large or medium-sized investor-owned EDUs are required to spend 50 percent of holdback credit proceeds on equity projects, as opposed to 75 percent for large- or medium-sized investor-owned EDUs.

Clarifying that equity holdback projects approved by the Executive Officer pursuant to subsection 95483(c)(1)(A)(5)a. ix. comply with the LCFS regulation.

Specifying that any unspent proceeds from non-opt-in EDU base credits that were allocated to the Large EDUs beginning with the deposit of Q2 2019 credits through the deposit of Q2 2024 credits and then transferred to the Clean Fuel Reward program may be transferred by the Clean Fuel Reward Program Administrator to small EDUs that opted in to the LCFS program by March 31, 2025. Base credit proceeds allocated in this manner are subject to the same spending requirements included for other utilities under sections 95491(e)(5) and 95483(c)(1)(A). (15d2-264.2)

Comment: LADWP specifically supports the following proposed additions and clarifications because they will help utilities expand and continue transportation electrification programs:

Addition of coordination with “a community-based organization, or a California community college” to the re-skilling and workforce development projects to the equity holdback project list. (BH-014.3)

Comment: Addition of “charging equipment or infrastructure that directly supports public transit and other clean mobility solutions listed in section 95483(c)(1)(A)5.a” to the equity holdback project list. (BH-014.4)

Comment: Changing the holdback equity requirement from “proceeds” to “spending” and further specifying that if an EDU does not spend the required percentage on equity projects in a calendar year, the shortfall of spending will roll over to their total equity spending requirement for the following year. (BH-014.6)

Comment: Clarifying that medium sized POUs are required to spend 50 percent of holdback credit proceeds on equity projects. (BH-018.4)

Comment: Authorizing a ten percent administrative cost cap to the utility holdback programs. (BH-018.8)

Comment: Clarifying that if an EDU does not spend the required percentage on equity projects in a calendar year, the shortfall of spending will roll over to their total equity spending requirement for the following year. (BH-018.9)

Agency Response: No changes were made in response to these comments. Staff appreciates the support for the base crediting provisions and the types of projects they

support in the communities listed in subsection 95483(c)(1)(A)5. The base crediting provisions are expected to provide significant investment into low-income, disadvantaged, and rural communities. If credits are provided to OEMs (which will not decrease credits for holdback projects), the OEMs will be able to choose from a list of available projects as outlined in subsection 95483(c)(1)(B) of the Proposed Amendments, or propose a new project type based on defined criteria for Executive Officer consideration.

I-20 Clarify Equity Groups

Comment: CalETC thanks CARB Staff for harmonizing the definitions of equity communities and individuals in the proposed amendments with those detailed in AB 841 and CPUC Decision D.20-12-027. However, the language requires a slight modification. AB 841 defines this as "a community located on lands belonging to a federally recognized California Indian tribe, " and the proposed order should align with AB 841 in order to ensure simplicity. Note the proposed amendments include term "state and federally recognized" instead of the AB 841 language. (15d1-103.8)

Agency Response: Changes were made in response to this comment. Staff updated the regulatory language to say, "...or a community located on lands belonging to a state or federally recognized California Indian tribe", which is more inclusive.

I-21 Multiple Comments: Clarify Pre-Approved Holdback Credit Equity Projects

Comment: (3) list and provide detailed examples of pre-approved uses for utility holdback credit proceeds (45d-178.3)

Comment: (4) include Vehicle Grid Integration (VGI) and workforce development as pre-approved Holdback projects. (45d-178.4)

Comment: SCE appreciates the staff's proposed amendments expanding the list of LCFS Holdback projects and activities but recommends that the final amendments do not contain separate lists for (1) Holdback Credit Equity Projects - for projects that are for the primary benefit of or primarily serving a defined list of underserved individuals and/or communities¹ and (2) Other Holdback Projects – for activities are not considered as equity Holdback projects.² As currently drafted, the Other Holdback funding list limits the IOUs' spending on non-equity projects to three project types: (1) vehicle grid integration (VGI), (2) investments in grid-side distribution infrastructure necessary for EV charging, and (3) hardware and software that decrease the costs of or avoid updates to infrastructure, including load management software or outlet splitting. Such limits are not consistent with broader CARB objectives and may contribute to confusion. For example: because VGI projects are found only on the "Other Holdback (aka non-equity)" list of projects in the proposed draft language, the proposed amendment, if adopted, would not authorize the IOUs to use LCFS funds to support a VGI program that could minimize charging costs for a low-income EV driver or equity communities. SCE therefore supports the "one list" approach that a CalETC and the other IOUs' shared with CARB staff. CalETC's proposal proposes to authorize the IOUs to use LCFS holdback funds for any pre-approved LCFS Holdback projects for all types of customers and communities. To meet the proposed equity spending requirements, SCE supports a proposal to require the utilities to demonstrate that they distributed the funds to one of the defined underserved

individuals or communities (e.g., rebates issued as part of an income-qualified program, or public charging stations installed in a rural community, etc.). This streamlined approach enables utilities to deploy any of the projects and solutions when and where they are best for their service areas, while maintaining the requirement for utilities to direct funding to equity-focused activities. (45d-178.6)

Comment: California has a diverse mix of electric utilities, with differing customer needs and requirements. There are the large IOUs, like SCE, and smaller publicly owned utilities that serve customers across the state. Because individual utilities will have different needs and require different solutions to ensure an affordable and equitable transition to electrified transportation for their customers, CARB should update the LCFS Regulation's Restrictions on Use of Holdback Credits section to clarify that CARB does not require or prefer any particular program option, so long as the large IOUs use LCFS credit revenues for multiple categories to support their diverse customer classes. Specifically, SCE requests that CARB's final amendment clearly state that "utilities have discretion to select the most appropriate Holdback program option(s) for their customers, within the established requirements." Additionally, the regulation should require the "large IOUs to use their Holdback credit revenues to fund a minimum of three program options." Using funding for at least three program options will ensure that the IOUs meet diverse customer needs. (45d-178.7)

Comment: CalETC recommends simplifying and clarifying the language in the proposed regulation pertaining to utility holdback programs. CalETC supports the staff's efforts to develop a recommended list in the proposed regulation of activities for holdback projects to make it easier for all stakeholders (e.g., the CPUC, CARB Staff, municipal utility governing boards, and utility program developers) to have a clear understanding of how CARB intends utility LCFS Holdback funds to be used. While we appreciate that many new project types have been included in the proposed amendments at the recommendation of CalETC and its members, several updates to the Holdback project list in the proposed amendments are needed for the sake of simplicity and to provide clarity on what is or is not considered a holdback equity project while also providing consistency of interpretation through the regulation itself. The proposed amendments contain two lists: one which CARB Staff has indicated must be used for equity projects and another which are "good ideas" for non-equity projects. However, this makes it unclear if a utility could implement a project on the "equity" list – such as deploying charging stations at a multifamily property – as part of its non-equity project spending, and it also implies that a project on the "good ideas" list – such as optimized EV charging – could not be considered as counting towards a utility's equity spending requirements even if that project was directly reducing the energy bill of a low-income customer. Further uncertainty exists around the incentivization of medium- and heavy-duty (MDHD) vehicles: should projects supporting MDHD electrification only be considered equity projects if the vehicles are domiciled, or fueling located in, impacted communities, or always be considered equity projects since the pollutants from these vehicles disproportionately impact equity communities (i.e., disadvantaged rural, tribal and low-income communities) regardless of where they are domiciled or fueled? CalETC recommends that the two lists be consolidated into one and that project spending be considered towards the utilities' equity allocation compliance requirements if it benefits the communities and individuals defined in the equity holdback section. CalETC also recommends that any project that furthers the deployment of electric MDHD vehicles be considered as an equity project, as the electrification of trucking

almost always benefits low-income individuals and disadvantaged communities with criteria pollutant and GHG reductions even when the primary charging / ownership location is outside of the disadvantaged community, low-income community, tribal area, or rural area. (45d-186.2)

Comment: LADWP also agrees that the projects listed under section 95483(c)(1)(A)5.a. (Holdback Credit Equity Projects) unconditionally support the equity community and applaud CARB's efforts to include them. Under this section, a list of preapproved projects follow the statement, "These projects may include:", which casts uncertainty on whether all listed projects qualify as supporting equity. LADWP asks that CARB amend the text to clarify CARB's intent that the list of preapproved projects unconditionally supports equity (i.e. regardless of location of the project). Section 95483(c)(1)(A)5.b. (Other Holdback Projects) of the Proposed Amendment states that, "Holdback projects that are not specified in subsection 95483(c)(1)(A)6.a. must follow the requirements...". LADWP asks CARB to verify whether subsection 95483(c)(1)(A)6.a. was incorrectly cited and instead was intended to refer to 95483(c)(1)(A)5.a. (45d-237.5)

Comment: CARB Should Clarify the Holdback and Equity Holdback Project Lists CMUA appreciates CARB's proposed expansion of eligible equity holdback and other holdback project categories. However, the inclusion of two separate and nonoverlapping project lists within the Proposed Amendments creates confusion. For example, the "Other Holdback Project" list (95483(c)(1)(A)5. b.) omits several project categories found on the equity holdback project list (95483(c)(1)(A)5. a.). Such omission calls into question whether equity projects omitted from the Other Holdback list, when implemented in non-equity communities, could utilize non-equity holdback credit proceeds – even though such projects clearly further transportation electrification efforts in California, consistent with section 95491(e)(5). For simplicity, CMUA recommends that CARB combine the equity and other holdback project categories into a single list. Further, CARB should clarify that projects from the list benefiting equity communities shall be considered eligible equity expenses. Alternatively, CARB should expand the other holdback list to include all projects on the equity holdback list to provide certainty that these projects are still allowable expenditures. In addition, CMUA recommends that CARB further clarify several project categories. CMUA supports the inclusion of the re-skilling and workforce development project category, with clarification that such a program can be developed pursuant to a workforce development strategy adopted by the POU's Board. This additional flexibility is needed, as coordination with specific agencies may slow development of these programs. Additionally, CMUA supports the inclusion of panel and service upgrades as allowable equity expenses for low-income individuals. While there is an existing project category, listing these expenses will provide greater certainty for directing funds toward these purposes. Finally, CMUA supports combining the two equity project categories covering electric mobility solutions into a single list and clarification that the list is not restricted to EV charging equipment and infrastructure. (45d-285.5)

Comment: There should be one pre-approved list of programs, rather than maintaining different program lists for equity and non-equity. Many program types may contain an equity and non-equity component, and the current reporting structure already requires documentation to account for the portion directly benefitting equity communities. Maintaining two separate lists causes confusion and delays in program design. (45d-303.11a)

Comment: The project list should consolidate and clarify the eligibility of projects related to clean mobility solutions. (45d-303.11f)

Comment: §95483 (c)(5)(b)(i)- Proposed amendments would create a new category of projects which utilities can support using revenue EDU holdback credits; among them are investments in grid-side distribution infrastructure for EV charging. While there are clearly critical needs to upgrade the grid to support expanded EV charging, EDUs already have mechanisms to fund these upgrades, through utility rate-basing under authority, subject to CPUC regulation and approval. Investor-owned utilities (IOUs) are granted the right to claim a rate of return on capital investments made on approved project types. The proposed amendments would make some EV-related projects eligible to be supported by a new revenue stream. It is uncertain, and not explored in the ISOR, how this revenue would interact with CPUC regulation, and whether IOUs will be able to claim an equivalent rate or return on capital projects funded by holdback revenue. If they can, this raises questions about whether LCFS revenue (which predominantly comes from credit acquisition costs passed on to gasoline consumers) is an appropriate source of utility revenue and potential profit for IOUs. Similarly, care should be exercised to ensure that this revenue actually results in additional EV charging infrastructure, rather than having utilities compensated twice (once by normal CPUC approved methods and once by EDU holdback revenue) for the same work. (45d-391.32)

Comment: List and provide detailed examples of pre-approved uses for utility Holdback credit proceeds; (Apr-71.3)

Comment: Include Vehicle Grid Integration (VGI) and workforce development as pre-approved Holdback projects. (Apr-71.4)

Comment: Combine the separate holdback project lists proposed for equity and nonequity projects, to improve clarity around what qualifies as an equity vs. non-equity project. (Apr-71.5)

Comment: Require the large investor-owned utilities (IOUs) to use their Holdback revenues to fund at least three program options to help ensure revenues are benefiting diverse customer needs. (Apr-71.6)

Comment: Merging the proposed two separate holdback project lists into a single project list, and clarifying that certain project types are considered equity regardless of their geographic location. (Apr-151.6)

Comment: WeaveGrid strongly recommends clarifying and streamlining the EDU holdback credit requirements and pre-approved uses. WeaveGrid is a leading technology provider of VGI. Our VGI deployments through public utility commission-approved utility programs and government-selected grant opportunities within and outside of California often require or encourage a strong focus on equity. We have launched and are launching programs in partnership with community-based organizations (CBOs), with important disadvantaged community (DAC) and low-income community enrollment targets, and with tracking of meaningful community benefit metrics. As such, we do not see VGI efforts at odds with equity efforts. In fact, we think that these two categories of focus should be seen as complementary: Equity communities can benefit from greater access to VGI technology. As currently written in Sections 95483(c)(1)(A)5.a.4 and 95483(c)(1)(A)5.b.5 under “Restrictions of Use of Holdback Credits,” equity holdback projects can be interpreted as separate and distinct from VGI

holdback projects – this can inadvertently disallow equity-focused VGI projects. WeaveGrid encourages CARB Staff to clarify and streamline this language. We recommend combining the list of required and pre-approved uses of holdback credits. As explained above, meeting the 75 percent required equity spend does not need to be at odds with VGI deployment. In effect, this would also mean expanding what is included as a qualified Holdback Credit Equity Project. Currently, the LCFS regulation has a relatively narrow set of projects that qualify as equity projects, limiting the scope of what EDUs can do with this funding. In our view, any transportation electrification efforts that meaningfully benefit disadvantaged, vulnerable, and underserved communities should be eligible for LCFS funding. This is a best practice in line with what we see from other commissions, utilities, and federal and state agencies. Moreover, as CARB finalizes amendments to the LCFS program, there is a handoff to the California Public Utilities Commission (CPUC), who also regulates the use of the holdback revenue that EDUs receive. Clearer language around the use of holdback credits upfront in the CARB regulation allows the CPUC to review and approve utility programs that best fit local communities and do not include needlessly limiting restrictions. Given the extensive regulatory guidance and approval process for EDU holdback credits, we recommend streamlining the language in the Restrictions of Use of Holdback Credits section by consolidating the required and pre-approved uses, as outlined above, so that there is greater clarity and more flexible use of credits to benefit communities across California. (15d1-051.2)

Comment: Requesting a clearer list of eligible Holdback Programs. The current list of proposed holdback projects is confusing. Utilities and their regulators need this list to be as clear as possible to help remove any ambiguity for staff and decisionmakers at CARB, CPUC, and Publicly Owned Utilities (POU). The Appendix to our February 20 letter provides our recommended amendments and detailed justification (See Appendices A and B to this letter). These recommendations also consider the needs of the dozens of medium and small EDUs in California that are at a very different stage of EV program implementation than the large EDUs. These recommended edits are necessary to make the project review and approval process simpler and to help the utilities implement equity projects: Having one list instead of the current two lists improves clarity and allows for the implementation of more equity projects such as vehicle grid integration projects for lowincome individuals and others who meet the equity definition. (15d1-103.1)

Comment: Pre-Approved Holdback Project List: Bifurcating equity and other project types in Section 95483(c)(1)(A)(5) unnecessarily complicates rather than streamlines the list of preapproved projects. The two lists should be consolidated, with a 75% equity requirement. The current regulation⁶ identifies a single list of projects that the EDUs may fund through holdback credit proceeds, with targets for equity. The ISOR indicates staff's intent to enhance the list of pre-approved projects to include the priorities set from the Scoping Plan as well as community input.⁷ While SDG&E agrees that the list in pre-approved equity projects is enhanced, the 15-Day Changes introduces a second non-equity list categorized as "Other Holdback Projects" as Section 95483(c)(1)(A)(5)(b). SDG&E recommends that the two lists be consolidated into one and that project spending be considered towards the EDUs' equity allocation compliance requirements if it benefits the communities and individuals defined in the equity holdback section. To ensure that the utilities are only deploying projects that CARB supports for equity communities and individuals, SDG&E recommends that the single project list must be used for equity projects and may be used for non-equity projects in addition to

other non-equity projects that further transportation electrification in California as defined by 95491(e)(5). This approach is more straightforward, minimizes opportunity for conflicting interpretations, and provides certainty on expectations around CARB's priorities while still allowing flexibility for utilities to propose non-equity programs that are best suited to their specific service areas and customers. (15d1-100.2)

Comment: Requiring large IOUs to utilize their holdback credit revenues to fund a minimum of three program options is necessary as there are increasingly diversified needs in transportation electrification over large service areas. Including this requirement to fund a minimum of three program options will help ensure that the large IOUs consider these diverse needs and will prevent a situation in which the large IOUs are compelled to spend all of their holdback funds on one program. The list of holdback expenditures is appropriately lengthy, in part, to meet the diverse and varied needs of priority communities and address equity. For example, the holdback list allows spending on light-, medium- and heavy duty EVs and off road EVs too. Proceeds also can be spent on projects for chargers, vehicle-grid integration, grid side upgrades, ridesharing, transit, EV rebates, micromobility, reskilling and workforce development and others. All of these are important projects. Requiring spending on at least three programs will ensure programmatic diversity and equity. CalETC proposes to limit this requirement to only the large IOUs as the other EDUs may not have enough funds to do three programs, especially with low credit prices. (15d1-103.3)

Comment: For simplicity and clarity, the project list should be consolidated under the recommended projects for electric mobility solutions as there are two list items that appear to overlap regarding mobility alternatives. (15d1-103.6)

Comment: Merging the proposed two separate holdback project lists into a single project list and clarifying that certain project types are considered equity regardless of their geographic location; o Explanation: The separate equity and non-equity project lists in the 45-Day Draft create ambiguity and confusion as written and could lead to delays in approval from the CPUC, which also has jurisdiction over the investor-owned utilities' (IOUs) programs. The proposed edits will allow for more diversity in equity projects for low-income individuals and those who meet the equity definition, and faster deployment of LCFS funds to customers. (15d1-224.14)

Comment: Retaining the December 2023 update pre-approving electric distribution utility ("EDU") holdback funds to be used for VGI initiatives. (15d2-305.2)

Comment: Clarifying that EDU holdback funds may be used for programs supporting both equity and vehicle-grid integration ("VGI"). (15d2-305.3)

Comment: VGIC reiterates that CARB should clarify that utility holdback funds may be used for programs that support *both* equity and vehicle-grid integration projects.

VGIC understands that the list of equity projects provided in 95483(c)(1)(A)5a are approved for the utilities to spend equity funds on. The list in 95483(c)(1)(A)5b describes "examples of pre-approved uses for these other holdback credit proceeds." However, VGIC reiterates that CARB should clarify that utilities *can* spend equity funds for the types of VGI projects listed in 95483(c)(1)(A)5b if they are for the benefit of equity customers. This change would inject much-needed clarity not only to the EDUs tasked with designing programs but also to the CPUC, which may otherwise inadvertently hamstring the EDUs' ability to implement equity-

focused VGI programs. Put differently, CARB should clarify that EDUs may use holdback funds on initiatives that simultaneously support the intents of 95483(c)(1)(A)5a (i.e., equity) and 95483(c)(1)(A)5b (i.e., VGI). (15d2-305.6)

Comment: Clarifying that equity holdback projects approved by the Executive Officer pursuant to subsection 95483(c)(1)(A)(5)a. ix. comply with the LCFS regulation. (BH-014.8)

Agency Response: Staff made minor changes in response to these comments. Staff updated a reference in subsection 95483(c)(1)(A)5.b. to point to the list of holdback projects that meet the criteria for equity projects. Staff did not combine the equity and other-holdback lists into one, as requested by several stakeholders. The projects listed in subsection (A)5.a. have a much clearer connection to the equity investment goal of the holdback equity provisions. The other holdback projects list in subsection (A)5.b. lists several projects that staff have heard support for from stakeholders, but for which the connection to equity projects is less clear. Stakeholders may work with staff to explore whether or not particular project types listed in the other holdback projects list may count toward the holdback equity spending requirements in the regulation, if there is a close tie-in to a category listed in subsection (A)5.a. Staff did not take up the stakeholder suggestion to require that utilities spend their credit proceeds on at least three types of projects; this request seemed unnecessary given the diversity of projects already available for utilities to choose from, and an option to request approval for a project not listed in subsection (A)5.a.

I-22 Multiple Comments: *Add New Project Types to Pre-Approved Holdback Credit Projects*

Comment: Panel upgrades should be explicitly included in the project list, as they are an important component of the infrastructure needed for transportation electrification, particularly in older buildings. (45d-303.11e)

Comment: The project list should explicitly allow for upgrades to electric panels, which are prerequisites to transportation electrification for many customers living in older buildings that have not had recent updates. Upgrades to panels can have other benefits but are primarily to enable transportation electrification. Naming this clearly in the regulation will also help develop equity projects to serve low-income individuals with panel upgrades. (15d1-103.5)

Comment: Addition of “panel and service upgrades” to the equity holdback project list. (15d2-276.6)

Comment: Addition of coordination with “a community-based organization, or a California Community College” to the re-skilling and workforce development projects to the equity holdback project list.

Comment: LADWP specifically supports the following proposed additions and clarifications because they will help utilities expand and continue transportation electrification programs:

- a. Addition of “panel and service upgrades” to the equity holdback project list. (BH-014.2)

Comment: Including “panel and service upgrades” in the eligible equity holdback project list. (BH-018.6)

Agency Response: Changes were made in response to these comments. Panel upgrades are explicitly listed as an eligible holdback equity spending category in the Proposed Amendments as modified.

I-23 *Prioritize Public Transit Buses and School Bus Holdback Equity Projects*

Comment: Electrification needs to be the focus. Regarding equity measures in impacted communities, the credits should first be directed to providing clean electric public buses and school buses, along with the necessary charging infrastructure. Impacted communities should have a say in where the equity dollars are spent. (45d-297.2)

Agency Response: No changes were made in response to this comment. The Proposed Amendments specifically list school and transit bus electrification as an eligible holdback equity spending category, as well as EV charging infrastructure. CARB does not dictate which projects the utilities spend the credit proceeds on, but the holdback equity spending provisions are focused entirely on supporting electrification in low-income, disadvantaged, and rural communities.

I-24 *Multiple Comments: LMD- and HD-Charging Infrastructure Should Qualify as Equity Projects If in Equity Areas*

Comment: Ensuring that grid-side investments that support both light-duty and medium/heavy-duty (MHD) EV charging be eligible for equity spending requirements, if serving projects in an equity community. (Apr-151.8)

Comment: Ensuring that grid-side investments that support both light-duty and MHD EV charging be eligible for equity spending requirements, if serving projects in an equity community; o Explanation: Limiting equity-eligible investments to MHD would unnecessarily complicate grid planning, program development and the ability to scale such a program. It also ignores that light-duty fast charging is critical for EV equity for those who cannot charge at home. (15d1-224.16)

Agency Response: No changes were made in response to these comments. Investments in grid-side distribution infrastructure are the responsibility of the electricity provider and are necessary for the statewide shift to zero emission vehicles. The holdback equity spending category provides additional incentive for projects that most directly support the types of communities listed in subsection 95483(c)(1)(A)5.a. MHD electric vehicle charging will require a larger expansion of the grid than light-duty vehicle charging infrastructure and may provide more local benefits to communities located near freight hubs, by reducing diesel emissions.

I-25 *Multiple Comments: Projects Supporting MHD EVs Should Qualify as Equity Projects Irrespective of Location*

Comment: Projects Supporting MHD EVs Should Qualify as Equity Projects Irrespective of the Primary Location. CMUA supports language in the Proposed Amendments that includes an equity project category for MHD infrastructure investments. However, the LCFS regulation

should clarify that all MHD infrastructure projects, regardless of location, qualify as equity projects. Irrespective of the primary charging location, pollutants from MHD vehicles significantly impact low-income communities, particularly along transportation corridors and logistics centers. By identifying all MHD electrification projects as equity, the LCFS can further remove pollutants that disproportionately impact these targeted communities. (45d-285.6)

Comment: NCPA supports including projects for medium- and heavy-duty (MHD) electrification as an “equity” project, but believes the regulations should clarify that any such project should qualify as equity without consideration to location. Pollutants from MHD vehicles disproportionately impact low-income and disadvantaged communities due to their traffic patterns, regardless of where they may be domiciled or refueled. (45d-303.11b)

Comment: Allowing eMHDVs anywhere in California to clearly count as equity is necessary as the current language is open to interpretation. Improving clarity here will allow projects supporting eMHDVs (e.g., grid side upgrades, panel upgrades, the eMHDV Clean Fuel Reward etc.) to count as equity. See Appendices A and B for more on this topic. (15d1-103.2)

Comments: However, CARB staff should clarify in the FSOR and future guidance documents that any project for electric medium- and heavy-duty (eMHD) infrastructure qualifies as an “equity” project without consideration of the location for the charger. eMHD vehicles provide many benefits to equity communities, whether or not the charging depot happens to be located within an equity community. An overly restrictive interpretation of the requirements for eMHD projects would severely hamper the ability of EDUs to support eMHD projects with LCFS funds. (15d2-265.12)

Agency Response: No changes were made in response to these comments. The Proposed Amendments are clear that projects listed in 95483(c)(1)(A)5.a, including electrification of medium, heavy or off-road vehicles and investment in public EV charging infrastructure are equity projects, assuming the projects support at least one of the types of communities listed in section 95483(c)(1)(A)5.a.

I-26 Multiple Comments: *Remove non-LD EV projects from Holdback Credit Equity Projects*

Comment: As noted above, rather than subsidizing electric utilities or businesses operating medium- and heavy-duty vehicles, revenue generated from LD EV residential charging should be used to grow the LD EV market. Thus, we recommend eliminating “pre-approved projects” in the proposed regulations that provide funding for changes not related to the LD EV market. Specifically, we recommend eliminating the following pre-approved projects recognizing that utilities could still propose and seek approval of these projects.

- Electrification of drayage trucks and other M/HD EVs or off-road vehicles, including school and transit buses.
- Incentives for using public transit, including car and ride share, public transit and school bus (including battery swap programs).
- Micro-mobility solutions (eBikes, eScooters, eMotorcycles, etc.).
- Investments in grid-side distribution infrastructure for M/HD EVs.

- VGI projects (EV charging education, incentives to encourage drivers to participate in managed charging, deployment of bi-directional charging equipment, or other innovative approaches to promote managed charging).
- Hardware and software that reduces the costs or avoids updates to infrastructure.

(45d-233.4)

Comment: We recommend using funding generated by light-duty (LD) electric vehicles (EVs) to promote and expand the LD EV market to all California communities, rather than using that funding for unrelated medium- and heavy-duty (MD and HD) EV projects.

Automakers are committed to electrification of the light-duty vehicle market. However, this transition is far from complete. In fact, EV sales have plateaued in California at around 25 percent for the last 9 months. Far higher sales are needed in the next few years to meet the growing EV regulatory requirements of 43% in 2027, 51% in 2028, or 68% in 2030. Reaching these levels requires sales far beyond the affluent single-family homeowners that currently purchase most EVs. The substantial resources associated with the LCFS program should promote EVs and expand the EV market to all communities. However, this will not be the case if the LCFS proceeds from LD EVs are used to fund MD and HD EV projects. (15d2-234.1)

Agency Response: No changes were made in response to this comment. Staff disagrees that base crediting proceeds should be exclusively used to support the light-duty vehicle sector. The transition to ZEVs will require significant support for both the light-duty and larger vehicle classes. Utilities may choose to implement projects that support the light-duty vehicle sector, and many have chosen to do so to-date. The proposed amendments provide options for them to choose from. This is just one of many ways in which the LCFS provides crediting support the transition to ZEVs in the light-duty vehicle sector, in addition to credits for dispensed fuel, infrastructure crediting, and the potential for OEMs to receive a portion of base credits in the future.

I-27 Multiple Comments: *Opposition to Increase of Holdback Credit Equity Spending Requirement*

Comment: CalETC requests clarification that POUs must spend 50% of holdback funds on equity projects, as opposed to 75%. CalETC notes a discrepancy between the proposed LCFS requiring 75% of holdback funds for equity projects compared to Appendix E “Purpose and Rationale for Low Carbon Fuel Standards Amendments,” which calls for 50% for POUs. We recommend that POUs have a 50% requirement for equity holdback. We understand there are almost 30 POUs that have opted into LCFS and potentially another fifteen could opt in. (45d-186.3)

Comment: CalETC requests the regulation modify the utility reporting requirements to better track deployment of funds to impacted communities, align with the reporting framework required by CPUC, and simplify reporting for smaller utilities. CalETC appreciates the areas where CARB Staff have made efforts to harmonize the regulatory and reporting requirements of the LCFS Regulations with other regulatory bodies, such as the CPUC. One such area was increasing the equity allocation requirement of utility Holdback programs for the Large IOUs from 50% to 75%. The CPUC, however, counts spending that occurs during the calendar year, regardless of when the credits were earned. This is subtle but, as a result, the IOUs are often

reporting entirely different data to demonstrate compliance to each agency in their annual reports. Tracking on how LCFS proceeds are actually returned to Californians, is a more effective metric to track how LCFS dollars actually flow to benefit underserved communities over time and is consistent with the metric used by the CPUC to ensure compliance. CalETC recommends that the utility holdback project equity allocation requirements be updated to percent of annual spend rather than percent of annual proceeds. Further, CalETC proposes that if a utility underspends on equity projects in a given year, the amount that it underspends will be carried forward to the next year. This aligns the LCFS Regulation's requirements with the obligations that the CPUC has already placed on the IOUs, improves tracking of how LCFS funding is actually being deployed into impacted communities, and simplifies accounting for CARB, CPUC, and utility staff. CalETC has proposed language that would implement these recommendations in the Appendix to this letter as part of its other recommendations for updates to the holdback section. (45d-186.6)

Comment: The LCFS Equity Requirement Should Remain at 50% The Proposed Amendments increase the equity spend requirement from 50% to 75%. California's POU's vary widely along a variety of parameters, including local community needs. Each POU develops programs in a public process, consistent with the needs of the local community. As developed, the LCFS has been successful in promoting cleaner transportation options for targeted communities. Additionally, California's POU's are promoting cleaner transportation options in various ways, including public charging options, clean public transit options, and modernizing their local distribution systems. In order to support continued investment in this full array of local solutions, the LCFS program equity requirement should remain at 50%. (45d-285.2)

Comment: In alignment with the posted "Purpose and Rationale for Low Carbon Fuel Standards Amendments," the equity requirements for POU's should remain at 50%. POU's represent specific and limited territories within the State, with a wide variety of populations, EV densities, and community needs. Designing and implementing effective transportation electrification programs for low-income and/or disadvantaged communities can be challenging, and the uptake and timing of projects is difficult to predict. There will be natural fluctuations in program spending year-to-year, and an annual requirement of 50% allows for better planning to maximize the impact of equity spending. The current regulatory structure successfully prioritizes transportation electrification support for equity communities, and the continuation of flexibility in annual program spend is needed to ensure the design of successful and meaningful programs in POU territories. In addition to the POU's equity programs, POU's are investing in transportation electrification in a myriad of ways that benefit their communities as a whole, such as grid modernization and public charging infrastructure. (45d-303.8)

Comment: Clarifying that Publicly Owned Utilities must spend 50% of holdback funds on equity projects, consistent with the intent in the 45-day package. Appendix E in the 45-day LCFS proposed order gives the rationale for 50%, and we understand that 50% allocation was CARB's intent. This change is necessary to eliminate the inconsistency. Moreover, maintaining a 50% equity spending requirement is appropriate for POU's. (15d1-103.11)

Comment: LADWP supports the 45-Day Proposal to keep the holdback equity requirement for POU's at 50 percent as stated in Appendix E (page 15) of the Proposed Amendment. However, this is not reflected in the language of the proposed regulation in section 95483(c)(1)(A)5. a.

LADWP recommends that CARB staff amend the language of the proposed regulation to explicitly state the holdback equity requirements for POUs for clarification. (15d1-208.5)

Comment: Clarifying that medium POUs are required to spend 50 percent of holdback credit proceeds on equity projects, as opposed to 75 percent. (15d2-276.3)

Comment: Clarifying that non-large or medium-sized investor-owned EDUs are required to spend 50 percent of holdback credit proceeds on equity projects, as opposed to 75 percent for large or medium-sized investor-owned EDUs. (BH-014.7)

Agency Response: Changes were made in response to these comments. Staff modified the proposed amendments such that the minimum holdback credit annual spending for non-large or medium-sized investor-owned EDUs is 50 percent instead of 75 percent.

I-28 Multiple Comments: *Support for New Holdback Credit Projects*

Comment: We want to express our strong support for the major LCFS expenditure changes being proposed by CARB, specifically: Adding workforce development programming to the pre-approved projects eligible for funding of holdback equity credits. We specifically want to express our support for the addition of “re-skilling and workforce development for transportation electrification and electric vehicle infrastructure applications” as a pre-approved project category. (45d-251.4)

Comment: CARB’s proposed addition of workforce development as a pre-approved project category aligns well with recommendation #5. (45d-251.8)

Comment: Retaining and enhancing the pre-approved outreach project category as recommended above aligns well with recommendations #2 and #3. (45d-251.9)

Comment: WeaveGrid urges flexibility with the use of holdback credits. The transportation electrification sector is rapidly changing, which is encouraging. LCFS serves as an important source of funding in California to advance electric mobility. As needs evolve with the changing sector, a flexible use of LCFS holdback funds can maximize impact. WeaveGrid particularly supports the proposed additions within Section 95483(c)(1)(A)5.b.1. As EV adoption in California increases, we need to adapt the grid accordingly. We appreciate that the focus of these proposed additional allowable holdback projects supports greater grid investment to accommodate a growing number of EVs on California’s roads. We support the additions in this section, including investments in distribution infrastructure for EV charging, support for vehicle-grid integration (VGI) projects, and technology, such as EV load management software, that can avoid or reduce grid upgrades. Distribution grid investments ensure that charging infrastructure needs are met, especially in underserved communities and for medium- and heavy-duty electric vehicles. VGI projects help EV drivers charge when and where it is most beneficial for the grid and for customers generally. VGI enables cleaner charging by increasing renewables integration and providing a signal for drivers when it is cleanest to charge. Technology helps enable VGI and makes it more driver-friendly by being more automated. VGI projects that use automated technology can benefit from greater participation and, therefore, better outcomes. (45d-267.1)

Comment: C. WeaveGrid commends CARB for increasing the clarity of EDU holdback credit requirements and pre-approved uses.

The LCFS regulation has a relatively narrow set of specified projects that qualify as holdback credit equity projects, per Section 95483(c)(1)(A)5.a.4 This can result in limiting the scope of what EDUs can do with this funding. In our view, any transportation electrification efforts that meaningfully benefit disadvantaged, vulnerable, and underserved communities should be eligible for LCFS funding. This is a best practice in line with what we see from other commissions, utilities, and federal and state agencies. WeaveGrid appreciates the amendment in this most recent October 2024 update that offers greater detail on opportunities to propose new holdback equity projects under the LCFS regulation, per Section 95483(c)(1)(A)5.a.ix.5 This is particularly important given that the California Public Utilities Commission also regulates use of EDU holdback credits. Increased clarity and flexibility improve the implementation process across two different state agencies. (15d2-186.4)

Comment: PG&E also supports the following changes made in the second 15-day changes related to utility programs: Clarifications around holdback equity spending requirements, including rollover of shortfalls. (15d2-221.3)

Comment: Specifying that if an EDU does not spend the required percentage on equity projects in a calendar year, the shortfall of spending will roll over to their total equity spending requirement for the following year. (15d2-276.5)

Comments: NCPA supports CARB's correction of the equity requirements in section 95483 (c) to align with the stated Appendix E: Purpose and Rationale for Low Carbon Fuel Standards Amendments. The corrected equity requirements for POUs will help ensure that POUs can design and implement effective transportation electrification programs for low-income and/or disadvantaged communities. (15d2-265.7)

Comment: VGIC reiterates its support for modifications to the utility holdback programs and allowing utilities to use credits for vehicle-grid integration projects.

VGIC reiterates its support for the modifications to the EDU holdback programs proposed in the original 45-day amendments as retained in the August 15-day updated language and the October 15-day updated language. The amendments reduce the amount of base credits that California's three large investor-owned utilities ("IOUs") must spend on the California Clean Fuel Reward program to 50% and allow more funding to flow to the IOUs' utility holdback programs. It is worth noting that while the California Clean Fuel Reward program was paused several years ago due to low funding availability, significant funding has likely been amassed but not yet implemented since that pause.

CARB proposes a list of equity projects utilities can spend funds on in section 95483(c)(1)(A)5a, including investing in charging infrastructure, EV ridesharing, rebates and incentives for vehicle purchases and leases, and investments in distribution infrastructure. Of critical importance to VGIC and stakeholders working diligently to establish widespread vehicle-grid integration in California, the amendments also provide a list of potential projects in 95483(c)(1)(A)5b that utilities can spend non-equity funds on including:

1. Investments in grid-side distribution infrastructure necessary for EV charging.

2. Support for vehicle-grid integration with projects such as:
 - a. Encouraging the optimization of EV charging through education in the following areas: peak demand, rate pricing, grid emergencies, potential power shutoffs, infrastructure deferral, renewable integration, and/or other signals and grid needs to provide grid and customer benefits.
 - b. Providing program incentives to encourage driver participation in monitored/managed charging, demand response, or vehicle-to-load / vehicle-to-grid applications.
 - c. Supporting the deployment and installation of bidirectional charging equipment.
 - d. Other innovative approaches to promoting and managing EV charging and discharging that provides benefits to customers and the grid.
3. Hardware and software that decrease the cost of or avoid updates to infrastructure, including load management software or outlet splitting.

VGIC reiterates its strong support for utilizing utility holdback funding for all of the VGI projects and load management software outlined above. VGI can provide a wide range of benefits including the following recognized by the California Public Utilities Commission (“CPUC”):¹

- Accelerating the adoption of EVs by providing additional revenue streams that lower the total cost of vehicle ownership for individual owners and fleet operators.
- Reducing costs to electricity ratepayers by reducing congestion on existing power distribution infrastructure and costly distribution system upgrades, as well as reducing the need to invest in new fossil fuel electricity generation.
- Supporting further decarbonization of the electric sector by avoiding curtailment of renewables and providing grid services.
- Accelerating reduction of carbon and criteria pollutant emissions in the transportation sector.
- Improving grid resiliency and security, including for public safety power shutoff (PSPS) events.

These are all benefits that LCFS revenues and the resulting holdback programs should support. (15d2-305.5)

Agency Response: No changes were made in response to these comments. Staff appreciates the support for the proposed amendments.

I-29 Multiple Comments: *Align Holdback Equity Requirements with California Public Utilities Commission (CPUC) Requirements*

Comment: Aligning CARB’s increased equity requirement of 75% for large Investor-Owned Utilities (IOUs) with the CPUC requirements for all aspects of the requirement, not just the reporting percentage. (Apr-151.7)

Comment: Aligning CARB's increased equity requirement of 75% for large IOUs with the CPUC requirements for all aspects of the requirement, not just the reporting percentage; o Explanation: CARB and the CPUC currently track different metrics (proceeds vs. spend accounting) which could lead to compliance challenges to the extent that PG&E could end up unable to comply with both CARB and the CPUC, forcing a choice between which agency's requirements to meet. CARB should switch to spend-based accounting, which would eliminate this risk and provide all the benefits detailed in our February 20 comments. (15d1-224.15)

Agency Response: No changes were made in response to these comments. Staff did not adopt the proposed edits to harmonize entirely with the CPUC; however, many of the proposed amendments were designed in coordination with the CPUC and will streamline implementation of the provisions, and CARB staff are committed to continue working with CPUC staff to ensure smooth implementation.

I-30 Multiple Comments: *Require Holdback Credit Equity Projects Align with Sb 350 Low-Income Barriers Study*

Comment: Secondly, we recommend rescinding and/or modifying some smaller proposed changes that propose to remove equity-focused outreach activities from the program regulations. Specifically: CARB should enhance the regulation's existing language regarding aligning holdback credit equity investments with the recommendations of CARB's SB 350 Low-Income Barriers Study. We recommend that this language be amended to explicitly state that EDUs must align their portfolios of holdback credit equity projects with the findings and six priority recommendations of CARB's SB 350 Low-Income Barriers Study. (45d-251.7)

Comment: While CARB's proposed increased financial investment in equity programs here will help, these barriers are not just simply economic- they include cultural barriers, linguistic barriers, trust barriers, barriers related to peer validation, and more. By authorizing investments in multilingual outreach programs through trusted community-based organizations, and by ensuring that these broader investments are aligned with the findings and recommendations of CARB's SB 350 Low-Income Barriers Study, CARB can help ensure that we bring to bear the capacity and wisdom of our communities to ensure that every Californian has the support they need to transition to zero-emission mobility. (45d-251.10)

Agency Response: No changes were made in response to these comments. The Proposed Amendments already require that the utilities demonstrate how their holdback equity projects align with the SB 350 report. As stated in section 95491(e)(5)(A)2.: *"EDUs must include a discussion on how their portfolio of holdback credit equity projects is consistent with the findings and recommendations of the SB 350 Low-Income Barriers Study, Part B report prepared by CARB (rev. Feb. 2018), incorporated herein by reference. This discussion must include, as applicable, a description of how the projects: support increased access to clean transportation and mobility options; consider, and to the extent feasible, either complement or build upon existing CARB, other State, or local incentive projects to diversify and maximize benefits from statewide investments; demonstrate partnership and support from local community-based organizations; and meet community-identified clean transportation needs."*

I-31 Multiple Comments: *Expand the Holdback Credit Equity Project Workforce Development Agency Consults*

Comment: The list of agencies that POU's may consult in the creation of workforce development projects should be expanded to include other pertinent entities, such as California Community Colleges, community-based organizations, and POU Governing Boards. (45d-303.11c) (15d1-103.7)

Comment: Including coordinating with "a community-based organization, or a California Community College" to the re-skilling and workforce development projects in the eligible equity holdback project list. (BH-018.7)

Agency Response: Changes were made in response to these comments. Staff included California community colleges and community-based organizations in the list of agencies that utilities may consult with in the creation of re-skilling and workforce development projects. Staff did not adopt the suggestion that POU's may consult with POU governing boards, as this seemed redundant to staff and would likely be required anyway in order for POU's to develop new projects.

I-32 Multiple Comments: *Use Non-Opt In EDU Base Credits to Encourage Rural EDU Participation in LCFS and Benefit Rural EDU Customers*

Comment: CalETC requests edits to the regulation that will assist smaller utilities, potentially allowing them to participate in LCFS. CalETC requests the LCFS include a program to encourage small EDUs who have not opted-into LCFS to do so and expand programs by small EDUs who have recently opted in. We propose that the LCFS have new regulatory language that allows the CCFR Steering Committee to work with the Executive Officer to design one-time grants to incent the small, mostly rural EDUs that have not yet opt into the LCFS to opt-in and also to provide additional funding to EDUs that have recently opted in. The goal of the program would be to have almost all California utilities participate in the LCFS and provide holdback programs to provide better coverage in underserved areas. Specifically, we request funding for our recommended program to come from funds that non-opt in EDUs have been providing to the CCFR since 2020 per Section 95486.1 (c) (1) (A) paragraph 2.5 Our informal survey of these small EDUs found that they often only have a handful or a few hundred EVs which is not enough to justify a program. Under our proposal, a start-up grant would be enough for a small EDU to start or expand a basic program to help their customers and CARB would provide approvals and oversight to the CCFR Steering Committee and Program Administrator. (45d-186.5)

Comment: Approximately 20 small electric distribution utilities (EDUs) in California have not yet opted into the LCFS, often due to limited staff resources and lower EV penetration. The LCFS allocates base credits based on the percentage of EVs in every utility territory, and allocates those credits directly to utilities participating in the LCFS so they can invest in programs that further transportation electrification adoption in their respective territories. Utilities that have not yet joined the LCFS program are unable to receive their allocated base credits, and without base credits they often do not have enough funding available to launch transportation electrification programs, further exacerbating inequities in the deployment of EV charging infrastructure and adoption. Pursuant to section 95483(c)(1)(A), unallocated base

credits are deposited into the joint Clean Fuel Reward (CFR) account but are tracked separately by the CFR program administrator. These accumulated credit proceeds could potentially be reallocated to the state's smallest utilities to help provide the additional funding needed for start-up costs involved in designing and launching transportation electrification programs. NCPA recommends including regulatory language that allows the CFR Steering Committee to work with the Executive Officer to design one-time transfers to qualifying small EDUs: Proceeds from non-opt-in EDU base credits that were allocated to the Large EDUs beginning with the deposit of Q2 2019 credits through the deposit of Q2 2024 credits and then transferred to the Clean Fuel Reward program pursuant to section 95483 (c)(1)(A) may be transferred by the Clean Fuel Reward Program Administrator to small EDUs opted in to the LCFS program by March 31, 2025. Any base credit proceeds reallocated in this manner must be spent by the recipient small EDU in accordance with section 95491 (e)(5). The Executive Officer must approve the Clean Fuel Reward Program Administrator's plan for distribution of previously unallocated base credit proceeds prior to any transfers. (45d-303.10)

Comment: Make edits to the regulation that will assist smaller utilities, potentially allowing them to participate in LCFS. Our proposal would support approximately twenty small rural utilities who cover about one percent of California to opt-into LCFS. Modifying the utility reporting requirements to better track deployment of funds to impacted communities, align with the reporting framework required by the California Public Utilities Commission (CPUC), and simplify reporting for smaller utilities. CARB and the CPUC currently measure equity in very different ways, and our proposal would harmonize with how this is done by the two agencies. In addition, our proposal benefits the POUs with a simpler, more practical way to report compliance with the LCFS equity provisions. (15d1-103.14)

Agency Response: Changes were made in response to these comments. Staff added a new provision to support small utilities in subsection 95483(c)(1)(A)(6) as recommended by the commenters.

J. Zero Emission Infrastructure Programs

J-1 ZEV Is an Inappropriate Term

Comment: Please refrain from using the term "ZEV" or, at the very least, refrain from blanketly including electric vehicles in your definition. The California Low Carbon Fuel Standard is a complete well to wheel GHG emission program. The California power grid is far from zero emissions (even if you exclude all the uncontrolled burn emissions from forest fires caused by downed power lines). Electricity from the California power grid is the baseline source of fuel for most electric vehicles and thus, they are not "zero emission vehicles" per the very foundations of your policy. If CARB wishes to include some electric vehicles in this definition, it should limit the vehicles to only those using hard-wired renewable power to refuel their vehicles as per CARB guidance on the use of renewable electricity. I have doubts that even the vehicles mentioned above should qualify as a ZEV as GHG emissions from battery production and the production of solar panels are also no "zero emission" but I will concede that one could interpret those as outside the scope for "fuel" within LCFS policy but CARB should further give guidance that the materials used to generate, store, or utilize fuel are outside the scope of the AB 32 policy. CARB could choose to change this definition to zero tailpipe emission vehicles but it should refrain from using the "ZEV" acronym which is marketing tool for electric vehicle

manufacturers and irrelevant to a well to wheel GHG emission policy. It is confusing to LCFS stakeholders and general population. (45d-071.1)

Agency Response: No change was made in response to this comment. “ZEV” is a term used to describe that lack of emissions from the vehicle itself. Zero emission vehicles reduce overall emissions in communities where the vehicles are driven. It does not preclude consideration of emissions from where the fuel is created. The carbon intensity of zero emission fuels are included in LCFS program, and other emissions are regulated by the federal government, State, and Air District of where a facility is located.

J-2 *Use ZEV Infrastructure Crediting Using Vehicular Data*

Comment: EcoEngineers suggests that CARB implement vehicle based LCFS ZEV credit accounting in conjunction with infrastructure credits. By having an accounting system based off vehicular data, OEMs would eventually be able to discount their ZEV sale prices by future LCFS credit generation. This would be similar to the approach adopted by the USEPA in the proposed RFS eRIN rules. The proposed focus and increased investment on increasing the accessibility of ZEVs in disadvantaged, low-income, rural, and tribal communities coupled with the expansion of ZEV crediting to the medium and heavy-duty sector will be positive additions to the LCFS program. (45d-176.5)

Agency Response: No change was made in response to this comment. The LCFS ZEV infrastructure program incentivizes the construction of infrastructure for zero emission vehicles. The incentive is that zero emission fueling infrastructure is guaranteed to generate credits. OEMs can generate credits using incremental credits, as described in section 95483(c)(1)(E).

J-3 *Multiple Comments: ZEV Infrastructure Crediting is Unnecessary and Dilutes the Credit Pool*

Comment: Additionally, we note that the proposal to extend the program for ZEV infrastructure credits to medium and heavy-duty ZEVs could potentially work counter to the proposed increased stringency of the targets. Because vehicle manufacturers and fleet owners face regulatory mandates to transition the medium- and heavy-duty vehicle fleets to ZEV technology, incentives already exist for affected parties to provide for infrastructure to support these technologies. Providing additional incentives in the form of LCFS credits may lead to cred price dilution, thus further weakening the credit market and reducing incentives for development of all low-carbon transportation fuels. It is not clear that CARB has modeled both of these phenomena in conjunction, and staff may not have a clear indication of how the market will emerge and continue to drive innovation and investment in low-carbon transportation fuels. (45d-173.6)

Comment: In previous comments, WSPA expressed significant concerns regarding proposed changes that affect crediting for ZEV charging, which would unreasonably favor ZEV technologies above other emission-reduction technologies. Rather than address these comments, CARB is now proposing to expand these changes. (15d2-195.26)

Agency Response: No changes were made in response to this comment. The LCFS ZEV infrastructure program addresses the “chicken-and-egg” problem by incentivizing

the construction of infrastructure ahead of the demand from the purchase of vehicles required by other regulatory mandates. Electricity and hydrogen, as zero emission fuels, are highly desirable but lack the existing infrastructure and demand that fossil fuels and drop-in low-carbon fuels can rely upon. The zero emission infrastructure programs provide certainty that a zero-emission fueling site will have cash flow even while the fueling infrastructure is still developing and demand is low. The Q2 2024 estimated potential credits for each program as a fraction of allotted credits—roughly one-fifth for FCI, and one-half of HRI—demonstrate that keeping the current 2.5% of deficits limit for light duty stations provides additional room for new stations. A new 2.5% tranche each for heavy-duty HRI and FCI program incentivizes zero emission fueling infrastructure for fleets, which have different fueling characteristics than light- and medium-duty vehicles. Staff considered the additional credit generation impact of these infrastructure programs when developing the proposed benchmark curve.

J-4 Multiple Comments: *Support for ZEV Infrastructure Program Amendments*

Comment: We applaud the proposed extension of Hydrogen Refueling Infrastructure (HRI) crediting to medium and heavy-duty vehicles, along with additional time for light-duty vehicle stations and look forward to working on language with CARB to accommodate refueling stations that serve all vehicle types. (45d-214.4)

Comment: Air Products strongly supports the expansion of crediting to medium and heavy duty (MHD) vehicles and continued crediting for light duty (LD) vehicles. (45d-214.21)

Comment: The proposed expansion of the HRI credits to include Heavy Duty stations will provide a mechanism to encourage this infrastructure investment and we are strongly supportive of the proposed program introduction. (45d-223.2)

Comment: ICA believes that a similar infrastructure crediting program for medium- and heavy-duty vehicles will help achieving the MHD ZEV Mandate targets. MHD ZEV is a necessary strategy for decarbonization of transportation sector and a more efficient way of using fuels (EER of 1.9 for MDH fuel cell). Hence ICA strongly supports CARB's proposal to extend the infrastructure crediting program to medium- and heavy-duty-(MHD) vehicles. (45d-254.4)

Comment: PLEASE prioritize upgrading transportation infrastructure to zero emission vehicles. (45d-399.4)

Comment: Joby supports staff's proposed amendments to the LCFS from December 2023, which expand the existing capacity credits for light-duty to now include medium- and heavy-duty (MHD). Joby is appreciative of both capacity credits: (1) MHD Direct Current (DC) Fast Charging Infrastructure (FCI) and (2) MHD hydrogen refueling infrastructure (HRI). As outlined, the "MHD provisions will provide LCFS credits for the unused refueling capacity at eligible stations and sites, which will naturally phase out as more vehicles become operational and vehicle refueling demand increases."

Joby is particularly supportive of the proposed expansion of the MHD-HRI and MHD-FCI provisions to include private infrastructure in addition to public infrastructure. (Apr-106.5, 106.6, 106.7)

Comment: We support CARB's pursuit of evolving the LCFS to meet the on-going needs of bolstering ZEV sales and the corresponding public and shared-private charging infrastructure buildout for the light-duty, medium-duty and heavy-duty segments of the ZEV market, while maintaining a core emphasis on equity. (Apr-113.3)

Comment: Hydrogen refueling station (HRS) developers assisted CARB in the development of a heavy-duty (HD) capacity credit program that could be built into the Low Carbon Fuel Standard (LCFS). The program, modeled after the light-duty (LD) HRI program, included a capacity cap of 6,000 kg/day with a 50% discount applied to unused capacity. The concept was developed using the current LCFS compliance curve and agreed upon by both CARB and HRS developers as adequate to promote HD HRS development. It has now been included in the proposed LCFS amendments, which industry greatly appreciates. (Apr-141.1)

Comment: PACT continues to support CARB's decisions regarding holdback credits investments in M/HD ZEVs. This expanded list will encourage wider and more diverse utility investments in the transportation electrification sector. With respect to M/HD fleets and infrastructure, PACT continues to support the staff proposal to expand LCFS rebates for drayage vehicles to include other M/HD or off-road vehicles and investments in grid-side distribution infrastructure. PACT also continues to support the staff proposal to require that at least 75% of such credits be invested in transportation electrification. (15d1-088.5)

Comment: WeaveGrid is strongly supportive of the retained proposed amendments from the December 19, 2023 proposed amendment update within Section 95483(c)(1)(A)5.b.1 As EV adoption in California increases, California needs to adapt the grid accordingly. WeaveGrid appreciates that the focus of these proposed additional allowable holdback projects supports greater grid investment to accommodate a growing number of EVs on California's roads. We support the additions in this section, including investments in distribution infrastructure for EV charging, support for vehicle-grid integration (VGI) projects, and technology, such as EV load management software, that can avoid or reduce grid upgrades. Distribution grid investments ensure that charging infrastructure needs are met, especially in underserved communities and for medium- and heavy-duty electric vehicles. VGI projects help EV drivers charge when and where it is most beneficial for the grid and customers.² VGI enables cleaner charging by increasing renewables integration and providing a signal for drivers when it is cleanest to charge.³ Technology helps enable VGI and makes it more driver-friendly by being more automated. VGI projects that use automated technology can benefit from greater participation and, therefore, better outcomes.

Increasing the use of VGI in California is critical to meet clean electricity, clean transportation, and affordability goals. Electrical distribution utilities (EDUs) are the key player to enable effective VGI. More sophisticated VGI includes managing EV charging based on ever-changing grid conditions. To enable cheaper and cleaner charging, grid-aware inputs are required for VGI. For example, renewable energy curtailments can be reduced by charging more vehicles when renewable energy generation is abundant. Another example is avoiding charging when there is higher grid congestion at a local distribution or bulk system level. Among the many approaches to VGI, EDUs are best positioned to incorporate relevant grid signals into their VGI projects. It is for this reason that we emphatically support the VGI-related pre-approved uses for EDU holdback credits. (15d1-051.1)

Comment: When I bought my Hydrogen Mirai in 2021, fuel cost was \$13/Kilogram. It has now increased to \$36/Kilogram, which is unsustainable for me. I believe Hydrogen is the answer for zero emission vehicles, but the infrastructure needs to improve, and barriers removed to drive the price down. Please do what you can to help with this effort! (15d1-061.1)

Comment: I bought if you sell vehicles, and I am committed to the promise of this technology holds. But over the last year that commitment has waned as it has become extremely hard to continue to use my vehicle. The cost of hydrogen and the greatly reduced incentives for suppliers to improve infrastructure and supply have made it an extremely frustrating proposition for a supporter of fuel cell vehicles, like myself, to continue to justify support for it. When I first purchased my vehicle more than a year and a half ago, I was fully committed to the idea and had every intention to continue purchasing fuel cell vehicles. That position has completely changed and unless support for the LCFS is renewed and strengthened, I cannot see myself continue to support fuel cell technology. (BH-099.1)

Comment: Modifications to Section 95486.4. Generating and Calculating Credits for ZEV Fueling Infrastructure Pathways for Heavy-Duty Vehicles.

We appreciate and support the addition of local funding for eligibility and by extension the location flexibility added for those stations. (15d2-222.8)

Comment: the proposed amendments that expand the current ZEV infrastructure crediting provisions beyond light-duty infrastructure to medium- and heavy-duty infrastructure, while extending the light-duty crediting with an emphasis on equity will help reduce the risk of under-utilized chargers and drive the buildout of necessary infrastructure. (15d2-223.2)

Comment: Notably, the proposed heavy-duty fast charging infrastructure (HD-FCI) program has the potential to be one of the most important programs in helping to deploy the charging infrastructure necessary for California to meet its zero emission transportation goals set by Governor Newsom's Executive Order N-79-20, along with recent regulations like the Advanced Clean Trucks (ACT) and Advanced Clean Fleets (ACF) rules. The HD-FCI provision addresses utilization risks in the early market phases, helping solve the "chicken or egg" dilemma that currently hinders infrastructure deployment. We appreciate the Board and staff's willingness to incorporate our extensive feedback during this process. (BH-013.2)

Comment: As an owner of a hydrogen car, I urge the board to promote, and support increased green hydrogen refueling stations for commercial and private use. I would like to use my car to travel outside the Los Angeles basin in order to visit family, vacation and travel throughout California and hopefully nationwide. (BH-073.1)

Comment: The expansion of infrastructure credits for zero-emission vehicle charging and hydrogen refueling are critically important to achieve California's zero emission vehicle regulations and executive orders.

Californians deserve alternative fuel options to gasoline and electric powered vehicles. Hydrogen production allows us to create electricity to power our vehicles while we are driving instead of the proliferation of charging stations, currently hindering our ability to access hydrogen pumps. Hydrogen is a cleaner, more efficient and potentially less expensive fuel alternative.

I urge the adoption of proposed low carbon fuel standard amendments. (BH-091.1)

Multiple Comments: As an early adopter of a fuel cell electric vehicle, it is imperative to fix California's Low-Carbon Fuel Standard (LCFS). The LCFS has been one of the strongest carbon markets in the world, driving significant private investment in achieving the carbon intensity (CI) reductions in transportation fuels and leading the way for more than a half dozen other states who are developing similar programs.

The strength of this market signal was working and lowered hydrogen prices to the \$10-\$12/kg range. Station developers were building stations without public grant funding. However, post-pandemic the LCFS market has ceased to support fuel cell electric vehicles and hydrogen station development.

We must immediately fix the LCFS to drive investment to hydrogen refueling stations which are necessary to achieve California's 2045 carbon neutrality goal. The expansion of infrastructure credits for zero-emission vehicle charging and hydrogen refueling are critically important to achieve California's zero emission vehicle regulations and executive orders.

I urge you to support the adoption of the proposed changes to the LCFS TODAY! (BH-076.1), (BH-084.1), (BH-085.1), (BH-042.1), (BH-044.1), (BH-055.1), (BH-100.1), (BH-062.1), (BH-066.1), (BH-069.1)

Comment: Third, on the battery EV site, we support the expansion of capacity crediting to medium-duty and heavy-duty stations and the second round of 15-day changes regarding verification provisions. (BHT-138)

Comment: CALSTART particularly appreciates the amendments that extend capacity credits for fast charging infrastructure and hydrogen refueling infrastructure to the medium- and heavy-duty transportation sector. These sectors account for a disproportionate share of harmful emissions, so CARB's focus here is an important step.

Expanding credit pathways for medium- and heavy-duty vehicles not only addresses high emission sources, but also incentivizes essential funding for charging and refueling infrastructure. This infrastructure is critical for enabling fleets to transition to zero-emission vehicles, especially as we move toward a potential full fleet transition. (BHT-144)

Comment: The Low Carbon Fuel Standard has been a critical enabler for the zero-emission vehicle transition, and the revisions before you will help enable the ZEV transition for drayage truck fleets and other heavy-duty fleets. This is the type of market-based policy that helps enable the economics necessary to fuel the zero-emission vehicle transition that is so critical to achieving California's and society's climate goals.

Significantly, these policies help unlock private investment from companies such as Voltera in infrastructure build-out and our customers in acquiring zero-emission vehicles and accessing charging. (BHT-168)

Comment: Additionally, we'd like to express our support for the heavy-duty fast charging credit ZEV provisions and more broadly for the urgent need to continue public investment in heavy-duty ZEVs to accelerate the transition of the drayage and freight sectors to zero emissions. (BHT-236)

Comment: Simply put, I don't see how we can make this transition away from diesel to zero emission without this program. These are the stakes and I urge a yes vote on this amendments.

There are two major elements to the amendments here that will benefit electric trucking. First, the Program provides crucial revenue for electric truck operators. Every hundred dollars in credits -- for every hundred dollar in credit, that translates to about a thousand dollars a month for a typical electric truck drayage driver. That is transformative in terms of being able to compete with diesel. Simply put, if we cannot offer a program that competes with diesel, they will not make the transition.

And there is no other program that I know of that can really complete that cost gap and can take the place of this program. (BHT-45)

Comment: Secondly, the capacity crediting program is transformative in terms of allowing us to deploy charging infrastructure in advancement of the truck availability and will really accelerate our transition. (BHT-46)

Comment: I wanted to take a moment to thank you for your actions to advance California's zero-emission transition in the commercial sector and urge you to support the amendments before you today, which will improve the Program and lead to more charging infrastructure and vehicles in the commercial sector in the coming years.

I also want to echo some of the comments provided by EV Realty and Forum Mobility, and just reiterate, you know, on the ground, because of LCFS credits, Zeem has been able to open the largest commercial EV charging depot in the U.S. based outside of LAX in Inglewood.

LCFS is a critical tool for advancing zero-emission freight. The LCFS program supports transportation electrification by facilitating infrastructure deployment. And the proposed amendments significantly enhance this, especially the heavy-duty FCI program, as mentioned by others before. (BHT-47)

Comment: And so we were concerned when the initial staff proposal came out, the 45-day and the subsequent two 15-days. But to staff's credit, they listened to our Industry. They worked with us. They made thoughtful and reasonable changes to the HRI.

However, we are encouraged by the resolution language. And with a modest change to make the CapEx and the capacity limits explicit in the resolution, we're happy to fully support staff's proposal. (BHT-48)

Comment: The LCFS program has always been fundamental to California's efforts to decarbonize transportation, and we strongly support a yes vote to drive even greater progress and to meet our State's zero-emission goals.

Most importantly, the amendments inclusion of the heavy-duty FCI provision will significantly bring economic support to freight electrification by addressing utilization risks in the early market phases, helping solve the phrase we hear all the time, the chicken and egg dilemma that's currently hindering a bit of infrastructure deployment, especially as it comes to private sector investment. Not only will the proliferation of medium and heavy-duty charging nations improve air quality statewide, but it's important to note that these charging hubs are most often

built in underserved and disadvantaged communities, bringing thousands of jobs, permitting dollars, and sales tax to where they have the most positive effect and impact. (BHT-55)

Comment: This update has some technical fixes that are still necessary, and I think a lot of people are going to express that over the course of today. We think that the resolution goes a long way to ensuring that staff will continue to work with the stakeholders here to make sure that that happens. We think that there might be some nuanced fixes in the resolution to get us a little bit closer to that in sending the appropriate economic signal to our members, and to the investors in this space, so that we can get the zero-emission infrastructure deployed on time. (BHT-85)

Comment: Supporting electric and hydrogen truck refueling;

Sure, like I mentioned, multiple things can be done at once to foster a working together atmosphere. But, if you are burying people because they have gas powered cars and do NOT have the money to buy another more expensive car quicker than they can afford to do, that will have adverse effects. (BH-071.4)

Comment: California has seen how the LCFS credits have helped spur the development of hydrogen refueling stations over the years. Most recently, it has seen how a poorly administered LCFS can stunt its progress.

As an early adopter of fuel cell vehicles, I support the proposed changes to the LCFS so that California can continue to fulfill its ZEV mandates while embracing all pathways toward that ambitious goal. In particular, the HRI credits must be bolstered so that station developers feel supported enough to inject private funding into developing the infrastructure. (BH-077.1)

Comment: Please vote "no" to the LCFS update. What we as a state need to focus on is zero emissions transportation - not on transportation fueled by biofuels and dirty hydrogen. I live close to two refineries which have converted to the production of biofuels. Such investments deepen the hole we have dug for ourselves, lengthening the time we pollute our sky with greenhouse gases.

Instead, let's get the fast charging infrastructure in place and incentivize truckers to move to electric vehicles. (BH-097.2)

Comment: I drive a fuel cell electric car, a first-generation Toyota Mirai and her name is Maxine. I have driven fuel cell electric cars for more than ten years in Los Angeles and love them: Honda Clarity, Hyundai Tucson and NEXO, Toyota Mira, gen 1 and gen 2. They're damn fun to drive and they have served me well.

As a result, I have seen the rise in the price per kilogram over the last five years and it concerns me. I am aware of the several causes of the spike in price at the pump, including the Low-Carbon Fuel Standard (LCFS) program. It must be fixed, and I implore you to do so.

There are enough studies (CARB, UC Davis, etc.) that show that California light-duty vehicle market needs a mix of drivetrains. I must admit that I am concerned about California placing all of its eggs (or cars) in one technology basket. In addition to creating resiliency in the vehicle market, a strong light-duty hydrogen fueling network will support cars, pickup trucks and, in the near future, medium-duty trucks. (BH-081.1)

Agency Response: No changes were made in response to these comments. Staff appreciates the commenters' support for the rulemaking process and staff's efforts.

J-5 *Deployable Electric and Hydrogen Truck Refueling*

Comment: Supporting electric and hydrogen truck refuelling - In this context, we note that our TPE technology is modular, can be sized to meet local demand and can be deployed to produce hydrogen at point of use. TPE is also capable of producing hydrogen on a flexible basis; this means it can deliver hydrogen volumes in response to demand patterns. This makes it particularly suitable for the production of hydrogen at truck refueling stations. (45d-225.3)

Agency Response: No changes were made in response to this comment. Staff appreciates the commenter's sharing of information.

J-6 *Multiple Comments: Crediting Factor and Carbon Intensity for HRI and FCI Should Be Equal*

Comment: We believe there is a lack of equity between the proposed LD FCI program and the LD HRI program. Specifically, we strongly appeal to CARB to reconsider the allowance of REC matching to achieve 0 CI electricity in the FCI formula. Doing so, would create equal conditions for FCI and HRI, as currently only H2 can claim 0 CI as per the proposed regulation. (45d-238.6)

Comment: CARB should continue to focus on parity between incentives for EV charging and hydrogen fueling. As such, FCI and HRI programs should have the same formula for calculating credits. The formula for a shared HD-HRI station includes a 50% factor and a private HD-HRI station includes a 25% factor. However, a shared HD-FCI charging site has a 20% factor and an FSE at a private HD-FCI charging site has a 10% factor. CARB should continue to harmonize the HRI and FCI programs by amending these factors to be the same for both programs. Second, CARB currently gives preferential treatment to hydrogen stations – despite showing no signs of commercial success – over EV charging stations when assigning the CI for capacity credits. Hydrogen stations utilizing the HCI pathway receive a CI of the “Company-wide weighted average CI for dispensed hydrogen during the quarter or 0 g/MJ, whichever is greater” while electric vehicle charging stations utilizing the FCI receive a CI of the “California average grid electricity carbon intensity” regardless of whether the EV charging company is utilizing 0 CI RECs for the rest of their charging. CARB should treat hydrogen fueling and EV charging equally by either giving hydrogen HRI capacity credits a CI of the last reported industry average, or by allowing EV charging FCI capacity credits to be generated off of a 0 CI if the company is using REC matching for the rest of their charging. (15d1-029.6)

Comment: To strengthen the FCI pathway yet further and to ensure fair treatment across both the FCI and HRI pathways, we also recommend that the final language be amended to allow FCI credit generators to claim capacity-based credits at zero CI if the site's charging activity is matched with renewable energy. Under the regulation, the CI used for HRI crediting is equal to the companywide average CI for dispensed hydrogen in the quarter “or 0 g/MJ, whichever is greater.” But the CI used for FCI crediting is “the California average grid” CI with no option to generate credits at zero CI like that available to HRI claimants. If charging network providers

are sourcing renewable energy to power their sites, the regulation should permit them to earn capacity-based credits at zero CI, just as in the HRI pathway. This will only enhance the impact of the LCFS on clean grid buildout. We respectfully encourage the staff and Board to consider this modification. (15d1-107.5)

Comment: Allow zero carbon intensity electricity just like the proposed HRI program. The proposed 15-day change regulation gives preferential treatment to hydrogen stations over electric vehicle charging stations when assigning the CI for capacity credits. Hydrogen stations utilizing the HRI pathway receive a CI of the “Companywide weighted average CI for dispensed hydrogen during the quarter or 0 g/MJ, whichever is greater.” DCFC stations utilizing the FCI receive a CI of the “California average grid electricity carbon intensity” regardless of whether the EV charging company is dispensing low-CI electricity such as retiring 0 CI renewable energy credits (RECs) for generating non-residential charging credits. We encourage CARB to harmonize the CI definition for calculating HRI and FCI credits as “Company-wide weighted average for dispensed hydrogen / electricity during the quarter or 0 g/MJ, whichever is greater.” (15d1-150.3a)

Comment: Allow zero carbon intensity electricity just like the proposed HRI program for LMD FCI. The proposed 15-day change regulation gives preferential treatment to hydrogen stations over electric vehicle charging stations when assigning the CI for capacity credits. Hydrogen stations utilizing the HCI pathway receive a CI of the “Company-wide weighted average CI for dispensed hydrogen during the quarter or 0 g/MJ, whichever is greater.” DCFC stations utilizing the FCI receive a CI of the “California average grid electricity carbon intensity” regardless of whether the EV charging company is dispensing low-CI electricity such as retiring 0 CI renewable energy credits (RECs) for generating charging (FCI) credits. We encourage CARB to harmonize the CI definition for calculating HRI and FCI credits as “Company-wide weighted average for dispensed hydrogen / electricity during the quarter or 0 g/MJ, whichever is greater.” (15d1-150.4b)

Agency Response: No changes were made in response to this comment. The LCFS ZEV infrastructure programs incentivize the establishment of hydrogen and electric fueling infrastructure, as hydrogen and electricity are unable to utilize the existing fossil fuel infrastructure that other low carbon fuels like ethanol and renewable diesel can. Hydrogen refueling infrastructure is more capital intensive than electric fueling infrastructure, and so HRI FSEs have larger infrastructure crediting factors FCI FSEs do. All new HRI and FCI programs have ZEV crediting limited to 1.5x of initial capital expense. In CARB Resolution 24-14, the Board directed staff to continue to monitor hydrogen refueling or electricity fast-charging availability supported by the updated LCFS hydrogen refueling infrastructure or direct current fast charging infrastructure crediting provisions, including any station capacity limits or caps on credit limits, to determine if any adjustments may be warranted as part of a future rulemaking effort.

Grid carbon intensity is used for FCI as the grid would be the source of electricity used for fueling with no additional action taken. Similarly, an entity’s hydrogen fleet’s carbon intensity is used for HRI, as that represents the source of hydrogen with no additional action or further assumptions taken.

J-7 Multiple Comments: *Corrections in Amendments to Match Intent; Typographical Errors*

Comment: With regard to subparagraph (D)(1) Shell asks that CARB confirm that this only applies when subparagraph (D) is met. In other words, "Any station built as a required mitigation measure pursuant to the California Environmental Quality Act ... is not eligible for MHD-HRI crediting" if it "is permitted to operate prior to January 1, 2022, or ... ". (45d-088.5)

Comment: Moreover, there is a misalignment in the Energy Economy Ratio (EER) value split and the new HRI provisions as MD vehicles are coupled with LD vehicles in Table 5 for EERs, but are coupled with HD vehicles for the purposes of HRI crediting which apply a credit calculation formula employing an HD EER. Please clarify what tracking or recordkeeping is necessary to assign the correct EER value for HRI crediting. (45d-214.26)

Comment: References in proposed §95486.3 (a)(4)(G) (see below) – should be (a) and not (b). The HRI section in Appendix A-2 inadvertently references the FCI provisions. (45d-214.29)

Comment: §95486.3 (a)(1)(D)- Clause (D) appears to contain redundant sub-clauses (D)2. and (D)3. Editing or clarification could improve this section. (45d-391.76)

Comment: §95486.3 (a)(4)(G)- The concept of limiting capacity credit revenue to a specified fraction of total capital minus grant revenue seems appropriate to avoid additionality issues. However, this section appears to be referencing wrong sections. Instead of §95486.3 (a)(6)(B)1, 95486.3 (b)(6)(B)5 and 95486.3 (b)(6)(B)6, it may have intended to reference §95486.3 (a)(6)(C)1, 95486.3 (a)(6)(C)5 and 95486.3 (a)(6)(C)6. (45d-391.79)

Comment: We recommend that CARB realign the definition of “Application” in the regulation to correspond to the categories of vehicle types for the purposes of the HRI categories. For example, with the transition of ZEV-HRI crediting to LD-HRI crediting, the term LD becomes a standalone application. (Apr-103.18)

Comment: The provisions appear to be structured to give the HD FCI and HRI pathways priority over the LMD ones for access to the pool of available HRI and FCI credits; this aligns with multiple statements of intent to prioritize policy support for HD ZEV deployment to allow California to meet its climate and air quality goals. The implementation of this prioritization, however, appears to create a loophole through which significantly more credits to be issued via HRI and FCI pathways than the stated 2.5% limit would allow. § 95486.3 (a) (3) (A) (1) (which applies to LMD HRI pathways, though similar language exists in § 95486.3 (b) (3) (A) (1) for LMD FCI pathways) states “If estimated potential HRI credits from all approved HRI and LMD-HRI stations exceed 2.5 percent of prior quarter deficits, the Executive Officer will not approve additional HRI pathways, and will not accept additional LMD-HRI applications until estimated potential HRI credits are less than 2.5 percent of deficits”. The intent of these sections is clear: that total HRI and FCI potential credit generation should not exceed the 2.5 percent of prior quarter deficits limit. Language in the HD HRI and FCI sections, however, establishes a slightly different test. § 95486.4 (a) (3) (A) (1) states (and equivalent language in § 95486.4 (b) (3) (A) (1) mirrors) “If If estimated potential HD-HRI credits from all approved stations exceed 2.5 percent of deficits in the most recent quarter for which data is available, the Executive Officer will not approve additional HRI pathways for HD-HRI stations and will not accept

additional applications until estimated potential HRI credits for approved HD-HRI stations are less than 2.5 percent of deficits.” The critical difference between the provisions in the LMD pathways and their HD equivalents is that the HD pathways only test to see whether estimated potential credits from all approved HD stations exceed 2.5 percent of prior quarter deficits, whereas the LMD stations test to see whether the sum total of LMD and HD stations exceed the 2.5 percent threshold. This structure seems intended to prioritize HD stations access to the allowable pool of credits in the event that the 2.5% limit is approached or reached. However, the specific structure proposed creates a loophole that could allow this 2.5% ceiling to be broken. If, for example, in a given quarter LMD-HRI stations generate estimated potential credits equal to 1% of prior quarter deficits and HD-HRI stations generate estimated potential credits equal to 1.6% of prior quarter deficits, the Executive Officer would not approve additional LMD-HRI pathways, but would continue to approve HD-HRI pathways until they reached the 2.5% limit. If approvals of HD-HRI pathways in that quarter added additional potential credit generation equal to 0.9% of prior quarter deficits, the actual potential credit generation from HRI pathways in that quarter would be equal to 3.5% of prior quarter deficits, 2.5% from HD-HRI pathways and an additional 1% from the existing LMD-HRI pathways. This exceedance could result in significantly more credits than anticipated or nominally permitted being issued to HRI pathways in contradiction to the intent of these provisions and further exacerbating the oversupply of credits discussed earlier in this letter. (15d1-251.6)

Comment: Attachment 2, Credit Quantification Equations for HRI and FCI Pathways- In our reading of this attachment, we note several areas where the subscripts on variables in credit quantification equations appear to be inconsistently used. For example, § 95486.3 (a) (3) (B) presents the following equation to quantify potential LMD-HRI credits:

However the description of variables below lists *Prior qtr CreditsLMD-HRI* rather than *Prior qtr CreditsLMD-H*. It is unclear which variable name is intended here. Careful reading and cross-referencing generally allows the intent of these provisions to be ascertained, but we suggest Staff carefully review these equations for consistency to prevent misinterpretation by stakeholders moving forward. (15d1-251.22)

Comment: Attachment 2, Provisions regarding limitations on number of credits generated by HRI and FCI pathways-We observe inconsistent use of “deficits” and “prior quarter deficits” in these sections, and while the intent seems clear and discernable as written, aligning the language in these sections could reduce the possibility of future misinterpretation. (15d1-251.23)

Agency Response: Changes were made in response to these comments. Staff appreciates the commenters’ identification of errors during the creation of the amendments, and has corrected this language to match the intent stated in the notices.

J-8 Public ZEV Stations Should Include Reservability Options

Comment: Public LMD-FCI Charging Site and Public LMD-HRI Station- The definition of these stations indicates that chargers or stations must not be reservable during public hours. The intent of this definition is clear and in concept, appropriate. It may be useful, however, to allow very limited exemptions from the ban on reserving chargers or stations. If a driver in a vehicle is near a station and in need of recharging or refueling, allowing them to reserve a slot while

they are en route (e.g. less than an hour away) may allow for more efficient planning and allocation of charging or refueling capacity in heavily-trafficked areas. Care must be taken to ensure that automated, speculative, or consecutive reservations do not expand this exemption beyond its limited intent. (15d1-251.6)

Agency Response: No changes were made in response to this comment. The LMD-HRI and -FCI programs include incentives for FSEs with reservability options. Entities may have non-public LMD ZEV FSEs that have reservability options co-located with public LMD-ZEV FSEs, or have public LMD ZEV FSEs utilize reservability options during their non-public hours.

J-9 *Threshold Level for ZEV Infrastructure Credits Should Be Greater Than Zero*

Comment: § 95486.2 (b) (4) (F)- Proposed changes to this provision would require a station that receives FCI credits to dispense electricity in each quarter that it receives such credits. This requirement aligns with the intent of the HRI and FCI provisions, to support the deployment of critical refueling and fast charging infrastructure in advance of vehicle deployment. Requiring some actual dispensing of electricity ensures that a station must actually contribute to refueling of ZEVs in California to receive infrastructure credits. We suggest Staff consider adding a significance threshold to this requirement, to ensure that a single charging event, or isolated handful of them, cannot by themselves maintain eligibility for infrastructure capacity credits. This protects against the possibility that a fast charger operator would utilize their own charger once a quarter solely for the purpose of maintaining eligibility for FCI credits. (15d1-251.21)

Agency Response: No changes were made in response to this comment. Staff understands that a single fueling event is enough to make an FSE eligible for ZEV infrastructure credits, but anticipates that such scenarios may only occur due to conditions outside the FSE owner's control, such as a delay by a contracted fleet. Furthermore, a threshold level may vary based on location, capacity and site type, and more information is needed to determine an appropriate threshold based on these characteristics.

J-10 *Multiple Comments: ZEV Infrastructure Programs Should Include Aviation*

Comment: To ensure the LCFS decreases the CI of California's transportation fuel pool and provides an increasing range of low-carbon and renewable alternatives, Joby believes it is imperative that electric and hydrogen aviation is explicitly included within the relevant definitions. As currently defined, "private MHD-FCI charging site" means an EV fast charging site that can be limited to be available only to MHD EVs under single ownership." Additionally, "private MHD-HRI station" means a hydrogen refueling station that can be limited to be available only to MHD FCEVs under single ownership." These definitions, as currently stated, are unclear about the eligibility of electric and hydrogen aviation. Therefore, Joby urges CARB to explicitly include electric and hydrogen aviation within both definitions. In doing so, the LCFS program can incentivize the decarbonization of aviation within the transportation sector and, in doing so, drive progress towards achieving California's climate targets.

The inclusion of electric and hydrogen aviation will likely have national impacts given that California policy frameworks are often used as models for federal legislation. (Apr-106.8)

Comment: Joby nevertheless believes it is imperative that electric and hydrogen aviation be explicitly included within the relevant definitions. The inclusion of electric and hydrogen aviation will likely have national impacts given that California policy frameworks are often used as models for federal legislation. Specifically, California's LCFS is often replicated by other states. To date, four states have adopted similar clean fuel programs and an additional eight states have pending policies.⁷ Therefore, the explicit inclusion of electric and hydrogen aviation can help set precedent for a cleaner aviation sector nationally. (15d1-076.3)

Agency Response: No changes were made in response to this comment. LMD HRI stations and FCI sites must be accessible to light- and medium-duty vehicles, but can be accessible to other vehicles, and HD HRI stations and FCI sites must be accessible to heavy-duty vehicles, but can be accessible to other vehicles. The regulation does not prohibit the fueling of aircraft from HRI and FCI approved fuel supply equipment that also meets the requirements for either LMD or HD infrastructure crediting.

J-11 *Remove Circumvention of Entity's HRI Program Capacity Limit via Designation*

Comment: Air Products appreciates the flexibility in provisions in 95484.2(a)(1), (a)(7), and 95486.3(a)(1) to allow the dispenser owner or designee to apply for HRI credits. However, we recommend that CARB add a provision for executive officer review and discretion to negate such an arrangement if said arrangement is found to circumvent the 1% deficit cap for a single entity or any other relevant provision for HRI crediting. A company applying for credit should not be able to exceed the deficit cap simply by diversifying the credit claims via multiple commercial arrangements and registered entities. (45d-214.23)

Agency Response: No changes were made in response to this comment as this scenario presented by the commenter is unlikely. Designation in the LCFS program has been used primarily to assist small credit generators reduce administrative costs associated with participating in the LCFS program. For the HRI program in particular, the hypothetical presented would be particularly unlikely, as the designee for HRI credits must also be the designee for hydrogen credits, and the carbon intensity used to calculate HRI credits is the company-wide, weighted average carbon intensity.

J-12 *Multiple Comments: HRI Program 24-Month Operability Requirement Should Be Removed*

Comment: Subparagraph (4)(F): This language needs some flexibility because it does not account for the reality that operators, despite good faith efforts, may not be able to comply with the 24-month operability requirement. Shell requests a mechanism to seek a variance or waiver from the Executive Officer from the 24-month operability requirement for good cause shown. (45d-088.6)

Comment: The stipulated 24-month timeline from HRI approval to bringing the Hydrogen Refueling Station (HRS) online raises concerns due to permitting and supply chain delays that have been common to date. The retraction of an approved HRI award has a substantial impact on the viability of a project. We propose granting the Executive Officer the discretion to extend this timeline, provided tangible progress is evident, similar to the flexibility afforded in ACF regulations. Moving to the approval process for HRI applications, while we agree with the imperative to expedite approvals, the suggestion of tying approvals to a calendar quarter

seems overly rigid. Instead, we advocate for a more streamlined 90-day approval period, maintaining efficiency without compromising the thorough evaluation of applications. Lastly, the current practice of requiring Original Equipment Manufacturer (OEM) certification for a station before operations appears antiquated in the current landscape. It is pertinent to reconsider and potentially eliminate this requirement, aligning with industry advancements and ensuring regulatory practices remain synchronized with technological progress. In essence, these proposed adjustments aim to strike a balance between expeditious progress and a comprehensive evaluation, fostering an environment conducive to the dynamic and evolving nature of hydrogen infrastructure development. (45d-302.9)

Comment: The requirement that stations must be constructed within 24 months or risk application cancellation is too rigid. Given the complexities and potential delays in station construction, this timeline could result in the cancellation of viable projects and further deter investment. HRS have not received the same legislative support for streamlining and interconnection that charging infrastructure has enjoyed over the years. While we have worked diligently to advance our own legislative efforts, these remain incomplete, and the timing of station openings is far less predictable than for charging stations. HRS relies heavily on HRI credits to secure financing, and the risk of losing HRI approval due to permitting delays, supply chain issues, or construction setbacks introduces too much uncertainty for investors. Recommend: Providing an extension process subject to Executive Officer approval. (15d1-245.24)

Agency Response: No changes were made in response to these comments. Staff recognizes that issue beyond an entity's control could delay in the operation of a hydrogen station, and so the amended language changes outright cancellation of an application to cancellation only to make room in the program if estimated potential credits exceed 2.5% of deficits. This change allows staff to prioritize review and approval of new HRI applications for stations that are operable sooner, which will help accelerate deployment of ZEV infrastructure. For applications where station operation has been significantly delayed, entities can re-apply with no penalty, which will be reviewed once estimated potential credits fall below 2.5% of deficits. The requirements for approval of an HRI application are definitive; applicants should consider the appropriate timing for application submittal of HRI-ready stations.

J-13 Multiple Comments: *HRI Co-Location Restrictions and Clarifications*

Comment: §95486.2 (b)(1)(C)- The proposed amendments specify protections against non-additionality of infrastructure capacity. These same conditions would also help guarantee the additionality of LD-HRI pathways as well, we suggest staff consider applying them to both LD-HRI and LD-FCI. (45d-391.45)

Comment: Air Products strongly supports the expansion of crediting to medium and heavy duty (MHD) vehicles and continued crediting for light duty (LD) vehicles. The current HRI program, in combination with other California incentives, has been very effective in promoting the build-out of zero-emission vehicle infrastructure. It is important that CARB build on this success by expanding the program to the truck and bus markets. This expansion will complement CARB's ambitious goals under the Advanced Clean Truck (ACT) and Advanced

Clean Fleet (ACF) regulations and help advance the state's goals for zero-emission vehicles in line with Executive Order N-79-20.

Air Products believes that multi-modal stations, which include fueling for both Light-Duty (LD) and MHD vehicles, utilizing shared compression, storage and dispensing equipment, will play an important role in California's hydrogen fueling network, provided that the correct policy signals are in place. Clarity is needed in the regulation or in guidance as to how the provisions in the separate LD and MHD sections apply and complement one another so as to recognize and encourage efficiencies associated with multi-modal stations. (Apr-103.16)

Comment: We appreciate the strategic pairing of Medium-Duty (MD) with Light-Duty (LD) vehicles, as they often frequent the same fueling locations due to their shared operational focus on serving population centers. This alignment is backed by a white paper from U.S. Auto Manufacturers, emphasizing the industry's view on MD vehicles and their specific operational needs. (15d1-245.15)

Comment: Provide Clarity for Hydrogen Refueling Stations Serving All Vehicle Types: We support the proposed changes in the 15-day package for Hydrogen Refueling Infrastructure (HRI) crediting to align light- and medium-duty stations in one category and heavy-duty in another category for generating credits but continue to seek clarity about how stations that serve all three vehicle types will be treated. This clarity is needed as multi-modal stations are the most efficient and flexible infrastructure, with shared equipment, to serve the growing mobility fleet. (15d1-135.4)

Comment: Class 3-6 trucks have unique refueling requirements that will benefit from refueling at either upgraded light-duty refueling stations or heavy-duty refueling stations. GM recommends that all future hydrogen stations should allow for the fueling of Class 4-6 vehicles which can be accommodated if the proper provisions are accounted for in the early planning stages of the stations. (15d2- 204.7)

Comment: § 95486.4 (a)(4)(D)

This subsection incorrectly states "HD-FCI" as opposed to "HD-HRI."

*Recommendation: A fleet-owned shared HD-HRI station cannot be reserved for one HDV fleet for more than 12 hours each day. There is no limit on the length of reservations at shared **HD-FCI HD-HRI** sites that are owned by third parties and designed for multi-fleet access so long as the site is shared and open to multiple fleets.* (15d2-222.9)

Agency Response: Changes were made in response to these comments. Co-location of a LMD-HRI station with a HD-HRI station is possible when the LMD-HRI station is a public LMD-HRI station. The LMD- and HD-HRI station applications are otherwise reviewed separately. The HD-HRI station may either be public or private. The two stations must be registered as separate FSE, even if they share some equipment. Separate FSE registration requires separate Station Operational Status Systems (SOSS) numbers with the Hydrogen Fuel Cell partnership (h2fcp.org).

J-14 Multiple Comments: HRI Programs Cap Should Be Modified

Comment: §95486.2 (a)(7)(F) - These amendments indicate that if estimated LD-HRI credits (i.e. those approved under the rules added by the proposed amendments, after January 1, 2026) exceed 0.5% of prior quarter deficits, then no new LD-HRI pathway applications will be accepted or approved. It is not clear, however, what happens if LD-HRI credits are less than 0.5% of prior quarter deficits but HRI credits (those approved under the existing protocol) are greater than 0.5% of prior quarter deficits, or if the sum of HRI and LD-HRI credits exceed 0.5% after January 1, 2026. Clarifying this behavior, especially regarding the possibility of the sum of HRI and LD-HRI credits exceeding 0.5% of prior quarter deficits would be helpful. (45d-391.43)

Comment: §95486.3 (a)(3)(A)- Proposed language limiting the total credit generation from MHD-HRI provisions aligns with previous HRI provisions by testing to ensure that the sum of issued credits plus potential credits from approved pathways does not exceed the specified level. If the Executive Officer approves multiple installations simultaneously, the aggregate cap could be exceeded. This protocol should clarify that approvals happen one at a time in sequence, rather than simultaneously in batches, for the purpose of assessing whether the credit generation cap has been exceeded. (45d-391.77)

Comment: §95486.3 (a)(3)(A)2.- This provision proposes to limit the credits generated by any one applicant to 1% of prior quarter deficits. Limiting credits to any single entity can help ensure equitable, competitive access to LCFS support. The proposed provisions, however, may not achieve this goal. As discussed in our comments on the definition of “Shared MHD-FCI charging site,” a variety of corporate structures exist that could allow a single entity to control multiple nominally independent entities, thereby becoming eligible to receive credits in excess of 1% of prior quarter deficits. Additionally, FPSM modeling of the LCFS credit market indicates that the program will generate 40 million or more deficits per year in the early 2030’s. 1% of this implies 400,000 or more credits could be issued to one entity. Assuming a credit price of \$100, this would allow up to \$40 million or more to go to an individual entity. We question whether this outcome is intended, or if it aligns with LCFS program goals. It also differs from comparable requirements for MHD-FCI shown in §95486.3 (b)(3)(A)2. (45d-391.78)

Comment: The restriction limiting HRI credits to 2.5% of deficits in the prior quarter, with a further limitation of 1% for any single applicant, is another restrictive measure that could significantly limit the program's impact. It is crucial to assess what these caps mean in terms of the number of stations and ensure they do not stifle network growth. Companies willing to take early risks in this market should not be disincentivized from building and deploying future stations. Recommendation: Eliminate the 1% cap for a single entity. (15d1-245.23)

Comment: For a scenario where the HD-HRI application is approved, and LMD-HRI application is not approved because LMD-HRI credits exceed the 2.5% cap there is need to edit **Section 95486.3(a)(1)(C)2 as follows:**

Any station previously approved for HRI crediting submitted before the effective date of the 2024 LCFS amendments or approved for LMD-HRI crediting; (15d2-206.9)

Comment: HRI continues to have limitations with the cap on HD capacity as well as the recording and recordkeeping requirements which add complexity. (15d2- 207.5)

Comment: Modifications to Section 95486.3. Generating and Calculating Credits for ZEV Fueling Infrastructure Pathways for Light- and Medium-Duty Vehicles.

We appreciate and support the elimination of the derate and the changes to the station capacity. The current HRI pathway works when market prices support investment. As described earlier in this letter, the advantage of the HRI pathway is the natural self-regulation based on current economics. However, with the 1.5X cap proposed the HRI is unlikely to perform as it has in the past. As proposed, HRI will not support capital and operational expenditures to support station economics during the ebbs and flows of market transition away from fossil fuels thus eliminating the risk management that this pathway was intended to solve.

Additionally, planned stations with existing awards should be grandfathered into the existing pathway as the 1.5X cap undermines investment and will further risk those awards. Preferably, the 1.5X cap will be eliminated and therefore eliminate the need for grandfathering.

Recommendation: Eliminate the 1.5X cap for both HRI pathways by striking, in full, § 95486.3 (a)(4)(H) and § 95486.4 (a)(4)(I). (15d2-222.7)

Comment: The continued inclusion of a 1.5X cap on capex for both HRI pathways and the 50% derate will undermine investments necessary to provide hydrogen fuel to a growing market. We are disappointed that our openness with staff and disclosure of data has been ignored. We urge the board to eliminate the 1.5X cap and adjust the HD HRI derate to 37.5% to support the hydrogen sector in supporting CARB's vehicle deployment targets in ICT, ACT, ACF, and ACCII, not to mention trains, maritime, and cargo handling equipment. (15d2-222.14)

Comment: Our biggest remaining concern is the 1.5 times capital expenditure (capex) limit to the cumulative recovery of LCFS credits for an LMD or Heavy-duty (HD) hydrogen refueling station (HRS). (15d2-227.2)

Comment: Existing HRI Program Works. The current LD HRI program has a 15-year timeframe and a capacity limit of 1,200 kg/d. The HRI program is intended to de-risk the building of stations before sufficient vehicle demand can sustain the HRS. The program is designed to be self-regulating and self-sunsetting with HRI credits never exceeding revenue from H2 sales. Under this rubric, and when LCFS credit prices were above \$100/ton, FEF was able to attract sufficient capital to build stations without capital grants from the state and expand the network of stations. The HRI also enabled us to keep hydrogen prices stable as LCFS prices fluctuated and, for a period of time, helped us maintain pump prices even when credit prices started to fall below \$100/ton. In short, the HRI was accomplishing its intent by addressing the "chicken-or-the-egg" conundrum. (15d2-227.3)

Comment: Proposed Capex Limit Increases Risk. The revised LMD-HRI and HD-HRI, however, now put significant risks on station providers by limiting the HRI period to 10 years and capping the cumulative incentive amount received to 1.5 times the capex of the station, which is a double constraint. Although the 10-year program limit is challenging, the greater

obstacle is the 1.5x capex limit. For example, if LCFS prices rise above \$100/ton, which is the intent of the step-down and strengthening of the program, station operators could reach their capex limit well before 10 years. But if vehicle rollout lags and there is limited H2 demand, the station operator will have no other revenue source and will be forced to increase pump prices to maintain operations. This would discourage further vehicle deployments, reduce current demand, and result in further raising of prices at the pump. This scenario is illustrated in the figure below, where there is no financial support once the HRI reaches the capex limit (year 5).

This is the exact opposite of what the HRI is intended to accomplish.

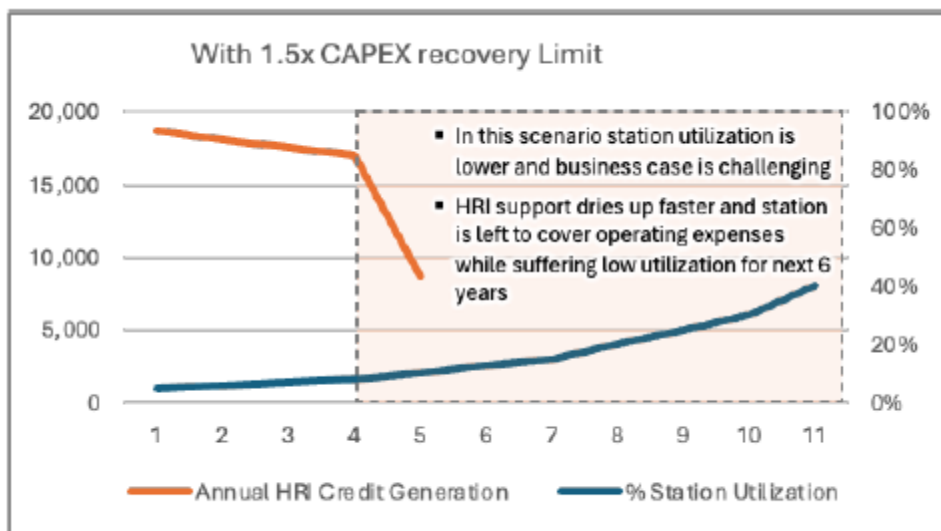


Figure 1: Slow Vehicle Rollout with Capex Limit

We strongly urge removing the 1.5 capex limit to support stations in the event vehicle rollout is slow and demand is low, as originally intended by the policy. Attached to this letter are additional slides with scenarios showing the differences between slow and aggressive vehicle rollouts with and without the capex limit. (15d2-227.4)

Comment: As such, at the very least, we request that any stations previously awarded through competitive solicitations by the CEC be grandfathered into the existing HRI program at the 1,200 kg/d capacity cap without the capex limit. (15d2-227.5)

Comment: constraining the HRI program with the capex limits puts greater risk on the station developers since the vehicle rollout is beyond our control. (15d2-227.6)

Comment: However, we still concern on the HD HRI provisions with the proposed cap structure and some delayed timeline to implement key provisions making credits supply/demand situation well balanced such as Auto-Acceleration Mechanism and Crop-based biofuel twenty percent cap implementation. Thus, we would like to submit the following comments for further consideration in response to the LCFS 15-day notice available on October 1, 2024. While acknowledging the continued improvements to the program, we would propose some critical refinements to ensure the success of hydrogen, and its necessary role in meeting California's 2045 carbon neutrality goal. (15d2-235.2)

Comment: However, we still see the language includes amount of HRI with 1.5x to capital expenditure (CAPEX), which limits the ability to reduce the cost of hydrogen at pump as it limits the cash flow in total. As this HRI credit and resulting cash flow are generated over operation rather than upfront support for CAPEX, we highly recommend that the HRI credit CAPEX limit be removed to achieve long-term cost reduction thus lower pump pricing. (15d2-235.5)

Comment: We also request for previous grant approved stations that have not been built to be grandfathered in with the current HRI regulation of capacity maximum 1,200 and 15 years of crediting, considering these projects had applied for Grants based on the previous economics and not the new proposed rule with a limit of 10 years and 1.5x CAPEX constraints. (15d2-235.6)

Comment: We appreciate staff working with the hydrogen station developers to craft the program for heavy-duty (HD) HRI. While we noticed LDV HRI program has improvements on proposed language, we urge the importance of HD HRI program to consider the following improvements. While the 50% cap on HRI program is intended to prohibit over-credit generation while incentivizing large capacity station, we strongly believe that a higher cap is needed in earlier market situation. As typical HD hydrogen station will be planned with attached demand to start with, higher cap % on HRI is needed to support this initial customer segment in order to provide cost-competitive hydrogen at the pump. We deeply concerned that initial HD market with low hydrogen demand and 50% cap will result in higher cost of hydrogen at pump, creating even slower interest in adopting hydrogen trucks in the market.

To avoid over-credit generation, yet to support early-stage low volume station economics, we support the idea of introducing a limited-term higher cap structure, such as [80]% instead of 50% for the initial [3] years or by specific date such as 20[28], which enables accelerated establishment of HD hydrogen station networks, and such structure will even attract further investments to create positive market cycle. (15d2-235.7)

Comment: Also, similar to LMD HRI side, we still see the language includes amount of HRI with 1.5x to capital expenditure (CAPEX), which limits the ability to reduce the cost of hydrogen at pump as it limits the cash flow in total. Thus, we request Staff to reconsider this provision to be removed. (15d2-235.8)

Comment: (ii) adjusting the proposed derating factor for HRI credits to 37.5 percent. (15d2-257.2)

Comment: The Agency has also proposed to restrict HRI credit generation by capping it at 1.5 times the capital expenditures ("capex"). The capex restrictions and derating factor are intended to serve identical purposes, but when combined, add considerable, unnecessary investment risk for developers. This will hinder the development of heavy duty hydrogen refueling stations that are vital for the state to achieve its low carbon goals. The Associations thus urge CARB to eliminate the 1.5x capex limitation and adjust the derating factor for heavy duty HRI to 37.5 percent. (15d2-257.6)

Comment: We agree to adopt the LCF Program with the modification to the HD HRI station crediting, which is required for private investments, because as is, there are too many restrictions and limitations.

We encourage the necessary HD HRI station program to be modified as follows: increase the crediting duration; increase the credit capacity from 6,000 kilograms; maintain the same CI fuels through 2035 or review progress in 2030. This will ensure the technology is affordable and can be fairly scaled for private investments. (BHT-250)

Agency Response: Changes were made in response to these comments to increase the light-duty HRI program. The original 0.5% of deficits program cap for the LD-HRI program was expanded to a LMD-HRI program with a cap of 2.5% of deficits, including existing approved original HRI stations. The remaining HD-HRI program, initially the MHD-HRI program, keeps its 2.5% cap.

No changes were made in response to these comments to alter the 1% of deficits cap on an individual entity. An entity that receives 40% of the program's available credits, equal to 1% of all deficits generated by the entire LCFS program, is a large enough incentive for a single entity to operate an initial State-wide network of hydrogen stations on its own, while ensuring that there is enough room in the program for other entities to each build multiple stations as well. Participation in the HRI program by multiple entities will help to ensure the resilience of the State-wide hydrogen refueling network, and for the multiple entities' different technologies and business practices to demonstrate their value for future network growth. With regard to concerns about the station crediting capacity and crediting periods, see response to L-16.

J-15 Multiple Comments: *Effective Date of New HRI Programs Should Be Earlier*

Comment: §95486.2 (a)(7)- The proposed amendments would delay implementation until 2026. This would seem to allow a number of new proposals to be certified under the existing protocols as specified in §95486.2 (a). The new LD-HRI protocols have enhanced requirements relating to disadvantaged community benefit, limitations against crediting in excess of 1.5 times net capital expenditure, and improved financial transparency. No justification for the delay in implementation is given. Presumably, the delay is meant to allow projects that have begun work under the expectation of being governed by the existing HRI protocols to finalize and submit their applications. Given the highly public nature of the LCFS rulemaking and the fact that HRI project developers are typically in contact with LCFS program staff at multiple points in the pre-application process, we are not aware of any significant benefit from this delay. A more rapid implementation would more quickly bring the improvements in the amended protocols into action. Additionally, given the reduced cap on LD HRI and FCI credit generation, delaying implementation allows more projects to apply under the existing protocols and as a result, a greater fraction of credits from this class of pathways would go to projects approved without the additional disadvantaged community benefit, cost containment, and transparency requirements. Maximizing the number of projects subject to the new rules could improve total benefits from the program, especially as they relate to disadvantaged communities. (45d-391.42)

Comment: As per the amendment of Subsection 95486.2(b)(4)(H): We respectfully appeal for qualification of this capex multiple to occur upon passage of the amended regulations (ca. 2024), as opposed to its presently stated 2026 start date. Should the 2026 date remain intact, we request further clarification as to whether that date indicates timing for project registration

or whether it means the capex multiple applies only to projects that come online after that 2026 date. (Apr-123.3)

Agency Response: Changes were made in response to these comments. The LMD-HRI and HD-HRI programs are now effective when the approved amendments become law, allowing entities utilize the new incentives as soon as possible. Note that while the original HRI stations are included in the LMD-HRI program cap, the original HRI approved stations will continue to have a crediting period of 15 years and no HRI credit limitation based on capital expenses.

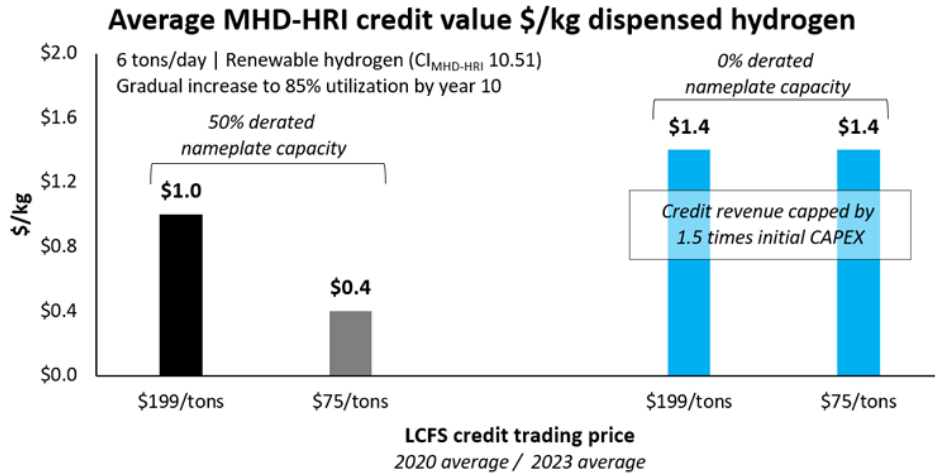
J-16 Multiple Comments: *LMD- and HD-HRI Station Crediting Capacity and Crediting Period Should Be Increased and Capital Expense Limitation Should Be Lifted*

Comment: The rationale that limiting HRI crediting to 50% of capacity will encourage wider scale growth is flawed. The current LDV HRI program does not have a capacity constraint, yet it has still fallen short of hitting the 2.5% obligation maximum each quarter due to the economic, technological, and permitting challenges of building hydrogen infrastructure. Shell's recent announcement that they will close several stations is illustrative of the challenges faced in this space. For heavy- and medium-duty (MHD) fueling stations, these challenges are only amplified due to the high capital requirements, lack of available fueling technology, and large land use requirements. Chevron urges CARB to remove the capacity limit and continue with a 15-year crediting window to encourage growth. If there is a capacity constraint and a shorter pathway length, then the prospect of lower returns would likely limit program participation. (45d-048.1)

Comment: Whereas the CARB proposed inclusion of MHD into the LCFS provides a good basis – NEL would like to convey some concerns regarding the following proposed new mechanisms:

- 50% derating of Nameplate capacity for Shared MHD-HRI stations
- Capping of cumulative credit value at 1.5 times initial capital expenditure.
- Shortening of Crediting Period from 15 years to 10 years.

The impact of the above mechanisms will significantly reduce the achievable credit value per kg hydrogen dispensed, as illustrated in the graph below.



The graph shows calculations of MHD-HRI credit value per kg hydrogen dispensed for a 6 tons/day Shared MHD-HRI station using renewable hydrogen. The average LCFS trading price during 2020 of \$199/tons and the average during 2023 of \$75/kg are used as they represent the all-time high and low during the past 10 years. Station is assumed operated for 10 years, and with a gradual annual increase of utilization reaching 85% by year 10. The 50% derating of Nameplate capacity results in an average credit value of only \$0.4 - \$1.0 per kg of hydrogen dispensed during the 10 years Crediting Period. Without derating of the capacity, the average credit value would be \$1.4/kg, almost regardless of the credit trading price, as the value is capped by the cumulative credit revenue limit of 1.5 times the initial capital expense for the MHD-HRI station. In 2020 a California Energy Commission report assessed that an average LCFS credit value of ~\$3/kg in 2030 ($CI=35$) would bring hydrogen dispensed costs within the range of \$6-8/kg required for gasoline price parity in LDVs. However, achieving diesel price parity for MHD vehicles will require an even lower cost of hydrogen dispensed, likely in the range of \$4-5/kg. Achieving MHD diesel price parity in 2030 would thus require an LCFS credit value higher than the \$3/kg sufficient for LDVs. As shown in the credit value calculations above, the cap on cumulative credit revenue on 1.5 times the initial CAPEX indirectly limits the maximum credit value to only \$1.4/kg – and the 50% derating reduces this even further down to between \$0.4 to \$1/kg. The proposed 10 years Crediting Period, compared to the current 15 years, also reduces the overall credit value generated. As a result, the achievable credit value \$/kg will most likely not be sufficient for enabling MHD-HRI stations to achieve diesel price parity by 2030. According to the LCFS amendment Appendix E5 the CARB rationale for the 1.5 times CAPEX limit, 10 years crediting period and the derating of capacity, is to incentivize a sufficient number of stations to accommodate anticipated MHD hydrogen fuel demand. Deployment of sufficient number of stations is definitely needed to accommodate MHD vehicle deployments. However, if the potential LCFS credit value does not enable diesel price parity, this will negatively impact the attractiveness of MHD vehicles and may challenge the actual vehicle deployments and emission reductions achieved. NEL would therefore encourage CARB to:

- Consider removing the 50% Nameplate Capacity derating for Shared MHD-HRI stations
- Consider either removing or increasing the cumulative credit value cap of 1.5 times initial capital expenditure

- Consider keeping the 15 years Crediting Period as in the current LCFS regulation
- Aim of the above should be to enable credit values (\$/kg) where diesel price parity is within reach for MHD-HRI stations.

(45d-167.1)

Comment: Consistent with past crediting windows, we believe that for both LD and MHD vehicles going forward, a full 15-year crediting period should be allowed. (45d-214.25)

Comment: CARB should ensure sure that on-site hydrogen production costs are not included in the capital calculation, which would create an unlevel playing field. §95486.3 (a)(6)(B)(1) would create a situation that favors on-site hydrogen generation vs. the more efficient centralized hydrogen production and distribution approach. Operations and maintenance costs should be included in the MHD HRI payback metric as these are differential to the costs associated with electric vehicle charging. (45d-214.27)

Comment: Expanding the light-duty (LD) Hydrogen Refueling Infrastructure (HRI) capacity is imperative. This is particularly crucial to accommodate the unique needs of medium-duty (MD) vehicles, given their co-mingling with LD fleets. The alignment of LCFS capacity credits with market behavior is paramount for station crediting. To support this, maintaining the existing 1200kg credit is recommended, considering its success in driving private sector investment. This credit has proven effective in supporting the existing HRI, and its continuation is aligned with the ongoing success of the infrastructure. (45d-223.3)

Comment: A capacity cap is unnecessary – the LCFS program already includes a 2.5% limit on credits, and this segment has not yet come close to reaching the limit. (45d-241.28)

Comment: ICA highly recommends considering 15 years instead of 10 years as the crediting period and extending the deadline for HRI application submission from December 31, 2030, to December 31, 2035. MHD ZEV infrastructure requires more capital investment compared to Light-Duty (LD) ZEV infrastructure and to make the investment economically feasible, the crediting period of MHD HRI should be at least equal to LD HRI which is 15 years. Additionally, extending the deadline for MHD HRI application submission is more aligned with the state's MHD ZEV mandate goals and creates more opportunity for MHD ZEV infrastructure development throughout California State. (45d-254.5)

Comment: The shift from a 15-year to a 10-year timeframe for HRI crediting has a significant impact on station financing and economics. Notably, this change introduces a new challenge for HD stations, which are both larger and more capital-intensive. The shorter 10-year timeframe contrasts with the previously longer capacity crediting period, creating a misalignment with the capital costs associated with hydrogen station infrastructure. Reevaluating the timeframe in consideration of the unique characteristics and financial requirements of hydrogen station infrastructure is crucial for fostering a conducive environment for hydrogen development in this sector. (45d-263.3)

Comment: In addition to the crediting period of 10-year timeframe, limiting capacity to 600 kg/d, hinders the growth of the HRS network. This is especially true for the 600 kg/d capacity cap given that medium-duty (MD) trucks typically fill at neighborhood fueling stations, not HD stations along freeways (i.e., truck stops). We urge the Board to simply extend the LD HRI

program “as is” and revisit in a few years to ensure the program is operating as intended and serving disadvantaged communities. (45d-263.4)

Comment: To optimize the effectiveness of the Low Carbon Fuel Standard (LCFS) program, a strategic focus on enhancing Light-duty (LD) Hydrogen Refueling Infrastructure (HRI) capacity is imperative. This is particularly crucial to accommodate the unique needs of medium-duty (MD) vehicles, given their comingling with LD fleets. The alignment of LCFS capacity credits with market behavior is paramount for station crediting. In light of this, incentivizing 600kg stations should be reconsidered in the context of California's near- and long-term vehicle and fleet deployment goals. MD vehicles typically require larger stations, and their integration with LD fleets, as opposed to heavy-duty (HD), underscores the importance of incentivizing larger stations. Larger stations, proven to be more reliable, better align with California's policy goals and the current market dynamics. Maintaining the existing 1200kg credit is recommended, considering its success in driving private sector investment without relying on state grants. This credit has proven effective in supporting the existing HRI, and its continuation is aligned with the ongoing success of the infrastructure. The US Auto Manufacturers' letter to CEC3 underscores the industry's perspective on MD vehicles and their operational needs. Specifically, we believe that these stations and the HRI credits supporting them should contemplate high-flow refills at 10 or more kilograms per session of vehicles that have a gross vehicle weight rating of 26,000 lbs or lower, often referred to as class 6. (45d-302.3)

Comment: The shift from a 15-year to a 10-year timeframe for capacity credits has a significant impact on station financing and economics. Notably, this change introduces a new challenge for HD stations, which are both larger and more capital intensive. The shorter 10-year timeframe contrasts with the previously longer capacity crediting period, creating a misalignment with the capital costs associated with HD infrastructure. The substantial capital investment demands a longer-term perspective to ensure the economic viability and sustainability of HD stations. Reevaluating the timeframe in consideration of the unique characteristics and financial requirements of HD infrastructure is crucial for fostering a conducive environment for hydrogen development in this sector. (45d-302.7)

Comment: We strongly urge CARB to maintain the same structure for the LD HRI program, specifically to keep the 1,200 kg/day capacity cap with no geographic restrictions to station locations. (Apr-83.3)

Comment: The capacity cap should be increased to 1,600 kg/day to accommodate medium-duty (MD) trucks that will fill at local HRS. If the recommended cap of 600 kg/day as stated in the ISOR is enacted for LD HRI, the result will not only disincentivize larger LD stations that would have grown the California HRS network to accommodate LD/MD, but it will also increase queuing and deliveries to stations, causing greater congestion and traffic, and increased emissions to the community – the exact opposite of the stated purpose for changing the LD HRI. (Apr-83.4)

Comment: A 15-year program will provide greater certainty for those investments, especially since the stations are much larger and more expensive than LD HRS. (Apr-83.6)

Comment: We are confident that CARB will implement policies to bring the credit prices back to sustainable levels, however, the proposed 600 kg/d capacity cap will disincentivize the

building of stations to serve the existing LD population as well as the larger format medium-duty pickup trucks and work trucks being announced and demonstrated by multiple automotive manufacturers. These trucks will fuel at the neighborhood fueling stations, as they do now, and under sizing HRS will exacerbate vehicle queueing, congestion, delivery challenges and economic hurdles experienced with the first generation, low-capacity, and single dispenser HRS. California's regulatory requirements and learned experience with low capacity HRS further necessitates and informs that we should not incentivize stations under 1,200 kg/day of capacity. Therefore, we urge the LD HRI to be maintained in its current, successful form. (Apr-141.3)

Comment: We believe the light-duty (LD) hydrogen refueling infrastructure (HRI) program was working well before credit prices precipitously dropped in 2023. We urge you to maintain the program at the current 1,200 kg/day capacity cap and 15-year crediting, with no geographic requirements. The proposed restrictions will surely limit the number of hydrogen stations deployed and is the exact opposite of what is needed for the fuel cell vehicle market. (Apr-172.3)

Comment: We appreciate staff working with the hydrogen station developers to craft the program for heavy-duty (HD) HRI. However, we recommend allowing 15-year crediting and eliminating the geographic restrictions to attract the needed investment for stations. (Apr-172.4)

Comment: For hydrogen specifically, we believe the LD hydrogen refueling infrastructure (HRI) program was working well before credit prices precipitously dropped in 2023. In addition to the steeper step-down, we urge you to maintain the program at the current 1,200 kg/d and 15-year crediting, with no geographic requirements. The proposed restrictions could limit the number of hydrogen stations deployed. (Apr-187.2)

Comment: Similarly, for the heavy-duty (HD) HRI proposal, we recommend allowing 15-year crediting and removing the geographic restrictions. Allowing station developers to utilize the longer crediting period with greater freedom to place stations near customers will be needed to ensure adequate fueling coverage for these HD trucks. (Apr-187.3)

Comment: The modifications to the hydrogen refueling infrastructure (HRI) crediting program as part of the 15-day package do not address the concerns raised during the last comment cycle regarding incentivizing hydrogen infrastructure development. The hydrogen retail industry in California has hit a historic crossroads with high retail prices, falling vehicle sales, and station closures due to supply. This is not the time to be limiting zero emission vehicle fueling infrastructure enablement if CARB staff wishes to meet ACCII, ACT, and ACF milestones as well as goals laid out in AB8 reporting.⁶ Chevron urges CARB to alleviate the following constraints to enable meaningful progress in infrastructure development: 50% capacity limit for public stations, requiring state and federal grant funding for program eligibility, shortening crediting to a 10-year window, the increase in required renewable content from 40% to 80%, and the requirement to disclose all cost and revenue data. If CARB does not relax these constraints, this will hinder infrastructure development in the state as the prospect of lower returns will limit program participation. In addition, applicants should still be allowed to participate in the existing program through 2025 as many infrastructure projects currently

under development have been operating under the assumption that the existing program would be in place through December 31, 2025. (15d1-042.9)

Comment: The rationale that limiting HRI crediting to 50% of capacity will encourage wider scale growth is flawed. The current LD HRI program does not have a capacity constraint, yet it has still fallen short of hitting the 2.5% obligation maximum each quarter due to the economic, technological, and permitting challenges of building hydrogen infrastructure. Shell's recent announcement that they will close several stations is illustrative of the challenges faced in this space². For heavy duty (HD) fueling stations, these challenges are only amplified due to the high capital requirements, lack of available fueling technology, and large land use requirements. Combining LD and medium duty (MD) stations into one program doesn't address these challenges. Chevron requests that CARB work with industry to develop a realistic solution to differentiate reporting between vehicle classes for HRI crediting purposes. Since these are public access locations, there are little to no means for tracking hydrogen vehicle size to identify if the vehicular weight is less than 8,500 lbs, or within 8,501 lbs to 14,000 lbs GVWR. Also, unlike CNG, separate nozzles are not used for light duty vs. MHD vehicles today. The newly developed NREL heavy duty fueling protocol may allow for separate nozzles for fueling, however it will take many years for the industry to transition. For the HD program, requiring that stations receive capital funding from a State or Federal competitive grant program discourages private investment in the state, increasing taxpayer burden. In addition, requiring cost and revenue data for HD HRI crediting will similarly limit participation due to the onerous requirements for reporting and record keeping relative to the incentive provided by the program. These are both arbitrary requirements and do nothing to further CARB's goals as outlined in AB8 Reporting. The requirement to increase renewable hydrogen content from 40% to 80% is arbitrary, increases costs for end consumers, and creates a market distortion. The increased costs will hurt FCEV adoption in the state and artificially penalizes hydrogen technology when BEV electricity generation is not held to the same renewable volume percent standards. CARB should focus on a technology-neutral approach focused on carbon intensity to keep costs down for consumers and drive adoption. Baseline CI requirements are already sufficient to drive the right outcomes. With the added cost for renewable content and a lack of willingness to pay from consumers, hydrogen retailers will forgo participation in the program due to these economic pressures. (15d1-042.10)

Comment: I'm asking CARB to preserve the HRI provisions unchanged. FCEV drivers have borne the cost for the reduced value of carbon credits. Many have gone back to gasoline fueled options because of the cost. It is much more expensive buying H2 now than it was when the credits were valued at \$100 - \$150/MTCO₂. Elimination of the HRI program jeopardizes the fragile business model needed to maintain and expand the LIGHT DUTY H2 infrastructure that I absolutely depend on, unless I dip into my savings to purchase or lease another car. (15d1-047.1)

Comment: It is incumbent on the California Air Resources Board to take such actions, within their purview, to reduce this cost. At a minimum, we believe that CARB should retain the Light-Duty HRI program and do what it can to increase LCFS credit prices. (15d1-55.1)

Comment: We thank the state for adjusting the HRI program to incorporate MD with LD, which is how the US truck makers envision fueling of their vehicles. We agree with the deletion of the

disadvantaged community geographic requirements but remain concerned regarding the low station capacity requirements at 2,000 kg/d with a 50% derate. Our latest generation LD stations are capable of 1,600 kg/d and garner 1,200 kg/d HRI credits. Under the sta proposal, we would need to build larger stations that would receive even less HRI credit than the current program for MD trucks. We would need to build stations 20% larger and receive 20% less credits. Furthermore, staff is also proposing to limit credits by capping the cumulative credit generation to 1.5 times the capital expenditures (capex). The HRI capacity credit is intended to offset the station's ongoing operations and maintenance (O&M) costs and thereby reduce the cost to the drivers. Tying the cumulative HRI credits to capex ignores this intent. It reduces the ability of station providers to (a) provide ongoing O&M support while keeping hydrogen prices low and (b) continue building additional stations. We highly recommend that the 50% derate for public stations and the capex limit be removed. We also believe that further constraining participants in the HRI program to 1% of total deficits will slow the growth of the network, especially since we have grants from the California Energy Commission for an additional 41 LD stations under GFO-19-602 and have made significant capital investments in leases, permitting and equipment for these stations. We did not intend to be the market leader in retail stations and hoped for competition to increase fuel availability, lower supply costs, and increase vehicles on the road. However, with Shell's departure from the LD station market, we do not want to be unintentionally disincentivized from building and deploying stations in the future. We ask that any stations previously awarded through competitive solicitations by the CEC be grandfathered into the existing HRI rubric at the 1,200 kg/d capacity cap. (15d1-074.3)

Comment: While we strongly support California's efforts to expand hydrogen infrastructure and reduce carbon emissions, the specific provision capping LMD-HRI credits based on capital expenditure and external funding presents significant challenges that could hinder the growth of this essential infrastructure. While recovering the CAPEX is good, as we stated in our previous letter submitted to CARB, the revenue from the LCFS/HRI credits plays a critical role in the economic feasibility of operating ZEV infrastructure which is why the expected long-term value of LCFS credits, and the HRI pathways are so important. Limiting the value of these credits based on the capital expenditure and external funding may impede the HRI original purpose to support station over time as the fleet grows. We urge CARB to reconsider this provision and remove the credit limitation for LMD-HRI stations. Instead, we recommend allowing these stations to generate credits based solely on their refueling capacity and operational performance, without capping their credit potential based on capital expenditure or external funding. This would provide a stronger incentive for private sector investment in hydrogen infrastructure and accelerate the growth of hydrogen-powered vehicles in California. (15d2- 203.2)

Comment: The 15-day changes propose striking the December 31, 2025, date for applications received. This change undermines the long-lead time planning for development of approximately 50 HRS awarded by CEC Clean Transportation Program and other funding source grants that are relying on the terms of the current rule to help credit their development. Furthermore, CEC grants for hydrogen refueling were designed based on the current HRI pathway when LCFS values were much higher than they are today. This proposed change further adds to the headwinds facing the development and investment in those station awards. Adding this strikeout compounds our concerns of losing those investments. Recommendation: Do not adopt the 15-day proposed changes. We strongly suggest that the eligibility of the

current LD HRI program be extended through the end of 2025 and stations already awarded by the CEC be grandfathered in the current LD HRI program. (15d1-245.14)

Comment: In our 45-day comment letter, we proposed—and continue to advocate—that these stations and the HRI credits supporting them should accommodate high-flow refills of 10 kilograms or more per session for vehicles with a gross vehicle weight rating of 26,000 pounds or lower, commonly known as Class 6 vehicles. However, we are concerned about the low station capacity requirements set at 2,000 kg/day with a 50% derating factor. Under the 15-day changes, this would necessitate building larger stations that would receive fewer HRI credits than the current program for MDV trucks. In effect, CARB is requiring stations to be 40% larger while providing 20% fewer credits. The current program's capacity at 1200 kg/day without derating is sufficient given the appropriate flow rates to refill medium duty vehicles and will go a long way toward building the foundations of a self-sufficient statewide network. The proposal further restricts credit generation by capping it at 1.5 times the capital expenditures (capex). The original intent of the HRI capacity credit was to offset ongoing operations and maintenance (O&M) costs, thereby reducing costs for drivers. Linking cumulative HRI credits to capex undermines this objective by limiting station providers' ability to (a) support ongoing O&M while maintaining affordable hydrogen prices and (b) continue expanding the station network. Recommendation: We recommend removing the 50% derating for public hydrogen refueling stations and eliminating the capex limit to better support ongoing operations and network expansion. If CARB believes it is necessary to limit crediting, then select either the cap or the derating but not both. (15d1-245.16)

Comment: Unfortunately, some of the proposed requirements for Heavy-Duty Hydrogen Refueling Infrastructure (HD-HRI) stations present significant challenges that could undermine the development of a robust hydrogen fueling network in California. Limiting Crediting The proposal to apply a 50% de-rating factor for shared HD-HRI stations is also problematic, especially given the accelerated benchmarks. A more reasonable approach would be to advocate for a 25% derating factor, considering the revised slope. CARB's goal with the HD HRI proposal is to ensure the state does not put the market in a "chicken-and-egg" scenario, where fleets are waiting for stations and stations are waiting for fleets. Designed to eliminate this conundrum and deploy HD HRS early in the market cycle, our industry made the original HD HRI proposal in September of 2022 based on the current LCFS compliance curve and determined that under projected market conditions the financial risk of deploying capital was balanced against projected HRI program income. The proposal further restricts credit generation by capping it at 1.5 times the capital expenditures capex. The original intent of the HRI capacity credit was to offset ongoing operations and maintenance O&M costs, thereby reducing costs for drivers. Linking cumulative HRI credits to capex undermines this objective by limiting station providers' ability to (a) support ongoing O&M while maintaining affordable hydrogen prices and (b) continue expanding the station network. While we applaud CARB's efforts to accelerate the pace of decarbonizing the state's transportation sector, the unintended consequences put the deployment of previously planned HD HRS at risk. CARB has made two arguments against adjusting the 50% discount. The first is that the price of the LCFS "will" increase and developers will see ample revenue from this outcome. In the eyes of developers, a significant increase in the LCFS price may or may not happen. HD HRS are (very) costly investments and aligning commercial fleets with take-or-pay agreements to ensure a return on capital at this point in the market cycle is exceptionally challenging. Unless developers are

given the right program signal from CARB in the form of an acceptable HRI discount, many planned HD HRS developers simply will not act, HD HRS will not get built and the market will be facing the chicken-and-egg scenario this program was designed to avert. We would further note that the proposed amendments go to great lengths to support the ARCHES program. ARCHES' primary market development segment is transportation where they propose 5,000 HD fuel cell trucks for the program and over 50 HD HRS. Given this goal, HD HRS deployments supported by the HD HRI are critical to the program's success. The second argument made by CARB is a concern of giving "too much away" to developers in the form of HRI credits. This is a fair concern and one we shared leading to the development of a derating mechanism; however, CARB has already addressed this by placing a cap HD HRI program revenue for each asset. Given the cap, any concern of over-paying developers is moot. If in fact LCFS prices rise as CARB intends, developers will hit the cap (sooner), if prices fail to rise then developers may (or may not) reach the cap and are left with 10 years of HD HRI credits and the risk associated with this market-based program. A 25% discount would better align with the program's goals of HD HRS deployments and promote deployments which support the state's decarbonization goals. Recommendation: The proposed 50% derating factor and capex credit limit should be reevaluated to ensure they do not undermine station development and ongoing operations. If CARB believes it is necessary to limit crediting, then select either the cap or the derating but not both. They serve the same purpose but when paired they deteriorate the value proposition of investing in a HD HRS. (15d1-245.17)

Comment: We appreciate the continuation of the HRI pathway for light- and medium-duty vehicles, as well as the creation of a heavy-duty HRI pathway. However, shortening the crediting window from 15 years to 10 years significantly alters the economics of our proposal. (15d2-222.3)

Comment: De-Rate of Heavy-Duty Stations - § 95486.4(a)(2)(F)

The current proposal to impose a 50% de-rate on HD HRS within a shortened 10-year crediting window poses significant financial challenges for station developers. This combination drastically alters the economic feasibility of investing in HD hydrogen stations, creating a substantial risk of capital recovery. By reducing the potential credits generated by 42.5% from our initial proposal in 2022, this policy undermines the financial foundation of these costly investments and increases the likelihood that developers will be unable to recover their costs, making these projects far less attractive.

HD HRS investments are exceptionally expensive and securing take-or-pay agreements with commercial fleets to guarantee a return on investment is difficult given the current stage of market development. Without a clearer and more favorable signal from CARB in the form of an adjusted de-rate, developers may simply refrain from building these essential stations. The result would be a stalled market, perpetuating the "chicken-and-egg" problem this program was originally designed to solve. In essence, without adequate incentives, the necessary infrastructure won't be built, hindering the growth of heavy-duty hydrogen vehicle adoption.

While our original proposal suggested a 25% de-rate, we acknowledge that a compromise is necessary. However, the 50% de-rate is simply too restrictive, especially given the shortened crediting period. We propose a 37.5% de-rate as a middle ground, providing a more feasible path forward for developers while still allowing CARB to meet its goals. This adjustment would

significantly reduce the financial burden on developers and encourage the construction of more stations. Even with this compromise, station developers will still be taking considerable risks, as the de-rate still results in a loss of potential credits, and a 13% adjustment would be necessary to make developers whole based on our original industry proposal.

The proposed compromise of a 37.5% de-rate strikes a balance between CARB's objectives and the need to incentivize station development. This compromise would allow the crediting of upwards of 80 heavy-duty stations, substantially supporting and exceeding what is currently planned through funding programs like the Clean Transportation Fund, the General Fund, and ARCHES. Additionally, if fuel cell vehicle adoption and hydrogen throughput increase over time, more credits will naturally become available, enabling further expansion of the hydrogen refueling network.

Ultimately, this compromise offers a practical solution that meets both the needs of developers and the goals of CARB, ensuring that HD HRS can be built and that the hydrogen market can continue to grow without undue financial burden. Without this adjustment, the risk to developers will be too great, and the market risks stagnation at a critical juncture.

Compared to a 15 year crediting period for the original proposal	2022 Initial Proposal	2024 Proposed Regulation Order #1 (Jan 5th 2024):	2024 Proposed Regulation Order #2 (August 2024):	CHC Recommendation 15-day comment period (Sep 24) De-rating factor of 25% and remove cap of 1.5x of CAPEX	CHC Recommendation 15-day comment period (Sep 24) De-rating factor of 37.5% and remove cap of 1.5x of CAPEX	Equivalent De-rating factor to match credit generated based on original proposal
Station Capacity (kg/day)	6000	6000	6000	6000	6000	6000
HRI Eligibility (years)	15	10	10	10	10	10
Benchmark	Current Standard	5% Step Down in 2025	9% Step Down in 2025	9% Step Down in 2025	9% Step Down in 2025	9% Step Down in 2025
De-rating factor	50%	50%	50%	25%	37.5%	13%
Credits	282131	163432	162167	243250	202708	282131
Impact on Credit Reduction from 2022 Proposal		42.1%	42.5%	16.0%	28.2%	0.0%
Number of HD stations that can be supported by the program*			90	60	80	55

Deficit projection is from ICF's forecast.

Recommendation: Adjust the derate to 37.5%, meeting HRS developers in the middle of the two proposals and providing additional investment certainty while they assume additional risk from the original proposal. (15d2-222.5)

Comment: This challenge is compounded by the cap on revenue generation for both pathways and the lack of adjustment to the derate for the heavy-duty HRI sought by our members.

The HRI mechanism is self-regulating and does not require additional constraints. It was designed to support early investments in hydrogen stations while waiting for vehicles to come to market, offering assurance to manufacturers, buyers, and end users of FCEVs that stations will be available (ahead of the cars and trucks) and supported. As vehicle demand grows, more credits become available, fostering investment in additional stations and creating a natural balance within the program. If vehicle adoption is slower than expected, initial stations will still be supported, preventing overbuilding and ensuring the network remains sustainable. Introducing further credit and revenue constraints undermines private investment in (zero-

emission refueling) stations, jeopardize their operational viability and will result in a failure to deploy the early market stations the program is designed to support.

The original HRI policy was intended to drive hydrogen station development ahead of vehicle deployment, while providing financial protection in case the rollout of hydrogen vehicles occurred more slowly than anticipated. This policy ensures that stations can minimize capital risk and operating costs regardless of how quickly FCEVs are adopted. Additionally, the policy was designed to be self-regulating and to phase out on its own over time. When vehicle adoption is slower, stations generate more HRI credits to sustain their operations in place of sales revenue. If station capacity growth outpaces vehicle deployment, the availability of HRI credits for new stations decreases, preventing overbuilding. Conversely, when vehicle adoption is faster, stations generate fewer HRI credits as their sales revenue increases, while HRI credits remain available to support the development of new stations to keep up with vehicle growth.

This original HRI policy has delivered several key benefits during periods when LCFS credit values were strong. It has unlocked private investment to build stations in advance of vehicle deployment, lowered hydrogen prices at the pump even in early years of low utilization, drove investment in R&D to improve station performance and reliability, and promoted the installation of higher-capacity stations capable of serving more vehicles with fewer delays.

1.5X Cap - § 95486.3 (a)(4)(H) and § 95486.4 (a)(4)(I)

The 1.5X cap on credit generation limits the effectiveness of the HRI program in achieving its goals of supporting early hydrogen station development. By capping credit generation at 1.5X the station's capacity, the policy unintentionally stifles the very private investment and market expansion that the program is designed to encourage. The goal of the HRI is to bridge the gap between station construction and the arrival of vehicles on the market, ensuring that stations remain financially viable even when vehicle rollout is slower than expected. However, the 1.5X cap hinders this dynamic by placing an artificial ceiling on the amount of support available for station operations, especially during the critical early years.

Eliminating the 1.5X cap would allow the HRI mechanism to function more effectively as a self-regulating tool, in line with its original intent. When vehicle adoption is slow, stations should be able to generate more credits to offset lower sales revenue, ensuring they remain operational and supported while waiting for the market to grow. As vehicle deployment picks up, the reliance on HRI credits would naturally decrease, since stations would begin generating revenue from fuel sales. This organic balance between credit generation and market demand is key to a healthy hydrogen infrastructure, and the 1.5X cap disrupts this balance by prematurely limiting the financial support available to stations.

Conversely, removing the cap would stimulate greater private investment in the hydrogen sector. Investors are more likely to commit to building new stations if they are confident that the credit system will provide adequate returns in the early years of operation. With the 1.5X cap in place, the financial risk remains too high, deterring the very investments that are necessary to scale the hydrogen infrastructure to meet future demand. By lifting the cap, CARB would foster a more favorable environment for private capital, leading to more stations being built ahead of vehicle deployment, which in turn would spur vehicle adoption.

Furthermore, the 1.5X cap may inadvertently lead to inefficiencies in the design and operation of hydrogen stations. To maximize credit generation within the restricted framework, developers may feel pressured to build smaller stations that can reach their credit cap more easily, rather than designing stations with higher capacity that can better serve growing vehicle numbers over time. This short-term approach could result in stations being underbuilt and unable to meet demand once the hydrogen vehicle market accelerates. Removing the cap would encourage the construction of larger, more robust stations that are better equipped to handle long-term demand and serve more vehicles efficiently.

By eliminating the 1.5X cap, the HRI program would become more aligned with its purpose of supporting early-stage infrastructure development and long-term market growth. It would reduce the financial uncertainty surrounding station operations, attract greater investment, and encourage the construction of stations designed for the future, all while allowing the self-regulating nature of the program to maintain balance between station capacity and vehicle rollout.

Recommendation: Eliminate the 1.5X cap for both HRI pathways by striking, in full, § 95486.3 (a)(4)(H) and § 95486.4 (a)(4)(I). (15d2-222.4)

Comment: The Associations urge the Agency to modify the Proposed Amendments for heavy duty hydrogen refueling infrastructure (“HRI”) by (i) removing the restrictions on credit generation tied to capital expenditure; (15d2-257.1)

Comment: Commercial decisions to invest in heavy duty vehicles will be grounded in economics. Businesses will not buy heavy duty electric or hydrogen vehicles at scale unless the total cost of operation is comparable to the cost of diesel-powered trucks. The cost of hydrogen is, by far, the most impactful component of a prospective consumer’s total cost of ownership. Minimizing fuel costs should therefore be an essential element of any policy intended to decarbonize heavy duty trucking, including via hydrogen as a transportation fuel. As transportation energy retailers and distributors, our membership will rely upon hydrogen producers to provide an economical supply of clean hydrogen in the years ahead.

The LCFS should maximize the market’s ability to realize these objectives. Any additional requirements or restrictions should be pursued only if they do not effectively preclude the industry from developing in the first place. The Proposed Amendments threaten to do precisely that.

The proposed derating factor for public HRI (50 percent), coupled with low station capacity requirements (set at 6,000 kilograms per day), will result in LCFS incentives being inadequate to prompt investments in heavy duty HRI in California. Unless rectified to ensure the viability of the HRI credits, the Proposed Amendments will fail to support the capacity necessary to achieve the Agency’s decarbonization objectives. The Associations recommend a derating factor of at most 37.5 percent. A derating factor of 37.5 percent (62.5 percent capacity factor) will partially remediate the capital risk taken by heavy duty hydrogen station developers and encourage investment. (15d2-257.5)

Comment: Second, the current proposal includes a 50 percent D rate and 10-year crediting window of hydrogen fueling stations that will post significant financial challenges for our station

developers. We support the California Hydrogen Coalition's proposal of a lower D rate of 37.5 percent and a 15-year credit window. (BHT-136)

Comment: The calculation of HRI credits for light and medium duty (LMD) stations is set at 100 percent of station capacity for public stations, thus the volume of HRI credits is guaranteed for public LMD stations regardless of the volume of fuel dispensed. In contrast, heavy duty (HD) stations reach the HRI capacity at 3,000 kg/d, calculated as 50 percent the capacity of the station for public stations. Therefore, it is possible for a HD station to not generate HD HRI credits if it regularly dispenses more than half of its capacity.

Recommendation: Fortescue advocates for setting HRI capacity to 100 percent of station capacity for HD stations, mirroring the approach for LMD stations. This change would derisk heavy-duty refueling station development, help build the ecosystem and prevent excessive oversizing of stations to reach the maximum HRI credit threshold. To help accelerate and encourage the adoption of Class 8 trucks, heavy-duty stations require the same incentives as light-duty stations to ensure the continued construction and operation of the heavy-duty hydrogen refueling infrastructure ecosystem, thereby providing a strong signal to the market, and impacting the emerging industry's need for reliable fuel supply. (BH-088.3)

Comment: And we think it is now workable, except for one modest change. It is the cumulative 1.5 times the capital expenditure limit on HRI. We think this is actually a disincentive to control station costs, and it also is counter to the intent of the HRI, which provides an incentive to build stations before vehicle ramp-up. (BHT-49)

Agency Response: Changes were made in response to the comments that LMD-HRI capacity should be increased. Staff has modified the amendments for LMD-HRI station crediting capacity, returning it to the 100%, maximum 1,200 kg/d capacity crediting. This allows for continuity of implementation for light-duty hydrogen stations that are already planned.

No changes were made in response to the comments to increase the crediting capacity of HD-HRI stations. As stations get larger, staff expect the capital expense per kg/day capacity will decrease due to economies of scale, meriting a 50% crediting capacity instead of 100%. The 6,000 kg/d maximum is intended to approximate the size of initial heavy-duty hydrogen fueling stations. Note that public LMD-HRI stations can be co-located with HD-HRI stations, increasing the capacity of the combined stations to $50\% \times 6,000 \text{ kg/d} + 100\% \times 1,200 \text{ kg/d} = 4,200 \text{ kg/d}$.

No changes were made in response to the comments that the Capital Expense limit should be lifted for HRI programs. Limiting the number of infrastructure credits issued for HRI stations to 1.5 times the initial capital expense allows new stations to participate in the program when other stations leave, while providing sufficient incentive—a payback of the remaining capital expenses through HRI credits alone—for entities to risk commissioning and operating hydrogen refueling station in locations where demand is anticipated.

No changes were made in response to the comments the crediting period should be extended to 15 years. A crediting period of 10 years aligns with the proposed crediting periods for all ZEV provisions. While dependent on station costs and operation, staff

anticipates that the combination of dispensed and infrastructure credits will cover the cost of the initial capital expenditure of most sites. A reduction in the crediting period can allow the program to be available to new sites as previously approved sites leave the program.

Changes were made in response to the comments to extend the time CARB will accept ZEV infrastructure applications to 2035. Given the nature of planning, permitting, and constructing and commissioning heavy-duty sites, applications for HD-HRI stations and HD-FCI sites are extended to 2035 to provide confidence to entities engaged in long-term planning that these two programs will be available to them.

And finally, in CARB Resolution 24-14, the Board directed staff to continue to monitor hydrogen refueling or electricity fast-charging availability supported by the updated LCFS hydrogen refueling infrastructure or direct current fast charging infrastructure crediting provisions, including any station capacity limits or caps on credit limits, to determine if any adjustments may be warranted as part of a future rulemaking effort.

J-17 HRI Initial Capital Expense Should Exclude On-Site Hydrogen Production

Comment: CARB should ensure sure that on-site hydrogen production costs are not included in the capital calculation, which would create an unlevel playing field. §95486.3 (a)(6)(B)(1) would create a situation that favors on-site hydrogen generation vs. the more efficient centralized hydrogen production and distribution approach. Operations and maintenance costs should be included in the MHD HRI payback metric as these are differential to the costs associated with electric vehicle charging. (45d-214.27)

Agency Response: Changes were made in response to this comment. “Initial capital expense” is now described by the Proposed Amendments as excluding on-site generation, off-site facilities, land and working capital. Initial capital expense should include only the costs directly related to the planning, construction and commissioning of a hydrogen refueling station.

J-18 Grant Revenue for Upstream Hydrogen Production Should Not Impact HRI

Comment: It is our understanding that the grant revenue being referenced in 95486.3.a(4)(H) is related to specific grants or funding revenue related to station construction and station operations and maintenance costs. Please confirm that any value for the production of hydrogen upstream of the station provided by the Inflation Reduction Act under sections 45V or 45Q is not considered “grant revenue or other external funding” for the purposes of this calculation for HRI credits. (45d-214.28)

Agency Response: No changes were made in response to this comment. Grant revenue or other external funding only applies to grants and funding for the ZEV fueling infrastructure and does not include tax credits provided under the Inflation Reduction Act. Grants or funding that include multiple stations or stations and other facilities can be divided on a proportional basis in coordination with CARB staff.

J-19 Multiple Comments: *Modification of HRI Location Requirements*

Comment: Regarding the new light duty hydrogen refueling infrastructure pathway, we believe the location restrictions to disadvantaged communities, low-income communities, and rural areas is overly limiting. While we respect the intent of these restrictions, we ask for removal of the hydrogen refueling station location restrictions to allow alignment with traffic/use forecasts to ensure high usage and maximum societal benefit and to avoid applying a double standard for hydrogen, a zero emission fuel, in comparison to electricity. (45d-212.1)

Comment: We also support CARB's proposal to extend location eligibility to other low income and rural areas, as this additional coverage will further promote accessibility and connectivity throughout the state. (45d-214.22)

Comment: We support the proposed location requirements for MHD fueling stations as written but seek clarity that the 1-mile distance requirement is based on a radius for the proposed location relative to the criteria and not a 1-mile driving distance. (45d-214.24)

Comment: To enhance the viability of hydrogen refueling stations, flexibility in locations for both HD and LD is paramount. The current absence of a comprehensive station network argues against stringent geographic limitations. These limitations have the immediate consequence of limiting decarbonization and air quality impacts of transitioning from fossil fuels, especially in the overburdened communities along these statewide transportation corridors. (45d-223.4)

Comment: To enhance the viability of hydrogen refueling station, flexibility in locations for both HD and LD is paramount. The current absence of a comprehensive station network argues against stringent geographic limitations. These limitations have the immediate consequence of limiting decarbonization and air quality impacts of transitioning from fossil fuels, especially in the overburdened communities along these statewide transportation corridors. While the implementation of the screenings within the CalEnviroScreen tool and the definitions in regulations provide some flexibility there is still a greater need for adaptability in station placement. Additionally, the impact of inflation and LCFS pricing on GFO 19-602 station buildout necessitates a reassessment of location constraints. The proposed restriction on HD locations are particularly limiting as the SR-60 corridor is not eligible. For example, an existing site supporting the refueling of heavy-duty trucks and wants to add H2 or charging for that matter but isn't technically located in "the right location", will not be eligible for capacity credits even if they are proximate to or there is a nexus to supporting trucks that go into disadvantaged communities. We believe additional discretion should be provided to the Executive Order (EO) on station location crucial to accommodate the evolving landscape. (45d-302.4)

Comment: §95486.3 (a)(1)(B)2.- The proposed amendments require an MHD-HRI station be "or on or adjacent to a property used for medium or heavy-duty vehicle overnight parking," this is insufficiently defined or described. It could refer to a parking lot in which only a very small number of vehicles park, or even personal property on which an owner-operator parks their vehicle. Such small-scale parking would conflict with the intent of the HRI and FCI provisions to support the deployment of capacity that can serve all, or at least significant fractions of future MHD ZEV fleets. As the MHD-HRI application must be approved by the Executive

Officer before generating credits, empowering the Executive Officer to reject or demand amendments from applications that attempt to circumvent the intent of these LCFS provisions could mitigate this risk. (45d-391.75)

Comment: We are confident that the proposed creation of the HD HRI will allow station developers to attract the needed investment to build stations with only minor changes to the proposed program. Specifically, we encourage elimination of the location constraints since many good HD fueling sites are not within one mile of FHA designated alternative fuel corridors or adjacent to truck parking lots. (Apr-83.5)

Comment: And finally, if a station is funded through local funds (as opposed to just state or federal grants), the proposed geographic restrictions should be waived. (Apr-83.7)

Comment: We appreciate staff working with the hydrogen station developers to craft the program for heavy-duty (HD) HRI. However, we recommend allowing 15-year crediting and eliminating the geographic restrictions to attract the needed investment for stations. (Apr-172.4)

Comment: For hydrogen specifically, we believe the LD hydrogen refueling infrastructure (HRI) program was working well before credit prices precipitously dropped in 2023. In addition to the steeper step-down, we urge you to maintain the program at the current 1,200 kg/d and 15-year crediting, with no geographic requirements. The proposed restrictions could limit the number of hydrogen stations deployed. (Apr-187.2)

Comment: Similarly, for the heavy-duty (HD) HRI proposal, we recommend allowing 15-year crediting and removing the geographic restrictions. Allowing station developers to utilize the longer crediting period with greater freedom to place stations near customers will be needed to ensure adequate fueling coverage for these HD trucks. (Apr-187.3)

Comment: The requirement that HD-HRI stations must be located within five miles of any Federal Highway Administration (FHWA) Alternative Fuel Corridor is highly restrictive and overlooks critical freight routes such as drayage routes. This requirement could inadvertently limit the redundancy of the fueling network and eliminate high traffic points in the freight system which are essential for reliable service. There is no sound rationale for this restriction. While many refueling activities occur near freight corridors, not all do, and refueling should not be constrained by proximity to these corridors. CARB staff currently has the authority to accept or reject HRI credit applications, which should be based on the merits of each proposal rather than an arbitrary distance requirement. For example, the Otay Mesa border crossing—one of the busiest freight corridors—is not within five miles of a designated clean corridor, yet it sees over a million truck crossings annually. This is a clear example of how such a rule could undermine the strategic placement of HRS. Recommendation: We recommend Executive Officer discretion on requirements for HD-HRI station placement outside of the five-mile limit. (15d1-245.18)

Comment: Regarding heavy-duty hydrogen refueling infrastructure (HD-HRI), the proposed amendments include restrictive location requirements per section (a)(1)(B)(1): “The proposed HD-HRI station must be located in California, and if a shared HD-HRI station be: Located within five miles of any ready or pending Federal Highway Administration Alternative Fuel Corridor.” Linking HD-HRI funding to a designated clean corridor ignores the fact that some

high density freight corridors, particularly along the California-Mexico border, would not qualify. EcoEngineers recommends that CARB reconsider the restrictive location requirements so that the industry can grow across the state. (15d1-059.4)

Comment: We appreciate staff including a HD HRI mechanism and expanding the proximity to the FHWA corridors to 5 miles instead of 1 mile. However, many HD station locations will necessarily be near warehousing centers or truck parking that are further than 5 miles from an existing or proposed corridor. We recommend adding a case-by-case approval mechanism by the Executive Officer. This could also include the exception of funding by local air districts or other local and regional entities that considered location in a competitive bid as opposed to only state or federal grants. We recommend this minor addition:

§ 95486.4. Generating and Calculating Credits for ZEV Fueling Infrastructure Pathways for Heavy-Duty Vehicles. (1) (B) (3) Has received capital funding from a State, or Federal, or local competitive grant program for heavy-duty hydrogen refueling that includes location evaluation as criteria. We also urge staff to reduce the discount (derate) of the station capacity as proposed by the California Hydrogen Coalition, California Hydrogen Business Council, and the Green Hydrogen Coalition in their May 10, 2024 letter. The original 50% discount rate was intended to prohibit over-credit generation while still incentivizing larger stations (6,000 kg/d maximum). Staff's proposal to increase the stepdown to 9% and 30% by 2030 will further reduce the credits allowed for HRI making the discount in effect even greater. We recommend either a lower discount rate of 25% instead of 50% OR allow increased station capacity of 8,000 kg/d to address this new stepdown and 2030 target. (15d1-074.4)

Comment: Hydrogen Price Reporting Requirements: The requirement to report hydrogen prices remains unchanged, which continues to raise concerns. We hope that further clarification will be provided in Resolution language and CARB's responses to public comments, ensuring that reporting requirements are not overly burdensome or detrimental to market competitiveness. (15d2- 206.7)

Agency Response: Changes were made in response to these comments. LMD-HRI stations location requirements—other than being in the State—have been removed completely. Applicants have demonstrated consistently in the original HRI program that the placement of light-duty stations has considered anticipated networks and growth in the demand for hydrogen. HD-HRI station location requirements have been modified such that only shared HD-HRI stations have a requirement of being within 5 miles of any ready or pending FFA Alternative Fuel Corridor, if they are not on or adjacent to existing parking or have received funding that considered location. The vast majority of stretches of Alternative Fuel Corridors are within 5 miles of existing electrical transmission lines, allowing the construction of hydrogen refueling stations nearby and helping to minimize additional utility connection costs. Proximity to alternative fuel corridors remains an important aspect of developing a hydrogen fueling network. Staff also did not propose to remove the hydrogen price reporting requirements from the Proposed Amendments. These requirements have been part of the HRI program since its inception in 2019, and have provided useful information about the market that is protected as market-sensitive by staff.

J-20 *Permit to Operate Date Should Be Before 2022*

Comment: The proposal to disqualify stations permitted before January 1, 2022, from HRI crediting further impacts the eligibility of existing heavy-duty stations. These stations are the ones most in need of support, especially given the current low demand. Imposing such restrictions could jeopardize the economic viability of these stations, which are crucial for bridging the gap until more infrastructure is built. This approach contradicts the goal of fostering a sustainable hydrogen network. If they are able to meet the requirements of the proposal they should be credited. Recommendation: We also suggest revising the eligibility criteria to include stations permitted before January 1, 2022, to November 1, 2021. (15d1-245.19)

Agency Response: No changes were made in response to this comment. The first LCFS workshop after the 2019 amendments that discussed an infrastructure credit program for heavy-duty vehicles occurred in 2022. Heavy-duty stations that became operational before 2022 did so with no indication from the LCFS program that their operations would be incentivized beyond the credits generated for dispensing hydrogen as a transportation fuel.

J-21 *Multiple Comments: Renewable Hydrogen Requirement Should Be Removed*

Comment: We suggest that the requirement of 80% renewable content requirement exclusively for HRI should be eliminated as it is unnecessary and counter to the carbon intensity focus and technology-neutral principles that have driven innovation and investment in the LCFS program to date. (45d-223.5)

Comment: ICA also believes that the 80% renewable content requirement can be costly and creates a burden for hydrogen refueling infrastructure and urges CARB to focus on CI and preserve the 40% renewable content requirement for the entire HRI crediting period. (45d-254.6)

Comment: We agree that renewable hydrogen production is the ultimate pathway for transportation, however, the imposition of an 80% renewable content requirement exclusively for HRI may be premature and overly restrictive, particularly in comparison to Fast-Charging Infrastructure (FCI). This requirement places hydrogen at a competitive disadvantage against other energy sources, which benefit from substantial federal, state, and ratepayer subsidies not extended to hydrogen, and could significantly increase relative costs. We believe that the exclusive application of this requirement to hydrogen tilts the scale heavily against fuel cell pathways. We suggest that this additional requirement should be eliminated as it is unnecessary and counter to the carbon intensity focus and technology neutral principles that have driven innovation and investment in the LCFS program to date. (45d-263.5)

Comment: The imposition of an 80% renewable content requirement exclusively for HRI raises pertinent questions, particularly in comparison to Fast-Charging Infrastructure (FCI). This requirement places hydrogen at a competitive disadvantage against other energy sources, which benefit from substantial federal, state, and ratepayer subsidies not extended to hydrogen. The absence of a pathway to generate Hydrogen Renewable Identification Numbers (H-RINs) in the federal Renewable Fuel Standard (RFS) further disadvantages hydrogen compared to Renewable Natural Gas (RNG) and electricity. Moreover, the 80% renewable

content mandate introduces cost implications. While our industry strives for a high renewable content aligns with market goals, the exclusive application of this requirement to hydrogen is deemed discriminatory. Both the LCFS and HRI send robust signals that have prompted hydrogen station operators to provide decarbonized and renewable hydrogen. However, given the thin market supply and the exclusive application of this requirement to hydrogen, it is crucial to reassess the fairness and practicality of this stipulation. We suggest that this additional requirement should be eliminated as it is unnecessary and counter to the carbon intensity focus and technology neutral principles that have driven innovation and investment in the LCFS program to date. Existing requirements to state funded projects could be grandfathered but is unnecessary as the LCFS sets the standard and drives commercial decisions that favor lower carbon products. Going forward, the requirement is discriminatory, will reduce available supply, increase the cost of H2 thereby hindering adoption and achievement of the state's zero carbon goals. (45d-302.6)

Comment: We recommend that CARB also evaluate the alignment of dairy RNG credits with the high value credit opportunities under the Hydrogen Refueling Infrastructure (HRI) provision. (45d-314.1)

Comment: We urge staff to maintain the 40% renewable requirement for hydrogen and conduct annual reviews to determine if increased renewable content is warranted. (Apr-83.8)

Comment: We agree that renewable hydrogen production is the ultimate pathway for transportation, however, the imposition of an 80% renewable content requirement exclusively for HRI may be premature and overly restrictive, particularly in comparison to Fast-Charging Infrastructure (FCI). We suggest staff to maintain the 40% renewable requirement for hydrogen and conduct annual reviews to determine if increased renewable content is warranted. (Apr-172.5)

Comment: Expand the LCFS crediting requirements for hydrogen fueling infrastructure to explicitly acknowledge that low-CI hydrogen with CCS can be used to meet the carbon intensity targets. (Apr-181.4)

Comment: The modifications to the hydrogen refueling infrastructure (HRI) crediting program as part of the 15-day package do not address the concerns raised during the last comment cycle regarding incentivizing hydrogen infrastructure development. The hydrogen retail industry in California has hit a historic crossroads with high retail prices, falling vehicle sales, and station closures due to supply. This is not the time to be limiting zero emission vehicle fueling infrastructure enablement if CARB staff wishes to meet ACCII, ACT, and ACF milestones as well as goals laid out in AB8 reporting.⁶ Chevron urges CARB to alleviate the following constraints to enable meaningful progress in infrastructure development: 50% capacity limit for public stations, requiring state and federal grant funding for program eligibility, shortening crediting to a 10-year window, the increase in required renewable content from 40% to 80%, and the requirement to disclose all cost and revenue data. If CARB does not relax these constraints, this will hinder infrastructure development in the state as the prospect of lower returns will limit program participation. In addition, applicants should still be allowed to participate in the existing program through 2025 as many infrastructure projects currently under development have been operating under the assumption that the existing program would be in place through December 31, 2025. (15d1-042.9)

Comment: We applaud the vision of the staff for the aggressive renewable content (80% after 2030) proposed for hydrogen, but we are equally concerned about a level playing field with electricity and the grid. Furthermore, staff is eliminating fossil-based feedstock for hydrogen after 2030. These actions overly rely on production of renewable hydrogen through the ARCHES program, which will likely not come online until after 2030. We believe that hydrogen and the grid should maintain equitable renewable content and carbon intensity. So, we recommend that the renewable hydrogen content be made consistent with grid electricity. (15d1-074.2)

Comment: The proposed requirement that HRS achieve 40% renewable content before 2030 and 80% thereafter is inequitable. This requirement should be technology-neutral, aligning with the renewable content of the grid at that time to ensure fairness across different energy sectors. Applying this mandate exclusively to hydrogen places the industry at a competitive disadvantage compared to other energy sources that receive significant federal, state, and ratepayer subsidies. This is particularly concerning given the lack of a pathway for hydrogen to generate Hydrogen-Renewable Identification Numbers (H-RINs) under the federal Renewable Fuel Standard (RFS), further economically disadvantaging hydrogen compared to renewable natural gas and electricity. While the industry is committed to increasing renewable content, such a stringent and exclusive requirement is costly and discriminatory. Regarding the renewable content requirement, the mandate that stations must have 40% renewable content before 2030 and 80% thereafter is overly stringent and should be technology-neutral, aligning with the renewable content of the grid at that time. This alignment ensures fairness across different energy sectors and avoids placing undue burdens on the hydrogen industry (see comments above on this policy). Recommendation: Hydrogen should not be required to be more renewable than the grid, meaning 60% renewable content by the end of 2030 and in 2045 100% renewable and clean. (15d1-245.22)

Comments: *Renewable hydrogen volumes are highly uncertain.* CARB's proposed 80% renewable hydrogen mandate ties the availability of any fossil-based hydrogen in 2030-2035 to the the availability of a specific percentage of renewable hydrogen volumes. For example, if only 80 tons per day of renewable hydrogen production materialize by 2030, LCFS credit eligibility for lower-carbon fossil-based hydrogen production would be limited to 20 tons per day. Whereas, if 800 tons per day of renewable hydrogen production materializes by 2030, 200 tons per day of fossil-based hydrogen would be LCFS eligible. Fossil-based hydrogen producers will be forced to rely on third-party performance in order to continue supplying product, which will create significant uncertainty around future investments and ongoing hydrogen projects. This uncertainty comes at a time when lower-carbon hydrogen projects employing CCS are being developed, risks and returns are being weighed, and funding decisions are being made. (15d2-195.16)

Comment: CARB has not indicated how the 80% renewable mandate will be implemented. CARB's proposed 80% renewable hydrogen mandate is ambiguous and offers no details regarding how this will be measured or enforced. Without further clarification, this mandate creates significant uncertainties for any fossil-based hydrogen project starting in 2030, which may deter investment decisions being made today despite a clear market demand for hydrogen fuels. (15d2-195.17)

Comments: *Renewable hydrogen development is currently too costly and not at a scale to support additional hydrogen demand.* CARB's proposal favors electrolysis using renewables, even though this technology is, by most estimates²², at least triple the cost of hydrogen currently produced by steam methane reforming. In addition, the supply of renewable hydrogen is produced by steam methane reforming. In addition, the supply of renewable hydrogen is still limited due to the failure to scale up fast enough to meet demand. Limiting hydrogen development by constraining supply creates uncertainty for investments in hydrogen vehicles and fueling infrastructure that presents risks for the future of California's hydrogen Economy. (15d2-195.20)

Comment: We appreciate the slight modification proposed in the second set of 15-day changes, which would impose an 80% renewable requirement by 2030 and push the fossil hydrogen ban, including low CI blue hydrogen, back to 2035. However, any restrictions on hydrogen supplies under the program – aside from specific rules on Hydrogen Refueling Infrastructure (HRI) crediting and the market-wide reduction in CI that will naturally phase out crediting for higher carbon intensity hydrogen pathways in the 2030s – are counterproductive. (15d2- 206.5)

Comment: Cutting off crediting for fossil-based hydrogen, penalizing it with a greater obligation, and requiring 80 vol% renewable content is punitive at a time when the industry is facing serious economic headwinds. This will deter investment in hydrogen refueling and carbon capture and sequestration projects as well as renewable hydrogen production. (15d2-207.3)

Comment: While we appreciate CARB effectively renewing the LMD-HRI program, there are still problems with the design of both programs including: requiring 80 vol% renewable hydrogen (as noted above), requiring cost and revenue data, limiting HD-HRI crediting capacities, and requiring that HD-HRI stations receive capital funding from a government-run grant program. (15d2- 207.20)

Comment: Modifications to Section 95482. Fuels Subject to Regulation.

60% is not aligned with 80% and December 31, 2030, is not aligned with January 1, 2030 The proposed modifications continue to hold hydrogen to a higher standard than the electricity grid both in terms of timing and renewable content. Senate Bill 100 (De León, Chapter 312, Statutes 2018) requires that retail electricity sales achieve 60% renewable by December 31, 2030, and 100% zero-carbon by 2045, with no intermediate targets between those two mandates. The proposed LCFS requires that hydrogen be 20% more renewable than the grid a year earlier, without the substantial financial support that rate basing renewable procurement provides to retailers of electricity. By contrast, there is no fossil ineligibility in SB 100, nor is there any law that prohibits the use of fossil fuel for electricity production even in 2045. In fact, California's laws focus solely on retail sales which further omits approximately 10-15% of the electricity on the grid.

Unfortunately, the HRI constraints advanced in this proposal create a higher standard for hydrogen which will add substantial costs that bias economics against hydrogen; therefore, will slow the uptake of FCEVs. As written, the LCFS will add the cost of Federal Renewable Fuel Standard RIN credits to hydrogen retailed in California because at present there are no RINs

for hydrogen fuel. Additionally, the content requirement and dates are not aligned with the grid requirements.

Recommendation: Align the requirements with SB 100 – 60% renewable by December 31, 2030. (15d2-222.6)

Comment: To fix the issues that the 15-Day modifications create and ensure the LCFS program continues to support the development of a low-CI hydrogen economy, we respectfully request that prior to finalization of the 15-Day Changes, CARB must:

Reject the proposed 2030 80% renewable hydrogen target in Subsection 95482(h);

This interim target is unnecessary given the eventual phase out of credits for hydrogen production using fossil gas.

The target is opaque, with no description of how 80% renewable hydrogen would be measured or enforced. To proceed with such a target would require additional rulemaking describing in detail what qualifies as renewable hydrogen, for example when renewable natural gas is blended with fossil gas, and how credits would be assigned in the case of exceeding the allowable amount of hydrogen produced from fossil gas.

The target ties hydrogen produced using fossil gas to unknowable future amounts of renewable hydrogen. With large uncertainty and varying forecasts for renewable hydrogen production, there is no way to know how much hydrogen produced using fossil gas will qualify for LCFS credits. For example, if 8,000 tons of renewable hydrogen is produced in 2030, 2,000 tons of non-renewable hydrogen would qualify for LCFS credits. If 800,000 tons of renewable hydrogen is produced in 2030, 200,000 tons of non-renewable hydrogen would qualify. Thus, an investment in hydrogen produced using fossil gas would be predicated on future production of renewable hydrogen, making investment decisions extremely difficult. (15d2-242.6)

Comment: Specifically, we are perplexed by the seemingly arbitrary requirements to limit LCFS crediting to hydrogen that is at least 80% renewable starting in 2030 and the prohibition of blue hydrogen from generating credits beginning in 2035. The proposed changes outlined in Section 95482(h) will add unnecessary complexity and limit cost-effective decarbonization options for the state. Furthermore, the changes are likely to create market uncertainty for hydrogen suppliers and discourage investment in future projects that are critical to Kern's economic development strategy.

The proposed change to prohibit credits for blue hydrogen by 2035 completely ignores the time it takes to construct projects in California due to CEQA. As it stands today, this type of project would not be operational until 2027 at the earliest, leaving only eight years for a project to make use of the credits. Such a short timeframe essentially makes these types of projects uneconomical. Current projections suggest that hydrogen fuel for heavy trucks is not expected to achieve 80-100% of market share until at least 2050, with no assurances that even those target goals can be achieved. Green hydrogen is operationally unproven and requires accessory solar installations that make siting these projects a challenge.

In addition, limitations on electricity connections and the use of solar owned by large-scale commercial producers need to be addressed by the California Energy Commission, California

Independent System Operator, and California Public Utilities Commission to make green hydrogen a viable option. These regulatory agencies must engage in rulemaking on these critical issues if green hydrogen is to play a role in the state's energy transition plan.

A more appropriate approach to the hydrogen dilemma would be to scale up the period for blue hydrogen crediting to at least 2045 to better align with the state's renewable energy production goals. With review under CEQA and full mitigation of criteria pollutants down to "no net increase" through capture and permanent storage of CO₂, these projects could make tangible impacts right now while the issues hampering green hydrogen are ironed out. The 2035 sunset is a departure from a technology-neutral, market-based approach and sends a clear message to investors that California's regulatory agencies may arbitrarily change rules and negatively impact the investment landscape. Investors need certainty. This change will inevitably and unnecessarily strand existing assets and deter future investments. The LCFS should continue to preserve consumer choice by providing a level playing field for all technologies, embracing fuel- and technology-neutral principles that focus on the meaningful and timely reduction of greenhouse gas emissions. (BH-026.1)

Agency Response: Staff made changes in response to these comments. Staff had originally proposed that hydrogen produced using fossil gas as a feedstock would become ineligible for LCFS credit generation beginning January 1, 2030. However, in response to stakeholder comments, staff modified the proposal in section 95482(h) to align with the renewable content requirements in sections 95486.3(a)(4)(F) and 95486.4(a)(4)(G) for hydrogen refueling infrastructure (HRI) crediting. In 2030, hydrogen dispensed as a vehicle fuel would need to be at least 80 percent renewable. Hydrogen produced from fossil fuels would still be eligible until January 1, 2035. The timing of this provision in the Proposed Amendments aligns with the current operational timeline for projects funded under the hydrogen hubs grants, which will expand the supply of renewable hydrogen in California starting in the early 2030s and aligns with mandates that 90% of electricity retail sales be renewable or zero carbon by 2035 (SB 1020 (Laird, Chapter 361, Statutes of 2022)). See also responses to O-1 and B-33.

J-22 *Financial Reporting Should Be Publicly Available*

Comment: §95486.2 (a)(7)(J)- The proposed amendments would require annual financial reporting by LD-HRI operators to the Executive Officer. Publishing anonymized versions of this data, or averages of all LD-HRI projects would provide additional transparency for the program and help researchers better understand revenue dynamics in this policy domain, while still protecting project operators confidential business information. (45d-391.44)

Agency Response: No changes were made in response to these comments, which did not recommend any change to the Proposed Amendments. CARB staff are committed to ensuring that LCFS reporting data is as available and useful to the public as possible, subject to CARB's obligations to protect trade secret or otherwise confidential information.

J-23 *Multiple Comments: LMD and HD Reporting for an FSE Should Be Clarified*

Comment: Chevron requests that CARB work with industry to develop a realistic solution to differentiate reporting between light-duty and MHD vehicles for HRI crediting purposes. Since

these are public access locations, there are little to no means for tracking hydrogen vehicle size to identify if the vehicular weight is less than 8,500 lbs, or within 8,501 lbs to 14,000 lbs GVWR. Also, unlike CNG, separate nozzles are not used for light duty vs. MHD vehicles today. The newly developed NREL heavy duty fueling protocol may allow for separate nozzles for fueling, however it will take many years for the industry to transition. (45d-048.2)

Comment: We understand that CARB has some concern that reporting/recordkeeping will be difficult in discerning when vehicles of different types are fueling – LD vs. MD vs. HD. Specific quarterly reporting parameters for hydrogen used as a transportation fuel include the quantity of hydrogen fuel dispensed per fueling station equipment, as set forth in section 95483.2(b), with a certified fuel pathway code and with transaction type “FCV Fueling” by vehicle weight category: LDV & MDV and HDV. 95941(d)(2) (D)prescribes a methodology for distinguishing between vehicle classes for natural gas fueling. A similar approach can be applied to a hydrogen fueling event of 10 kg or less would be considered to have been supplied to a LD vehicle and fueling events of greater than 10 kg would be considered to have supplied a MHD vehicle. For hydrogen dispensing, this includes the station owner’s declaration that the station meets an appropriate SAE protocol for LDV, MDV, and HDV vehicles and appropriate countermeasure(s) that prevent the compressed hydrogen storage system (CHSS) gas temperature from exceeding the CHSS maximum temperature limit. We believe that viable methodologies can refined with CARB as part of the post-adoption implementation process. (Apr-103.17)

Agency Response: No changes were made in response to these comments. Heavy-duty HRI credits are calculated using heavy-duty pathway characteristics, specifically the EER. Staff understand that some light-duty fueling may occur at heavy-duty stations, but the heavy-duty infrastructure incentive is for the FSE to be accessible to heavy-duty vehicles, not on what vehicles happen to use the FSE. If necessary, staff will provide additional reporting guidance for a scenario in which there are FSEs that service light-duty, medium-duty, and/or heavy-duty vehicles.

J-24 LMD-HRI Program Should Be Removed

Comment: This would effectively exclude the sectors for which the proposed amendments are most incentivizing hydrogen adoption: light-duty, medium-duty, and heavy-duty transport. Through the Hydrogen Refueling Infrastructure (HRI) provision, for instance, CARB is incentivizing the rapid buildout of hydrogen refueling infrastructure. However, resources would be better directed to other pursuits given that for light-duty vehicles, battery-electric is readily available, energy efficient, and lower cost than the hydrogen fuel cell alternative. Likewise, for heavy-duty vehicles such as those in long-haul trucking, it has now been shown that battery-electric is competitive and economically advantageous. Whenever direct electrification can be used instead of hydrogen, as with vehicles, it’s the demonstrably better choice. (45d-210.18)

Agency Response: No changes were made in response to this comment. While staff recognize that sales of light-duty BEVs have outpaced FCEVs, light- and medium-duty FCEVs are still projected to have a role in the State’s zero-emission vehicle future, and incentivization of a Statewide light- and medium-duty hydrogen fueling network remains important. Furthermore, the LMD-HRI program incentivizes only as many light- and medium-duty stations are built; even now the current HRI program is about half utilized.

Significant co-location of LMD-HRI stations with HD-HRI stations is anticipated, with the two programs effectively supporting all hydrogen refueling types at a single address.

J-25 *Opposition to New HRI Programs*

Comment: While we appreciate the intention to create a robust and reliable hydrogen fueling infrastructure, the 15 day proposed changes creates restrictions risk undermining this goal. A more flexible and balanced approach is needed—one that promotes competition, supports existing infrastructure, and aligns with California’s broader energy and climate changes goals without imposing unnecessary burdens on the hydrogen industry. (15d1-245.28)

Comment: Our issues are technical and not political – we fully support the need for and continuation of the LCFS, but changes are necessary prior to adoption.

Unfortunately, the 2nd 15-day changes omit necessary updates to support hydrogen refueling infrastructure (HRI). The 2nd 15-day package falls short of incentivizing investment in this market due to several layers of limitations that have not been adequately addressed, which will severely impact hydrogen deployment in California. Hydrogen production, infrastructure and offtake markets have not received commensurate investment from California to support the requirements and credit limitations that are being imposed in this rule. The LCFS is the only market signal that supports private investment in this sector, and we are concerned that, as drafted, the LCFS rule will discourage investment as the market will naturally look for more secure investment opportunities. (15d2-222.1)

Agency Response: No changes were made in response to this comment. Incentivization of ZEV infrastructure, for both hydrogen and electric fuels, are an important part of the State’s move toward a low carbon future and to achieve health protective air quality standards.

J-26 *Multiple Comments: Support for New HRI Programs*

Comment: We applaud the proposed extension of Hydrogen Refueling Infrastructure (HRI) crediting to medium and heavy-duty vehicles, along with additional time for light-duty vehicle stations and look forward to working on language with CARB to accommodate refueling stations that serve all vehicle types. (45d-214.4)

Comment: Air Products strongly supports the expansion of crediting to medium and heavy duty (MHD) vehicles and continued crediting for light duty (LD) vehicles. (45d-214.21)

Comment: The proposed expansion of the HRI credits to include Heavy Duty stations will provide a mechanism to encourage this infrastructure investment and we are strongly supportive of the proposed program introduction. (45d-223.2)

Comment: ICA believes that a similar infrastructure crediting program for medium- and heavy-duty vehicles will help achieving the MHD ZEV Mandate targets. MHD ZEV is a necessary strategy for decarbonization of transportation sector and a more efficient way of using fuels (EER of 1.9 for MDH fuel cell). Hence ICA strongly supports CARB’s proposal to extend the infrastructure crediting program to medium- and heavy-duty-(MHD) vehicles. (45d-254.4)

Comment: CARB regulations, which we support, require a transition to zero-emission engines in buses, trucks and other medium and heavy-duty vehicles. That transition is essential to solving our air pollution and climate crises, and infrastructure challenges are probably the biggest single obstacle to success. Therefore, we support the proposed creation of an infrastructure crediting mechanism for medium and heavy-duty refueling for zero emission vehicles, both battery-electric and fuel-cell electric. (Apr-39.5)

Comment: Hydrogen refueling station (HRS) developers assisted CARB in the development of a heavy-duty (HD) capacity credit program that could be built into the Low Carbon Fuel Standard (LCFS). The program, modeled after the light-duty (LD) HRI program, included a capacity cap of 6,000 kg/day with a 50% discount applied to unused capacity. The concept was developed using the current LCFS compliance curve and agreed upon by both CARB and HRS developers as adequate to promote HD HRS development. It has now been included in the proposed LCFS amendments, which industry greatly appreciates. (Apr-141.1)

Comment: We strongly support the program and encourage CARB to adopt amendments at the November 8, 2024, Board meeting, including those that expand fast charging and hydrogen refueling capacity crediting to include heavy-duty vehicles and applications. (15d1-204.2)

Comment: We support the changes to hydrogen infrastructure crediting. (15d2-185.9)

Comment: We strongly support CARB staff's decision to increase the public LMD station HRI capacity factor from 50% to 100%, which is aligned with the existing HRI provision. (15d2-203.1)

Comment: HD-HRI Crediting Provisions: We support the proposed changes to HRI crediting, including adjusting the credit caps to 100% for public stations and 50% for private stations, now set against a 1,200 kg/day credit cap rather than 2,000 kg/day. In response to the first 15-day change package, we supported the proposed changes to align light- and medium-duty (LMD) stations in one category and heavy-duty (HD) in another category for generating HRI credits but requested clarification about how multi-modal stations that serve both LMD and HD vehicles will be treated within the HRI crediting framework.² (15d2- 206.8)

Comment: We appreciate the continuation of the HRI pathway for light- and medium-duty vehicles, as well as the creation of a heavy-duty HRI pathway. (15d2-222.2)

Comment: FirstElement Fuel (FEF) appreciates your and your staff's continued work in incorporating many of the comments from our industry, in particular, the removal of the 50% derate for the Light- and Medium-Duty Hydrogen Refueling Infrastructure (LMD-HRI) capacity credit. (15d2-227.1)

Comment: JH2F is encouraged to see some of the proposed language, LMD HRI provisions. (15d2-235.1)

Comment: Again, we appreciate your effort to incorporate some of the feedback made in the last comments and are in support of the proposed language on increasing HRI credit capacity. We support that the higher cap aligning with the existing LDV HRI program will further facilitate

development of LMD hydrogen station network and will encourage further investment for this infrastructure. (15d2-235.4)

Comment: SDG&E is encouraged by the provisions that would continue to provide needed support for the use of hydrogen and renewable natural gas (RNG). The proposed amendments include key elements that will help accelerate the adoption of these important fuels but could go further to ensure that hydrogen production is not being held to higher standards than other technologies given its important role in advancing medium- and heavy-duty zero-emission vehicle⁴ goals. (15d2-273.3)

Comment: Hydrogen Infrastructure and Incentives: The inclusion of provisions that enhance zero-emission vehicle infrastructure eligibility and increase support for zero-emission vehicle fueling is crucial. These changes will facilitate the expansion of hydrogen refueling stations, making hydrogen fuel cell vehicles more accessible to consumers and businesses alike. While the proposed changes to hydrogen feedstocks that can qualify for credit generation is better aligned with hydrogen renewable content requirements across the LCFS regulation, the program would still benefit from more focused alignment with the renewable requirements for the electricity grid. SDG&E supports the intent of CARB's changes to allow more time for renewable hydrogen to scale up and effectively displace fossil hydrogen used in California, though recognizes that further technical refinements to the regulation may be needed to realize that vision. (15d2-273.4)

Agency Response: No change was made in response to this comment. CARB staff appreciates the support for the LMD- and HD-HRI programs,

J-27 Multiple Comments: *Opposition to Private HRI Stations*

Comment: As a principle we believe that public programs should support only publicly available infrastructure. The crediting of private refueling locations under HRI should be grounded in several considerations. This approach fails to expand the availability and optionality of hydrogen/fuel cells in the current-year or near-term obligations. The reduced number of publicly available stations limits the options for fleets complying with ACF, particularly impacting the adoption of fuel cell electric trucks. Private depots should not be overbuilt and capacity crediting for private fleets is counterproductive to the purpose and intent of HRI. It hinders effective utilization of resources and undermines the efficiency of the infrastructure. Private depots carry no risk, they control their own demand. The purpose of the HD HRI program is to eliminate the risk of underutilization and promote the installation of HD H2 stations absent adequate bilateral contracts that would secure offtake and return on capital invested. Private transit facilities incur no such risk. The HD HRI is intended to eliminate the chicken and the egg problem, by promoting deployment of stations in anticipation of zero-emission vehicle fleet growth. If HD HRS development is dependent on bilateral contracts, it will take a lot longer to deploy and penetration of HD FCETs into the market will take much longer. (45d-302.8)

Comment: As previously expressed, we continue to assert that private depots should not be overbuilt and capacity crediting for private fleets is counterproductive to the purpose and intent of HRI. It hinders effective utilization of resources and undermines the efficiency of the infrastructure. Private depots carry no risk since they control their own demand. The purpose

of the HD HRI program is to eliminate the risk of underutilization and promote the installation of HD HRS absent adequate bilateral contracts that would secure offtake and return on capital invested. Should CARB want to extend crediting to private depots, it should be limited and restricted to public transit fleets only. We want to reiterate that the purpose of the HD HRI program is to eliminate the risk of underutilization and promote the installation of HD HRS absent adequate bilateral contracts that would secure offtake and return on capital invested. Recommendation: Should CARB want to extend crediting to private depots, it should be limited and restricted to public transit fleets only. (15d1-245.25)

Agency Response: No changes were made in response to this comment. The inclusion of private refueling stations in the HRI provisions will accelerate the growth of hydrogen vehicle deployment in the State given the large numbers of private and captive medium and heavy-duty fleets in California, and thus should be incentivized. Staff anticipate that a 25% crediting capacity for private HRI stations will not result in over-sized private stations, but rather help support right-sized stations as entities build their hydrogen vehicle fleets.

J-28 Multiple Comments: *Support for Private HRI Stations*

Comment: We appreciate CARB providing an option for private MHD stations to receive HRI credits in support of the Advanced Clean Fleets regulation and we support the lower credit cap for these stations. Providing some crediting for private stations, but a higher level of crediting for public stations, strikes a good balance in the two use cases and will drive investments in the infrastructure necessary for meaningful fleet conversion. (45d-214.39)

Comment: Joby is supportive of the hydrogen refueling provisions and their inclusion of both private and public infrastructure. While the hydrogen refueling station pathways proposed in the 15-day changes are to be grouped in a new manner – one category for light- and medium-duty (LMD-HRI) hydrogen refueling stations and a separate one for heavy-duty (HD-HRI). (15d1-076.3)

Comment: “MHD-HRI” stations should be categorized into public and private stations with a capacity credit provision available for the private stations, similar to the provision available for private “LMD-HRI” stations. (15d2-204.9)

Agency Response: No change was made in response to this comment. CARB staff appreciates the support for HRI programs.

J-29 Multiple Comments: *Improvements to HyCAP Model*

Comment: The complexity in modeling multi-modal stations for capacity crediting necessitates ongoing collaboration with CARB staff and the National Renewable Energy Laboratory (NREL) to refine the HyCap model. The model must evolve to consider diverse weight classes refueling at the same location. These refinements and functionality are essential and should progress concurrently with the adoption of the LCFS. We will work diligently with CARB staff and NREL to refine and test the model to reflect real world practices and fueling profiles. (45d-302.5)

Comment: We still have not been able to “test drive” the HDS HyCAP model to determine the credits for multi-use stations. Although we are confident that we will arrive at a workable solution, a definitive strategy and iterations on the modeling should be allowed before the regulation is finalized and brought to the Board. (Apr-83.9)

Comment: Additionally, the method for calculating station refueling capacity using the HyCap model or an equivalent methodology approved by the Executive Officer needs standardization and additional work. Without a consistent methodology, the program may face unintended consequences, such as discrepancies in capacity estimation that could skew the allocation of credits and affect the overall effectiveness of the HRI program. Recommendation: Continue to work with station developers and the National Renewable Energy Laboratory to develop standardization for a second 15-day proposal. (15d1-245.20)

Comment: CARB guidance also needs to confirm that multimodal station design is supported with LMD Hydrogen Fueling Capacity Model (HyCap) and HD HyCap ratings. Based on multimodal station design and costs, the HyCap ratings are allocated based on the hydrogen dispensing capacity for LMD and HD fueling and any operating constraints. We trust that CARB will address these points in the responses to comments and through future guidance, and we look forward to working with staff to implement these new provisions. (15d2- 206.10)

Agency Response: No change was made in response to this comment. NREL has completed HyCap 1.0. CARB staff continue to work with NREL and HRI applicants to ensure that the HyCAP model meets the needs of the LCFS HRI provisions and is willing to consider equivalent modeling approaches as needed if the HyCAP model is insufficient for particular applications.

J-30 *Public HD-HRI Stations Should Include Access Cards*

Comment: The provision requiring that HD-HRI stations must not impose any obstacles, such as access cards or PIN codes, to dispense fuel could unintentionally hinder the adoption of hydrogen technology. Training and onboarding are critical for fleet operators who frequently rotate drivers and ensuring that drivers are comfortable with new fueling technology is essential. Security measures, such as access cards, should not be seen as barriers as long as the stations remain accessible to customers. Recommendation: Redefine publicly available to recognize security features intended to keep the general public safe but allows access for customers. (15d1-245.21)

Agency Response: No changes were made in response to this comment. Only public HD-HRI stations require no access cards or PIN codes. Shared stations, which are accessible to one or more third-party fleets, can have access cards and PIN codes and be eligible to generate HRI credits. Public stations need only be public for 12 hours each day; during non-public hours access cards and PIN codes can be in place.

J-31 *Multiple Comments: Support for LMD- and HD-FCI Incentivization*

Comment: Penske is supportive of expanded eligibility for ZEV infrastructure crediting, which allows for increased public and private investment in low carbon fuels. Given the high cost of EV charging equipment, installation, and vehicle investment, infrastructure funding support is essential to keep the program on track toward GHG reduction goals. We encourage CARB to

continue supporting incentives which expand the availability of low carbon transportation charging options for fleets across the state. In developing these incentives, we especially encourage CARB to consider the unique needs and access points of the MHD ZEV sector. Presently, even with existing rebates and incentive programs, the pathways for MHD fleets and operators to access ZEVs are difficult, especially for smaller fleets. Many small businesses do not have the capacity to take advantage of incentive programs or the capital to invest in new refueling infrastructure. Further, a transition to ZEVs requires a fundamental shift in business operations, as businesses must consider new challenges, such as including charging time in operation schedules, ensuring charging is accessible enroute, and solving for the inherent inconsistencies associated with emerging technologies. By aligning infrastructure, vehicles, and maintenance into a publicly available package without significant upfront costs, short-term rental and leasing offer a critical avenue for small businesses to affordably incorporate ZEVs into business operations. Thus, as CARB continues to support incentives to expand low carbon transportation charging options, we encourage CARB to recognize the unique needs of the MHD ZEV sector. Specifically, we encourage CARB to consider supporting infrastructure serving multiple fleets through publicly available rental and lease offerings as publicly accessible infrastructure, a practice that aligns with other funding agencies. In doing so, we believe the LCFS can more comprehensively be a major force of change incentivizing the essential transition to low carbon options. (45d-153.3)

Comment: We support the proposed capacity crediting provisions for zero emission vehicle infrastructure, including shifting FCI crediting proposals to medium and heavy-duty vehicles (MHD-FCI) and targeted deployments for light-duty vehicles (LD-FCI). (45d-197.7)

Comment: Rivian welcomes the qualified extension of light-duty (“LD”) FCI crediting in low-income, rural, or disadvantaged communities as well as the expansion of the FCI pathway to include medium- and heavyduty (“MHD”) FCI at both public and private sites. (45d-228.4a)

Comment: LADWP supports the proposed amendments that expand the current ZEV infrastructure crediting provisions beyond light-duty (LD) infrastructure to medium- and heavy-duty (MHD) infrastructure and extending the light-duty crediting. LADWP believes that infrastructure crediting will help reduce the risk of under-utilized chargers and will drive the buildout of necessary infrastructure. (45d-237.8)

Comment: SVLG supports the inclusion of capacity credits for medium- and heavy-duty zero emission vehicle fueling within LCFS. This new incentive program will be groundbreaking for encouraging the deployment of infrastructure needed to serve clean trucking fleets throughout the state as companies comply with the Advanced Clean Fleets rulemaking. (45d-242.4)

Comment: Add a new capacity credit program for MHD EVs at public, shared depot and fleet locations to 2030 with many restrictions. Encourage more DCFC development, including at shared depot and fleet locations for drayage, short-haul and delivery trucks. (45d-279.8)

Comment: CSE strongly supports CARB’s proposal to expand the Fast Charging Infrastructure (FCI) capacity credit pathway to operators of MHD charging infrastructure. This action will provide fleet operators and charging providers with upfront revenue to offset the high capital costs of deploying MHD charging infrastructure. Additionally, this capacity credit pathway will provide an additional tool to assist fleet operators in complying with the

requirements of the Advanced Clean Fleets and other fleet-focused regulations. CSE also supports CARB's proposal to make these capacity credits available for operators of privately-owned infrastructure since MHD vehicles are generally more reliant on privately-owned infrastructure than light-duty vehicles. (Apr-28.3)

Comment: CARB regulations, which we support, require a transition to zero-emission engines in buses, trucks and other medium and heavy-duty vehicles. That transition is essential to solving our air pollution and climate crises, and infrastructure challenges are probably the biggest single obstacle to success. Therefore, we support the proposed creation of an infrastructure crediting mechanism for medium and heavy-duty refueling for zero emission vehicles, both battery-electric and fuel-cell electric. (Apr-39.5)

Comment: We support the proposed capacity crediting provisions for zero emission vehicle infrastructure, including shifting FCI crediting proposals to medium and heavy-duty vehicles (MHD-FCI) and targeted deployments for light-duty vehicles (LD-FCI). (Apr-57.4, 57.5)

Comment: PACT is encouraged to see CARB's focus on medium- and heavy-duty ("M/HD") charging, and its recognition of the unique nature of power, location, and site design of such charging stations. PACT strongly supports the creation of the MHD-FCI program and proposes modifications to the provision to maximize the benefits of the program according to key industry stakeholders. (Apr-92.1)

Comment: PACT members applaud CARB's leadership for developing a first-of-kind capacity credit program for the M/HD sector, and encourage CARB to expedite the passage of the MHD-FCI provision. The MHD-FCI provision will send clear market signals to the M/HD sector and its stakeholders that the industry can feel confident that the support needed to advance M/HD ZEVs will be available. The staff's proposal to create the MHD-FCI program will play a key role in ensuring that more investments are made in M/HD ZEVs and the requisite charging infrastructure. PACT agrees with parties who have highlighted that the LCFS has the potential to be a paradigm-shifting resource to help California meet its electrification targets ratified in the Advanced Clean Trucks ("ACT") and Advanced Clean Fleets ("ACF") regulations, and its decarbonization goals. While the Proposed Amendments would help fund M/HD ZEV infrastructure, further modifications are warranted, which will unlock further potential of the program to accelerate the deployment of critical ZEV technologies. PACT believes that with the incorporation of recommended adjustments, the overall effectiveness of the program will be substantially increased. (Apr-92.3)

Comment: Ensuring that there is adequate charging infrastructure is a crucial step to ensuring California can fully realize the benefits of the Advanced Clean Trucks and Advanced Clean Fleets rules. As such, EDF views the introduction of a new medium- and heavy-duty vehicle Fast Charging Infrastructure (MHD FCI) credit as critical for this effort. The operational variation of medium- and heavy-duty vehicles necessitates a wide diversity of charging equipment and capabilities. Given the diversity of charging needs, the 10 years of crediting will be one of many state-supported funding solutions necessary to transition fleets effectively and affordably throughout the state. (Apr-190.3)

Comment: We'd like to once again thank CARB staff for their proposal to expand the capacity crediting program (known as Fast Charging Infrastructure, or FCI) to MHD infrastructure. The

FCI program is an elegant solution to the chicken and egg issue the EV industry has long grappled with. Expanding the FCI program is one of the most helpful 1 things that policymakers can do to accelerate deployment of charging infrastructure in advance of vehicle deployment, laying the groundwork for an accelerated transition to zero emission vehicles. (Apr-191.2)

Comment: We also support the proposed amendments related to fast charging infrastructure (FCI) crediting. (15d1-069.4)

Comment: Strongly support ARB's proposed changes to the heavy-duty FCI pathway. (15-day-203.4)

Comment: We would like to specifically thank ARB for taking the time over the summer to work with the charging industry on honing the FCI pathways, specifically the heavy-duty (HD) pathway. This being a new pathway with several critical differences than the existing light-duty (LD) FCI pathway, we appreciate how ARB collaborated with industry and took a thoughtful approach to the HD pathway that in the end is more workable and will result in faster HD electrification. For the proposed light and medium duty (LMD) FCI pathway, we support how ARB combined light and medium duty into one pathway, separate from HD, which better matches the differences in use cases. We also appreciate how ARB accommodated shared public/private sites within the pathway, as we see more of the market trending towards this model. (15d1-203.8)

Comment: We strongly support the program and encourage CARB to adopt amendments at the November 8, 2024, Board meeting, including those that expand fast charging and hydrogen refueling capacity crediting to include heavy-duty vehicles and applications. (15d1-204.2)

Comment: Additionally, LADWP supports the changes to the Fast-Charging Infrastructure crediting in the 15-Day Changes. (15d1-208.7)

Comment: Tesla supports several of the amendments made to the Fast Charging Infrastructure (FCI) Program made in the 15-day Amendments. In particular, Tesla supports:

- extending the program application deadline for the Heavy-Duty (HD) FCI program to December 31, 2035;
- extending the minimum distance from an existing or pending electric vehicle Federal Highway Administration Alternative Fuel Corridor to five miles instead of one mile;
- removing the ten charger cap;
- matching the credit life of the FCI and hydrogen refueling infrastructure (HRI) programs at 10 years; and
- raising the MW cap per site. Under these amendments, this program will accelerate deployment of charging infrastructure for HD electric trucks throughout California. (15d1-29.4)

Comment: EVCA and CalETC largely support the proposed heavy-duty vehicle FCI program but request a few additional changes. For all the reasons listed in our February 20, 2024 letter, we support the following amendments proposed in the 15-day changes: Extending the

HD-FCI program's application deadline to December 31, 2035 rather than December 31, 2030; Extending the minimum distance from an existing or pending electric vehicle Federal Highway Administration Alternative Fuel Corridor to five miles instead of one mile; Lowering the minimum kW per charger from 250 kW to 50 kW; Removing the cap of 10 chargers per site; Increasing the limit at one address from 10 MW to a higher number and adding a 20 percent of overall program cap on any single company; Matching the credit life for the FCI and hydrogen refueling infrastructure (HRI) programs at 10 years rather than having different lifespans for the two programs; Clarifying the payment requirements; Modifying the access requirements; Not requiring certain connectors; Allowing load management technologies such as battery energy storage. (15d1-150.3)

Comment: EVCA and CalETC largely support the proposed light- and medium-duty vehicle FCI program but request a few additional changes. For all the reasons listed in our February 20, 2024 letter, we support the following amendments proposed in the 15-day changes:

- Increasing the MW per site limit (per address) from 1 MW to 2.5 MW
 - Removing the geographic limits
 - Increasing the cap of prior quarter deficits from 0.5 percent to 2.5 percent
 - Allowing private access stations to qualify (e.g. robotaxis, ride sharing vehicles)
 - Matching the credit life for the FCI and hydrogen refueling infrastructure (HRI) programs at 10 years rather than having different lifespans for the two programs
 - Allowing stations installed after 2022 to apply
 - Modifying the payment requirements
 - Dropping the connector requirements
 - Allowing load management technologies such as battery energy storage
- (15d1-150.4)

Comment: Infrastructure crediting is a critical strategy to incentive public fast charger deployment in California to match rapid growth in heavy-duty vehicle (HDV) sales. We support the changes made in the 15-day package to increase ZEV uptake in the medium and heavy-duty vehicle segments, although additional analysis is required. In its proposed 15-day package changes, CARB loosened restrictions on medium and heavy-duty infrastructure crediting from the ISOR that will provide additional flexibility to charge-point operators to generate LCFS credits. These changes include removing a minimum charger count requirement for HD-FCI applications, extending geographic restrictions to chargers located within 5 miles from Federal Highway Administration Alternative Fuel Corridor, and increasing the total power limit per applicant to 40 MW. We commend CARB for this decision, as it provides more flexibility to deploy charging infrastructure necessary for the electric transition for the MDHDV fleet. (15d1-219.38)

Comment: PG&E also appreciates the proposed changes to the Fast Charging Infrastructure (FCI) program, in particular increasing the medium/heavy-duty (MHD) geographic restriction from one mile to five miles from a major highway corridor, as this is important to avoid potential adverse impacts on the grid, and not delay deployments or increase overall costs. (15d1-224.11)

Comment: We would like to thank CARB for incorporating additional flexibility in the recent proposed 15-day changes to the LCFS, particularly the added flexibility for Heavy-Duty Fast Charging Infrastructure (FCI) crediting. (15d2-187.1)

Comment: Support for Transportation Electrification (TE) Provisions

With respect to LCFS updates in support of the TE sector, I am especially appreciative of CARB's continued leadership as demonstrated by the inclusion of multiple TE provisions, including the proposed amendments to include: a) the shared fleet-owned shared HD- Fast Charging Infrastructure (FCI) charging site provisions; b) the DC FCI Pathways for Light- and Medium-Duty Charging Sites, and d) DC FCI Pathways for Heavy-Duty charging sites. The inclusion of these provisions will encourage fleet diversification and continue to promote the deployment of ZEV infrastructure for multiple fleet classes, which deeply aligns with a diverse array of the state's TE policy drivers. (15d2- 189.2)

Comment: We support the Fast Charging Infrastructure (FCI) programs in LCFS. In the first and second 15-day changes, the FCI programs for light- and medium-duty direct current fast charging (DCFC) and for heavy duty DCFC are dramatically improved. We strongly support and thank CARB for creating a workable program. The proposed FCI provisions are two well-designed programs that, like the current FCI, will be effective in helping to attract capital to build public DC fast charge stations in California by helping to de-risk investment. The FCI programs address the "chicken and egg" infrastructure problem associated with development of DCFC stations. One of its most attractive aspects is that it results in charging plazas and refueling stations being able to exit the FCI program and transition to traditional LCFS credits. Put another way, both FCI and hydrogen refueling infrastructure (HRI) capacity credits decrease over time as the utilization of the stations increases and the station generates more traditional LCFS credits. FCI credits are also critically important for supporting ongoing operating costs for fast chargers and helping enhance station reliability. With charging experience topics emerging as a state and national priority, EVCA and CalETC assert that FCI credits will be important for driving consumer confidence in EVs and charging technology – particularly at stations that have yet to achieve robust levels of utilization. (15d2- 193.2)

Comment: Anew is supportive of the additions and latest modifications CARB has made to the Fast Charging Infrastructure ("FCI") credit opportunities for light, medium, and heavy duty charging, including the provisions allowing a designee to apply for and generate credits, as well as the ability to allocate base credits to the vehicle manufacturers. (15d2-212.13)

Comment: Notably, the proposed heavy-duty fast charging infrastructure (HD-FCI) program has the potential to be one of the most important programs in helping to deploy the charging infrastructure necessary for California to meet its zero emission transportation goals set by Governor Newsom's Executive Order N-79-20, along with recent regulations like the Advanced Clean Trucks (ACT) and Advanced Clean Fleets (ACF) rules. As we mentioned in previous comments, the HD-FCI provision addresses utilization risks in the early market phases, helping solve the "chicken or egg" dilemma that currently hampers infrastructure deployment. (15d2- 217.1)

Comment: The latest 15 Day Change notice also includes minor technical amendments throughout the HD-FCI section that remove many of the uncertainties around site eligibility,

credit calculation, and program caps. We support and appreciate these updates and clarifications. Remaining uncertainties for the HD-FCI program can be resolved through the Final Statement of Reasons or board resolution. (15d2-217.2)

Comment: We would like to thank CARB for incorporating additional flexibility in the recent proposed 15-day changes to the LCFS, particularly the added flexibility for Heavy-Duty Fast Charging Infrastructure (FCI) crediting. (15d2-270.1)

Agency Response: No change was made in response to this comment. CARB staff appreciates the support for the LMD- and HD-FCI programs.

J-32 *Disagreement with CARB Battery Efficiency Data*

Comment: CARB lies about the efficiency of EVs!! In their ARB/MSD/7-6-94 they claim that battery efficiency is 80% and motor is 90%. These are LIES!!! Charging a battery in one hour has an efficiency of 5.88%, in 15 minutes ONLY 0.3675%!! The motor efficiency depends on how many stops are made. Each time the motor starts the motor and system efficiency are almost ZERO!!!! Every time the motor starts the battery efficiency is also degraded because of the high motor starting current!!!! (45d-040.1)

Agency Response: No change was made in response to this comment. This is not a comment on the LCFS Proposed Amendments. CARB uses the best available data and research in the creation of its regulations.

J-33 *Multiple Comments: Extend or Remove FCI Geographical Limitations*

Comment: Therefore, we support the proposed creation of an infrastructure crediting mechanism for medium and heavy-duty refueling for zero-emission vehicles, both battery-electric and fuel-cell electric. But the success of the MHD-FCI provision will be constrained by the geographic limitation to projects “Located within one mile of a reading or pending electric vehicle Federal Highway Administration Alternative Fuel Corridor or on or adjacent to a property used for medium or heavy-duty vehicle overnight parking, or has received capital funding from a State or Federal competitive grant program that includes location evaluation as criteria.” We recommend removing these geographic restrictions, as they will undercut program effectiveness, delay deployment, and increase costs for charging and grid upgrades. (45d-101.6)

Comment: In addition to allowing EVSE owners to retain both the base + incremental credits, one remedy to this challenge would be to incentivize DCFC infrastructure on-site, adjacent, or proximally located within five miles of a multi-unit dwelling. Proximal fast charging can compensate for cases where there is an insufficient number of L2 chargers, and still address an underserved population that is central to the broader goals of the EV industry and the State of California. FCI credits allotted to multi-unit-based/adjacent DCFC... (45d-238.5)

Comment: SCE commends Staff for including the new capacity crediting (FCI) provision for public and shared-private medium-duty and heavy-duty (MDHD) charging stations. The MDHD FCI provision is critical in assisting the deployment of these charging stations by allowing developers to recover a portion of their LCFS crediting potential while their utilization grows as the electric MDHD vehicle market matures. However, SCE is concerned that the requirement

that these sites be located within one mile of an Alternative Fuel Corridor (AFC) creates incentives for developers to impose arbitrary constraints on the electric grid that may stall overall MDHD vehicle electrification. An examination of SCE's public-facing Grid Needs Assessment (GNA) Load Capacity maps illustrates this point. In 2025, SCE expects to have a total of 12,921MW of carry capacity available on its system over a total of 4,285 circuits, with 75% of that carrying capacity located within one mile, and 95% of the capacity located within ten miles, of the AFC routes. However, MDHD charging stations are much larger than typical interconnection requests – usually greater than 5MW and often greater than 10MW. When applying this filter, only 36% of SCE's available circuit capacity is located within one mile of AFC routes for circuits that can handle at least 5MW of additional load, and that value increases to only 45% when the radius is expanded to ten miles. Because incentives drive market participant behavior, SCE is concerned that the strict geographic restrictions proposed in the draft amendments for MDHD FCI credits will cause developers to attempt to locate sites in areas that do not have immediately available circuit capacity. This scenario creates undue costs on SCE's ratepayers and delays the deployment of critical MDHD charging infrastructure that is necessary to achieve the state's decarbonization targets. For this reason, SCE recommends that CARB reject the 1-mile requirement and allow for greater flexibility in allowable locations for sites seeking to claim MDHD FCI credits. (45d-178.14)

Comment: EVCA and CalETC appreciate the proposal to create a new FCI program for medium-, and heavy-duty EVs (eMHDVs) at public, fleet, and shared depot locations but the proposal includes several limiting parameters that will undercut its effectiveness in supporting California's Advanced Clean Truck (ACT) and Advanced Clean Fleet (ACF) requirements. EVCA and CalETC oppose the geographic limits and prescriptive site limits and specifications included in the proposed LCFS. A larger, more flexible program is needed to meet industry needs, accelerate deployment, reduce costs, and align with California's truck electrification ambitions. (45d-188.4)

Comment: Regarding the MHD-FCI provision: (1) relax the siting requirement to within 5 mi of a FHAA corridor, (2) reduce the minimum kW nameplate capacity to 200, (3) consider shortening the FCI crediting window to 7 years, and (4) roll unutilized LD-FCI capacity into the MHD-FCI provision to increase deployments. (45d-224.3)

Comment: For similar reasons laid out above (re: maintaining a 2.5% cap), we also contend that geographic restrictions on public FCI would likely impinge on greater EV adoption, particularly among the low-income and middle-income communities that are the most important to incentivize. Geographic restrictions will likely cause investor confusion and conservatism (whether deserved or not) at a time when more capital needs to be deployed for infrastructure in low utilization locales. In both cases (re: 2.5% and no geographic constraints), we do not project an oversupply of credits due to the self-limiting nature of FCI—in that as kWh consumption increases, the FCI credits decrease. More so, CARB's novel acceleration mechanism should successfully buffer against significant credit devaluation. (45d-238.9)

Comment: We support continuing the Light Duty Vehicle ("LDV") FCI. However, in our view, the geographic restrictions, particularly the 10-mile requirement from any fast charging station, will effectively eliminate too many of the major routes in the states and cities/towns that have a

minimal amount of charging but much less than is required based on EV adoption. (45d-363.13)

Comment: Current draft language in Section 95486.3 limits the eligibility of MHDV FCI to areas including Federal Highway Administration Alternative Fuel Corridors and areas currently used for MHDVs parking. We assume that staff's inclusion of geographic and charging station power restrictions were meant in some way to focus LCFS support to charging infrastructure development in the most appropriate areas. However, the proposed restrictions are excessive and premature given the current state of the zero emission MHDV market and infrastructure deployment. (45d-276.15)

Comment: While we support increasing geographic flexibilities for zero-emission fueling stations, the program should include restrictions to avoid increasing traffic and noise burdens in communities adjacent to freight and industrial operations. We encourage CARB to work directly with these communities and consult pollution and traffic data when designing credits and incentives for ZEV fueling stations. (45d-276.16)

Comment: We recommend completely eliminating geographic restrictions in order to maximize the benefits of the program. Business models, amount of investment needed to build charging sites, and investor pressure will minimize the risk of stranded assets and ensure that charger deployments align with fleet operational needs for both Share and Private charging sites in a network. If CARB ultimately decides that limits are needed, we recommend specific changes to provide added flexibility, open up additional sites, and avoid unintentional delays and potential cost increases. ► Recommendation: Strike section §95486.3(b)(1)(B)2 to provide implementation flexibility. This is the best course of action to accelerate progress on electrification and to avoid unintended consequences. ► Suboptimal alternative: We maintain that a program without geographic limits would best serve CARB goals and that limits are unnecessary given the natural market forces that will push for optimized locations. If, however, CARB determines that some geographic limits are necessary for shared charging sites, we suggest increasing flexibility with the following changes to existing language to address corridor distance, the realities of parking and fleet operations, and the importance of local decision-making in this sector: 2. located within ~~one mile~~ five miles of a readying or pending electric vehicle Federal Highway Administration Alternative Fuel Corridor or on or adjacent to a property that allows used for medium or heavy-duty vehicle overnight parking at the time credits are claimed, or has received capital funding from a local, State or Federal competitive grant program ~~that includes location evaluation as criteria~~. (45d-278.1)

Comment: Anew is supportive of the addition of medium and heavy duty ("MHDV") Fast Charging Infrastructure ("FCI") credits. The adoption of MHDV vehicles into private fleets remains an economic challenge that LCFS crediting could help address. Given the difficulties with adoption, we believe the 50% reduction for private fleets should be eliminated. Additionally, requiring proximity to a Federal Highway Administration Alternative Fuel Corridor unnecessarily restricts private operations and should be applicable only to public infrastructure projects. The minimum power requirement of 250kW also unduly restricts private operations. Operating multiple lower power chargers overnight provides many operations with the opportunity to charge in a manner more suited to extended battery life, incur less operational costs associated with moving vehicles in and out of chargers, especially in off hours, and lower

utility impact and investment requirements by spreading a lower power load over a longer period of time. CARB already envisions overnight charging based on the exception to the requirement of being within 1 mile of an AFC. (45d-363.12)

Comment: We support continuing the Light Duty Vehicle (“LDV”) FCI. However, in our view, the geographic restrictions, particularly the 10-mile requirement from any fast charging station, will effectively eliminate too many of the major routes in the states and cities/towns that have a minimal amount of charging but much less than is required based on EV adoption. (45d-363.13)

Comment: §95486.3 (b)(1)(B)2- Proposed language adopts the same definition of eligibility for MHD-FCI sites as §95486.3 (a)(1) Comment: CSE does not support CARB’s proposal to limit MHD capacity credits to infrastructure installed at locations that are within one mile of a ready or pending Alternative Fuel Corridor (AFC) or adjacent to existing truck parking. CSE acknowledges and appreciates that CARB has proposed these limitations in order to maximize air quality benefits to those communities impacted by truck pollution, which disproportionately tend to be disadvantaged and low-income communities. However, CSE highlights that many MHD infrastructure sites will likely already be located in these communities, regardless of whether this limitation is adopted. Additionally, imposing such a limitation may prevent infrastructure deployment at other ideal locations, including warehouses and distribution centers, which may not be near an AFC or an existing truck parking site but may still provide air quality benefits to disadvantaged and low-income communities. CSE highlights that these geographic limitations on MHD infrastructure sites eligible for capacity credits have also been opposed by the Coalition for Clean Air and Southern California Edison (SCE). Accordingly, CSE does not recommend CARB adopt this limitation. (Apr-28.4) (B)2, and the same concerns apply. (45d-391.80)

Comment: The success of the MHD-FCI provision will be constrained by the geographic limitation to projects “Located within one mile of a reading or pending electric vehicle 039.6 cont. Federal Highway Administration Alternative Fuel Corridor or on or adjacent to a property used for medium or heavy-duty vehicle overnight parking, or has received capital funding from a State or Federal competitive grant program that includes location evaluation as criteria.” We recommend expanding the radius to 5 miles, as the 1-mile restriction will undercut program effectiveness, delay deployment, and increase costs for charging and grid upgrades. (Apr-39.6)

Comment: Reject the 1-mile requirement for capacity credits in favor of greater flexibility. (Apr-71.8)

Comment: Electrifying the M/HD sector will naturally support mitigating the adverse environmental impacts of M/HD trucking in these communities. This applies to both charging sites as well as the vehicles themselves. For these reasons, locational or geographic requirements are not necessary. While PACT acknowledges the unique air quality challenges of disadvantaged communities, PACT also recognizes that projects need not be directly in a specific community to provide benefits to that community. (Apr-92.7)

Comment: PACT also supports CalETC’s recommendation to update the definition of “rural.” Aligning the definition of “rural” with the U.S. Census bureau’s will create more opportunities

for potential equity benefits as M/HD ZEVs operate in a variety of communities—not just urban areas—depending on the vehicle use case.

In addition to potentially building a stronger alignment with the state’s overarching disadvantaged communities policies, adopting this broader definition of “rural” may provide more “territorial” flexibility to the Electrical Distribution Utilities (“EDUs”) to use holdback credits (to invest in, for example, grid-side distribution infrastructure for M/HD ZEVs) in the areas where the EDUs anticipate the potential for the greatest equity impact. (Apr-92.8)

Comment: To promote flexibility for the M/HD-FCI sector, PACT encourages CARB to reject the 1-mile requirement for capacity credits. PACT favors greater flexibility for stakeholders to identify site locations based on their market demand and applicability to business needs. In this regard, PACT aligns with other parties and encourages CARB to not adopt the staff’s proposed geographic limitations on M/HD-FCI eligibility. The M/HD ZEV market is growing, but still nascent and as such needs an adaptable approach. As noted by the Energy Commission, there were only 3,784 M/HD ZEVs at the end of 2023 (with approximately 2,000 buses, 850 trucks, and 870 delivery vans deployed). For Classes 6-8, which is PACT’s focus, the number falls to approximately 760 trucks.

In addition, mileage limitations may unduly disqualify potential site investments that are otherwise optimal for the M/HD operational model when considering land availability, land cost, energy capacity, and other factors. We share CARB’s vision of accelerating fleet electrification, particularly in those places with the highest levels of truck traffic today, and believe added flexibility will support this objective by facilitating faster, lower-cost infrastructure deployment serving key freight hubs and connecting corridors. Further, the mileage limitation may create unintended consequences. As SCE and CalETC capture, the potential impact of this constraint could unintentionally trigger additional utility upgrades because developers will be incentivized to prioritize corridor proximity over existing grid capacity when making siting decisions. These upgrades would add costs and delays to the EV transition, including higher costs for ratepayers at a time when high electricity rates are already a cause for concern.

Moreover, the policy climate is rapidly evolving around M/HD charging, which suggests the need for flexibility at this critical and early stage. For example, the recently-released National Zero-Emission Freight Corridor Strategy “guides infrastructure deployment to meet growing market demands; catalyze public and private investment; and support utility and regulatory planning and action at local, state, and regional levels.” This strategy will have a substantial impact on freight electrification, particularly around project siting and resource allocation. The strategy focuses initially on key freight hubs serving first-mover fleets with return-to-base operations and the hubs are defined broadly, with a 100-mile radius and no mention of any specific distance (e.g., one mile) from the corridors. We see value in aligning California policy with this strategy by giving greater flexibility to build out charging ecosystems in and around key hubs in addition to charging serving corridors.

It is too early to project whether the majority, or a significant portion of “first movers” in M/HD electrification would be captured by strict geographical requirements like the one proposed. In fact, the most likely first movers would be hampered by this proposal. For example, use cases such as short haul, hub-and-spoke operations, drayage, middle mile, and last mile deliveries are not likely to overlap neatly with a corridor charging focus, which is more conducive to long-

haul trucking operations. As CALSTART captures in their comments, M/HD ZEV charging does not necessarily mirror conventional fueling, and charging for the aforementioned use cases can often be located where these vehicles are in use or otherwise domiciled.

PACT also agrees with the Joint MHD EV Infrastructure Parties that such a geographic restriction would have further unintended consequences for fleet electrification. PACT's members include large national fleets pursuing zero-emissions solutions in California. Cost considerations are a driver for where, how, and when to electrify certain segments of the fleets.

In addition to cost, fleets must navigate a slew of other issues such as power availability, zoning, permitting, and site size and design. Establishing a 1-mile boundary would artificially push fleet depots where the incentives are available. This would lower the available real estate for charging depots, further concentrate electric utility load, and drive-up costs for depot properties within the 1-mile boundary. Finally, customers should be enabled to find locations that would not potentially require multi-year grid upgrades. The 1-mile boundary constraints customers from selecting sites where there may actually be more capacity available for faster, less costly build-out. Siting infrastructure where there is existing grid capacity is critical for fleets looking to rapidly electrify their operations. (Apr-92.9)

Comment: Should CARB determine that removing the 1-mile boundary is unacceptable, PACT aligns with parties who have recommended the boundary be expanded to at least 5-miles. Operational needs and project economics are sufficient to ensure that infrastructure will go to areas with high truck traffic and significant potential for near-term emissions benefits. (Apr-92.10)

Comment: CALSTART is appreciative of the proposal to expand FCI infrastructure crediting provisions to the medium- and heavy-duty sector, however, there are areas where CALSTART believes the regulation needs additional modification to address grid constraints and best support infrastructure buildout consistent with the State's overarching climate strategy.

Since the release of the initial regulatory proposal, the Joint Office of Energy and Transportation released the National Zero-Emission Freight Corridor Strategy, which lays out a plan to prioritize and sequence the deployment of zero-emission medium- and heavy-duty infrastructure in and around key freight hubs and along freight corridors. The strategy recognizes the need to build out infrastructure near highways, but also the need to buildout infrastructure in key freight hubs. Additionally, RMI recently released an analysis on drayage truck charging needs, which recommended the strategic dispersal of charging locations further away from ports in order to alleviate port congestion and manage grid constraints as energization costs and timelines remain a barrier for rapid infrastructure buildout. RMI argues, "If stakeholders continue to prioritize installing chargers in these [high concentration] areas, power demand will put considerable pressure on local grids, which will likely not be able to reliably support trucks' growing charging needs, creating grid bottlenecks... Stakeholders can help relieve the strain on the grid by distributing chargers over a larger area and further away from ports, in places where there is already trucking activity."

The current LCFS proposal constrains FCI eligibility to projects, "within one mile of a readying or pending electric vehicle Federal Highway Administration Alternative Fuel Corridor or on or adjacent to a property used for medium or heavy-duty vehicle overnight parking, or has

received capital funding from a State or Federal competitive grant program that includes location evaluation as criteria.” This restriction is unnecessary as market forces will ensure investors make strategic choices that encourage utilization, and this restriction limits infrastructure providers’ flexibility to align with the National Freight Corridor Strategy and is inconsistent with RMI’s recommendations. CALSTART strongly recommends removing the geographic limitations as we believe this flexibility is needed to deploy charging infrastructure at the pace and scale needed to achieve the State’s air quality and climate goals. (Apr-118.2)

Comment: PG&E reiterates an important consideration several other commenters highlighted in their February comments, and which PG&E, alongside SCE and SDG&E, jointly raised in an October 2nd, 2023 email to Staff supporting the proposed new MHD vehicle FCI program. PG&E continues to believe that CARB should not include the proposed one mile from a major highway limitation for several reasons, but in particular because these deployments will require significant available utility grid infrastructure with capacity to interconnect new loads, which may not always align with highway corridor infrastructure. Overly restricting the eligible locations for funding from the FCI program could create adverse impacts on the grid, delay deployment and increase overall cost.

PG&E reiterates these concerns and notes that further internal analysis has validated the potential adverse impacts of this requirement as it relates to our distribution system. The requirement has the potential to put undue costs on ratepayers and delay the deployment of critical MHD charging infrastructure. Accordingly, PG&E recommends that CARB allow for greater flexibility in allowable locations for sites seeking to claim MHD FCI credits. (Apr-151.11)

Comment: Remove the 1-mile geographic limitation. Voltera recommends that CARB remove geographic limitations to the M/HD FCI program. Such adjustment will improve the program’s effectiveness to support the M/HD industry and will better align with specific fleet and infrastructure demands and realities. As noted in our February 20th comments, we are concerned that the proposed requirement limits the M/HD FCI program to one mile of a ready or pending Federal Highway Administration Alternative Fuel Corridor. This will only exacerbate existing land acquisition challenges. Relatedly, many parties have further recommended this change, and Voltera aligns our recommendation with multiple parties who have also expressed the challenges posed by geographic restrictions. Coalition for Clean Air notes that geographic restrictions should be removed, as they will undercut program effectiveness, delay deployment, and increase costs for charging and grid upgrades. Natural Resources Defense Council (NRDC) comments that CARB should allow M/HD FCI locations anywhere in California—especially for shared depots, or within 5 miles from a corridor rather than just 1 mile. Earthjustice further commented that geographic restrictions will add administrative burden and unnecessarily exclude sites with high potential to electrify earlier than longer haul routes that would be operating along these corridors.

Moreover, the proposed M/HD FCI provision is misaligned with the on-the ground experiences of energizing large-scale M/HD projects. These energization timelines are of such high importance that the CPUC (per SB 410) has taken up Rulemaking 24-01-018. In this regard, the utility response to the LCFS rulemaking provide key perspective. Southern California Edison notes that CARB should reject the 1-mile corridor requirement due to grid constraints

and resulting delays and cost increases, and other negative externalities that impact deployment. Sacramento Municipal Utility District further recommends that CARB consider making the boundary more flexible, as “such a restriction for MHD EV infrastructure would significantly limit the number of locations where these investments could be made, and investments may be needed in areas that do not overlap with equity communities.” (Apr-185.9)

Comment: Eliminate or expand geographic limitations on MHD-FCI eligibility to improve program effectiveness, better align with fleet needs, mitigate delays, and reduce overall costs. There are at least three main reasons to eliminate or expand the geographic limitations: (1) to expand siting opportunities in recognition of overlapping grid constraints, operational needs, and land use considerations, (2) to provide a full ecosystem of charging opportunities, from origin to destination, to better support emissions reductions even in the most heavily trafficked areas, and (3) to better align with and support CARB’s statewide ACF regulation. We appreciate that CARB has a desire to ensure that the most heavily trafficked corridors in the state - and the areas with the heaviest concentration of emission exposure to communities - are the focal point for a transition to zero emission trucks. We respond by pointing out that market dynamics and operational considerations will already funnel charging to high-traffic locations near freight hubs and corridors; no additional requirements are needed. Secondly, successful electrification will require broad availability of charging infrastructure at hubs, at destinations, and along connecting corridors - a full ecosystem is necessary. Since the release of the staff proposal, the Joint Office of Energy and Transportation released a National ZeroEmission Freight Corridor Strategy intended to drive alignment on infrastructure deployment. The “Strategy identifies the greatest opportunities to support early introduction of ZE-MHDVs, promoting cost savings for commercial fleets, cleaner air for communities, and strategic investments for infrastructure companies and electric utilities.” Phase one focuses on building out the charging ecosystem in key freight hubs, and the focus branches out along key connecting corridors in future phases. Additional siting flexibility would allow industry to better align with this national strategy and, ultimately, accelerate widespread electrification with the greatest benefits accruing to those regions suffering most from diesel pollution today. The local air quality benefits will be driven by the pace and scale of electrification in the area, regardless of the exact locations of the chargers. A closer look at one of the state’s most heavily impacted regions for goods movement illustrates the need for more flexibility. The Los Angeles Cleantech Incubator (LACI) released a report last year on “Heavy-Duty Charging to Support Battery-Electric Drayage Along the I-710 Corridor.” This analysis considered potential locations for truck charging in the region, and many of the locations highlighted in the report as potential truck charging sites fall outside of the one-mile boundary. This example underscores the need for greater flexibility to meet fleet 2 needs and accelerate electrification. We see a similar situation in other freight hotspots and hubs around the state (e.g., the Inland Empire region in Southern California or the Stockton region in Northern California). We acknowledge and appreciate staff’s proposal to include sites with overnight truck parking, even if they fall of the one-mile corridor boundary. This is helpful but not sufficient if it is limited to current sites. Grid constraints and landlord restrictions are well-known barriers to electrification at many existing sites, and these issues are one key reason why multi-fleet depots are an important piece of the overall charging ecosystem. Moreover, fleets will face new operational considerations as they electrify, meaning that locations and operations will be in flux during this transition. With regard to grid constraints and implications for project costs and timelines, we would like to call

attention to comments at the April 10 workshop from Southern California Edison (SCE). Specifically, SCE called for increased geographic siting flexibility in order to take advantage of available grid capacity and avoid creating undue cost and delay in the deployment of MHD charging infrastructure. This is a critically important and high-profile issue on multiple fronts. Utility upgrade timelines and resulting project delays were the subject of legislation in 2023 and there is an ongoing proceeding now at the California Public Utilities Commission focusing in part on upgrade timelines and the impact that delays have on CARB's ACT and ACF programs. Additionally, inefficient siting and resulting upgrades will continue to put upward pressure on electricity rates, exacerbating an energy affordability issue for California ratepayers. Increased flexibility will allow us to electrify faster, and at lower cost, with widespread benefits for all. We recognize that there has been a focus in the light duty passenger vehicle sector on locating charging within a mile of a major corridor. However, it is important to acknowledge the differences in customer needs and site specifications. Light duty passenger vehicle charging on corridors requires quick access on and off freeways and a much lower amount of overall power at the site. A one-mile requirement, as required in the federal NEVI program as well as previous LDV corridor charging programs funded by the CEC Clean Transportation Program, is therefore more suitable for light duty charging. For commercial trucks, the operational needs of fleets and the grid constraints inherent in multi-megawatt sites call for more flexibility. As aforementioned, we greatly appreciate staff's willingness to continue to have a meaningful dialogue via this additional workshop. We appreciate this openness and reiterate our position that the best outcome would be the complete removal of geographic limitations, followed by an expansion of the 1 mile limit to at least 5 miles. (Apr-191.3)

Comment: Adjusting the geographical restrictions for crediting eligibility. PACT appreciates CARB's decision to adjust the distance requirement for HD-FCI sites. PACT is receptive to CARB's rationale that a distance of five miles from an FHWA Alternative Fuel Corridor for shared sites is relevant to the service these sites are intended to provide and that this is an adequate distance to ensure availability of utility services to sites while still supporting the HD EV charging network. Further, PACT appreciates CARB's decision to limit the distance requirement to shared HD-FCI thereby awarding developers and fleets the flexibility to select locations that accommodate their unique business needs. (15d1-088.1)

Comment: Updated definition of "rural." PACT supports CARB's adjusted definition of "rural." While the updated definition does not reflect the specific changes presented by CalETC and endorsed by PACT,^{11,12} this revised definition is improved from the language that was originally proposed. PACT reiterates that this revised definition will create more opportunities for potential equity benefits as M/HD ZEVs operate in a variety of communities—not just urban areas—depending on the vehicle use case. In addition to potentially building a stronger alignment with the state's overarching disadvantaged communities policies, this broader definition of "rural" may provide more "territorial" flexibility to the Electrical Distribution Utilities ("EDUs") to use holdback credits (to invest in, for example, grid-side distribution infrastructure for M/HD ZEVs) in the areas where the EDUs anticipate the potential for the greatest equity impact. (15d1-088.4)

Comment: Allow the executive officer to grant exceptions to the 5 miles from corridor limit. Because of the difficulty in finding sites for shared and public charging for eHDVs (see

comments above), we respectfully request additional flexibility on siting locations by allowing the executive officer to grant exceptions. The commercialization of new technology is always challenging, and unforeseen circumstances should be expected as it may turn out to be hard to find sites within five miles of a corridor especially if they require 10 MW to 40 MW of power. (15d1-150.3g)

Comment: Specifically, we respectfully request a clarification in staff's resolution that in section 95486.4(b)(1) the five-mile distance from any ready or pending FHWA Alternative Fuel Corridor is as measured on an aerial point-to-point radius basis or "as the crow flies" per our meeting on August 23, 2024. (15d2-217.3)

Agency Response: Changes were made in response to comments on the required distance from alternative fuel corridors for HD-FCI stations that are not on or adjacent to existing overnight parking or have already been awarded a competitive grant that has location evaluation. The distance is increased from one mile to five miles. The distance is calculated by determining the shortest great-circle distance between the proposed site and an alternative fuel corridor. With this change, an HD-FCI site can be located near transmission lines, reducing utility connection costs, while being within an allowable distance of an alternative fuel corridor. Locating sites along alternative fuel corridors remains an important way to enable the growth of zero emission heavy-duty vehicles. Staff also added local grant funding approval to the list of qualifiers for projects that qualify for the location requirement.

No changes were made in response to comments that the Executive Officer be allowed to grant exceptions to the 5 mile rule. Locations on or adjacent to existing overnight parking for trucks, sites that have received funding based on location criteria, and private HD-FCI sites remain as options beyond 5 miles. Public and shared fast charging sites are best located where trucks already are or will be, and proximity to existing parking and alternative fuel corridors accomplish this.

Changes were made in response to comments on the 10-mile distance requirement for LD-FCI sites not in disadvantaged or low-income communities. With the inclusion of medium-duty vehicles in the resulting LMD-FCI program, location requirements are removed completely, leaving only the requirement that the site be located in California. The inclusion of medium-duty charging in the program adjusts the focus of the former LD-FCI program from not only filling "gaps" in the public fast charging network but to also supporting the conversion of small commercial fleets to battery-electric vehicles. Removing location requirements accommodates this change.

Changes were made in response to comments to update the definition of "rural". The LCFS definition of rural is now aligned with the California Department of Finance's California Urban Area Delineations, which is available in map form through the California State Geoportal and is updated as new census data becomes available.

J-34 *Disapproval of FCI Incentivization*

Comment: However, the current draft could be significantly improved upon by better accounting for the diverse duty cycles and charging needs of currently deployed and forthcoming battery electric MHDVs, particularly in the language regarding infrastructure

credits. Where the current draft does not maximize potential near-term investments and deployment of zero-emission MHDVs, several tweaks could accelerate and embolden the much-needed transition to electric delivery, short-haul, vocational, and drayage trucks. At the highest level, the LCFS should better balance vastly different electrification barriers and opportunities within MHDV classes and duty cycles. (45d-276.12)

Agency Response: No changes were made in response to this comment. The FCI program guarantees a quarterly cash flow of LCFS credits, reducing the risk of investment for new charging sites. The FCI program, along with the greater LCFS program, and other CARB and State programs, provide a myriad of incentives for different aspects of the conversion of fleets to zero-emission technologies.

J-35 Multiple Comments: *Increase the Size of FCI Programs*

Comment: EVCA and CalETC appreciate the proposal to extend the existing Fast Charge Infrastructure (FCI) program for light duty EVs at public charging locations, but the proposed size and rules governing this program are inadequate to meet California's needs for 83,000 public DC fast chargers by 2035 needed to support the Advanced Clean Cars II (ACC II) regulation. (45d-188.3)

Comment: EVCA and CalETC appreciate the proposal to create a new FCI program for medium-, and heavy-duty EVs (eMHDVs) at public, fleet, and shared depot locations but the proposal includes several limiting parameters that will undercut its effectiveness in supporting California's Advanced Clean Truck (ACT) and Advanced Clean Fleet (ACF) requirements. EVCA and CalETC oppose the geographic limits and prescriptive site limits and specifications included in the proposed LCFS. A larger, more flexible program is needed to meet industry needs, accelerate deployment, reduce costs, and align with California's truck electrification ambitions. (45d-188.4)

Comment: The proposed phasing down of light-duty fast charging infrastructure credits to 0.5% of the previous year's deficits in the proposal occurs too soon. Therefore, we propose maintaining the size of the LDV FCI infrastructure credits at 2.5% of previous year's deficits. (45d-213.31)

Comment: Regarding the MHD-FCI provision: (1) relax the siting requirement to within 5 mi of a FHAA corridor, (2) reduce the minimum kW nameplate capacity to 200, (3) consider shortening the FCI crediting window to 7 years, and (4) roll unutilized LD-FCI capacity into the MHD-FCI provision to increase deployments. (45d-224.3)

Comment: We urge CARB to reconsider the cap on credits in this pathway, currently proposed at 0.5 percent of deficits from the prior quarter. Deploying public chargers remains as important today as it is financially challenging—all the truer in high-need regions of the state. As the lack of charging infrastructure is often cited as the number 1 concern for prospective EV owners, this is not the time to cut back on regulatory support for vital infrastructure.¹³ **Rivian strongly recommends preserving the existing limit of 2.5 percent of deficits from the prior quarter.** (45d-228.4b)

Comment: SVLG would encourage the Board to maintain the capacity crediting cap for LDV FCI at 2.5%, which reflects increasing demand for light-duty zero-emission vehicles (ZEVs) and the need for refueling capacity across the state. (45d-242.2)

Comment: Considering the precarious economic landscape laid out above, we recommend that CARB retain the 2026-2030 deficit cap at today's 2.5% (rather than the proposed 0.5%). To reach California's goals, as set out by ACC II, more than an 8x increase in DCFC will be required, as today's ~10,000 DCFC must reach 83,000 in the next eleven years. Likewise, ACC II calls for a dramatic increase in EV sales—with today's 20% market share needing to reach 100% in the next eleven years. However, even if this ambitious increase in EV sales is achieved, a correlating increase in DCFC is unlikely to be supported by market-driven consumer demand alone for some of the reasons laid out previously in this letter. And, conversely, if extensive charging infrastructure does not materialize, an exponential growth in EV sales may be hard to manifest on its own. Therefore, policy-driven DCFC economics will remain a necessity to reach ACC II objectives. Without strong policy-based incentives, low utilization areas (e.g., low-income, rural, etc.) will suffer the worst from a lack of DCFC infrastructure. Within this context then, we do not believe a 0.5% cap will sufficiently incentivize DCFC to ACC II levels. Instead, a 0.5% cap would likely spur a major slowdown in DCFC development. (45d-238.8)

Comment: CARB should ensure the LCFS continues to support the transition to electrification by retaining a 2.5% credit cap for light duty vehicle fast charging infrastructure credits, increase the flexibility and overall credit cap for the proposed medium and heavy-duty infrastructure credits, facilitate electrification of other modes and applications by establishing default energy economy ratios, and support a combination of electrification and vehicle mile traveled reduction by updating LCFS eligibility for fixed guideway systems and establishing credit multipliers for mass transit vehicles. (45d-276.2)

Comment: UCS urges CARB to maintain a program cap of 2.5% credits through 2035, rather than reducing the cap to 0.5% as proposed and to maintain the current power and charging port limits of the current program. (45d-276.10)

Comment: Increasing the cap on FCI credits, or developing a dynamic cap based on real-world data including vehicle registrations and ZEV deployment goals, is necessary to address the often-cited barrier of FCI deployment and the very real problem of climate-warming and toxic air pollution from long-haul trucks. (45d-276.13)

Comment: Increase the program cap from 2.5% to 5%. We are at a critical launch point for both ACT and ACF and believe a higher cap – we recommend at least 5% - is warranted to begin deploying a network that will enable the market to take off. As momentum builds and the on-road electric truck population grows, CARB might consider reducing the cap. (45d-278.5)

Comment: Remove the §95486.3(b)(3)(A)(2) 0.5% criterion to avoid unintended consequence of penalizing individual fleets for having common service providers and avoid creating conflicts with the regulatory framework of the South Coast Air Quality Management District's (SCAQMD) Indirect Source Rule (ISR). An individual applicant can be providing charging services at more than one private charging site for private fleets unrelated to each other, as is the case for Prologis and other industrial property owners that are investing in charging

infrastructure on-site to serve their tenants' fleets. For example, Prologis leases warehousing and distribution space to a diverse customer base of 6,700 businesses across our global portfolio. In California alone, Prologis owns more than 900 buildings where, from one site to the other, different fleet operators lease real estate and assets, including charging infrastructure. It would not be fair to penalize one private fleet because of their association with other unrelated fleets through a common service provider. This creates an impediment for warehouse operators implementing mitigation measures in line with the ISR's requirements, such as EV fleet adoption and on-site charging infrastructure deployment, as well as fleet conversion towards Advanced Clean Fleets (ACF) deadlines. (45d-338.01)

Comment: PACT agrees with parties who have proposed increasing the MHD-FCI program cap from 2.5% of previous quarter deficits to a minimum of 5% of previous quarter deficits. As noted by the Joint MHD EV Infrastructure Parties, the 2.5% cap would not support the modest load projection of 2,900 MW of M/HD charging estimated by 2025. To meet California's ambitious targets, fleets and FSE providers will need certainty that the available incentives will adequately scale to support the deployment of sufficient infrastructure. Increasing the cap will act as a means to further incentivize the buildout of infrastructure needed to support future M/HD ZEV adoption. (Apr-92.4)

Comment: More credits should be available for accelerating the transition to vehicles powered by electricity, so California can attain carbon neutrality by 2045. (Apr-182.2)

Comment: Adjust LCFS crediting to facilitate the goal of accelerating Advanced Clean Cars II rules, so all new light-duty vehicle sales can be zero emission by 2030. This is definitely doable. Norway will require all new passenger vehicle sales in 2025 to be ZEV, only 7 years after its new ZEV market share reached 21%. California reached the same 21% market share in 2023, surpassing its 2025 ZEV sales target of 1.5 million by 300,000. In a 2022 survey of Californians half the respondents said they would seriously consider buying an EV. Norway's success resulted from policies that made EVs both cheaper to purchase than comparable ICE vehicles and cheaper to drive, e.g. by lowering bridge and road tolls and municipal parking fees for ZEVs. If Norway, a country with many cold winter months, that effectively reduce ZEV driving range by 20%, can transition to ZEVs as quickly as it has, certainly California should be able to do the same. Another indication that accelerated adoption of ZEVs should be possible sooner than expected is the development of inexpensive Chinese models that are already selling well in Asia. BYD's Seagull introduced last year in China for \$10,000 and this year in Brazil and Mexico for about \$20,000 is the cheapest, though it still offers a range of 186 miles with the possibility of upgrading to 236 miles for an additional \$3000. This is putting pressure on US and European manufacturers to design cheaper ZEV models. California recently reached a light-duty charging station total of 100,000, well behind its 2025 target of 250,000 stations. However, California is scheduled to receive more than \$380 million of federal funds to create charging infrastructure along 6,600 miles of highways, with at least 4 fast chargers every 50 miles. CARB needs to be incentivizing the building of charging stations in other areas, e.g adding charging connections to local gas stations, creating charging hubs that include battery swaps and car sharing as well as charging, and adding charging stations to multi-family housing units. (Apr-182.19)

Comment: Tesla's recently announced cutbacks in its supercharging program suggest that even the best, most reliable charging companies are not profitable, possibly ARB should increase LCFS capacity credits. (Apr-182.20)

Comment: Increase the MHD-FCI program deficit to 5%, to help California meet state M/HD deployment goals. (Apr-185.2)

Comment: To support market confidence in LD infrastructure investments, Voltera further recommends that CARB maintain the 2.5% cap (in contrary to the staff proposed reduction to 0.5%) for the 2026–2030 timeframe. (Apr-185.4)

Comment: Maintaining the 2.5% cap for LD As detailed in our previous comments, Voltera's recommends that the current 2.5% cap continue (in contrast to the staff proposal to reduce to 0.5%, from 2026-2030. Maintaining the provision better aligns with CARB's Scoping Plan, the Advanced Clean Cars II regulation, as well as the AB 2127 report by the California Energy Commission. (Apr-185.7)

Comment: Increase the MHD-FCI program deficit to 5% to help California meet state M/HD deployment goals. The current proposal for the MHD-FCI program is limited to 2.5% of the previous quarter's deficits. However, Voltera stresses the nascency of the M/HD market segment and encourages CARB to raise this cap to attract the private investment needed to accelerate and scale the M/HD ZEV market and meet relevant regulations. As identified in the CEC's AB 2127 analysis, the state will need approximately 2,900 MW of charging capacity by 2025 and 11,600 MW of capacity by 2030. This implies continuous and accelerated deployment needed to meet our long-term objectives. for example, the California Trucking Association estimates that 300-600 DC fast chargers need to be installed every week to meet the state's 2035 needs. As such, Voltera encourages CARB to raise the proposed cap to 5% to help meet M/HD infrastructure demands, to bolster market support for these investments and accelerate market deployment. (Apr-185.13)

Comment: Increase overall MHD-FCI program size to enable infrastructure deployment at the scale and pace required to meet California state goals As detailed in our previous comments, we recommend increasing the program cap from 2.5% to 5% of previous quarter deficits to better align with state goals and infrastructure needs assessments. CEC analysis suggests the state will need 11.6 GW of charging for the MHD sector by 2030, and this scale of investment will require strong market signals. (Apr-191.7)

Comment: PACT continues to encourage CARB to consider increasing the overall size for the HD-FCI program. Specifically, PACT continues to encourage CARB to consider increasing the HD-FCI program cap from 2.5% of previous quarter deficits to a minimum of 5% of previous quarter deficits.¹³ As noted by the Joint MHD EV Infrastructure Parties, the 2.5% cap would not support the modest load projection of 2,900 MW of M/HD charging estimated by 2025. To meet California's ambitious targets, fleets and FSE providers will need certainty that the available incentives will adequately scale to support the deployment of sufficient infrastructure. Increasing the cap will act as a means to further incentivize the buildout of infrastructure needed to support future M/HD ZEV adoption. (15d1-088.6)

Comment: Establish a 5% cap on prior quarter deficits, especially in the early years. The HD-FCI program is limited to 2.5% of the previous quarter deficits. At 2025 deficit levels, we

estimate this would support as little as 635 MW of capacity from HD FCI credits, depending on utilization, uptime, and other assumptions.⁶ According to the CEC's AB 2127 analysis, the state will need about 2,900 MW of charging from eHDVs by 2025 and 11,600 MW of charging from eHDVs by 2030. Additional support is needed to attract the scale of private capital required, particularly at this nascent stage of the market with less than 1,000 HD trucks and vans on the road and with both fleets and OEMs citing infrastructure as a primary limiting factor. We recommend increasing the 2.5% cap on prior quarter deficits, particularly in the early years of the program, to kickstart the zero-emission truck market especially for near-term trucks applications in the drayage, short-haul, medium haul, and delivery segments. As momentum builds, CARB might consider reducing the cap in a future rulemaking. We recognize that there are tradeoffs and that the "right" cap depends on perspective. However, we are at a critical launch point for both ACT and ACF and believe a higher cap – we recommend 5% based on the above need - is warranted to begin deploying a network that will enable the market to take off. Solving the chicken-and-egg infrastructure problem by using FCI to build infrastructure in advance of vehicle adoption is critical to the success of ACF, ACT and the Scoping Plan. California will need to deploy charging infrastructure in advance of vehicle deployment to keep pace with the need to install over 50 HD chargers per day every day through 2030. HD FCI is a crucial tool to encourage charging infrastructure deployment in advance of vehicles – thereby removing a frequently cited barrier to electrification overall and ACF in particular. Encouraging the early adopters (e.g., shared depots and some fleets) to build the infrastructure to accommodate full electrification is critical even if the initial vehicle deployments are lower. This will help expedite the time frame for increasing the fleet's adoption rate of electric trucks. In the near future, turnaround time for new electric truck orders will be measured in weeks and the lack of infrastructure will delay adoption. Helping fleets move early will allow them to quickly add to their fleet after gaining comfort with the technology. As mentioned above, the state will need about 11,600 MW of HD charging by 2030 but we estimate the proposed HD-FCI will only provide about 600 MW. The chart below also illustrates the size of the need for DC charging infrastructure and the pace of installation needed.⁹ Our analysis above is the same as our February 20 letter and does include medium-duty EVs and that may justify lowering a 5 percent cap in a future rulemaking. In addition to our recommendation for a 5% cap of prior quarter deficits on HDFCI, we see a need to clarify the 15-day change language so that it applies only to HD FCI and not to the overall FCI program. We recommend the following: "If estimated potential FCI credits from all approved HD-FCI FSEs exceed 5.0 2.5 percent of deficits in the most recent quarter for which data is available, the Executive Officer will not approve additional FCI pathways for HD-FCI FSEs and will not accept additional HD-FCI applications until estimated potential FCI credits for approved HD-FCI FSEs are less than 5.0 2.5 percent of deficits." The second underline is intended to remove confusion as to which category the cap applies. There may be other places where amendments are needed to distinguish between FCI and HD-FCI. (15d1-150.3f)

Comment: Further analysis is needed to refine the above projections and determine whether the proposed 2.5% cap on MHD-FCI credits should be raised or adjusted to be better aligned with the state's charging needs. (15d1-219.39)

Comment: Anew is supportive of the additions and latest modifications CARB has made to the Fast Charging Infrastructure ("FCI") credit opportunities for light, medium, and heavy duty

charging as well as the ability to allocate base credits to the vehicle manufacturers. (15d1-220.22)

Agency Response: Changes were made in response to these comments. The total size of all FCI programs is increased to 5% of the most recent quarter's deficits. Medium-duty vehicle charging is moved from being paired with heavy-duty vehicle charging to light-duty vehicle charging. Re-arranged, the light- and medium-duty FCI program (LMD-FCI) will have 2.5% of deficits, and the standalone heavy-duty FCI program (HD-FCI) program will have 2.5% of deficits. The credits issued to site approved under the original FCI program will be counted under the LMD-FCI program.

As a result of this new arrangement, crediting for both light-duty and heavy-duty charging is increased. Pairing medium-duty charging with light-duty charging also means that the LMD-FCI program will use the light- and medium-duty energy economy ratio (EER) in its FCI calculations, while the HD-FCI program will use the heavy-duty EER.

In addition, in CARB Resolution 24-14, the Board directed staff to continue to monitor hydrogen refueling or electricity fast-charging availability supported by the updated LCFS hydrogen refueling infrastructure or direct current fast charging infrastructure crediting provisions, including any station capacity limits or caps on credit limits, to determine if any adjustments may be warranted as part of a future rulemaking effort.

J-36 Multiple Comments: *More Strongly Distinguish Between Shared, Public and Private Sites*

Comment: "Shared MHD-FCI charging site"- Requiring at least two MHD EV fleets under different ownership does not strongly distinguish it from a private station especially given that 'ownership' is undefined and does not recognize the wide variety of ownership, leasing, joint-venture, holding company, franchise or other management structures. A single holding company that creates two independent subsidiary entities for the purpose of vehicle ownership would seemingly qualify as two fleets under this definition. Clarifying the meaning of 'ownership' could help ensure that the intent of this provision is accomplished. "Shared MHD-HRI station"- The same concern as in 'Shared MHD-FCI charging site' applies here. (45d-391.28)

Comment: "Private MHD-FCI charging site" is defined in the amendments, but no subsequent regulatory language is proposed. The ISOR is clear that there is intent of supporting private MHD infrastructure, but no language is proposed. FuSE supports clarifying language identifying the opportunity for Private MHD-FCI crediting. (Apr-54.9)

Comment: Voltera encourages CARB to create a LD-FCI provision for entities that are deploying infrastructure to support EV ridesharing, EV rental, and EV carsharing. (Apr-185.3)

Agency Response: Changes were made in response to these comments. The definition of an HD-FCI site now emphasizes that the site must be made available to a fleet not owned by the site owner or the applicant. FCI applications that do not meet the requirements of HD-FCI shared sites or LMD-FCI public sites, but still meet the

requirements of FCI sites in general, can be submitted as private FCI sites. Staff will provide new application templates to aide in implementation.

J-37 Clarify FCI Total Site Power Requirements

Comment: §95486.3 (b)(2)(F)- The proposed language seeks to set requirements for project developers to disclose total site power, however it makes no distinction between instantaneous power or that which can be sustained for any length of time. In order to prevent stations with limited ability to sustain charging operations under heavy use from receiving LCFS incentive, a minimum sustained time for maximum or near-maximum charging could be specified. (45d-391.81)

Agency Response: No changes were made in response to these comments. Staff interprets “total site power (kW) that can be supplied” as the maximum available power that can be sent to the chargers using the on-site equipment in a “best-case” scenario. The original FCI program required a 50% effective simultaneous power rating; the new programs require a 100% effective simultaneous power rating, but allows for intermittent power sources like solar. Staff do not anticipate applicants powering their site with intermittent power only. Total site power is declared at the time of application; if it changes after approval, applicants are obligated to update their application.

J-38 Multiple Comments: Increase the Share of FCI Credits and Crediting Capacity for Private Fleets

Comment: Remove the Section §95486.3(b)(3)(A)(3) 1% criterion to avoid an unintended consequence of penalizing individual fleets for maximizing competitiveness and compliance efficiencies by charging their fleets at their natural domicile locations. Having different rules for Private vs. Shared will create operational and potentially SCAQMD ISR compliance inefficiencies for our customers who need to electrify at their “home” fleet domicile location. (45d-338.02)

Comment: Anew is supportive of the addition of medium and heavy duty (“MHDV”) Fast Charging Infrastructure (“FCI”) credits. The adoption of MHDV vehicles into private fleets remains an economic challenge that LCFS crediting could help address. Given the difficulties with adoption, we believe the 50% reduction for private fleets should be eliminated. Additionally, requiring proximity to a Federal Highway Administration Alternative Fuel Corridor unnecessarily restricts private operations and should be applicable only to public infrastructure projects. The minimum power requirement of 250kW also unduly restricts private operations. Operating multiple lower power chargers overnight provides many operations with the opportunity to charge in a manner more suited to extended battery life, incur less operational costs associated with moving vehicles in and out of chargers, especially in off hours, and lower utility impact and investment requirements by spreading a lower power load over a longer period of time. CARB already envisions overnight charging based on the exception to the requirement of being within 1 mile of an AFC. (45d-363.12)

Comment: PACT encourages CARB to consider creating credit parity between private and public infrastructure investments by equalizing the credits earned for both private refueling infrastructure and public refueling infrastructure, per charging station. As mentioned above, CARB’s staff proposal acknowledges the critical nature of private charging credits to the

success of M/HD charging generally. To meet California's regulatory mandates, trucks refueling at private depots and trucks refueling at public stations will both need the necessary infrastructure to continue operations. Furthermore, with respect to meeting regulatory and air quality targets, the benefits provided by electric trucks do not depend on whether the charging infrastructure used is public or private. Whereas lowering credit eligibility for private charging would ultimately hamper California's ability to meet its own regulatory targets, establishing this suggested parity will help set uniform market signals, which in turn will better help achieve these goals.

Additionally, offering equal crediting eligibility for private as public charging will bring the LCFS more in line with current operational needs, which are diverse across the M/HD sectors, and vary across many use cases and business needs. Equal treatment for public and private charging infrastructure will expand the anticipated climate and revenue benefits of the LCFS program and incentivize maximum participation. (Apr-92.5)

Reinforcing our prior comments, Voltera recommends that CARB adjust the existing LD FCI provision to allow for FCI incentives to be applicable anywhere (and not just for public access), especially in scenarios where infrastructure is specifically built by the private sector and designated to promote infrastructure access for EV ridesharing, EV rentals, or EV carsharing. Through this adjustment, CARB can embolden stakeholders to more aggressively achieve technological and economically feasible solutions for shared electrification across the TNC, taxi, rental, and carsharing sectors. This adjustment would be especially valuable to accelerate electrification of the vehicles leveraging the TNC platforms, which as noted earlier must meet 100% eVMT by 2030 under the Clean Miles Standard. In addition, this adjustment would directly align with multiple policies, as California has prioritized electric car rentals and sharing as detailed in the 2013 ZEV Action Plan⁴ and EV sharing policies in the 2015 ZEV Action Plan.⁵ Relatedly, the CPUC has taken up the Clean Miles Standard rulemaking, which this adjustment would directly support.⁶ As such, Voltera recommends that CARB structure support for the continued and accelerated electrification of the EV ridesharing, EV rental, and EV carsharing sectors by supporting the growth of its attendant EV infrastructure. (Apr-185.6)

Comment: Voltera applauds CARB's leadership in the development of the proposed M/HD FCI program provisions. With necessary modifications, CARB's proposed M/HD FCI program can be highly effective in attracting private capital to build essential infrastructure. Specifically, there is need to better align the provision with the on-the-ground realities of deploying M/HD infrastructure to improve program efficacy. (Apr-185.8)

Agency Response: No changes were made in response to these comments. The FCI program originally supported only public fast charging infrastructure. Staff included private charging in the new FCI programs to assist with increasing the deployment of ZEVs, particularly given the large number of private and captive medium and heavy-duty fleets in California. However, a private charging site only benefits one fleet, while a shared charging site can benefit multiple fleets, and a public charging site can benefit every electric vehicle in the area. Consequently, private FCI sites are not incentivized as heavily at the same charging capacity as shared or public FCI sites are.

Because private charging stations are owned by the fleet owners, private FCI site owners can more rapidly build out charging facilities in coordination with their fleet

purchases. Private fleets that have installed 50 kW chargers since 2022 can immediately apply for FCI eligibility for those chargers as soon as the new programs starts. Staff included the 1% of deficits limit for private FCI sites for both LMD-FCI and HD-FCI to ensure that there will be adequate support available for shared and public facilities, even if their implementation is delayed in comparison. Using 2023 data, private LMD-FCI and private HD-FCI sites would each have had access to over 200,000 FCI credits annually.

Applicants who wish to increase the FCI crediting capacity of their private charging site can make the site available to third-party or public charging for twelve hours each day and apply to FCI as a shared or public site. Applicants can switch from private to shared or from private to public, and vice-versa, with a declaration to the Executive Officer.

J-39 *Remove Private Charging from FCI*

Comment: The Proposed Amendments to permit electric vehicle (“EV”) charging stations that are not publicly accessible to generate credits will undermine the incentive for private companies to continue investing in EV charging stations and ultimately compel consumers and taxpayers to subsidize private companies’ refueling costs. CARB should only permit charging stations that are publicly available to generate LCFS credits. By opening up credit generation to other EV charging sites that are only available to a limited universe of companies (e.g., a single company’s fleet), it will prompt finite EV charging investment dollars to migrate away from publicly accessible offerings toward more limited offerings. This will only further prolong CARB’s efforts to help consumers overcome EV charging range anxiety. The greatest limitation on light-duty vehicle electrification lies not in the price of the vehicle but rather in the so-called “range anxiety” that consumers feel about the readily available public charging. If CARB is going to impose such stringent CI-reduction schedules on fuel, it should be more hyper-focused on incentivizing behavior to address the challenge of range-anxiety. Instead, the Proposed Amendments would redirect finite private capital toward behind-the-gate, non-publicly accessible EV charging stations that a limited universe of vehicles could utilize, rather than encouraging investment in publicly accessible charging stations that would be available to all current and prospective EV owners. The extent to which EV penetration is outpacing public charging station deployment is changing the landscape of the light-duty EV market. A recent national, representative survey by Consumer Reports and the University of Chicago found that 61 percent of Americans point to “not enough public charging stations” as the primary issue preventing them from buying or leasing an EV. The same survey found that 45 percent of Americans say that easy access to public fast-charging stations would be the most likely variable to affirmatively encourage them to buy or lease an EV. A mere 21 percent of respondents pointed to “similar purchase price to gasoline-powered vehicles” as a primary motivator. This trend threatens the development and durability of transportation electrification. A 2021 study from the University of California at Davis Institute for Transportation Studies found that almost 20 percent of EV owners in California switched back to a gas vehicle because of the difficulty of consistently charging a vehicle. The availability of EV charging stations at existing locations motorists utilize today is the most effective way to solve range anxiety. Consumers freely drive their gas- and diesel-powered vehicles to every part of the country without concerns about whether they will be able to refuel safely and reliably whenever necessary. Offering EV charging at fuel retailing locations would mean drivers do not need to

change their habits—they can refuel on the go at the same convenient locations they do today. The availability of EV charging on large price signs at fuel retailers' locations in communities and along California's highways will effectively relieve EV range anxiety. If EV charging is not available and reliable in the neighborhoods consumers want to visit, as well as along Interstate locations, many Americans simply will not purchase an EV, no matter the price. At the moment, there are several impediments that make it challenging for private businesses to identify a pathway to profitability with respect to EV charging. Most of these impediments involve an electricity market that was not designed for, and is in many ways incompatible with, the retail fuel market. Robust LCFS credit availability for publicly accessible charging station owners and operators would make installing EV charging stations more attractive for existing fuel retailers. To the extent that allowing private charging stations to generate credits undermines the attractiveness of credits available for public charging owners, it will be counterproductive to CARB's long-term transportation electrification efforts. (15d1-149.6)

Agency Response: No changes were made in response to this comment. The inclusion of private refueling stations in the FCI provisions will accelerate the growth of electric vehicle deployment in the State, particularly given the large numbers of private and captive medium and heavy-duty fleets in California, and thus should be incentivized. Converting private fleets to ZEVs do provide benefits to the State in the form of reduced greenhouse gas emissions, reduced local emissions, increased demand for charging equipment production, and by meeting State goals. Staff scaled the FCI credits available to private charging sites and anticipates that if a private charging site is right-sized for its anticipated fleet, it will likely generate FCI credits for only a short period of its overall crediting period before that generation is replaced by credit generation from dispensed electricity.

J-40 Multiple Comments: *Remove FCI Charging Site Restrictions*

Comment: 3Degrees recommends aligning the minimum charging capacity requirement for light-duty fast charging infrastructure (LD-FCI) crediting eligibility with current technological capabilities. 50 kW would be a more appropriate minimum in line with today's technological capabilities. We suggest a gradual increase in the requirement, for example, ARB could institute a 100 kW minimum in a few years, followed by 150 kW once EV technology has evolved to reliably charge at this level. (45d-195.8)

Comment: Regarding the MHD-FCI provision: (1) relax the siting requirement to within 5 mi of a FHAA corridor, (2) reduce the minimum kW nameplate capacity to 200, (3) consider shortening the FCI crediting window to 7 years, and (4) roll unutilized LD-FCI capacity into the MHD-FCI provision to increase deployments. (45d-224.3)

Comment: It is important that the LCFS include flexibilities that promote the "right-sizing" of charging infrastructure for different types of vehicles and duty cycles. (45d-276.14)

Comment: Eliminate the 10 FSE per site limit by striking section 95486.3(b)(2)(D) to enable the scale necessary to meet state goals and to encourage cost reductions that come with upfront investments and larger projects. The 10 MW overall site claiming capacity limit is sufficient to meet policy objectives. (45d-278.2)

Comment: Eliminate the 250 kW minimum by striking section 95486.3(b)(1)(E) to allow greater flexibility on site design and cost control. If CARB sees a need for a minimum to focus on fast charging, establish 150 kW as the minimum nameplate power rating. (45d-278.3)

Comment: CARB should remove the minimum nameplate power rating requirement for the MHD FCI program. (45d-327.12)

Comment: Anew is supportive of the addition of medium and heavy duty (“MHDV”) Fast Charging Infrastructure (“FCI”) credits. The adoption of MHDV vehicles into private fleets remains an economic challenge that LCFS crediting could help address. Given the difficulties with adoption, we believe the 50% reduction for private fleets should be eliminated. Additionally, requiring proximity to a Federal Highway Administration Alternative Fuel Corridor unnecessarily restricts private operations and should be applicable only to public infrastructure projects. The minimum power requirement of 250kW also unduly restricts private operations. Operating multiple lower power chargers overnight provides many operations with the opportunity to charge in a manner more suited to extended battery life, incur less operational costs associated with moving vehicles in and out of chargers, especially in off hours, and lower utility impact and investment requirements by spreading a lower power load over a longer period of time. CARB already envisions overnight charging based on the exception to the requirement of being within 1 mile of an AFC. (45d-363.12)

Comment: If the 250kW minimum FSE nameplate and maximum 10 count FSE per-site rules were to be adopted, it would create an unintended consequence where awkward, multi-port, all-in-one FSE designs qualify for MHD-FCI, but the functionally identical, and more ergonomic split-architecture alternatives would not. It is critical to not create this bias, as MHD layouts are significantly more sensitive to equipment placement and cable reach given the larger dimensions involved with these vehicles and the trailers that they are hauling. Site design varies widely based on MHD use case (dwell vs. corridor), and split architecture infrastructure designs provide critical flexibility in our technology catalog for our customers. Simply removing the 250kW FSE minimum and 10 FSE maximum rules would solve the issue, while also allowing the market to self-determine how to best serve MHD fleet customers with the large-MW capacity platform of any given site. (Apr-76.2)

Comment: PACT supports the Joint MHD EV Infrastructure Parties recommendation to strike Section §95486.3(b)(2)(D), which establishes a limit of 10 eligible FSEs per application within a quarter mile.

PACT members, particularly fleets and FSE providers, are building and planning depots of all sizes, the vast majority of which are larger than 10 FSEs. Many fleets operating in California have more than 10 vehicles that would need to be transitioned to M/HD ZEVs. This proposed provision would be a significant impairment to the deployment of M/HD infrastructure, and would have a number of unintended consequences, particularly with the quarter-mile designation. As noted by the Joint MHD EV Infrastructure Parties, a steep rate of growth is required to meet ACT and ACF targets. Artificially hampering the build-out of large private depots is counter directional to CARB’s goals. (Apr-92.11)

Comment: The proposed amendments would create a minimum nameplate power rating of 250 kW per FSE. FSE providers and fleets should have flexibility to plan for power levels that

accelerate the deployment of M/HD EVs at scale and PACT aligns with other parties who have called for the removal of this requirement. PACT aligns with other parties who have noted that not all M/HD ZEV use cases will require chargers with a nameplate capacity of 250 kW or higher.

Furthermore, as other parties have also stated, developers are, and should have the flexibility to, utilize a mix of charging speeds at depots to provide customers with the option for overnight or long dwell charging—which also offers a potentially more cost effective solution for fleets who can utilize this charging model. This again highlights the need to encourage flexibility so that customers are able to choose the right charging option that works for their operational needs. Removing the minimum nameplate requirement will encourage market flexibility, which is critically important for achieving the State’s decarbonization goals.

As an alternative to removing the minimum 250 kW requirement, PACT aligns with other parties who have suggested lowering the minimum requirement to 150 kW. (Apr-92.12)

Comment: The proposed regulation also imposes a 10 Fuel Supply Equipment (FSE) per-site cap. This provision limits infrastructure providers’ ability to cost-effectively deploy infrastructure charging hubs consistent with the national strategy. In response to California’s policies to transform the transportation sector via the Scoping Plan and regulations such as Advanced Clean Trucks and Advanced Clean Fleets, the State has seen a growth in the charging-as-a-service (CaaS) business model. These businesses will play a critical role in the transition of the transportation sector and provide important equity benefits by serving smaller sized fleets that may not have their own on-site charging or are unable to install charging due to limitations outside of their control (i.e. They rent their depot/parking space, and the property owner does not wish to invest in the needed infrastructure). Placing a 10 FSE limit on eligibility impacts their business case which requires scale and diversity of chargers. CALSTART recommends that this limitation be eliminated. The power of the FCI provisions in the proposal is to harness and incentivize innovation, creativity, and investment that support a rapid ramp-up in medium and heavy-duty electric vehicles. The artificial constraint for 10 FSEs per site is at odds with the objectives of the Scoping Plan, Advanced Clean Trucks and Advanced Clean Fleets Regulations and should be removed or significantly increased. (Apr-118.3)

Comment: For the medium and heavy-duty (M/HD) sector, there are clear opportunities for CARB to adjust the LCFS regulation to align with M/HD ZEV infrastructure deployment needs and realities. Voltera recommends that CARB remove the proposed geographic limitations which restrict investments to within 1 mile of a Federal Highway Administration Alternative Fuel Corridor, remove the proposed 10 FSE per-site cap, reduce or clarify the proposed 250kW minimum capacity for FSE, clarify the 1/4 mile factor and eliminate the per site 10 MW limit. (Apr-185.1)

Comment: Eliminate the 10 FSE per-site cap. It is imperative to stress that the M/HD sector transition is still in its nascency particularly in relation to operational deployment. As such, flexible terms that encourage market and technology innovation are warranted. Voltera recommends that CARB remove the 10 FSE per- site cap. Removing this cap will help enable project stakeholders to scale infrastructure in the manner necessary to meet the state’s M/HD goals and will likely encourage stakeholders to engage in cost reductions from economies of scale that come with investments in larger projects. Multiple stakeholders, including the Joint

MHD EV Infrastructure Parties (with whom Voltera is aligned) recommend striking Section §95486.3(b)(2)(D), which establishes a limit of 10 eligible FSEs per application within a quarter mile. Nonetheless, if CARB feels that there are strong reasons not to eliminate the FSE cap, Voltera would encourage CARB to consider a higher stepdown cap, for example to 30 FSE credits per site, and a potential tiering of further site FSE credits to partial credit value to support additional infrastructure deployments. This is critical to support the transition of larger fleets. (Apr-185.10)

Comment: Eliminate or reduce the 250kW minimum capacity It is imperative that CARB establish a M/HD FCI provision that recognizes fleet diversity and best aligns with the current state (and early stages) of operational planning while also envisioning future need. Eliminating the 250kW minimum capacity will help enable infrastructure providers to deliver a variety of solutions to meet market needs, and closely aligns with state policies to promote transportation electrification projects that minimize costs while maximize benefits. Specifically, Voltera encourages CARB to enable infrastructure developers to provide a variety of solutions to meet market needs, which may or may not meet the proposed 250kW threshold. This recommendation is aligned with NRDC, which agrees that sites should be able to have a mix of charging levels to meet different customer needs. Environmental Defense Fund also suggests removing the minimum. (Apr-185.11)

Comment: Clarify the 1/4 mile factor and eliminate the per site 10 MW limit CARB proposes that: “The total nameplate power rating for all FSEs claiming MHD-FCI credit owned by a single applicant within 1/4 mile of an MHD-FCI site cannot exceed 10 MW.” Voltera reads this as there being a 1/4 radius component to the number of proposed FSE MHD FCI credits that can be claimed by a single entity. However, this language reading could also result in linking this not to a single entity, but to multiple entities. From Voltera’s perspective, this latter scenario is a direct concern, and in any logical scenario, Voltera recommends removal of the 10MW combined nameplate threshold altogether. This approach will help motivate investment in megawatt-level chargers. (Apr-185.12)

Comment: EDF recommends that CARB modify the proposed eligibility requirements for participating in the MHD FCI program to remove the requirement that each charger (also referred to as Fueling Supply Equipment or FSE) “must have a minimum nameplate power rating of 250 kW.” While some electric trucks and buses will rely on direct current fast chargers (DCFCs) with nameplate capacities of 250 kW or greater, many will not need this level of charging. This is particularly true for fleets operating out of and charging at private depots which may have shorter duty cycles and can spread their charging overnight and/or several daytime blocks with lower-power DCFC or level-2 charging. Removing the 250 kW requirement would allow these fleets to optimize their charging based on their own operational needs, resulting in grid-beneficial charging behavior, while still remaining eligible for the program. (Apr-190.4)

Comment: Consistent with this recommendation, CARB should also remove or modify the limitation that no more than ten chargers per applicant per site would be eligible for credits. The proposed 10 MW cap per customer per site is a sufficient constraint on individual customers accumulating credits while retaining the flexibility for applicants to deploy chargers

in number and capacity consistent with their needs. Otherwise, applicants would potentially be incentivized to oversize chargers' nameplate capacity to maximize credit eligibility. (Apr-190.5)

Comment: Eliminate the 10 FSE per-site cap to enable the scale necessary to meet state goals and to encourage cost reductions that come with upfront investments and scale. We reiterate that capping the number of chargers per site will result in increased costs and reduced access to charging infrastructure, particularly for smaller fleets that are less likely to have the resources for dedicated behind-the-fence charging. Additional rationale and justification for this recommendation is included in our earlier comments, attached at Appendix 1. Prominent environmental groups (e.g., NRDC and the Union of Concerned Scientists) also called in written comments for the elimination of this 10 FSE cap. We ask that this restriction be completely removed. If the goal is to ensure that there are a variety of market participants and a diversity of locations, the proposed cap of 10 MW per site is sufficient to achieve that outcome without layering on additional restrictions on the number of chargers. (Apr-191.4)

Comment: Eliminate the 250kW minimum capacity to enable infrastructure providers to provide the variety of solutions the market needs. As discussed in our prior written comments and at the workshop, the MHD sector is very different from the Light Duty sector, both in operational requirements and base access to charging. For LD, the basic premise is that most charging will occur at home, and public charging is needed either for fast recharges on road trips, or fast charging for those that are unable to charge at home. For MHD, however, the vast majority of charging will occur at depots. Fleets that have long dwell times, such as overnight, can use slow chargers which are less costly and have a smaller impact on the grid. Additionally, intermittently slow charging helps maintain battery health. We are not aware of any stakeholders encouraging a 250kW minimum, and we note that others (e.g., EDF) also called for increased flexibility. We recommend leaving site specifications to the market. (Apr-191.5)

Comment: CARB should remove the minimum nameplate power rating requirement for the MHD FCI program. While EDF appreciates CARB lowering the FSE minimum nameplate power rating to 50kW, we still recommend removing the minimum nameplate power rating entirely. As noted in our previous comments, while some electric trucks and buses will rely on direct current fast chargers (DCFCs) with higher nameplate capacities, many will not require the same level of charging. This is particularly true for fleets operating out of and charging at private depots which may have shorter duty cycles and can spread their charging overnight and/or several daytime blocks with lower-power DCFC or level-2 charging. Removing the nameplate requirement would allow these fleets to optimize their charging based on their own operational needs, resulting in grid-beneficial charging behavior, while still remaining eligible for the program. Consistent with this recommendation, CARB should also remove or modify the limitation that no more than ten chargers per applicant per site would be eligible for credits. The proposed 10 MW cap per customer per site is a sufficient constraint on individual customers accumulating credits while retaining the flexibility for applicants to deploy chargers in number and capacity consistent with their needs. Otherwise, applicants would potentially be incentivized to oversize chargers' nameplate capacity to maximize credit eligibility. (15d1-067.3)

Comment: Eliminating the FSE cap. PACT is pleased to see that CARB has eliminated the 10 FSE-per site cap. This adjustment will promote market flexibility and innovation. (15d1-088.2)

Comment: Adjusting the minimum nameplate power rating. PACT appreciates the adjustments that CARB has made regarding power requirements. Specifically, PACT supports CARB's decision to remove the limitation on the number of chargers and supplement that with a site-wide power cap. PACT supports the increase to 40 MW total power per-site and the flexibility for applicants to use a smaller FCI power rating than the power capacity for pathway calculation to include more chargers in the program. These amendments will ensure, as CARB notes, that HD-FCI is incentivized across many sites and that individual sites can be designed in a manner that reflects the needs of the customer(s) they are built for or anticipate serving. (15d1-088.3)

Comment: The EV charging industry is growing rapidly but in the last few months there have been more and more reports of charging congestion, particularly during holiday travel or around specific large events. A recent article in Bloomberg aptly noted that the "US charging network is also entering its post-scarcity era" which will lead to "charging's next challenge - redundancy." As such, charging providers need to build larger and larger sites to ensure that during these high traffic events or peak travel times there is adequate charging to ensure customers are not waiting for long periods of time. Tesla anticipates that the average post count per site will continue to rise, leading to a growing number of sites with an installed capacity surpassing 2,500kW. To continue to support charging infrastructure deployments, CARB should consider amending the total FCI power rating for all LMD-FCI FSEs at one address to 3,000 kW from 2,500 kW. (15d1-29.7)

Agency Response: Changes were made in response to comments to reduce the minimum nameplate power rating. The minimum power rating for all FCI programs was reduced to 50 kW. An owner-operator with a single EV truck and a single 50 kW charger used to charge the EV overnight can apply to the HD-FCI program. While 50 kW chargers can be approved for the new FCI programs, larger chargers are more strongly incentivized than they were in the original FCI program. A minimum power rating is not completely removed, as the FCI program incentivizes fast charging infrastructure, which is more costly than Level 1 or 2 equipment on a per kilowatt basis.

No changes were made in response to comments to remove or increase the LMD-FCI total FCI site power rating from 2,500 kW. A larger number of small sites may benefit the overall EV charging network more strongly than a smaller number of large sites.

Changes were made in response to comments to increase the HD-FCI total FCI site power rating from 10 MW. The total FCI site power rating for HD-FCI is now 40 MW, as stakeholders indicated that even the first public HD charging sites will exceed the initial 10 MW limitation.

Note that for both LMD- and HD-FCI sites, the FCI power rating for a charger can be smaller than the nameplate power rating, and not all FSEs at an FCI site need be FCI eligible. Also, adjacent charging sites with separate utility bills are considered unique sites within the FCI program.

Changes were made in response to comments to eliminate limits to the number of FSEs allowed to be FCI eligible at a charging site. There is no longer any limit for the number of FCI-eligible FSEs in either the LMD-FCI or the HD-FCI programs. Site size is instead limited to the sum of the nameplate power ratings of all FCI-eligible chargers at the site.

J-41 Multiple Comments: *Extend FCI Program Length to 2035*

Comment: EVCA and CalETC largely support the proposed heavy-duty vehicle FCI program but request a few additional changes. For all the reasons listed in our February 20, 2024 letter, we support the following amendments proposed in the 15-day changes: Extending the HD-FCI program's application deadline to December 31, 2035 rather than December 31, 2030; Extending the minimum distance from an existing or pending electric vehicle Federal Highway Administration Alternative Fuel Corridor to five miles instead of one mile; Lowering the minimum kW per charger from 250 kW to 50 kW; Removing the cap of 10 chargers per site; Increasing the limit at one address from 10 MW to a higher number and adding a 20 percent of overall program cap on any single company; Matching the credit life for the FCI and hydrogen refueling infrastructure (HRI) programs at 10 years rather than having different lifespans for the two programs; Clarifying the payment requirements; Modifying the access requirements; Not requiring certain connectors; Allowing load management technologies such as battery energy storage. (15d1-150.3a)

Comment: Extend the new LD FCI application deadline to 2035. We recommend that this program's application deadline be extended to 2035 and not sunset in 2030. We are in a challenging phase of light duty EV adoption as the market needs to capture more skeptical mainstream buyers to meet the "hockey stick" ramp inherent in the ACC II requirements. The light duty FCI remains a very elegant and desirable tool to address the chicken-and-egg problem of how to accelerate EV infrastructure and EV adoption. Without the changes we recommend to the light duty FCI the pace of DCFC build-out could dramatically slow which makes meeting ACC II much more challenging. Now is not the time to scale back this program. CARB can take a no-regrets approach to supporting the light-duty fast charging market by adopting a 2.5% cap with no geographic restrictions. While the addition of more credits into the market can lower credit prices several factors can counter this including the new acceleration mechanism. (15d1-150.4d)

Agency Response: Changes were made in response to these comments. The HD-FCI application window was extended to 2035. CARB anticipates that incentivization of heavy duty vehicles and their infrastructure will continue through 2045; an HD-FCI site approved in 2035 will have its crediting period end in 2044. The LMD-FCI program was not extended, and remains at 2030. An LMD-FCI site approved in 2030 will have its crediting period end in 2039. Staff anticipate that light-duty charging infrastructure may mature faster than heavy-duty charging infrastructure.

J-42 Multiple Comments: *Shorten the FCI Crediting Window*

Comment: Regarding the MHD-FCI provision: (1) relax the siting requirement to within 5 mi of a FHAA corridor, (2) reduce the minimum kW nameplate capacity to 200, (3) consider shortening the FCI crediting window to 7 years, and (4) roll unutilized LD-FCI capacity into the MHD-FCI provision to increase deployments. (45d-224.3)

Agency Response: No changes were made regarding the FCI crediting window in response to these comments. All new ZEV programs were aligned at ten years to provide an equal guarantee of support.

J-43 Multiple Comments: *Make the Effective Date Earlier*

Comment: As per the amendment of Subsection 95486.2(b)(4)(H): While we fully support this helpful capex multiple, we respectfully appeal to you, to qualify it for immediate application upon passage of the regulation (ca. 2024), as opposed to its stated 2026 start date. As noted above, a variety of pressing economic challenges currently face public charging infrastructure. The ability to utilize this amendment sooner than 2026 would be most efficacious in bridging and rapidly scaling up LD charging infrastructure, particularly in those low-income areas that could most benefit. (45d-238.10)

Comment: As noted previously, regarding the proposed LD-FCI 1.5 capex multiple noted in Subsection 95486.2(b)(4)(H), we respectfully appeal for this multiple to qualify for immediate application upon passage of the regulation (ca. 2024), as opposed to its stated January 1st, 2026 start date. However, should the 2026 start date remain, we would ask for, at minimum, further clarification as to its applicability. Namely, it remains unclear as to whether the proposed language would apply to projects that certify on or after January 1st, 2026 or whether the amendment concerns those projects which come online after January 1st, 2026. In either case, we respectfully reiterate that immediate applicability of this multiple, upon passage of the regulations, will best serve electrification of California's transportation pool. (Apr-123.10)

Agency Response: Changes were made in response to these comments. CARB will receive and process applications for the new ZEV programs starting the effective date of the amendments.

J-44 Phase In Requirement to Dispense Electricity

Comment: Phase in the restriction "the FSE must dispense electricity in a given quarter to generate FCI credits." We recognize the concern that sites with no electricity dispensed for many years are poor locations, and this should be discouraged. However, the 15-day change is written not at the site level, but at the charger (FSE) level. We respectfully request this requirement be amended to be at the site level. Alternatively, we recommend phasing the requirement in after a grace period of at least one year to account for the fact that widespread truck deployment may lag infrastructure development, which is exactly the problem that FCI can address. The intent of the FCI program is to encourage development of DCFC ahead of the need in order to solve the chicken and egg problem, so low utilization of sites is expected in the early years of the launch of electric HDVs. As a result, the current language is too restrictive and poses operational issues for operators of fleets, shared depots and truck stops. (15d1-150.3g)

Agency Response: No changes were made in response to this comment. The requirement to dispense electricity demonstrates that the FSEs are operating during the quarter. A single dispensed kWh from an FSE is sufficient to generate FCI crediting for that quarter; an FSE where this is not able to be accomplished is in a poor location.

J-45 Multiple Comments: *Allow Reservations at Public FCI Sites*

Comment: We conceptually support CARB’s proposal to develop a new FCI pathway for LMD charging sites. The proposed LMD-FCI program, if designed with innovation in mind, will expand the deployment of DCFC infrastructure in California, which is necessary for California to meet its transportation carbon emission reduction goals.

Recommended Changes to the Public LMD-FCI Charging Site Definition Proposed in the 15-day package: We respectfully request that CARB amend the 15-day package to incorporate changes to the Section 94581 Definitions and Acronyms. Our proposed changes are as follow:

“Public LMD-FCI Charging Site” means an EV fast charging site that can be restricted to light- and medium-duty EVs and that is available to the public for at least 12 continuous hours each day, including the time interval between 9 a.m. and 5 p.m. ~~Chargers at the site must not be reservable during public hours.~~ Chargers at the site may be reserved during public hours and still qualify as public if no more than 75% of EVSE at a charging station are reservable, rounding down to the nearest integer [2].“ This definition will avoid discouraging experimentation with innovative features such as intelligent queueing, which we believe will improve the charging experience and increase utilization of equipment and would otherwise be penalized under CARB’s Proposed Modifications. If not adopted, the current proposal would lead to a situation where stations deploying innovative queueing systems receive only half of the FCI funding of other, “public” stations – this would discourage this type of innovation and result in less deployment of DCFC infrastructure in California. California’s continued leadership in clean transportation is important to ensure that operators of EVSE are able to innovate around features and products, and best serve both the current and next generation of EV drivers. Limiting opportunities to participate in the LCFS program for DCFC projects because a portion of the chargers are not first come, first served hurts the economics of these projects and discourages what we believe could be a valuable innovation for the industry and future drivers. (15d1-116.2)

Comment: Clarify language around reservations at shared sites. The current definition of a shared site states that a “shared HD-FCI site cannot be reserved for one HDV fleet for more than 12 hours each day...” This site-level restriction is reasonable to ensure sites are not effectively private. Language elsewhere in the draft states that “[t]he FSEs at a shared HD-FCI charging site cannot be reserved for one HDV fleet for more than 12 hours each day.” It is our understanding that the prohibition on reservations over 12 hours applies at the site level, rather than the individual FSE level, but the language is not entirely clear. FSE-level restrictions would conflict with fleet needs and undercut the effectiveness of this provision. Some fleet customers at shared, multi-fleet depots will want dedicated stalls so they can optimize usage throughout the day with multiple charges. The sites are still shared and serving multiple fleets even if an anchor tenant may want to reserve some stalls for more than 12 hours. We request confirmation that longer reservations on individual FSE are allowed so long as the overall site remains shared and serving multiple fleets. (15d1-150.3c)

Agency Response: No changes were made in response to these comments. Public FCI FSEs can be reservable during 12 nighttime hours and still meet public accessibility requirements. Reservable FSEs remove uncertainty regarding demand that the FCI program also addresses. FSEs enrolled in the FCI program as public chargers can be

removed if the applicant believes a utilization rate higher than 20% can be achieved with reservability. Also, private FSEs with reservability can be co-located with public FSEs.

J-46 Multiple Comments: Clarify Accessibility Restrictions

Comment: Clarify the definition of shared MHD-FCI charging site to remove uncertainty around security measures at shared depot sites. Suggested language: “Shared MHD-FCI charging site’ means an EV fast charging site that is available to at least two MHD EV fleets under different ownership, or to the public for at least 12 hours each day. ~~The site must not have obstructions or~~ Access controls and security measures are allowed so long as there are no obstacles precluding the authorized fleet vehicles from entering site premises, and no registered equipment training shall be required for individuals to use the site.” (45d-278.4)

Comment: Clarify rules around access requirements for shared depots to avoid creating confusion around eligibility requirements As detailed in our previous comments, we recommend clarifying edits around access requirements and restrictions for multi-fleet charging hubs to avoid confusion. (Apr-191.6)

Agency Response: Changes were made in response to these comments. Since shared FCI sites can limit the number of third party fleets that can access the site, access controls and security measures are a reasonable allowance.

J-47 Multiple Comments: Clarify Networking Requirements

Comment: Clarify what is meant by networking requirements. CARB proposes a networking and communication requirement we request clarification around the data to be shared and the rationale. The proposed language states “Each FSE must be networked and capable of monitoring and reporting its availability for charging.” This can be read to require public reporting of availability, which would not necessarily be relevant for shared chargers such as those found in multi-fleet charging depots with defined customers and reservations. (15d1-150.3e)

Comment: Clarify what is meant by networking requirements. CARB proposes a networking and communication requirement we request clarification around the data to be shared and the rationale. The proposed language states “Each FSE must be networked and capable of monitoring and reporting its availability for charging.” This can be read to require public reporting of availability, which would not necessarily be relevant for shared chargers such as those found in multi-fleet charging depots (e.g. robotaxis and ride share vehicles) with defined customers and reservations. (15d1-150.4f)

Comment: Implementation of designations for existing FCI pathways. The proposed amendment to Section 95486.2(b)(1) allows for a designee to report for FCI pathways. SRECTrade requests clarification on Implementing this update, for example can existing FCI pathways and registrations be moved to a single consolidated account managed by the designee? (15d2-288.7)

Agency Response: No changes were made in response to these comments. These requirements are unchanged from the existing FCI program. FCI credits cannot be

calculated unless the charger is capable of measuring the electricity it dispenses and its availability for charging.

J-48 *Allow Less Than 24 Hr/D Accessibility*

Comment: Allow less than 24-hr access if the executive officer approves. We believe flexibility is needed as not all situations meriting exceptions may be covered by a permitting authority. There may be good reasons in some urban areas (e.g., safety) where less than 24-hour access is warranted on a case-by-case basis. In addition, the 15-day changes appear to have made it easier for placing public-access DCFC in cities and towns to serve EV drivers who live in apartments and condominiums and where the DCFC is placed in locations such as curbside of a street or in public, non-profit or private parking lots. Building charging at multifamily residences is a well-recognized challenge and placing level 2 chargers on site is not always attractive or in many cases even possible. CARB has an opportunity with this LD FCI program to address this problem by encouraging DCFCs at nearby locations that will work not only for residents of apartments and condominiums but also for residents of single-family homes in denser urban areas where off-street parking is limited. The 24-7 requirement for public access should, at minimum, be slightly modified so that non-profit, government and private locations with one or two DCFCs that serve the community do not run into problems with rights-of-way laws. For example, a site such as a church or a bank needs to close their parking lot for at least one day a year in order to not lose their property rights. Ideally, CARB should also accommodate, through an exception process, other times that access could be blocked for a few hours (e.g., neighborhood festivals). (15d1-150.4a)

Agency Response: No changes were made in response to this comment. Public FCI sites need only meet public requirements during its 12 public daytime hours; while the site must still be operating, additional security can be implemented during the 12 nighttime hours each day. The permitted operating hours of the larger property can determine the availability of the chargers. For instance, FCI chargers in a parking garage that is closed from midnight to 6am each night are not able to provide accessibility. Note that for FCI FSEs in these situations, the time for which they are inaccessible for use due to the action of the owner of the larger property is considered downtime, and should be accounted for in the uptime reporting.

J-49 *Multiple Comments: Include Land Costs in Initial Capital Expenses*

Comment: Include land costs for new sites as an eligible initial capital cost, as these stations are extremely difficult to site and new locations are often needed. It is difficult and expensive to find suitable sites for truck charging due to scarcity of land in urban areas (owning or 10-year leases), zoning restrictions, lease restrictions and, most importantly, the challenge in finding 5-20 MW (sometimes more) of grid capacity. The Venn diagram overlap of these needs is small. Land costs for public charging locations and shared charging depots for HD FCI are very significant and should be included in Section 95486.4(b)(4)(I). (15d1-150.3d)

Comment: Include land costs for new sites as an eligible initial capital cost, as these stations are extremely difficult to site and new locations are often needed. It is difficult and expensive to find suitable sites for truck charging due to scarcity of land in urban areas (owning or 10-year leases), zoning restrictions, lease restrictions and, most importantly, the challenge in finding 5-

20 MW (sometimes more) of grid capacity. The Venn diagram overlap of these needs is small. Land costs for public charging locations and shared charging depots for HD FCI are very significant and should be included in Section 95486.4(b)(4)(l). (15d1-150.4g)

Agency Response: No changes were made in response to these comments. The FCI program reduces the risk of operating fast chargers due to the uncertainty of demand and anticipation of initial low demand. Purchased, installed equipment depreciates over time; by covering the cost of these initial capital expenses, the FCI program reduces the risk of investment in these capital items. Land does not depreciate.

J-50 *Shift Site Restriction Text to Different Subsection*

Comment: Finally, we recommend that rule language regarding restrictions be placed with corresponding eligibility language (such as that in Section 95486.2 (b)(1)), rather than with application requirements, to improve readability. (45d-276.18)

Agency Response: No changes were made in response to this comment. Requirements listed in subsection (1) are assumed to be fixed and not to require revisiting. Requirements listed in subsection (4) may or may not be met each quarter; the FSE may or may not generate FCI credits each quarter during its crediting period, accordingly.

J-51 *Clarify Slide 8 of April Workshop*

Comment: CalETC recommends the LCFS Final Statement of Reasons provide a step-by-step explanation of how workshop slide 8 was calculated and the assumptions used. As shown, this slide can be misunderstood, taken out of context, or used to show that incentives for DCFC are no longer needed. For these reasons CARB should provide the detail behind this slide in a public document. (Apr-126.4)

Agency Response: Staff used the demand projections from the 2022 CARB Scoping Plan, infrastructure projections from the CEC Electric Vehicle Charging Infrastructure Assessment, and reported capital expenses by FCI applicants. Because the reported capital expenses are confidential business information, the calculation showing the scenario where the FCI program ensures coverage of initial capital expenses cannot be shared. Note, however, that the determination is not made by FCI credits alone: a fast charger in the FCI program that consistently has a utilization rate higher than 20% during its FCI crediting period window will never generate an FCI credit, but rather the value of the electricity credits generated by the charger will cover initial capital expenses.

J-52 *Clarify Capacity Categories*

Comment: Clarify that that staff's intent in the 15-day package is for there to be four 2.5% caps for four categories: (LMD-FCI combined with the current light duty FCI, HD-FCI, LMD-HRI combined with the current light duty HRI, and HD-HRI). The current language is a little confusing because the current FCI program (public light duty) and proposed LMD FCI programs run concurrently as explained in the 15-day change notice. The use of the generic term "FCI" varies throughout the proposed regulatory language sometimes referring to the

legacy FCI program and other times to the new FCI programs for LMD and/or HD DC charging. We ask that the final regulation language not use the term FCI by itself to refer to the legacy program, but rather be more specific, such as using the term “light-duty FCI” to refer to the legacy (current) program. For example, one way to make the language clearer, is the following: If estimated potential FCI credits from all approved light-duty FCI and LMD-FCI FSEs exceed 2.5 percent of deficits in the most recent quarter for which data is available, the Executive Officer will not approve additional FCI pathways for LMD-FCI FSEs and will not accept additional LMD-FCI applications until estimated potential FCI credits for approved light-duty FCI and LMD-FCI FSEs are less than 2.5 percent of deficits. (15d1-150.4e)

Agency Response: No changes were made due to this comment. The context differentiating “FCI” and “HRI” as the original programs and “FCI” and “HRI” as pathways can be determined on inspection.

K. Bi-directional Charging

See Section M for responses to comments related to bi-directional charging.

L. Book-and-Claim Provisions

L-1 Multiple Comments: *Expand Book-and-Claim Provisions*

Comment: TES recommends CARB expand the pathways that can apply book-and-claim accounting (“B&C”), which currently includes low-CI electricity, biomethane or low-CI hydrogen, to include any low-CI methane pathways. The current and proposed LCFS limits B&C accounting to biomethane based on feedstock rather than physical product characteristics or CI. Given the overarching intent of LCFS to support California’s transition to low carbon fuels and drive GHG emissions reductions, TES recommends CARB consider revising B&C restrictions to be feedstock agnostic, and instead limit B&C eligibility based on fuel product (e.g., electricity, methane or hydrogen pathways, where infrastructure exists to support indirect accounting, and use depends upon common carrier infrastructure) and pathway CI. (45d-325.2, Apr-064.3)

Agency Response: No change was made in response to this comment. Staff has not certified a fuel pathway for “low-CI methane” in the program, aside from biomethane as defined in the regulation. Staff encourage stakeholders to meet with staff to describe technological innovations to decarbonize methane gas.

Comment: Our 45-day comment discussed the critical importance of eFuels to decarbonizing hard to abate sectors including legacy gasoline vehicles, and long-haul aviation. We appreciate that many other stakeholders emphasized the special role of eFuels and that CARB recognizes the vital importance of eFuels. We therefore only briefly revisit this topic with additional support and reference our 45-day comment letter for its analysis and authority.

Our prior comment also respectfully requested that CARB enhance the LCFS program by:

1. Establishing a book-and-claim accounting system for hydrogen pipelines that is applicable outside California.

2. Establishing a book-and-claim accounting system for carbon dioxide pipelines that is applicable outside California.
3. Revising the proposed Alternative Fuel definition to account for drop-in eFuel alternatives for gasoline and diesel fuel. (Apr-175.2)

Agency Response: No change was made in response to this comment. With regard to the recommendation to allow book-and-claim of low-CI hydrogen injected into pipelines outside of California, see response L-4.

A book-and-claim accounting system for carbon dioxide pipelines is not practical since the pipeline transporting CO₂ has to be physically linked to the CO₂ capture facility and the eligible CO₂ reservoir to ensure that only eligible reservoirs and CO₂ sources are participating in the program.

With regard to the comment on the alternative fuel definition, see response B-1.

Comment: WPGA proposes that CARB apply its Book & Claim and avoided emissions reporting to renewable propane. While renewable propane is currently only deliverable in California by truck or rail, CARB, through amendments, has the capacity to generate enhanced distribution and use of renewable propane. Given renewable propane's low CI score, CARB could, through adopting its Book & Claim and avoided emissions framework, play an instrumental role in lowering the CI score in California and increasing production to offset fuels with larger air quality or GHG emissions footprints.

Similar to its provisions pathway for renewable biomethane, CARB could develop a provisional pathway for avoided emissions for renewable propane.

- One pathway would involve booking propane produced outside of California, and exchanging for renewable propane produced in California, allowing a lower CI score to avoid the added CI for transmission.
- A second proposed provisional pathway would account for reduced or nominal CI additions for renewable propane shipped by rail or truck, as renewable propane should not be excluded by a failure of useful infrastructure.

CARB has a unique potential to stimulate renewable propane production and demand, while lowering CI scores and improving environmental justice communities, all by providing for Book & Claim and avoided emissions accounting for renewable propane. Through this process, CARB can ensure the best available fuel for all communities and uses, while also lowering the CI score of the fuel utilized. (45d-182.2, 45d-182.3, Apr-127.7)

Agency Response: No change was made in response to this request. The renewable propane market in California and elsewhere is small, and a large propane pipeline network does not exist in the United States like it does for natural gas. Regarding the provisional and temporary pathways for renewable propane, see response II.1.

Comment Summary: Allow for book-and-claim accounting of low-CI electricity and RNG for SAF production, a regulatory approach that is already in place for electric vehicle charging.

...

We are supportive of the existing policy to allow book-and-claim accounting for low-CI electricity and RNG inputs to the production of low-CI hydrogen, and we applaud CARB's proposal to expand access through the use of power purchase agreements (PPAs) for low-CI electricity. However, we strongly believe that the same access should be expanded to SAF. At minimum, we urge CARB not to eliminate the existing allowance for indirect accounting for low-CI electricity to produce hydrogen that is used in the production of fuels, including SAF.

CARB's arguments for providing additional flexibility to low-CI hydrogen when directly used as a transportation fuel apply equally to SAF. Both low-CI hydrogen and SAF are young technologies with nascent markets that displace hard-to-electrify end uses like powering aircraft. The 2022 CARB Scoping Plan calls for significant growth in the use of both and, in the aviation sector, envisions even greater growth for SAF—from less than 1% of jet fuel consumption today to 80% in 2045.²⁴

²⁴ See CARB, 2022 Scoping Plan for Achieving Carbon Neutrality. December 2022. https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf. Page 73.

Despite these parallels, current and proposed LCFS rules for indirect accounting of low-CI energy systematically disadvantage SAF relative to hydrogen. Hydrogen producers have access to emissions reductions from process energy—low-CI electricity and RNG—that SAF cannot access. This is counter to state goals for SAF uptake and aviation decarbonization. We urge CARB to promote equity between future fuels like SAF and hydrogen and allow indirect accounting of RNG and low-CI electricity—both as a direct input to SAF and as an input to hydrogen for use in SAF. (45d-343.3, 45d-346.4)

Comment: Allow book-and-claim use of SAF as proposed for hydrogen used as a transportation fuel.

...

LanzaJet also supports the proposal to allow book-and-claim accounting for low-carbon intensity hydrogen used as a transportation fuel. We agree with CARB's rationale for allowing hydrogen book and claim: that physical delivery is impractical for large scale production that is sent to several off-takers through shared pipelines.²⁵ However, the same rationale also applies to SAF, and we strongly recommend that the offtake opportunities provided by book and claim should be available to all pipeline-fungible liquid and gaseous fuels.

²⁵ See CARB, Staff Report: Initial Statement of Reasons (ISOR). December 19, 2023. <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/isor.pdf>. Page 34.

All of the arguments given by CARB in the Initial statement of Reasons for extending book and claim to low-CI hydrogen also apply to SAF.²⁶ Like hydrogen, the SAF market is nascent, and relies on large scale production, pipeline deliveries, and multiple off-takers for economies of scale. In the aviation sector, both hydrogen and SAF serve the same end use—transportation fuel for aircraft.

²⁶ See CARB, Staff Report: Initial Statement of Reasons (ISOR). December 19, 2023. <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/isor.pdf>. Page 30.

The 2022 Scoping Plan sees SAF as the essential key to meaningful decarbonization of aviation through 2045—displacing 80% of the fossil fuels used by the sector. Despite that, current and proposed LCFS rules for book and claim that exclude SAF make it much more

logistically difficult and carbon intensive for jet fuel suppliers to provide their customers with emissions reductions from SAF than it would be from hydrogen. (45d-346.5)

Comment: Further, given the intention to align and coordinate LCFS programs in California, Oregon and Washington and further accelerate the uptake of SAF, we also encourage CARB to consider Washington state's approach to enabling book and claim accounting for RNG to SAF. (Apr-131.10)

Agency Response: No change was made in response to this comment. Given that there are other optimal uses of biomethane such as in low-CI hydrogen production and there are no gas to liquid pathways active in the LCFS program as of today, it would be premature for the LCFS to allow book-and-claim of biomethane as feedstock in SAF production.

L-2 Multiple Comments: *Book-and-Claim of Low-CI Hydrogen*

Comment Summary: The commenters express support for the proposed book and claim of low-CI hydrogen either directly used as transportation fuel or feedstock in producing alternative fuels. (Apr-103.5, Apr-103.13, Apr-162.1)

Comment: Air Products appreciates CARB's willingness to provide a 'book-and-claim' accounting approach for CI hydrogen, and we strongly support the provision's focus on a technology-neutral, CI-focused metric to establish eligibility for low-CI hydrogen. A robust book-and-claim system for hydrogen will leverage existing infrastructure to support development of new low CI hydrogen supply, reduce costs, and ensure that the low-carbon attributes of a hydrogen pathway are retained and applied to end-uses where the most environmental benefit can be derived. This compliance system supports the necessary, long-term signal to significantly increase investments in the production, storage, and distribution of low-carbon hydrogen that will be fundamental to decarbonizing the transportation sector. CARB's design of this system will be a model to other jurisdictions implementing LCFS programs. (15d2-206.2)

Agency Response: No change was made in response to the comment. CARB acknowledges the support for book-and-claim of low-CI hydrogen.

Comment: However, we respectfully encourage CARB not to bias the LCFS program structure to favor more energy intensive electrolytic hydrogen over H Cycle's non-electrolytic process that leverages waste streams from organics diversion to reduce emissions of the short-lived climate pollutant ("SLCP") methane, create a distributed hydrogen production network, and attract federal dollars to California to accelerate hydrogen production expansion.

CARB's Notice of Public Availability of Modified Text ("15-Day Notice") states that regarding §95488.8(i)(1)(C), "staff proposes to add the word "electrolytic" to clarify the type of hydrogen production to which this subsection applies." There is no further explanation given for the change. The lack of explanation is unfortunate given that the original LCFS regulatory proposal posted on December 19, 2023 ("Original LCFS Proposal"), affirmatively struck the word "electrolytic" from §95488.8(i)(1)(C). The Original LCFS Proposal was responsive to strong industry support for a technology neutral and consistent approach to carbon accounting for hydrogen production.

The reinsertion of “electrolytic” into §95488.8(i)(1)(C) would perpetuate the current regulatory structure which establishes two distinct LCFS carbon accounting approaches for hydrogen production. Electrolytic hydrogen is authorized to use book-and-claim accounting to access low carbon intensity (“Low-CI”) power. Non-electrolytic hydrogen production can only access Low-CI power through the establishment of a behind the meter direct connection to a renewable power generating facility and must meet the other requirements of §95488.8(h)(1).

As a result of the inherent inefficiencies of electrolytic hydrogen production and H Cycle’s ability to capture the energy value of the waste in hydrogen, H Cycle can produce a kilogram of hydrogen using only one-third of the electrical power required by an electrolytic hydrogen facility. Thus, returning to CARB’s goal of strategically utilizing California’s Low-CI power sources to generate the maximum quantity of fuel for zero emission vehicles, the deployment of H Cycle facilities will yield 3x the amount of hydrogen than electrolytic facilities for the same electricity. Yet, the 15-Day Change proposal creates a carbon accounting disparity such that the electrolytic hydrogen producers will receive more favorable CI scores under the LCFS due to their ability to access Low-CI power via book-and-claim accounting. In the words of Professor Sperling, this approach places the government in the position of choosing winners among competing fuel technologies and products. (15d1-046.2)

Comment: “The proposed approach to indirect accounting for low- CI electricity, biomethane, and low-CI hydrogen only includes electrolytic hydrogen production. The 2022 Scoping Plan describes the need and utilization of hydrogen across sectors, modelling that approximately half of all hydrogen in 2045 would come from biogenic sources. Allowing all hydrogen production to utilize low-CI electricity for production and processing further deliver on California’s goals to deeply decarbonize the economy. Relegating these benefits to a singular hydrogen production pathway limits the benefits to the environment and economy by restricting this decarbonization and crediting benefit to electrolytic hydrogen that as we have discussed faces headwinds in the absence of specific electric sector policies and grid access that will allow it to be produced cost-effectively and control the RECs associated with electric procurement.

Recommendation: With a focus on carbon intensity and the absolute necessity to develop decarbonized hydrogen production from a variety of biogenic feedstocks to mitigate the detrimental impacts of methane emissions and biomass, CARB should not limit these provisions to electrolytic hydrogen only.” (15d1-245.27)

Comment: §95488.8 (i)(1)(C) - The proposed provisions would set limitations on the characteristics of low-CI electricity used for direct air capture (DAC) projects or hydrogen used as a transportation fuel. First, §95488.8 (i)(1)(C) should specify “hydrogen made by electrolysis” since these requirements predominantly only apply to electricity. (45d-391.52)

Agency Response: Staff removed the “electrolytic” qualifier from section 95488.8(i)(1)(C). The provision now supports book-and-claim accounting of low-CI electricity for hydrogen production regardless of the hydrogen production method.

Comment: We note that §95488.8(i)(3)(C) safeguards against resource shuffling and encourages new projects that provide eligible hydrogen. We support this requirement but want to clarify that the term “expand” used in the provision is not narrowly interpreted to mean that

every project must increase the amount of hydrogen produced. Instead, we encourage an interpretation, that it refers to an expansion in the production of lower carbon hydrogen that meets the CI thresholds established in §95488.8(i)(3)(B). It is quite possible that existing facilities not producing eligible hydrogen will be modified to produce low-CI eligible hydrogen without a net increase in total hydrogen produced. (45d-214.16)

Agency Response: No change was made in response to this comment. If the existing facility switches to low-CI hydrogen production, it will be treated as a new facility and therefore will be covered by section §95488.8(i)(3)(C) based on the production date of low-CI hydrogen.

Comment: §95488.8 (i)(3)(B) - The proposed provisions specify minimum GHG thresholds to be met in order for pipeline-transported hydrogen to be eligible for credits. The proposed language specified “well-to-wheel” carbon intensity. This means that different hydrogen vehicles could yield different carbon intensity scores, even when fueled by identical fuel, due to the effect of the EER on well-to-wheels CI. To match the presumed intent of this provision, the proposal should either specify well-to-tank CI, or specify an EER to use when calculating well-to-wheels CI. (45d-391.55)

Agency Response: No change was made in response to this comment. A well-to-wheel carbon intensity (CI) typically refers to the carbon intensity without an energy economy ratio (EER) adjustment unless otherwise specified in LCFS pursuant to 95488.7(a)(3).

Comment: We note that the low-CI hydrogen book-and-claim requirements are appropriately applied to low-CI hydrogen in the gaseous phase that is commingled in pipelines – including hydrogen conveyed as a liquid before pipeline injection as a gas. CARB has indicated in discussions that liquid hydrogen (or hydrogen derivatives like ammonia) of varying CIs that are mixed in transport and distribution systems can be volumetrically balanced, similar to other liquid alternative fuels like ethanol, renewable diesel, and biodiesel, and that this can be accommodated via the fuel pathway and existing accounting systems without amendment to the regulation. We request CARB clarify, consistent with past discussions with staff, that a book-and-claim approach for commingled liquid hydrogen or liquid hydrogen derivatives in these systems is not needed, and that the necessary provisions are included in the existing regulations and that the necessary provisions are included in the existing regulations

We appreciate the explicit clarification in §95488.8(i)(3)(B) that biomethane book-and-claim can be used to reduce hydrogen CI but request CARB to confirm that other renewable feedstocks or production technologies can be used to lower the carbon intensity and produce eligible hydrogen as long as the proposed CI thresholds are validated via approved fuel pathways. (45d-214.15)

Agency Response: No change was made in response to this comment. Staff confirms the commenter’s understanding that if hydrogen fuels of varying CIs are mixed prior to injection to the pipeline regardless of its physical state (gaseous or liquid), mass balance is allowed for the purposes of book-and-claim accounting. Note that staff has not extended the book-and-claim provision to include intermediates such as ammonia and dimethyl ether.

Comment: Book-and-Claim Accounting for Low-CI Hydrogen. The proposed amendments allow book-and-claim accounting for low-CI hydrogen injected into a pipeline. We recommend that this allowance include not only hydrogen used as a transportation fuel but also for hydrogen used as a feedstock to produce other low-CI fuels. (45d-223.8)

Agency Response: No change was made in response to this comment. The proposed regulation allows book-and-claim of low-CI hydrogen when hydrogen is used as a transportation fuel directly or used as input in alternative fuel production.

Comment: It is recommended that under Book and claim for hydrogen the requirement of demonstration of deliverability to take effect from Jan 1st, 2041, similar to RNG criteria. (45d-360.10).

Agency Response: No change was made in response to this comment. See response to L-4.

Comment: In fact, we propose further review on the recognition for lower carbon intensity fossil hydrogen, when applying renewable attributes, and the impact of the limitation for hydrogen conveyed in out-of-state pipelines. (BHT-95)

Agency Response. No change was made in response to this comment. Regarding the further review on the recognition of low-CI hydrogen obtained using environmental attributes (i.e., book-and-claim of biomethane), see response to Z-1.7. Regarding the comment on the limitation posed on hydrogen out-of-state pipelines, see response to L-4.

L-3 Multiple Comments: *Support CI-Based Thresholds for Book-and-Claim of Low-CI Hydrogen*

Comment: We strongly support the inclusion of a technology-neutral CI-based book-and-claim approach for hydrogen but suggest that it be used for all transportation fuel regardless of where they are produced, if they are consumed in California consistent with standard LCFS treatment of fuels. (45d-214.3)

Comment: ...we strongly support the provision's focus on a technology-neutral, CI-focused metric to establish eligibility for low-CI hydrogen. (45d-214.11)

Agency Response: Staff appreciates the support for staff's proposal.

L-4 Multiple Comments: *Oppose Restrictions to Book-and-Claim of Low-CI Hydrogen*

Comment: The proposal to allow book-and-claim accounting for dedicated hydrogen pipelines is a constructive addition to the LCFS. However, imposing carbon intensity (CI) and deliverability constraints are unnecessary. There is no rationale for treating the CI of hydrogen shipped via pipeline differently than hydrogen shipped by truck. This only serves to encourage inefficiency in the supply chain. The market will reward lower-CI hydrogen without the need for these constraints. (45d-048.3)

Comment: Allow book-and-claim delivery of low-CI hydrogen in dedicated hydrogen pipelines outside of California.

The optimal policy would be to allow book-and-claim delivery of low-CI hydrogen in any dedicated hydrogen pipeline serving as a feedstock in any fuel. However, if CARB is concerned, with extending this policy to hydrogen used in conventional gasoline and diesel refineries, CARB should at a minimum allow for book-and-claim delivery of low-CI hydrogen in dedicated hydrogen pipelines when that low-CI hydrogen is used as a feedstock in low and no carbon liquid transportation fuels such as sustainable aviation fuels, power-to-liquids fuels, and renewable diesel. (45d-198.1)

Comment: To that end, one key improvement needed is to eliminate the requirement that eligible hydrogen must be supplied to California in a dedicated pipeline as proposed in §95488.8(i)(3)(A). This requirement places an unnecessary constraint on a nascent market and will stifle investments at a time when massive capital outlays are needed to bring low-carbon hydrogen to scale. There are no dedicated interstate hydrogen pipelines to California. As such, this requirement favors only in-state hydrogen pipelines and fails to recognize the value of using hydrogen as a feedstock to renewable fuels produced out of state and imported for use in California. (45d-214.12)

Comment: However, a specific geographic limitation directing that the hydrogen be supplied to California would make such a project ineligible, consequently lowering the incentive for producing low-CI hydrogen and forgoing related emission reductions. (45d-214.13)

Comment: We request that CARB modify §95488.8(i)(3)(A) as follows: “Low-CI hydrogen is injected into a dedicated hydrogen pipeline physically connected to California a distribution system or a production facility that provides transportation fuel to California.” (45d-214.14)

Comment: The “physically connected to California” requirement should be eliminated from proposed subsection 95488.8(i)(3)(A);” (45d-215.4)

Comment: Twelve recommends that CARB eliminate the “physically connected to California” requirement that is included in proposed subsection 95488.8(i)(3)(A).

So long as pipeline-injected low-CI hydrogen meets all of the other conditions laid out in proposed subsections 95488.8(i)(3)(B)-(F), an entity should be allowed to avail itself of indirect/book-and-claim accounting. In Twelve’s view, this would better “incentivize and spur increased development and supply of low-CI hydrogen by providing flexibility to hydrogen production facility siting and supply logistics” and “facilitate and spur the use of low-CI hydrogen in support of California’s decarbonization efforts.”

Thus, book-and-claim accounting would apply to low-CI hydrogen injected into a dedicated hydrogen pipeline network irrespective of whether the pipeline network is physically connected to California. (45d-215.12)

Comment: As you know, Shell has been very active in developing hydrogen projects in the state, and we are concerned that limiting book-and-claim accounting for hydrogen will constrain growth. This undermines California’s immediate need to significantly increase hydrogen as detailed in the 2022 Scoping Plan Update. The LCFS program includes CI benchmarks, and these should be used as the singular determining factor to drive CI reductions and the credit values. (45d-088.2)

Comment: Allow book-and-claim delivery of low-CI hydrogen in dedicated hydrogen pipelines outside of California for transportation fuel sold into the California market.” (45d-324.2)

Comment Summary: Air Products and Chemicals, Inc. urges CARB to not limit the book-and-claim of low-CI hydrogen to only the hydrogen pipelines within California or connected to California and provides suggested edits to the regulation text in section 95488.8 (i)(3). (Apr-103.14)

Comment: The ruling on H2 produced from fossil resources even with CCS could be an issue, this applies to hydrogen used for transportation. Thus, H2 used in chemical process that comes from non-biomass energy sources is still allowed as the H2 itself is not a fuel but a chemical component of a process. This distinction is important for those fuel producers that hydroprocess feedstocks into biomass fuels and don’t have access to biomass derived H2. (15d1-213.7)

Comment: Low-CI Hydrogen Recommendations:

Neste reiterates appreciation for CARB’s proposals to create greater incentives for the production and use of low-CI hydrogen, especially as noted in sections 95488.8 (i)(2) “Book-and-Claim Accounting for Pipeline-Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen” and 95488.8 (i)(3) “Book-and-Claim Accounting for Pipeline-Injected low-CI Hydrogen Used in FCV and Alternative Fuel Production.” Neste recommends that all renewable facilities that use low-CI hydrogen be allowed to generate CI benefits from using low-CI hydrogen and not just facilities connected to a North American carrier pipeline (95488.8 (i)(2)) or California hydrogen pipeline (95488.8 (i)(3)). Globally, Neste is investing millions in the development of low-CI hydrogen to produce even lower CI versions of drop-in fuels like renewable diesel and SAF.

We hope to eventually expand the use of low-CI hydrogen at all our facilities and to have the option to bring those lower CI fuels to California. The hydrogen pipeline requirements create unnecessary barriers and should be rejected. (15d1-228.41).

Comment Summary: Air Products recommends CARB to eliminate the requirement for supply hydrogen through a dedicated pipeline to California. Air Products argues that this requirement will put a constraint on the fledgling hydrogen market and deter investment requirement for large scale expansion. In particular, this puts out of state hydrogen supplier at disadvantage by depriving them of flexibility to supply low-CI hydrogen increasing the costs and GHG emissions associated with hydrogen transport.

Air Products disagrees with the requirement to furnish unredacted invoices with contracted price per kg of hydrogen since this may create harm for Air Products and its customers. (15d1-214.17, 15d1-135.2)

Comment: Lastly, we note that the new low-CI hydrogen book-and-claim provision includes a requirement to report the contracted price of hydrogen to CARB in unredacted invoices. We support the need for robust tracking of hydrogen volumes to ensure the quantity and environmental attributes of the hydrogen tracked via book-and-claim is verifiable but find no rationale for including hydrogen pricing. In fact, sharing information on the contracted hydrogen price creates the possibility of irreparable harm to both Air Products and its customers. Even in

situations where data is published in an aggregated fashion, the limited supply of this hydrogen from a handful of entities would likely lead to competitors deducing this proprietary information and leveraging that information to their advantage in bidding processes. We urge CARB to strike the requirement to report this information in 95488.8(i)(3)(E). (45d-214.17)

Comment: In Section 95488.8 (i)(3), Neste also recommends the elimination of the December 31, 2022 facility startup date for facilities to be eligible for the low-CI hydrogen CI benefits. As the lone renewable fuel company with a production footprint on 3 continents, allowing low-CI hydrogen from any of our facilities could help supply of lower CI fuels to California. (15d1-228.42)

Comment: Low-CI Hydrogen Recommendations:

Neste appreciates CARB's proposing to create greater incentives for the production and use of low-CI hydrogen, especially as noted in Section 95488.8 (i)(3) "Book-and-Claim Accounting for Pipeline-Injected low-CI Hydrogen Used in FCV and Alternative Fuel Production." Neste recommends that all renewable facilities that use low-CI hydrogen be allowed to generate CI benefits from using low-CI hydrogen and not just facilities connected to a California hydrogen pipeline. Globally, Neste is investing millions in the development of low-CI hydrogen to produce even lower CI versions of drop-in fuels like renewable diesel and SAF. We hope to eventually expand the use of low-CI hydrogen at all our facilities and have the option to bring those lower CI fuels to California. The California hydrogen pipeline requirement creates unnecessary barriers and should be deleted.

In Section 95488.8 (i)(3), Neste also recommends the elimination of the December 22, 2022 facility startup date for facilities to be eligible for the low-CI hydrogen CI benefits. As the lone renewable fuel company with a production footprint on 3 continents, allowing low-CI hydrogen from any of our facilities could help increase supply of lower CI fuels to California. (45d-295.7)

Comment: World Energy would also like to express our support for the extension of book-and-claim to additional fuels like hydrogen. Book-and-claim is essential in maintaining and promoting the success of the LCFS program. It has enabled many GHG emission reductions and encourages more low-CI fuels to enter the California market. In part, World Energy believes that book-and-claim plays an important role for carbon reductions to happen wherever possible, without necessitating an unnecessary (and carbon intensive) shipment of products to disparate locations.

As CARB proposes including book-and-claim for hydrogen, we support the addition as it will aid in the deployment of renewable hydrogen in the state, a crucial component to transitioning California's hard-to-decarbonize transportation and other technologies.

One key area for improvement in the book-and-claim proposal is extending the provisions outside California, consistent with other LCFS provisions. The current proposal calls for a California pipeline connection in §95488.8(i)(3)(A). The requirement as written favors only in-state hydrogen pipelines and does not provide incentives for renewable fuel production outside California. Absent this allowance, CARB is implicitly providing no incentive for low carbon hydrogen over fossil-based hydrogen for fuels produced in other states. In order to advantage low CI hydrogen across the country, allowing book-and-claim for interconnected regional

hydrogen pipelines will be necessary to overcome traditional hydrogen's cost advantages. As such, World Energy recommends modifying §95488.8(i)(3)(A) as follows:

Low-CI hydrogen is injected into a dedicated hydrogen pipeline physically connected to a distribution system or a production facility that provides transportation fuel to California. (45d-300.5)

Comment: Allow book-and-claim delivery of low-CI hydrogen in dedicated hydrogen pipelines outside of California for transportation fuel sold into the California market. (45d-324.2)

Comment: Tax Credits. CARB is proposing to model LCFS program updates on pending federal updates to tax credits under Internal Revenue Code Sections 45V and 48(a)(15). Imposing well-to-wheel CI limits of ≤55 grams per megajoule (gCO₂e/MJ) for gaseous hydrogen and ≤95 gCO₂e/MJ for liquid hydrogen for pipeline transfers to “align” with the US Treasury/IRS proposed rule on Section 45V “Clean Hydrogen Production Tax Credit” of the Inflation Reduction Act, is unnecessary and confusing. The Treasury/Internal Revenue Service (IRS) proposal was published on December 26, 2023, and will likely be finalized well after CARB finalizes these LCFS amendments. These regulations may significantly change before they become final. However, if CARB seeks to align these programs, then it should, at minimum, retain the IRS's technology-neutral approach. (45d-241.30)

Comment: Today, California has only 16 miles of dedicated hydrogen pipelines. However, nationwide there are about 1,600 miles of dedicated hydrogen pipelines, 90% of which are concentrated in the Gulf Coast. Since this existing hydrogen pipeline infrastructure network serves a variety of industrial customers, it can also be a tool to help ensure California has access to the low-cost and low-carbon fuels needed to support the state's climate and air quality goals. As the proposed changes are currently written, however, the vast network of Gulf Coast hydrogen pipelines would not be eligible for book-and-claim within the LCFS. As a result, the state's access to low-cost, low-carbon fuels is restricted, which runs counter to the findings of the 2022 Scoping Plan and the state's broader climate goals. However, if amended as outlined, the LCFS program would help facilitate an influx of clean fuels, such as SAF made with green hydrogen, to reduce emissions in California. (15d1-173.5a)

Agency Response: No change was made in response to the comments on the direct pipeline connection requirement to supply low-CI hydrogen to California. Staff proposed this provision with a long-term perspective. The hydrogen pipeline infrastructure in California and adjoining states (Pacific Northwest) is expected to grow with support from the Bipartisan Infrastructure Law and other investments. Recently, the federal government selected the California Hydrogen Hub project spearheaded by the Alliance for Renewable Clean Energy Hydrogen Energy Systems (ARCHES) and Pacific Northwest Hydrogen Hub project as two of seven federally funded hydrogen hub projects. These federally funded projects are likely to be connected of renewable and low-CI hydrogen sources due to the abundance of renewable sources and financial leverage provided by the Inflation Reduction Act (IRA). The staff proposal is designed to capitalize on the synergy created by the federal funding for the hydrogen infrastructure projects and hydrogen production tax credits provided by the IRA.

No change was made in response to the comment regarding the requirement for unredacted invoices showing a contracted price per unit of hydrogen. Such requirements have been applied to book-and-claim of biomethane and low-CI electricity before and are critical for staff/verifier review of the applications. CARB or stakeholders have not encountered any confidentiality or other adverse impacts though implementation of similar provisions to date.

No change was made in response to the comment regarding the elimination of the hydrogen facility startup date. The start update is necessary to ensure that low-CI hydrogen is an additional supply and incentivize production of new low-CI hydrogen resources.

No change was needed in response to the comment about allowing book-and-claim of low-CI hydrogen used in production of renewable hydrocarbon fuels, because it is already included in the staff proposal.

The proposed CI thresholds, which align with the Inflation Reduction Act incentive requirements for hydrogen are appropriate to ensure that LCFS incentives flow to low-CI hydrogen production. To the extent possible, harmonization across programs and regulations in various jurisdictions helps to reduce administrative complexity and facilitates leveraging of incentive programs.

Comment: We request that CARB modify §95488.8(i)(3)(A) as follows:

“Low-CI hydrogen is injected into a dedicated hydrogen pipeline physically connected to California a distribution system or a production facility that provides transportation fuel to California.”

§95488.8 (i)(3) also limits the use of a low-CI hydrogen book-and-claim approach to hydrogen used directly as a transportation fuel and hydrogen that is used to produce alternative fuels. As long as hydrogen is still an eligible feedstock for project-based crediting in §95489, low-CI hydrogen book-and claim should be available to all transportation fuels consumed in California, including conventional fuels. We request CARB make this improvement to enable more emission reductions across a broader array of transportation fuels and further spur investment in low-CI hydrogen. We recommend modified language in §95488.8(i)(3) as follows:

“Book-and-Claim Accounting for Pipeline-Injected low-CI Hydrogen Used in FCV and ~~Alternative~~ Transportation Fuel Production. Indirect accounting may be used for low-CI hydrogen used in FCVs or to produce ~~alternative~~ transportation fuel for transportation purposes provided the conditions set forth below are met:... (45d-214.14)

Comment: The CARB Board should direct staff to eliminate the requirement that eligible hydrogen utilizing book-and-claim provisions must be supplied to California in a dedicated pipeline as proposed in §95488.8(i)(3)(A). The in-state pipeline requirement places an unnecessary constraint on a nascent market and will stifle investments at a time when significant capital outlays are needed to bring low-carbon hydrogen to scale. We are not aware of any other fuel, much less a low carbon fuel that is just beginning to ramp up production and use in California, being subject to such a requirement that discriminates against out-of-state projects.

Air Products owns and operates the only dedicated hydrogen pipeline network in California, and there are no dedicated interstate hydrogen pipelines that move hydrogen into California. This requirement that the low CI hydrogen consumed in California or used by a low CI fuel producer be transported in an in-state hydrogen pipe severely limits the eligible available supply. Further, the in-state only pipeline requirement fails to recognize the value of using hydrogen as an input for renewable fuels produced out of state and delivered for use in California, or hydrogen imported for mobility that will be produced and transported in dedicated pipelines outside of California before ultimately being transported by truck into the state. This approach inequitably dictates a project-specific design for out-of-state pipelines – where each low CI hydrogen project must have its own dedicated pipeline – rather than a scaled clean and efficient hydrogen economy where multiple production projects are able to utilize the same transportation and distribution infrastructure – including shared pipelines. Please note that this request is not to allow for a “papered attribute” system, like has been and continues to be used for biogas and renewable electricity Power Purchase Agreements, but rather for demonstrated mass balancing in a physically connected system. For the best emissions outcomes, lowest cost, access to a larger pool of low CI hydrogen supplies and thus a reliable supply chain, California should support the use of low CI hydrogen in multiple fuel value chains and geographies as long as the finished fuel is consumed in state and creditable under the LCFS. To correct this oversight, we request that the Board ask CARB staff to modify §95488.8(i)(3)(A) as follows:

“Low-CI hydrogen is injected into a dedicated hydrogen pipeline physically connected to California a distribution system or a production facility that provides transportation fuel to California.” (15d2-206.3)

Agency Response: No change was made in response to this comment. See response to the preceding comments on removing restrictions on book and chain of low-CI hydrogen. With regard to striking out the word “alternative” to allow the end use of low-CI hydrogen to qualify under the book-and-claim provision, staff believes limiting this option to only alternative fuels is justified because California is trying to reduce its dependence on petroleum fuels.

Comment: Absent direct access or specific hydrogen tariff’s, grid-tied hydrogen production is significantly disadvantaged to charging and other fuels by the proposed requirements in the LCFS draft. Hydrogen production with the appropriate policy signals can help manage and mitigate issues that result from a grid with a high concentration on variable renewable electricity while also reducing the ratepayer impacts that are associated with managing these variable renewable resources by allowing deeper penetration of renewable energy throughout the economy and the recovery of costs from curtailment or over-procurement.

Under the current LCFS regulation at §95488.8(i)(1), electrolytic hydrogen producers that produce hydrogen fuel for direct use as a transportation fuel or hydrogen used to produce a transportation fuel can source low carbon intensity electricity through the use of book-and-claim accounting by acquiring renewable energy certificates (RECs) from electricity produced within the same balancing authority or consistent with CPUC §399.16(b)(1) within the most recent three calendar quarters.

Under CARB's proposed revisions to the LCFS program at §95488.8(i)(1)(C), it will be considerably more difficult for hydrogen producers to source low carbon intensity electricity than under the current LCFS regulation. Only the deliverability requirement would remain the same as in the current regulation.

CARB is proposing to impose the following limitations and requirements on the use of low carbon intensity electricity in hydrogen production:

- Contracting method- REC sourcing would no longer be sufficient. Hydrogen producers would need to be the first contracted entity for procuring the electricity via power purchase agreement (PPA).
- Additionality- Existing low-CI power sources would no longer be acceptable, only new or expanded production on or after January 1, 2022, or within three years of the start of the hydrogen production facility whichever is later would be acceptable.
- Temporal period- the temporal period would be narrowed to one calendar quarter.

We understand that these proposed amendments are intended to address concerns of consequential emissions, and some of these might be necessary outside of California, however the culmination of energy and climate policies in California provide sufficient and comprehensive guardrails to avoid these concerns. (Apr-141.4)

Agency Response. No change was made in response to this comment. The proposed requirements for low-CI hydrogen production help to ensure that the LCFS incentivizes the growth of low-CI hydrogen supplies to meet projected growth of hydrogen demand in the transportation sector, and that the hydrogen supplied to the transportation sector and credited under the LCFS is also supporting growth of new low-CI electricity sources and not diverting existing low-CI electricity sources away from existing uses.

L-5 Multiple Comments: *Support for Book-and-Claim of Low-CI electricity, Biomethane and Low-CI Hydrogen*

Comment: Book-and-claim for Hydrogen

5. CRS supports allowing the purchase and retirement of attributes and use of contracts to demonstrate use of renewable energy for hydrogen production from both electrolysis and steam methane reforming (SMR). Book-and-claim accounting practices for both renewable electricity and renewable natural gas (i.e., biomethane) rely on energy attribute certificates¹² (e.g., RECs and Renewable Thermal Certificates, RTCs, respectively) to demonstrate clean energy use. The sections below describe the importance of energy attributes for clean hydrogen produced by electrolysis or SMR. Allowing hydrogen production facilities to purchase attributes and use contracts to demonstrate use of renewable energy for hydrogen production (book-and-claim) is essential to the feasible implementation of a clean hydrogen pathway. Requiring the retirement of these attributes or verifying their contractual delivery for use in renewable energy for hydrogen production avoids double counting. Relying on existing market mechanisms and established best practices facilitates the growth of clean hydrogen.

Hydrogen Produced by Electrolysis

CRS supports CARB's requirement that "any renewable energy certificates or other environmental attributes associated with the energy are not issued credits or claimed under any other voluntary or mandatory program." Verifying the use of renewable electricity for the production of hydrogen requires RECs. RECs are defined very clearly in California by the California Public Utilities Commission (CPUC) as including "all renewable and environmental attributes." As such, RECs are required to substantiate delivery and use of renewable electricity and the specified CI of a renewable generation unit. Whether renewable electricity is procured for hydrogen production using onsite generation, a power purchase agreement (PPA), or a utility program, for example, the associated RECs should be retired to substantiate exclusive use of renewable electricity at that hydrogen production facility and prevent double counting. RECs may be retired in WREGIS by or on behalf of hydrogen production for registered generators. In the case that the renewable generator used is not registered with WREGIS, RECs or generation attributes should be transferred and retired contractually on behalf of hydrogen production.

Hydrogen Produced by Steam methane reforming (SMR) In the United States, 95% of hydrogen is produced by SMR, a reaction between a methane source, such as natural gas, and high-temperature steam. Biomethane, also known as renewable natural gas (RNG), is increasingly recognized for its lower lifecycle greenhouse gas emissions and presents an opportunity to lower the carbon intensity of Hydrogen produced by SMR. CRS support CARB's requirement for hydrogen produced from biomethane that "the entity claiming the environmental attributes has the exclusive right to claim environmental attributes associated with the sale or use of the biogas or biomethane." (45d-235.5)

Comment: 1PointFive strongly supports CARB's proposal to permit indirect accounting for low-CI electricity, biomethane and low-CI hydrogen. (45d-249.1)

Agency Response: No change was made in response to these comments. CARB appreciates the support for the book-and-claim of low-CI electricity, biomethane and low-CI hydrogen.

L-6 Multiple Comments: *Book-and-Claim Low-CI Electricity*

Comment: Air Products strongly supports CARB's proposal in §95488.8(i)(1) to extend the existing book and claim accounting approach for low-CI electricity to include the process energy associated with other components used to process and distribute hydrogen, like liquefaction and compression. (45d-214.18)

Comment: Amendments to the provisions for low CI electricity book-and-claim to extend the existing approach to include process energy associated with other components used to process and distribute hydrogen, like liquefaction and compression, and to treat hydrogen and electricity equitably in terms of the time matching. (15d2-206.13)

Comment: Modifications to Section 95488.8. Fuel Pathway Application Requirements Applying to All Classifications.

We appreciate and support the clarification that will allow all hydrogen production to utilize low-CI electricity for production and processing further deliver on California's goals to deeply decarbonize the economy. With a focus on carbon intensity reductions this change will

facilitate the development of decarbonized hydrogen production from a variety of biogenic feedstocks. (15d2-222.10)

Agency Response: No change was made in response to these comments. Staff appreciates the support for the proposal.

Comment: We request retention of the end-use flexibility provided in the current regulation by modifying the following provisions as indicated:

Modify proposed provision 95488.1 (i)(1): as follows:

“... for hydrogen production ~~through electrolysis~~ and processing for transportation purposes (including hydrogen that is used in the production of as a transportation fuel), or for direct air capture projects, provided the conditions set forth below are met:....”

Modify proposed provision 95488.8 (i)(1)(C) as follows:

“For direct air capture projects or for hydrogen used as a transportation fuel (including hydrogen that is used in the production of a transportation fuel), low-CI electricity must meet the following criteria: ...”

While the California Public Utilities Code is referenced in the regionality requirement provision §95488.8(i)(1)(C)(1), we understand that the initial clause of this provision “The low-CI electricity must be supplied to the grid within the local balancing authority where the electricity is consumed” is intended to apply to hydrogen production and associated renewable power outside of the state of California. Please add the parenthetical “(or local balancing authority for hydrogen produced outside of California)” similar to what is provided in 94488.8(i)(1)(A).

Lastly, while we are supportive of the new resource shuffling and quarterly time-matching requirements applied to the low-CI electricity book-and-claim provisions for hydrogen in §95488.8 (i)(1)(C)(3) and (4), respectively, we note that these same new requirements are not imposed on electricity used as a transportation fuel in 95488.8(i)(1)(A). We propose that both electricity and hydrogen supplied as transportation fuels should be treated equally with regards to eligibility and recordkeeping provisions and suggest that both fuel requirements be aligned with the new restrictive standards. Alternatively, hydrogen could retain the current eligibility and recordkeeping requirements that are already aligned with electricity supplied as a transportation fuel. (45d-214.19)

Comment: Air Products strongly supports CARB’s proposal in §95488.8(i)(1) to extend the existing book and claim accounting approach for low-CI electricity to include the process energy associated with other components used to process and distribute hydrogen, like liquefaction and compression. By looking beyond just the production of feedstock hydrogen, this proposal will enable greater carbon reduction ambition in California policies. Extending book-and-claim provisions to process energy will not only incentivize bringing more renewable production on-line but will also enable hydrogen to further lower its CI and help California decarbonize cars, trucks, buses, and other combustion-dependent equipment.

Because hydrogen is an important feedstock in the manufacture of either renewable biofuels or conventional transportation fuels (under the project-based crediting provisions), and the

expectation that these fuels will be used for decades, as indicated in the presentation at the workshop, CARB should encourage all emission reductions possible in all fuels used for transportation in California. Furthermore, alternative fuels have a global supply chain that serves the California market. Hydrogen will also be served by the global market, and a wider signal to the low-carbon hydrogen market will further lower emissions, serve California's transportation energy needs and provide leadership to other jurisdictions. We request retention of the end-use flexibility provided in the current regulation by modifying the following provisions as indicated:

Modify proposed provision 95488.1 (i)(1): as follows: "... for hydrogen production ~~through electrolysis~~ and processing for transportation purposes (including hydrogen that is used in the production of as a transportation fuel), or for direct air capture projects, provided the conditions set forth below are met:...."

Modify proposed provision 95488.8 (i)(1)(C) as follows:

"For direct air capture projects or for hydrogen used as a transportation fuel (including hydrogen that is used in the production of a transportation fuel), low-CI electricity must meet the following criteria: ..." (Apr-103.15)

Comment: CARB's Notice of Public Availability of Modified Text ("15-Day Notice") states that regarding §95488.8(i)(1)(C), "staff proposes to add the word "electrolytic" to clarify the type of hydrogen production to which this subsection applies." There is no further explanation given for the change. The lack of explanation is unfortunate given that the original LCFS regulatory proposal posted on December 19, 2023 ("Original LCFS Proposal"), affirmatively struck the word "electrolytic" from §95488.8(i)(1)(C). The Original LCFS Proposal was responsive to strong industry support for a technology neutral and consistent approach to carbon accounting for hydrogen production.

The reinsertion of "electrolytic" into §95488.8(i)(1)(C) would perpetuate the current regulatory structure which establishes two distinct LCFS carbon accounting approaches for hydrogen production. Electrolytic hydrogen is authorized to use book-and-claim accounting to access low carbon intensity ("Low-CI") power. Non-electrolytic hydrogen production can only access Low-CI power through the establishment of a behind the meter direct connection to a renewable power generating facility and must meet the other requirements of §95488.8(h)(1).

Despite the centrality of technology-neutral carbon intensity within the LCFS program structure, CARB is proposing with this 15-Day Change that hydrogen should be subject to two distinct carbon accounting schemes depending on whether the hydrogen is produced through the electrolytic method which utilizes electricity and water, or through any other method.

While there may be sound policy reasons to favor some production process over others, CARB has not provided any justification in the 15-Day Notice and none is readily apparent. In discussions with CARB on book-and-claim issues, one key issue of concern that has been emphasized is an insufficient supply of Low-CI power. This has been discussed as a reason to prioritize the use of Low-CI power for fuels for zero emission vehicles including battery electric vehicles and fuel cell electric vehicles.

However, an electricity consumption comparison of electrolytic hydrogen production versus hydrogen produced through H Cycle's process demonstrates that favoring electrolytic hydrogen via biased carbon accounting will waste rather than conserve power for zero emission vehicles.

As a result of the inherent inefficiencies of electrolytic hydrogen production and H Cycle's ability to capture the energy value of the waste in hydrogen, H Cycle can produce a kilogram of hydrogen using only one-third of the electrical power required by an electrolytic hydrogen facility. Thus, returning to CARB's goal of strategically utilizing California's Low-CI power sources to generate the maximum quantity of fuel for zero emission vehicles, the deployment of H Cycle facilities will yield 3x the amount of hydrogen than electrolytic facilities for the same electricity. Yet, the 15-Day Change proposal creates a carbon accounting disparity such that the electrolytic hydrogen producers will receive more favorable CI scores under the LCFS due to their ability to access Low-CI power via book-and-claim accounting. In the words of Professor Sperling, this approach places the government in the position of choosing winners among competing fuel technologies and products. (15d1-020.1)

Agency Response. See response L-2 with regard to removing the modifier "electrolysis".

No change was made to the suggestion to revise the regulation text to expand the scope of eligible hydrogen end use beyond transportation fuel such as hydrogen used in a hydrocarbon fuel. See response L-10.

A clarifying phrase in parentheses such as the one suggested by the commenter is not necessary to clarify that low-CI hydrogen needs to be produced from low-CI electricity supplied within a balancing authority where the hydrogen production facility is located. This is specified adequately by section 94488.8(i)(1)(A).

Staff proposed to extend the book-and-claim matching period from one quarter to three quarters for low-CI electricity used in hydrogen production to align it with the book-and-claim matching period offered for book-and-claim of low CI electricity used in EV charging. The alignment will simplify administration and will also help to ensure that hydrogen producers are able to procure adequate low-CI electricity given seasonal variability of renewable electricity generation.

Comment: We note that the deliverability requirements for biomethane for hydrogen specifically are far less stringent than those for low-CI electricity derived hydrogen. Despite achieving a higher theoretical credit price than green hydrogen, green hydrogen made from low-CI electricity must satisfy a more rigorous series of requirements to ensure geographic deliverability, that low-CI electricity comes from new generation, and no double counting.

In contrast, biomethane producers who sell their environmental attributes to existing grey hydrogen producers must only demonstrate the retirement of environmental attributes. Thus, a pathway that enables further use of existing natural gas SMR technology generates higher credit values in the LCFS and has looser book and- claim requirements than a green hydrogen pathway that involves deploying new electrolyzer technology. We recommend that CARB set deliverability requirements on bio-hydrogen that are consistent with other biomethane

pathways. That is, implemented within the next three years and adherent to the same geographic boundaries.(45d-213.23)

Agency Response: No change was made in response to this comment. Similar to book-and-claim of low-CI electricity, staff included a deliverability requirement for biomethane in the proposed regulation. For example, biomethane projects that break ground after December 31 2029 are required to demonstrate that the pipeline or pipelines along the delivery path physically flow from the initial injection point toward the fuel dispensing facility at least 50 percent of the time on an annual basis.

Comment: There is a reference to hydrogen in the Low CI electricity as a fuel section – §95488.8 (i)(1)(A) -which was not deleted like other similar references. We believe this reference is no longer needed given the new section related to hydrogen as a fuel. (45d-214.35)

Agency Response: Changes were made in response to this comment. There are two instances where hydrogen is referenced in §95488.8 (i)(1)(A). These two references were removed in the First 15-day changes proposal for consistency, because this section deals only with low-CI electricity used in transportation (i.e., EV charging) as a result of the proposed amendments in the 45-day package.

Comment: 95488.10 (a)(4) should acknowledge that low-CI electricity can also be used for process energy for hydrogen used as a transportation fuel – and not just for the “hydrogen production via electrolysis”– consistent with 95488.8(i)(1). (45d-214.37)

Agency Response: Staff did not make changes in response to this comment because no change is necessary. The applicable requirements are specified by the Proposed Amendments to section 95488.8(i)(1). Through this rulemaking, staff proposed to allow indirect accounting of low-CI electricity for all electricity used in the hydrogen production life cycle, including process energy, and not limited to electrolytic hydrogen. Staff clarified that this provision is not limited to electrolytic hydrogen by removing the word “electrolytic” in the Second 15-day proposed changes to the regulation, in section 95488.8(i)(1)(C). Thus, the language in section 95488.10(a)(4) appropriately does not preclude indirect accounting of low-CI electricity for non-electrolytic hydrogen.

Comment: § 95491 (d)(4)(D). Book and Claim accounting for Low-CI electricity used in production of Hydrogen and direct air capture projects

1. Low-CI electricity supplied by new or expanded low-CI projects that begin production on or after January 1, 2024, or
2. Within three years of the start of the hydrogen production facility or direct air capture project, whichever is later.
3. Book and claim accounting at qtrly matching, any unmatched CI electricity quantities produced will expire for LCFS reporting.

It is recommend: The carbon intensity of grid-sourced electricity to be evaluated according to the generation portfolio of the PPA (power purchase agreement) without regard to the Three Pillars (Incrementality, Temporal matching, Deliverability).

Electric power requirement for thermochemical conversion pathway, including balance-of-plant, is substantially less than the power required for other pathways. Considering the energy of the product, hydrogen fuel, the majority comes from feedstock (MSW). GHG emissions associated with process energy inputs (grid power) shall be included in the lifecycle hydrogen CI. Technology improvements will result in further efficiencies including industrial heat recovery and sharing. (45d-360.11)

Comment: New restrictions for low carbon intensity electricity require it to be supplied by new or expanded production, or within three years of a hydrogen production facility or air capture project's creation date. These restrictions resemble “additionality” or “incrementality,” and is something the hydrogen industry is opposed to on all accounts. We suggest the removal of the new 100% renewable electricity requirement given the policy bias for electricity against hydrogen, as BEVs are not required to charge with 100% renewable electricity. Through California’s RPS, it is already required for retail electricity to be 100% renewable by 2045; with the grid already moving in this direction, this requirement seems redundant. (BH-010.1)

Comment: HYDROGEN: "BE IT FURTHER RESOLVED that the Board directs the Executive Officer to introduce accounting rules for book and claim electricity for hydrogen production that align with the December 2023 proposed regulations by the US Treasury for the 45V tax credit, and include hourly matching, geographic deliverability and incrementality criteria, by 2028." (BH-034.16)

Agency Response: No change was made in response to this comment. For the book-and-claim comments on low-CI electricity for hydrogen production, see response L-4. The GHG emissions LCA for a fuel pathway would include all relevant emissions associated with the process energy used in hydrogen production, transport and use. The proposed book-and-claim of low-CI electricity provision does not require electricity to be 100% renewable, but it must meet the regulatory requirements for low-CI electricity.

L-7 Multiple Comments: *Allow Book-and-Claim of Biomethane for Offsite Electricity Production*

Comment: CARB should expand the exemption to the deliverability requirements beyond hydrogen to include use in fuel production where biomethane is an intermediate feedstock if the finished fuel is physically delivered into California.

With appropriate limits and the verification and validation procedures CARB already has in place, we believe there is an opportunity to incentivize investments that deliver substantial reductions in greenhouse gas emissions while retaining the critical oversight and compliance that has been foundational to the success of the program. (45d-094.5)

Comment: While CARB's proposal clearly outlines recommendations related to book-and-claim for biomethane as directed to end use fuel consumption and hydrogen production, it does not adequately address biogas and biomethane as directed to electricity production. There are three key areas that CARB should address to ensure that biogas and biomethane can support electricity production in support of transportation decarbonization. The first is to allow biogas to electricity projects to utilize book-and-claim anywhere in the Western

Electricity Coordinating Council (WECC), as is already the case in Oregon under their Clean Fuels Program. Currently, the LCFS requires electricity to be physically delivered to California. This would eventually result in regulatory consistency for projects with the same feedstock (i.e., biomethane) once the deliverability requirements for that fuel are realized. (45d-096.5, 45d-168.6)

Comment: Second, biogas-to-electricity projects where electricity generation and biogas production are not co-located should be eligible to participate in the LCFS. This is in-line with the California Renewable Portfolio Standard's (RPS) treatment of "directed biogas" and allows greater project penetration by supporting optimal siting of both the biomethane source and the electricity generator rather than forcing co-location. (45d-096.6, 45d-168.7)

Comment: Third, notwithstanding the preceding constraints, there are clear guidelines and requirements for how electricity, as a LCFS fuel, can utilize book-and-claim to move electricity from point of generation to end use. There is not, however, clear information on how biogas or biomethane can utilize book-and-claim to move RNG to electricity generation. ABC recommends that CARB provide clarification that biomethane may utilize book-and-claim in this context. (45d-096.7, 45d-168.8)

Comment: Further, we recommend that book-and-claim for biomethane to electricity remain unconstrained by timeline restrictions proposed for biomethane to end use and biomethane to hydrogen production. We believe this is appropriate to support zero-emission vehicle aspirations beyond 2030. (45d-096.8, 45d-168.9)

Comment: Additionally, we urge CARB to allow book-and-claim accounting of biomethane to power plants to generate LCFS credits for electric vehicle charging, in order to advance the State's zero emission vehicle (ZEV) goals, provide equitable treatment between electricity and hydrogen-based fuel pathways, and support a shift of biomethane from CNG vehicles to ZEVs and stationary sources. (45d-121.6)

Comment: We feel that CARB should provide clarification that biomethane may utilize book-and-claim. (45d-152.5)

Comment: The share of LCFS credits generated for biomethane-based fuel, primarily renewable CNG, has steadily grown over the last decade thanks in large measure to the ultra-low CI scores attainable for feedstocks such as dairy and livestock wastes. This trend may be unsustainable long-term, however, if biomethane opportunities are not encouraged beyond their current applications due to the limited scale of on-road heavy duty natural gas vehicle (NGV) fleets. Existing LCFS regulations heavily incentivize the use of biomethane in renewable CNG and LNG applications, and for renewable hydrogen production, by offering the flexibility of indirect accounting of biomethane injected into pipeline systems connected, sometimes at great distance, to downstream production or dispensing locations (referred to as "book-and-claim"). This is a highly effective way to rapidly decarbonize transportation fuels, and we encourage this to be expanded to SAF and RD as it has been applied to other transportation fuel end uses like, hydrogen, CNG and LNG.

The U.S. biomethane industry has evolved with existing regulatory programs at both the federal and state levels that reasonably recognize that most sources of biomethane do not justify co-location of fuel production. To accommodate this challenge, book-and-claim

accounting is an indispensable ingredient to incentivizing the development of biomethane resources and unlocking their emission reduction potential to materially reduce emissions.

Under the current regulations, SkyNRG (and others) would be unable to participate in the expansion of biomethane resources because there are no provisions allowing book-and-claim accounting for offsite biomethane utilized as feedstock to produce SAF and RD. We are discouraged that CARB introduced deliverability requirements for biomethane that restrict availability of this valuable feedstock, rather than expanding its availability. Geographic and deliverability limitations would almost certainly stifle investment in biomethane resources and reduce opportunities for the state to achieve its LCFS-specific climate goals. Respectfully, we believe that CARB's stated goal to harmonize book-and-claim policies for low-CI electricity and biomethane limits growth because it fails to recognize the fundamental difference of biomethane as a feedstock.

Additionally, we take issue with the Renewables Portfolio Standard (RPS) deliverability requirements that are specific to electricity generation. In the proposed rule and accompanying ISOR, CARB staff explains intentions to align deliverability of biomethane in the LCFS with the California Energy Commission's (CEC) RPS by requiring common carrier pipelines to physically flow toward California 50% of the time on an annual basis. Considering the RPS requirements are specific to electricity generation, we take issue with relying on this standard for biomethane as a transportation fuel or feedstock. Given the variety of uses of this valuable low-CI feedstock, the RPS alignment is limiting the potential for biomethane to reduce CI of other hard-to-decarbonize sectors, like aviation. Considering the goal of growing SAF's share of California's aviation fuel supply, these unique characteristics need to be considered. By allowing the book-and-claim of biomethane feedstocks, CARB ensures a steady supply of SAF to meet its programmatic goals. Electricity and SAF do not compete for the same investments, resources, or customers. Neither is advantaged over the other under the current regulatory regime, so harmonizing requirements would at best be an unnecessary change, and at worst, it could severely disrupt both existing and future investments.

Earlier this year, the U.S. Environmental Protection Agency (EPA) recognized the potential for biomethane as a feedstock in the production of renewable fuels. In its 2023 rulemaking, the EPA established a regulatory framework allowing the use of biomethane as a "biointermediate," paving the way for producers like SkyNRG to make renewable, low carbon fuels like SAF and RD from products derived from biomethane under book-and-claim accounting (once finalized). Critically, the EPA's regime leverages indirect accounting of pipeline injection and offtake at separate points consistent with LCFS book-and-claim procedures. In CARB's ISOR for the proposed rule change, the need to align with federal support for SAF proliferation is specifically highlighted as a guiding principle of the rule change. The LCFS program has long been compatible with federal incentives, including the Renewable Fuel Standard (RFS) and numerous tax credits. The creation of additional federal incentives through the Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA) only increases the opportunity for the LCFS program to align with and leverage federal investments to accelerate decarbonization. While the SAF market is growing, these incentives are greatly needed and have outsized impacts in supporting the industry's maturation. CARB should ensure that the LCFS program aligns with the treatment of SAF feedstocks under the RFS to avoid creating a bifurcated RNG market.

In summary, we implore CARB to expand eligibility for book-and-claim of all sources of biomethane as feedstock to produce transportation fuels like SAF and RD. Doing so will create new opportunities to utilize biomethane to make low, or even negative, CI transportation fuels that are suitable for sectors that are hard to decarbonize. This will directly contribute to Governor Newsom's ambitious goals for expanded production and use of low carbon, renewable aviation fuels. With appropriate oversight (including the verification and validation procedures CARB already requires), we believe that any compliance risks can be effectively managed as they are today for CNG, LNG, and hydrogen production. By recognizing the potential of RNG as an SAF and RD feedstock, CARB acknowledges its strong value to a maturing industry and instills confidence in investment communities. Failing to expand book-and-claim eligibility for biomethane feedstocks is a critical issue that may significantly negate California's ability to benefit from the next generation of low carbon fuels. (45d-155.3)

Comment: Currently, biogas-to-electricity projects under the LCFS must physically wheel the power into California, while RNG projects may be located anywhere in North America and utilize book-and-claim accounting to demonstrate use for LCFS compliance. We acknowledge CARB's proposal to limit book-and-claim accounting for RNG starting in 2040 but that is a long time away. We believe that the most efficient, cost-effective way to ensure that the LCFS program enables the most beneficial projects is to maintain a level playing field for pathways that rely on the same feedstock. A major step towards aligning requirements for projects with the same feedstock, and unlocking the untapped emissions reductions of biogas-to-electricity, would be to allow such projects to utilize book-and-claim accounting anywhere in the Western Electricity Coordinating Council (WECC), as is already the case in Oregon under their Clean Fuels Program. This, coupled with the proposed sunset for national book and claim available for RNG projects, would eventually result in regulatory consistency for projects with the same feedstock. (45d-181.2)

Comment: Additionally, Bloom recommends changes that allow biogas-to-electricity projects to qualify when electricity generation and biogas production are not co-located. This is in-line with the California RPS's treatment of "directed biogas" and allows greater project penetration by supporting optimal siting of both the RNG source and the electricity generator rather than requiring co-location. Specifically, where electricity generation is used for on-site EV charging, the project should be permitted to utilize directed biomethane as a power generation fuel provided that the biogas source and the electricity generator are located within the WECC. This additional flexibility would allow many more biogas to electricity projects to participate and would provide for greater deployment of biomethane-fueled microgrids at EV charging stations, which, as noted above, would further CARB's efforts to promote vehicles with zero tailpipe emissions. Of course, this would also bolster California's efforts to address the significant grid capacity issues associated with large scale deployment of charging infrastructure across the State by enabling renewable generation to be deployed where it is most needed, rather than where the fuel is generated. (45d-181.3)

Comment: SVLG requests that the Board extend the ability to use book-and-claim accounting to allow biomethane and renewable natural gas to be used by offsite systems generating electricity for EV charging services as well." (45d-242.5)

Comment: Allow RNG book-and-claim eligibility for electricity production at power plants to charge electric vehicles (“EVs”). (45d-323.18)

Comment: Enabling book-and-claim delivery for RNG sourced from projects in North America to be eligible for both hydrogen production *and* electricity generation would align with state goals around ZEVs and maintain equal treatment among ZEV options – including both hydrogen and electricity. We recommend making this change in Section 95488.8(i)(2) to expressly allow book-and-claim delivery for biomethane used to produce electricity for transportation purposes. (45d-323.20)

Comment: CARB should grant equitable access to biomethane book-and-claim LCFS accounting for MHD EV charging projects investing in on-site RNG/hydrogen generation that add resiliency and accelerate around transmission and distribution upgrade delays. We ask that CARB consider amending 95488.8(g)(1)(A)(2) to read as follows:

“Biomethane supplied using book-and-claim accounting pursuant to section 95488.8(i)(2) and is claimed as feedstock in pathways for bio-CNG, bio-LNG, bio-L-CNG, hydrogen via steam methane reformation, **and electricity generation for co-located EV charging ;**”

Further, we suggest a revision of Section §95488.8(i)(2) to explicitly state:

“(2) Book-and-Claim Accounting for Pipeline-Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen **or to generate Electricity**. Indirect accounting may be used for RNG used as a transportation fuel or to produce hydrogen **or to generate Electricity** for transportation purposes (including hydrogen that is used **either** in the production of a transportation fuel **or in the generation of electricity for transportation purposes**), provided the conditions set forth below are met:

(A) RNG injected into the common carrier pipeline in North America (and thus comingled with fossil natural gas) can be reported as dispensed as bio-CNG, bio-LNG, or bio-L-CNG, or as an input to hydrogen production, **or as an energy source for electricity generation**, without regards to physical traceability. Entities may report natural gas as RNG within only a three-quarter time span. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter. After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting.

(B) Biomethane reported under fuel pathways associated with projects that break ground after December 31, 2029, injected into the common carrier pipeline, and claimed indirectly under the LCFS program for use as bio-CNG, bio-LNG, or bio-L-CNG in CNG vehicles or as an input to hydrogen production **or as an energy source for electricity generation** for transportation purposes, must demonstrate compliance with the following requirements:

1. Starting January 1, 2041 for bio-CNG, bio-LNG and bio-LCNG pathways, and January 1, 2046 for biomethane used as an input to hydrogen production **or electricity generation**, the entity reporting biomethane must demonstrate that the pipeline or

pipelines along the delivery path physically flow from the initial injection point toward the fuel dispensing facility at least 50 percent of the time on an annual basis. Entities may report natural gas as RNG within only a three-quarter time span. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter.

After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting. (45d-338.03)

Comment: Clarify that book-and-claim accounting can be used to support LCFS credit generation when RNG is used to generate electricity utilized for hydrogen production and direct air capture projects; (45d-365.4)

Comment: CRC also requests that CARB clarify the book-and-claim accounting provisions in the Proposed Rules to allow for LCFS credit generation when low-CI electricity produced from biomethane is then used to support DAC or hydrogen production. As an operator, we would like the ability to receive credits for any quantities of low-CI electricity produced onsite using biomethane feedstocks, but we anticipate these initial projects to be small in scale. As a result, our low carbon operations would benefit from the ability to directly offset purchased quantities of biomethane used onsite with the corresponding electricity generation credits. If CARB believes that the Proposed Rules already allow for such a crediting scheme, we request CARB issue a statement confirming that this is a valid approach. (45d-365.11)

Comment: 4) Allow Book and Claim of Biomethane to Off-site Electric Generators

The current LCFS regulation requires direct connection of biogas to the generator, however we urge CARB to allow book and claim biomethane to electricity if for electric vehicle charging. CleanFuture has many large fleet clients with inadequate electric supply capacity at fleet depot locations, with Advanced Clean Fleets (ACF) and other requirements for zero emission vehicles this is a monumental challenge. Allowing book and claim electricity for biomethane (offsite from the digester) yet local to electric vehicle fleet fueling would bolster and alleviate electric distribution constraints at freight and goods movement facilities. (45d-393.4)

Comment: We recommend that CARB allow biogas to electricity projects to utilize book-and-claim anywhere in the Western Electricity Coordinating Council (WECC), as is already the case in Oregon under their Clean Fuels Program. (45d-152.3)

Comment Summary: The commenters recommend that CARB allow book-and-claim biogas (biomethane) to electricity, where biogas production and electricity generation are not co-located (i.e. biomethane not physically supplied to power generation but instead injected into the pipeline). The electricity so produced can be used for EV charging. This will assist deployment of innovative technologies like microgrid and EVs in MHD fleets while creating a level playing field for electricity pathways and aligns with the CARB methane reduction goal. (45d-096.5, 45d-096.6, 45d-152.4, 45d-240.12, 45d-288.5, 45d-356.4, Apr-150.13, Apr-155.7, 15d1-136.7, 15d1-204.3, 15d1-204.6, 15d1-204.7, 15d1-212.8, 15d1-212.19, 15d1-243.5)

Comment: We recommend that book-and-claim for biomethane to electricity remain unconstrained by timeline restrictions. (45d-152.6)

Comment: CARB should grant equitable access to biomethane book-and-claim LCFS accounting for MHD EV charging projects investing in on-site RNG/hydrogen generation that add resiliency and accelerate around transmission and distribution upgrade delays. We ask that CARB consider amending 95488.8(g)(1)(A)(2) to read as follows (changes in bold):

*“Biomethane supplied using book-and-claim accounting pursuant to section 95488.8(i)(2) and is claimed as feedstock in pathways for bio-CNG, bio-LNG, bio-L-CNG, hydrogen via steam methane reformation **or other methods, and electricity generation for co-located EV charging;**”*

Further, we suggest a revision of Section §95488.8(i)(2) to explicitly state:

*“(2) Book-and-Claim Accounting for Pipeline-Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen **or to generate Electricity**. Indirect accounting may be used for RNG used as a transportation fuel or to produce hydrogen **or to generate Electricity** for transportation purposes (including hydrogen that is used **either** in the production of a transportation fuel **or in the generation of electricity for transportation purposes**), provided the conditions set forth below are met:*

*(A) RNG injected into the common carrier pipeline in North America (and thus comingled with fossil natural gas) can be reported as dispensed as bio-CNG, bio-LNG, or bio-L-CNG, or as an input to hydrogen production, **or as an energy source for electricity generation**, without regards to physical traceability. Entities may report natural gas as RNG within only a three-quarter time span. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter. After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting.*

*(B) Biomethane reported under fuel pathways associated with projects that break ground after December 31, 2029, injected into the common carrier pipeline, and claimed indirectly under the LCFS program for use as bio-CNG, bio-LNG, or bio-L-CNG in CNG vehicles or as an input to hydrogen production **or as an energy source for electricity generation** for transportation purposes, must demonstrate compliance with the following requirements:*

*1. Starting January 1, 2041 for bio-CNG, bio-LNG and bio-LCNG pathways, and January 1, 2046 for biomethane used as an input to hydrogen production **or electricity generation**, the entity reporting biomethane must demonstrate that the pipeline or pipelines along the delivery path physically flow from the initial injection point toward the fuel dispensing facility at least 50 percent of the time on an annual basis. Entities may report natural gas as RNG within only a three-quarter timespan. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter, the quantity claimed for LCFS reporting*

must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter.

After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting.” (Apr-076.3)

Comment: CARB should expand the exemption to the deliverability requirements beyond hydrogen to include use in fuel production where biomethane is an intermediate feedstock if the finished fuel is physically delivered into California. With appropriate limits and the verification and validation procedures CARB already has in place, we believe there is an opportunity to incentivize investments that deliver substantial reductions in greenhouse gas emissions while retaining the critical oversight and compliance that has been foundational to the success of the program. (Apr-087.5)

Comment: We support efforts to develop RNG pathways for zero emission vehicle (“ZEV”) fuels and stationary sources, and encourage CARB to enable book-and-claim delivery for RNG-to-electricity to further support this transition. (Apr-101.4)

Comment: As stated in previous comments to CARB, expanding opportunities for RNG to be used as an input for additional transportation fuels such as SAF and RD will be critical to achieving more stringent targets. The share of LCFS credits generated for RNG-based fuel, primarily renewable CNG, has steadily grown over the last decade thanks in large measure to the ultra-low CI scores attainable for feedstocks such as dairy and livestock wastes. This trend may be unsustainable long-term, however, if RNG opportunities are not encouraged beyond their current applications due to the limited scale of on-road heavy duty natural gas vehicle (NGV) fleets.

Existing LCFS regulations incentivize the use of RNG in renewable CNG and LNG applications by offering the flexibility of mass balance accounting of RNG injected into pipeline systems connected, sometimes at great distance, to downstream production or dispensing locations (sometimes referred to as “book-and-claim”). This is a highly effective way to rapidly decarbonize transportation fuels, and we encourage this to be expanded to SAF and RD as it has been applied to other transportation fuel end uses like CNG, and LNG.

The U.S. RNG industry has evolved with existing regulatory programs at both the federal and state levels that reasonably recognize that most sources of RNG do not justify co-location of fuel production facilities. To accommodate this challenge, mass balance accounting is an indispensable ingredient to incentivizing the development of RNG resources and unlocking their emission reduction potential to materially reduce emissions.

Under the current LCFS regulations, SkyNRG (and others) would be unable to participate in the expansion of the program because there are no provisions allowing mass balance accounting for offsite RNG utilized as feedstock to produce SAF and RD. We are discouraged that CARB introduced deliverability requirements for RNG that restrict the ability to utilize this low carbon feedstock, rather than expanding its applicability. Geographic and deliverability limitations would almost certainly stifle investment in RNG resources and reduce opportunities for the state to achieve its LCFS-specific climate goals. Respectfully, we believe that CARB’s stated goal should be to harmonize mass balance accounting policies for low CI electricity and RNG. This current approach overlooks the fundamental difference of RNG as a feedstock and

its application in novel technologies such as SAF, potentially inhibiting its growth. Additionally, as noted in our previous comments, we take issue with the approach of applying the Renewables Portfolio Standard (RPS) deliverability requirements that are specific to electricity generation as they are not fit for purpose for RNG as a transportation fuel or feedstock.

The U.S. Environmental Protection Agency (EPA) has recognized the potential for RNG as a feedstock in the production of renewable fuels. In its 2023 rulemaking, the EPA established a regulatory framework allowing the use of RNG as a “biointermediate,” paving the way for producers like SkyNRG to make renewable, low carbon fuels like SAF and RD from products derived from RNG under mass balance accounting (once finalized). Critically, the EPA’s regime leverages indirect accounting of pipeline injection and offtake at separate points consistent with LCFS mass balance accounting procedures. In CARB’s ISOR for the proposed rule change, the need to align with federal support for SAF proliferation is specifically highlighted as a guiding principle of the rule change.

The LCFS program has long been compatible with federal incentives, including the Renewable Fuel Standard (RFS) and numerous tax credits. The creation of additional federal incentives through the Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA) only increases the opportunity for the LCFS program to align with and leverage federal investments to accelerate decarbonization. While the SAF market is growing, these incentives are greatly needed and have outsized impacts in supporting the industry’s maturation. CARB should ensure that the LCFS program aligns with the treatment of SAF feedstocks under the RFS to avoid creating a bifurcated RNG market. Further, given the intention to align and coordinate LCFS programs in California, Oregon and Washington and further accelerate the uptake of SAF, we also encourage CARB to consider Washington state’s approach to enabling book and claim accounting for RNG to SAF.

In summary, we implore CARB to expand eligibility for mass balance accounting of all sources of RNG as feedstock to produce transportation fuels like SAF and RD. Doing so will create new opportunities to utilize RNG to make low, or even negative, CI transportation fuels that are suitable for sectors that are hard to decarbonize in California, directly contributing to Governor Newsom’s ambitious goals for expanded production and use of low carbon, renewable aviation fuels. With appropriate oversight (including the verification and validation procedures CARB already requires), we believe that any compliance risks can be effectively managed as they are today for CNG, LNG, and hydrogen production. By recognizing the potential of RNG as an SAF and RD feedstock, CARB acknowledges its material value to a maturing industry and instills confidence in investment communities to continue to invest in the energy transition sector. Limiting mass balance accounting eligibility for RNG feedstocks is a critical issue that may significantly negate California’s ability to benefit from the next generation of low carbon fuels. (Apr-131.7)

Comment: BAC supports the use of Book and Claim for biomethane that is both generated and used in California or the western United States, whether it is used offsite as biomethane, for low-CI electricity generation or for hydrogen production. BAC urges the Air Board to clarify in the amendments to the LCFS regulation that book and claim for biomethane converted to low-CI electricity is allowed, provided that both the biomethane and low-CI electricity production are consistent with the RPS. This could be done by adding conversion of

biomethane to low-CI electricity in Sections 95488.8(i)(2) and 95488.8(g)(1)(A)(2). (Apr-150.13)

Comment: Book-and-Claim

Currently, book-and-claim under LCFS does not provide a level playing field across pathways. Biogas-to-electricity projects under the LCFS must physically wheel the power into California, while RNG projects may be located anywhere in North America and utilize book-and-claim accounting to demonstrate use for LCFS compliance. We believe that pathways that rely on the same feedstock should adhere to the same book-and-claim requirements. A major step in this direction would be to allow such projects to utilize book-and-claim accounting anywhere in the Western Electricity Coordinating Council (WECC), as is already the case in Oregon under their Clean Fuels Program. Additionally, we recommend allowing biogas-to-electricity projects to qualify when electricity generation and biogas production are not co-located. (15d1-062.3)

Comment: Expanding Not Limiting Mass Balance Accounting of RNG including to SAF and RD

As stated in previous comments to CARB, expanding opportunities for RNG to be used as an input for additional transportation fuels such as SAF and RD will be critical to achieving more stringent targets.

Existing LCFS regulations incentivize the use of RNG in renewable CNG and LNG applications by offering the flexibility of mass balance accounting of RNG injected into pipeline systems connected, sometimes at great distance, to downstream production or dispensing locations (sometimes referred to as “book-and-claim”). This is a highly effective way to rapidly decarbonize transportation fuels, and we encourage this to be expanded to SAF and RD as it has been applied to other transportation fuel end uses like CNG, and LNG. Under the current LCFS regulations, SkyNRG (and others) would be unable to participate in the expansion of the program because there are no provisions allowing mass balance accounting for offsite RNG utilized as feedstock to produce SAF and RD.

The U.S. RNG industry has evolved with existing regulatory programs at both the federal and state levels that reasonably recognize that most sources of RNG do not justify co-location of fuel production facilities. To accommodate this challenge, mass balance accounting is an indispensable ingredient to incentivizing the development of RNG resources and unlocking their emission reduction potential to materially reduce emissions.

The U.S. Environmental Protection Agency (EPA) has recognized the potential for RNG as a feedstock in the production of renewable fuels. In its 2023 rulemaking, the EPA established a regulatory framework allowing the use of RNG as a “biointermediate,” paving the way for producers like SkyNRG to make renewable, low carbon fuels like SAF and RD from products derived from RNG under mass balance accounting (once finalized). Critically, the EPA’s regime leverages indirect accounting of pipeline injection and offtake at separate points consistent with LCFS mass balance accounting procedures. In CARB’s ISOR for the proposed rule change, the need to align with federal support for SAF proliferation is specifically highlighted as a guiding principle of the rule change.

The LCFS program has long been compatible with federal incentives, including the Renewable Fuel Standard (RFS) and numerous tax credits. The creation of additional federal incentives through the Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA) only increases the opportunity for the LCFS program to align with and leverage federal investments to accelerate decarbonization. While the SAF market is growing, these incentives are greatly needed and have outsized impacts in supporting the industry's maturation. CARB should ensure that the LCFS program aligns with the treatment of SAF feedstocks under the RFS to avoid creating a bifurcated RNG market. Further, given the intention to align and coordinate LCFS programs in California, Oregon and Washington and further accelerate the uptake of SAF, we also encourage CARB to consider Washington state's approach to enabling book and claim/mass balance accounting for RNG to SAF.

We implore CARB to expand eligibility for mass balance accounting of all sources of RNG as feedstock to produce transportation fuels like SAF and RD. Doing so will create new opportunities to utilize RNG to make low, or even negative, CI transportation fuels that are suitable for sectors that are hard to decarbonize in California, directly contributing to Governor Newsom's ambitious goals for expanded production and use of low carbon, renewable aviation fuels. With appropriate oversight (including the verification and validation procedures CARB already requires), we believe that any compliance risks can be effectively managed as they are today for CNG, LNG, and hydrogen production. By recognizing the potential of RNG as an SAF and RD feedstock, CARB acknowledges its material value to a maturing industry and instills confidence in investment communities to continue to invest in the energy transition of this sector. Limiting mass balance accounting eligibility for RNG feedstocks is a critical issue that may significantly negate California's ability to benefit from the next generation of low carbon fuels. (15d1-111.6)

Comment: Failing to provide equal treatment to RNG and renewable electricity as it relates to the use of book-and-claim accounting is also a missed opportunity to drive investment in the green hydrogen industry into California. Under the European Union's (EU) third Renewable Energy Directive (RED III), the EU is requiring refineries to use at least 42% green hydrogen by 2030 and 60% by 2035. (15d1-173.4)

Comment Summary: CalBio urges CARB to expand the book-and-claim of biomethane to offsite electricity production to create a level playing field for biogas to electricity pathways and consistency with other book-and-claim provisions. CalBio proposes revisions to the regulation text in section 95488.8(i)(2) to accommodate biogas to electricity pathways under the book-and-claim of biomethane. (15d1-183.2)

Comment Summary: Prologis proposes regulation text revisions to sections 95488.8(i)(2) and 95488.8(g)(1)(A)(2) to allow book-and-claim of biomethane to offsite electricity production using fuel cell or linear generator. (15d1-204.8, 15d1-204.9, 15d1-204.10)

Comment: Provide equal access to book-and-claim accounting for EV charging

We urge CARB to propose additional 15-Day Changes that would ensure equal access (similar to the provisions outlined for hydrogen in the proposed regulations) to book and-claim accounting for biomethane used to produce electricity for EV charging employing efficient and low emissions technologies, such as linear generators or fuel cells, that operate remote from

the source of biogas production. Specifically, we urge the following amendments (**in bold underline**) to the regulation:

- **Section §95488.8(i)(2)(A):**
 - RNG injected into the common carrier pipeline in North America (and thus comingled with fossil natural gas) can be reported as dispensed as bio-CNG, bio-LNG, or bio-L-CNG, or as an input to hydrogen production **or to fuel cell or linear generator electricity generation for remote EV charging**, without regards to physical traceability.
- **Section 95488.8(g)(1)(A)(2):**
 - Biomethane supplied using book-and-claim accounting pursuant to section 95488.8(i)(2) and is claimed as feedstock in pathways for bio-CNG, bio-LNG, bio-L-CNG, hydrogen via steam methane reformation **or other methods, and to fuel cell or linear generator electricity generation for remote EV charging**;
- **Section §95488.8(i)(2):**
 - (2) *Book-and-Claim Accounting for Pipeline-Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen **or to Generate Electricity***. Indirect accounting may be used for RNG used as a transportation fuel or to produce hydrogen **or to generate electricity** for transportation purposes (including hydrogen that is used in the production of a transportation fuel), provided the conditions set forth below are met:

(A) RNG injected into the common carrier pipeline in North America (and thus comingled with fossil natural gas) can be reported as dispensed as bio-CNG, bio-LNG, or bio-L-CNG, or as an input to hydrogen production **or to fuel cell or linear generator Electricity generation for remote EV charging**, without regards to physical traceability. Entities may report natural gas as RNG within only a three-quarter time span. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter. After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting.

(B) Biomethane reported under fuel pathways associated with projects that break ground after December 31, 2029, injected into the common carrier pipeline, and claimed indirectly under the LCFS program for use as bio-CNG, bio-LNG, or bio-L-CNG in CNG vehicles or as an input to hydrogen production **or to fuel cell or linear generator Electricity generation for remote EV charging** for transportation purposes, must demonstrate compliance with the following requirements:

1. Starting January 1, 2041 for bio-CNG, bio-LNG and bio-LCNG pathways, and January 1, 2046 for biomethane used as an input to hydrogen production **or to fuel cell or linear generator Electricity generation for remote EV charging**, the entity reporting biomethane must demonstrate that the pipeline or pipelines

along the delivery path physically flow from the initial injection point toward the fuel dispensing facility at least 50 percent of the time on an annual basis. Notwithstanding the above, if the Executive Officer approves a gas system map by July 1, 2026, to support implementation of deliverability, then the entity reporting under bio-CNG, bio-LNG and bio-L-CNG pathways for CNG vehicles must demonstrate the physical flow listed above after December 31, 2037. The Executive Officer will only approve a gas system map if it includes identification of transcontinental and connected pipelines posted on a local, state or federal time on an annual basis, and will be based on directional flow data from 2020 to 2023. Entities may report natural gas as RNG within only a three-quarter time span. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter. After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting.

(D) Starting January 1, 2041, for bio-CNG, bio-LNG and bio-L-CNG pathways, (unless the accelerated timeline is activated by the criteria described in section 95488.8(i)(2)(B)1.) and January 1, 2046, for biomethane used as an input to hydrogen production or to fuel cell or linear generator Electricity generation for remote EV charging, to substantiate RNG quantities injected into the pipeline for dispensing as bio-CNG, bio-LNG, or bio-L-CNG under fuel pathways associated with projects that break ground after December 31, 2029, the pathway application and subsequent Annual Fuel Pathway Reports must include the documents required by section 95488.8(i)(2)(C) as well as the following documents. (15d1-204.7)

Comment: We encourage CARB to enable book-and-claim accounting for biogas-to-electricity pathways, to support the transition to ZEVs and provide equal treatment between hydrogen and electricity pathways. (15d1-212.8)

Comment: CARB SHOULD ENABLE BOOK-AND-CLAIM ACCOUNTING FOR BIOGAS-TO-ELECTRICITY PATHWAYS

Amp supports California's overall decarbonization goals and its efforts to develop RNG supplies to decarbonize stationary sources in all sectors of the economy. Provisions in the proposed amendments help support transitioning RNG to ZEV fuels and stationary sources, but we encourage additional steps to further assist the transition. Specifically, we encourage CARB to allow RNG book-and-claim eligibility for RNG used to produce offsite electricity to charge electric vehicles.

Enabling book-and-claim delivery for RNG sourced from projects in North America to be eligible for both hydrogen production *and* electricity generation would align with state goals around ZEVs and maintain equal treatment among ZEV options – including both hydrogen and electricity. Also, as a significant portion of the LCFS value generated from RNG flows to the stations that distribute fuel, and this same dynamic would apply to RNG-to-electricity-to-EV pathways, enabling RNG book-and-claim eligibility will inject additional LCFS value into the EV

ecosystem, supporting further infrastructure investment in support of CARB's goals. (15d1-212.19)

Comment: There is a sizeable long-term incentive in the LCFS to support out-of-state, out-of-sector dairy manure management projects through book-and-claim crediting for hydrogen projects. CARB should implement deliverability requirements for biomethane-derived hydrogen consistent with biomethane-derived RNG and electricity. (15d1-219.9)

Comment: The 15-day package does not contain any meaningful deliverability requirements for biomethane-derived hydrogen despite the risk of dilution of the LCFS's signal on supporting out-of-state, out-of-sector manure management projects. In many cases, RNG projects credited under the LCFS are located outside of California that have no direct impact on California's greenhouse gas (GHG) emissions or in-state agricultural practices. In other words, natural gas suppliers may gain revenue from LCFS credits for a unit of fossil gas produced and consumed in California (often in non-transportation uses) with an equivalent unit of renewable natural gas (RNG) produced across the country and injected into the national natural gas transmission grid.

The effect of book-and-claim crediting is particularly egregious for biomethane-derived hydrogen fuel pathways, as these pathways are fully excluded from deliverability requirements until 2046. Producing this hydrogen is a fully mature technology done via steam methane reforming at facilities connected to the existing natural gas grid, drawing upon the grid gas mix, but pairing that hydrogen with a book-and-claim environmental attribute. Despite achieving a higher theoretical credit price than green hydrogen, green hydrogen made from low-CI electricity must satisfy a more rigorous series of requirements than biomethane-derived hydrogen. Electrolytic green hydrogen must ensure deliverability, proof that low-CI electricity comes from new generation, and that there is no double-counting. In contrast, biomethane producers who sell their environmental attributes to existing grey hydrogen producers must only demonstrate the retirement of environmental attributes. Thus, a pathway that enables further use of existing natural gas SMR technology generates higher credit values in the LCFS and has looser book and-claim requirements than a green hydrogen pathway that involves deploying new electrolyzer technology.

The figure below illustrates the LCFS policy value for dairy manure derived hydrogen with a CI of -187 gCO₂e/MJ, similar to current certified pathways, across a range of LCFS credit values. These values are compared to the LCFS value for zero-carbon electrolytic green hydrogen and the red-dotted line indicates the maximum tax credit (\$3/kg H₂) that could be received via Inflation Reduction Act's (IRA) Clean Hydrogen Production Credit (Section 45V), which provides tax credits for hydrogen produced with minimal greenhouse gas emissions (below 4kg CO₂e/kg H₂ or 33 gCO₂e/MJ H₂).⁴³ Dairy biomethane-derived hydrogen could generate a credit value of between \$3.3 and \$8.8/kg H₂, depending on the LCFS credit price. Even with a conservative credit price of \$75/t CO₂e, the policy value for dairy hydrogen surpasses the maximum tax credit a producer could receive from IRA 45V, awarded to low CI hydrogen pathways with GHG emissions less than 0.45kg CO₂e/kg H₂ (3.8 gCO₂e/MJ H₂). Given the high LCFS compliance values shown here, we recommend safeguards for biomethane-derived H₂ to better ensure that this pathway's GHG reductions are attributable to the LCFS and the fuel is being used in the transport sector.

⁴³ Yifan Ding, Chelsea Baldino, and Yuanrong Zhou, “Understanding the Proposed Guidance for the Inflation Reduction Act’s Section 45V Clean Hydrogen Production Tax Credit,” 2024, <https://theicct.org/publication/proposed-guidance-for-the-inflation-reduction-act-45v-cleanhydrogen-tax-credit-mar29/>.

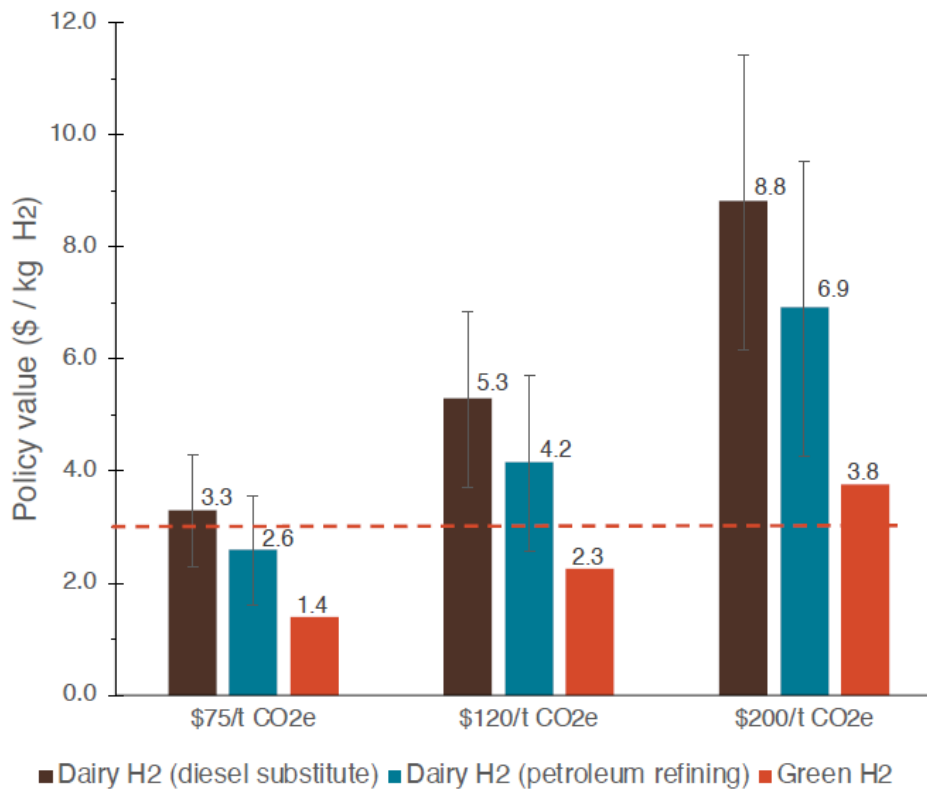


Figure 2. Policy values for dairy biomethane-derived gaseous hydrogen (G.H₂) at sample LCFS credit prices estimated using the average CI of LCFS certified pathways. The error bars correspond to the range of CI values from certified pathways. The red line indicates the maximum tax credit (\$3/kg H₂) that could be received via IRA’s Clean Hydrogen Production Credit (Section 45V).

Figure 3 below displays the original geographic source of biomethane for certified dairy hydrogen projects in California.⁴⁴ Not a single certified biomethane hydrogen pathway in the LCFS actually captures methane in or near California. Based on the lax book-and-claim requirements proposed, we can anticipate there could be significantly more out-of-state farms taking advantage of the LCFS credits in the coming years, with minimal impact on California’s transport sector goals or agricultural methane targets.

⁴⁴ California Air Resources Board, “Current Fuel Pathways.”

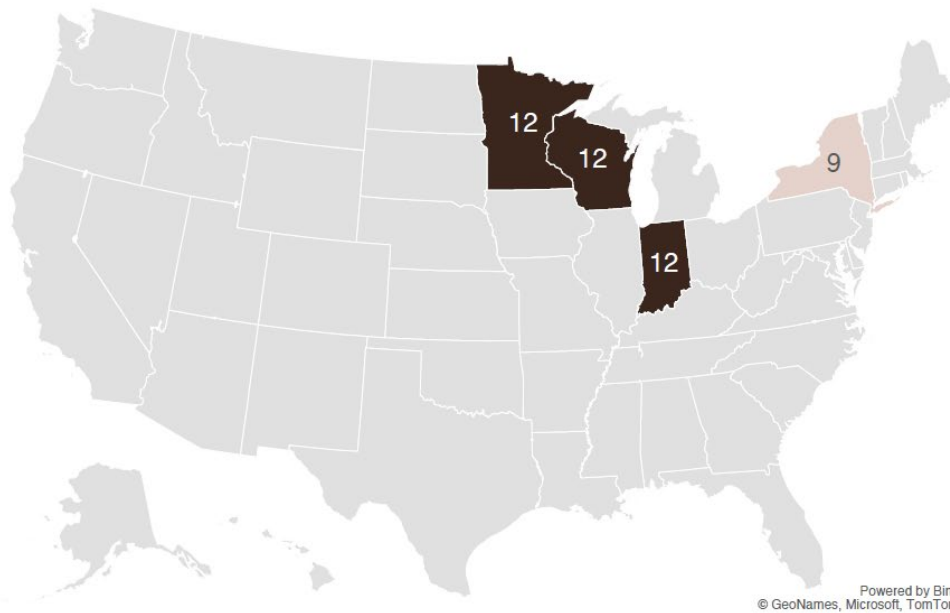


Figure 3. Number of projects and geographic source of dairy biomethane for certified hydrogen pathways in California.

(15d1-219.31)

Comment: Therefore, we recommend that deliverability requirements for biomethane-derived hydrogen are made consistent with those for biomethane-derived RNG and electricity prior to 2030, in order to prevent this issue from growing and diluting the impact of the LCFS on its transport sector goals. (15d1-219.34)

Comment: 5) Book-and-claim (B&C) accounting provisions for biomethane should include biomethane used to produce onsite electricity for battery electric vehicle (BEV) charging; (15d1-237.5)

Comment: Book-and-Claim accounting provisions for biomethane should include biomethane used to produce onsite electricity for BEV charging.

Biomethane can efficiently produce onsite electricity for BEV charging, aiding California's ambitious zero-emission vehicle targets and supporting vehicle electrification⁷. Electrifying fleets according to CARB regulations can be challenging, primarily due to the significant capacity and energy demands of developing charging infrastructure for medium- and heavy-duty (MHD) vehicles. Given the high energy requirements of industrial MHD charging on limited spaces, microgrid technologies like fuel cells and linear generators are solutions that can meet these needs. These technologies can provide reliable and resilient energy and augment grid power needed to meet the demands of electrifying fleets, thereby enabling the transition. Their beneficial operational attributes and capabilities can support the State's electrification efforts by addressing barriers to and benefits for electrification while supporting decarbonization and affordability impacts.

⁷ <https://www.prologis.com/insights/success-stories/north-americas-largest-heavy-duty-ev-charging-hub-poweredmicrogrid>

Facing several year delays for grid interconnections, companies are turning to onsite generation with energy storage as a way to meet fleet electrification goals before utility connections are established.⁸ This approach also provides added reliability and resilience capabilities for fleet operations when the utility connection is eventually made. Moreover, using renewable fuels, such as dairy biomethane and renewable hydrogen, would enhance project benefits. However, current LCFS rules allow B&C accounting for biomethane used in compressed natural gas trucks or hydrogen for fuel cell vehicles, but not for biomethane used to generate electricity onsite for BEV use. This restriction limits the broader adoption of innovative strategies like microgrids using fuel cell and linear generator technologies to accelerate BEV deployment and charging in MHD fleets. As such, B&C accounting provisions for biomethane should include biomethane used to produce onsite electricity for BEV charging.

⁸ Ibid.

(15d1-237.13)

Comment: Accessibility to Non-Colocated Renewable Power: To help further incentivize development in the renewable power industry, we urge CARB to remove the co-located power generation requirement and allow greater and more diverse sources of green power to help produce RNG. (15d1-241.6)

Comment: 3) Allow Book-and-Claim of Biomethane to Off-site Electric Generators

An important opportunity for CARB to incentivize additional GHG emission reductions is to expand the language in §95488.8(i)(2) to allow for the book-and-claim of pipeline-injected biomethane to be used to generate Low-CI electricity as a transportation fuel. Currently, CARB recognizes electricity as a transportation fuel in §95482(b) and moreover in §95488.8(i)(1) recognizes that “Low-CI electricity used as a transportation fuel can be indirectly supplied through a green tariff program...or other contractual electricity supply relationship.” This is achieved by REC-matching, where the reporting entity must demonstrate that the low-CI electricity is supplied through book-and-claim accounting to electric vehicle charging provided “that any renewable energy certificates associated with the low-CI electricity were retired in the WREGIS for the purpose of LCFS credit generation” (see §95491(d)(3)). However, in the context of electricity derived from low-CI dairy biogas, this pathway requires the RECs to be created from a generator co-located with the digester.

Given the recognition CARB has for 1) book-and-claim of Low-CI electricity production to be matched to electric vehicles, and 2) biomethane injected into the commercial distribution pipeline and withdrawn at a CNG station in California, CleanFuture argues that by the same logic, biomethane injected and withdrawn via book-and-claim should qualify for the purposes of generating electricity. In this construct, RECs generated from an electric generator located off-site from the dairy powered by gas fed through the utility pipeline should similarly be allowed to match RECs to electric vehicles.

Please consider including the following edits in bold and underline to the draft LCFS regulation:

Section §95488.8(i)(2):

(2) *Book-and-Claim Accounting for Pipeline-Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen **or to Generate Electricity**.* Indirect accounting may be

used for RNG used as a transportation fuel or to produce hydrogen **or to generate electricity** for transportation purposes(including hydrogen that is used in the production of a transportation fuel),provided the conditions set forth below are met:

(A) RNG injected into the common carrier pipeline in North America (and thus comingled with fossil natural gas) can be reported as dispensed as bio-CNG, bio-LNG, or bio-L-CNG, or as an input to hydrogen production **or to electricity production**, without regards to physical traceability. Entities may report natural gas as RNG within only a three-quarter timespan. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter,the quantity claimed for LCFS reporting must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter. After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting.

...

(C) To substantiate RNG quantities injected into the pipeline for dispensing as bio-CNG, bio-LNG, or bio-L-CNG or as an input to hydrogen production **or to electricity production**, the pathway application and subsequent Annual Fuel Pathway Reports must include the following documents linking the environmental attributes of RNG (in MMBtu or Therms) with corresponding quantities of natural gas withdrawn:

1. Unredacted monthly invoices showing the quantities of RNG (in MMBtu) sourced and the contracted price per unit;
2. Unredacted contract by which the fuel pathway holder obtained the environmental attributes.

This approach aligns with CARB's existing book-and-claim accounting framework and greater GHG reductions could be realized by making this targeted change to the regulatory text that is consistent with CARB's objectives of supporting the transition to zero emission transportation. As noted, this recommendation is fully aligned with CARB's goals expressed in the Initial Statement of Reasons (ISOR), which seeks to ensure the LCFS program incentivizes "the production of low-carbon and renewable alternatives, such as low-CI electricity" and acknowledges that "biomethane can play a key role in decarbonizing stationary sources" and additional end uses such as electricity generation can displace the need for fossil gas.

CARB would be remiss to lose this opportunity to encourage and incentivize low-CI dairy biomethane to be used for electricity generation. This will create an additional market for biomethane derived from dairy biogas, as CARB has signaled it is seeking to phase it out of combustion in CNG vehicles and "direct biomethane to sectors that are hard to decarbonize or as a feedstock for energy."¹ Directing biomethane as a feedstock to electricity production is a readily available solution and further encourages grid resiliency, and also alleviates local electric distribution constraints. CleanFuture has many large fleet clients with inadequate electric supply capacity at fleet depot locations, with Advanced Clean Fleets (ACF) and other requirements for zero emission vehicles this is a monumental challenge. Allowing book-and-claim electricity from biomethane (offsite from the digester) to electric vehicle fleet

fueling could bolster and alleviate electric distribution constraints at freight and goods movement facilities.

¹ <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

(15d1-243.5)

Comment: 5) Book-and-Claim (B&C) accounting provisions for biomethane should include biomethane used to produce onsite electricity for battery electric vehicle (BEV) charging. (15d1-237.5)

Comment: Book-and-Claim accounting provisions for biomethane should include biomethane used to produce onsite electricity for BEV charging.

Biomethane can efficiently produce onsite electricity for BEV charging, aiding California's ambitious electrification. zero-emission vehicle targets and supporting vehicle Electrifying fleets according to CARB regulations can be challenging, primarily due to the significant capacity and energy demands of developing charging infrastructure for medium- and heavy-duty (MHD) vehicles. Given the high energy requirements of industrial MHD charging on limited spaces, microgrid technologies like fuel cells and linear generators are solutions that can meet these needs. These technologies can provide reliable and resilient energy and augment grid power needed to meet the demands of electrifying fleets, thereby enabling the transition. Their beneficial operational attributes and capabilities can support the State's electrification efforts by addressing barriers to and benefits for electrification while supporting decarbonization and affordability impacts.

Facing several year delays for grid interconnections, companies are turning to onsite generation with energy storage as a way to meet fleet electrification goals before utility connections are established. This approach also provides added reliability and resilience capabilities for fleet operations when the utility connection is eventually made. Moreover, using renewable fuels, such as dairy biomethane and renewable hydrogen, would enhance project benefits. However, current LCFS rules allow B&C accounting for biomethane used in compressed natural gas trucks or hydrogen for fuel cell vehicles, but not for biomethane used to generate electricity onsite for BEV use. This restriction limits the broader adoption of innovative strategies like microgrids using fuel cell and linear generator technologies to accelerate BEV deployment and charging in MHD fleets. As such, B&C accounting provisions for biomethane should include biomethane used to produce onsite electricity for BEV charging. (15d1-237.13)

Comment: We have also consistently advocated for enabling book-and-claim access for biomethane-to-electricity projects, which would only add value and resiliency to the electric vehicle charging ecosystem in California. We appreciate that the Second 15-Day changes now allow for biomethane-to-electricity projects, but we are perplexed why this pathway is limited to use in a fuel cell. This requirement is another example of arbitrary restrictions that limit market opportunities for biomethane and do not exist for other fuels under the program.

If nothing else, linear generators should be an eligible technology, as well, as they are similarly a clean, distributed resource, just like fuel cells. In fact, the legislature just unanimously passed, and the Governor signed, AB 1921, which makes linear generators using renewable fuels eligible under the Renewable Portfolio Standard, just as fuel cells are today. CARB

should follow suit and allow broader access under the biomethane-to-electricity provisions for at least linear generators, and preferably all electric generation technologies. (15d2-172.4)

Comment: We respectfully request the Resolution to adopt the Proposed Amendments to LCFS clarifies "fuel cell" within the following two subsections to include other renewable electrical generation technologies, such as linear generators. Similar to fuel cells, linear generators utilize a non-combustion reaction to convert biomethane into electricity with near-zero NOx emissions at levels well below CARB's distributed generation standard at all loads -- including during start-up.

The key provisions of concern added in the most recent 15-day changes include:

- 95488.8(i)(2) "staff proposes to allow for book-and-claim accounting of biomethane to produce electricity for electric vehicle charging, provided the electricity is generated using a fuel cell."
- 95488.9(b), "staff proposes to add a new temporary CI for low-CI electricity produced by fuel cell from biomethane from dairy and swine manure, based on existing program data."

Governor Newsom recently signed AB 1921, which includes linear generators using renewable fuels as a "renewable electrical generation facility," as eligible for the California Renewables Portfolio Standard Program and other state programs. This legislation maintains technology neutrality and provides a level playing field for fuel cells and linear generators. Linear generators offer the same capability as fuel cells to produce electricity from biomethane for electric vehicle charging. (15d2-170.1)

Comment: We respectfully request the clarification that fuel cells" in these two subsections also include "linear generators" or "renewable electrical generation facility" and/or CARB's Resolution to adopt the Proposed Amendments to LCFS clarifies fuel cell" to include other renewable electrical generation technologies, such as linear generators, to maintain technology neutrality and ensure a level playing field. (15d2-170.2)

Comment: We have also consistently advocated for enabling book-and-claim access for biomethane-to-electricity projects, which would only add value and resiliency to the electric vehicle charging ecosystem in California. We appreciate that the Second 15-Day changes now allow for biomethane-to-electricity projects, but we are perplexed why this pathway is limited to use in a fuel cell. This requirement is another example of arbitrary restrictions that limit market opportunities for biomethane and do not exist for other fuels under the program.

If nothing else, linear generators should be an eligible technology, as well, as they are similarly a clean, distributed resource, just like fuel cells. In fact, the legislature just unanimously passed, and the Governor signed, AB 1921, which makes linear generators using renewable fuels eligible under the Renewable Portfolio Standard, just as fuel cells are today. CARB should follow suit and allow broader access under the biomethane-to-electricity provisions for at least linear generators, and preferably all electric generation technologies. (15d2-172.4)

Comment: We thank CARB staff for continued adjustments to various RNG provisions in the Second 15-Day Package. Specifically, we support the expanded opportunities for RNG-to-electricity via fuel cells generation used in electric vehicle pathways. (15d2-269.1)

Comment: We recommend that same treatment be extended to other clean sources of power production, including linear generators. (15d2-269.2)

Comment: Linear Generators Should Be Treated Like Fuel Cell to EV Pathways

We are happy to see changes in the Second 15-Day Package encouraging RNG to be provided to fuel cells for power generation when that power can be matched to electric vehicle use. We believe this combination of clean technologies has multiple “wins” for the environment—both from a criteria pollutant and GHG reduction perspective.

The framework for RNG/biogas to power to EV pathways could be further improved by allowing other forms of low-emission gas power generation to use the same accounting framework. Power production matched to EVs is generally an option RNG Coalition members want to have available. We continue to encourage ARB to approve a temporary pathway for other forms of electricity (e.g., generated by biogas on site through non-fuel-cell technologies, generated at the best combined cycle plants, etc.). When no temporary pathway at all exists for these projects, they cannot take advantage of the true-up opportunity created by the new rule and are, therefore, much harder to finance.

We would prefer to see technology-neutral performance metrics so that power generation that meets similar efficiency and/or emissions profiles as fuel cells are equally recognized. For example, linear generators are now serving truck charging demand at The Denker Hub associated with the Port of Long Beach. At a minimum, this technology should be treated in an equivalent fashion to fuel cells.

Such pathways also demonstrate the importance of flexible accounting mechanisms for both renewable gas and power. RNG suppliers are smaller sources of gas, each fuel cell’s gas demand is individually modest and distributed (compared to the average utility-scale gas power plant), and EV load is also often distributed. Only through flexible accounting mechanisms—like book-and-claim for both gas and power—can this useful combination of technologies be properly recognized and incented under the LCFS. (15d2-269.12)

Comment: We recommend that staff also include linear generators as a viable pathway. The modest changes advanced in the use of hydrogen as a feedstock for biomethane policy regime would help fulfill the goals in CARB’s 2022 Scoping Plan for the long-term deployment of biomethane for hydrogen production. This approach is crucial for addressing affordability while decarbonizing challenging sectors. (15d2-279.3)

Comment: We also appreciate that CARB has recognized the importance of book-and-claim access for biomethane-to-electricity pathway crediting, which reflects the Board’s openness to feedback from stakeholders like us. (15d2-187.2)

Comment: However, we are concerned that book-and-claim accounting for electricity pathways may exclude linear generators and green hydrogen-to-electricity as an eligible pathway. As Prologis’ pioneering real-world efforts to speed development of industrial charging infrastructure for heavy-duty electric fleets shows, linear generators are a critical technology to meet our customers’ and the state’s heavy-duty electrification goals – with similar emissions (essentially zero) as fuel cells but also immediately affordable, flexible between hydrogen- and biomethane-to-ZEV pathways, and able load-follow megawatt-level EV charging events

without degradation. Linear generators are now eligible under California's Renewable Portfolio Standard (RPS) and are business critical to enterprises such as Prologis, which sees 36% of U.S. goods move through its U.S.-based facilities.

Explicitly allowing book-and-claim access for green hydrogen-to-electricity pathways would provide additional flexibility for supporting the state's transportation electrification and renewable hydrogen goals. We ask that the Board to clarify that linear generators are an eligible technology under the biomethane-to-electricity book-and-claim provisions. We also ask that CARB enable book-and-claim accounting for green hydrogen-to-electricity pathways via hydrogen-blending gas distribution networks within California. Our feasibility assessments show warehouse rooftop solar electrolysis supplying electric vehicle charging hubs can be an economical and expedient pathway to decarbonization in California. (15d2-187.3)

Comment: Linear Generators: Clean Technology with Low Emissions

Linear generators, such as those developed by Mainspring and Hyliion, are clean, low-emission technologies. We understand that CARB staff have seen data comparing emissions from linear generators to those from fuel cells, which demonstrate similar criteria pollutant emissions between the technologies. Indeed, data for Prologis' Denker Avenue EV charging depot in Los Angeles shows that linear generators achieve more than 97% NOx reductions compared to diesel trucks, with minimal VOC emissions (see appendix following letter). These results demonstrate the technology's potential for significant emissions reductions, particularly in applications supporting electric vehicle (EV) charging. Including linear generators in the LCFS program aligns with CARB's objectives of reducing transportation-related emissions and promoting cutting-edge, clean technologies.

As detailed in our previous comments,² Prologis Mobility and Performance Team, a Maersk company that operates electric vehicles across the country, recently demonstrated a unique solution to infrastructure challenges facing heavy-duty fleet operators by developing the world's largest EV charging project powered by a self-sufficient microgrid, which uses Mainspring technology with green hydrogen, renewable natural gas, and green methanol fuel flexibility.³ The project was constructed in five months, rather than the years it would have taken otherwise (as estimated by the local utility), allowing the fleet to electrify quickly while interconnection to the electrical grid proceeds later. Once the project is directly interconnected to the grid, the added resiliency for critical EV fleet operations during periods of grid stress or power outage will be critical. The infrastructure also preserves partial infrastructure flexibility for expanding to support fuel cell vehicles in the future. This is a replicable model that can serve to accelerate progress toward the State's ZEV goals.

The ability to use renewable fuels, such as biomethane or renewable hydrogen, would further align these projects with California's climate goals. Explicitly including linear generators would provide additional market clarity and flexibility to support the use of this pioneering model to overcome infrastructure challenges that hinder CARB's transportation electrification goals. Similarly, allowing for book-and-claim access for renewable hydrogen-to-electricity pathways would provide additional optionality and cost savings to support resilient, renewable EV charging.

Critical technoeconomic risk mitigations of linear generators Linear generators offer critical real world operational risk mitigations that make them especially important tools for EV charging infrastructure:

Cost-Effective: Linear generators today are 25%-50% the capital cost of commercially available fuel cells. They also last for 20 years and do not degrade which results in significantly lower maintenance and lifecycle costs of electricity for our customers.

- ZEV pathway flexible: Linear generators can handle the volatility and nascency of green fuel markets today by allowing fuel switching from one green fuel to another green fuel during times of supply chain stress for the incumbent. For example, the margin for error is unacceptably small in operations that use fuel cells for the next few years while green hydrogen supply chains are in infancy.
- Dispatchable: Linear generators are genuinely dispatchable machines. For a business with many challenging load profile cases this makes their selection simple and makes designs and maintenance programs transferable from one site to the next.
- Efficient: Linear generators have exceptional fuel efficiencies that are competitive, predictable and do not degrade. This is critical for low lifecycle costs of electricity for our customers.

These features, along with their low emissions profile, make linear generators an ideal fit for California's LCFS book-and-claim program. (15d2-187.5)

Comment: Linear Generators should be treated similarly to Fuel Cell to EV Pathways

We recommend that this framework be improved further by allowing other forms of low-emission gas power generation to use the same accounting framework, including linear generators. (15d2-188.8)

Comment: Similarly, Promus also urges CARB to extend Book and Claim accounting of biomethane for electricity generator to linear generators instead of only to fuel cells.

Linear generators have technological benefits that make them well-suited for applications with book and claimed biomethane being used to generate electricity to power EVs. Linear generators are fully dispatchable, have full turn-down capability, and have an emissions profile equivalent to a fuel cell. Fuel cells on the other hand are not as readily dispatchable, limiting their use for EV charging with inconsistent electricity demand. This makes them particularly useful in helping to put more EVs on the road powered by electricity generated from biomethane. (15d2-202.4)

Comment: In addition, Promus wants to ensure that the regulations for book and claim accounting of biomethane for electricity pathways have no impact on the book and claim eligibility of electricity generated from biomethane on-site at a dairy digester project. (15d2-202.5)

Comment: Section 95488.8(i)(2) would be amended to include book-and-claim accounting of biomethane to produce electricity for electric vehicle charging, provided the electricity is generated using a fuel cell. We support this change because it will provide incentives that will help align the State's SLCP reduction targets with the State's priorities for vehicle

electrification. We recommend also recognizing linear generators as eligible fuel cell power plants, consistent with the U.S. Treasury's definition contained in the Federal Register. Linear generators have similar energy and capacity attributes as traditional fuel cells, and can run on renewable fuels, such as dairy biogas and hydrogen. State law was recently amended to expressly include linear generators using renewable fuels, and recognizing this technology in Section 95488.8(i) would create consistency with other Renewables Portfolio Standard-eligible resources recognized in that subsection.⁴ This would also further the fundamental program objectives related to the transportation fuel sector. As a source of electricity, linear generators, like other technologies using electrochemical or electromechanical means, can further the State's objectives for vehicle electrification and provide new opportunities to significantly reduce SLCPs when running on feedstocks with a high methane profile, such as dairy biogas. (15d2-210.3)

Comment: GHC recommends inclusion of linear generators, in addition to fuel cells. Like fuel cells, linear generators can provide non-combustion conversion of a variety of renewable fuels and gases – biomethane, biogas, renewable ammonia or hydrogen – to electricity with virtually no emissions. Linear generators using renewable fuels are now RPS eligible pursuant to AB 1921 (Pappan, 2024) and should be included in the LCFS as well.

GHC specifically recommends that the Air Board add linear generators to the two sections that specifically mention fuel cells or to replace the term “fuel cells” with “non-combustion conversion technologies such as fuel cells or linear generators.” This change should be made to the two sections below and anywhere else that lists fuel cells as an eligible technology.

-A. 95488.8(i)(2) - “staff proposes to allow for book-and-claim accounting of biomethane to produce electricity for electric vehicle charging, provided the electricity is generated using a fuel cell, linear generator, or other non-combustion technology.”

B. 95488.9(b) - “staff proposes to add a new temporary CI for low-CI electricity produced by fuel cell or linear generator from biomethane from dairy and swine manure, based on existing program data.” (15d2-220.7)

Comment: Finally, we commend the new Amendments that promote RNG use in electric vehicle fuel cells. These pathways emphasize the need for flexible accounting mechanisms, such as book-and-claim, for both gas and power. We suggest expanding this approach to include other low-emission gas power generation technologies, such as RNG-to-electric generators, or other low-emission solutions that can address California's ongoing electricity interconnection challenges. U.S. Energy recently launched a low-emission EV charging solution called Volt Vault¹, future versions of which could create electricity through any traditional or linear generator, fuel cell or other similar technology. These options should also be included in the LCFS rulemaking to help the state meet its vehicle electrification goals. (15d2-267.4)

Comment: Additionally, we understand the LCFS amendments regarding fuel cells are well-aligned with recent federal definition as stated in the Proposed Rule by the Internal Revenue Service on 11/23/2023, which states:

Section 48(c)(1)(C) defines the term “fuel cell power plant” as an integrated system comprised of a fuel cell stack assembly, or linear generator assembly, and associated balance of plant

components that converts a fuel into electricity using electrochemical or electromechanical means. (15d2-215.5)

Comment: CleanFuture commends staff on inclusion of book-and-claim biomethane to electricity as an eligible fuel. However, restricting the generation of electricity to fuel cells goes against a central tenet of technology neutrality in the LCFS. CleanFuture requests CARB to allow biomethane to produce electricity without restriction on a specific generation technology. (15d2-199.2)

Comment: However we are concerned on CARB's intent to restrict eligibility of biomethane to electricity for EV charging to a specific generation technology, and instead encourage flexibility. (15d2-199.3)

Comment: The "Onsite Reciprocating Engine to Grid and EVs" scenario provides equivalent or superior net benefits of greenhouse gas and criteria pollutant emissions in comparison to "Pipeline Injection to NG Vehicles" so we urge CARB to remove the restriction to fuel cells only. We urge CARB to allow for Pipeline Injection to Reciprocating Engine to Grid and EVs on the premise that this scenario would be more similar to Onsite Reciprocating Engine to Grid and EVs instead of Pipeline Injection to Power Plant, Grid, and EVs. (15d2-199.4)

Comment: The ability to use renewable fuels, such as biomethane to produce electricity, would further align with California's climate goals, but unfortunately, the LCFS Proposal only allows book-and-claim access for biomethane if used in a fuel cell to produce electricity. While we appreciate this proposed amendment and the use of fuel cells for book-and-claim for biomethane, we encourage CARB to provide additional flexibility for book-and-claim biomethane across all generation technologies. (15d2-199.5)

Comment: We also appreciate that CARB has recognized the importance of book-and-claim access for biomethane-to-electricity pathway crediting, which reflects the Board's openness to feedback from stakeholders like us. (15d2-270.2)

Comment: Additionally, the improved approach to book-and-claim accounting acknowledges the importance of sustaining existing procurement agreements with out-of-state biomethane projects while simultaneously encouraging in-state production. An uninterrupted flow of biomethane into California fosters its adoption across diverse economic sectors over time. The inclusion of biomethane for use in fuel cells to support electrification will help support both biomethane and the state's transition to zero-emissions vehicles. (15d2-279.2)

Comment: And finally, we really supported the RNG to electricity pathway that was inserted at the end. (BHT-175)

Comment: We appreciate the inclusion in the resolution of the need for new provisions that accelerate the deployment of new technologies that support low-carbon electricity for EV charging in the near term, such as linear generator. (BHT-202)

Agency Response: In response to these comments, staff proposed to expand the book-and-claim of biomethane to accommodate off-site electricity production where electricity is produced using fuel cells for EV charging. This proposal increases flexibility for biomethane projects to produce low-CI electricity and supports California's zero

emission vehicle goals, while also prioritizing electricity generated using non-combustion technology. The proposal allows for environmental attributes matching within the three quarters of delivering low-CI electricity. The three quarters matching time limit aligns the matching period requirements in the regulation and balances the need for flexibility in sourcing low-CI electricity given seasonal variability with the verification burden that may come with an unrestricting matching period.

The Proposed Amendments regarding eligibility for indirect accounting do not include linear generators, because currently there is no participation of low-CI electricity-derived from linear generators in the LCFS program. Staff had insufficient information on the emissions profile of linear generators to consider whether it would be appropriate to include for indirect accounting in this rulemaking. Low-CI electricity produced from linear generators is eligible to participate in the LCFS program under a Tier 2 fuel pathway classification provided that there is direct supply of biogas to a linear generator. In Resolution 24-14, CARB committed to monitor the need for new provisions that accelerate the deployment of new technologies that support low-carbon electricity for electric vehicle charging in the near-term, such as linear generators.

L-8 *Book-and-Claim to Low-CI Hydrogen Involving Intermediates*

Comment: We ask that CARB consider adding explicit language or clarity around the opportunity to apply Book-and-Claim for renewable hydrogen pathways that involve an intermediate step or use of hydrogen carrier-molecules. This approach is fundamental to rapidly ramping up the use of renewable hydrogen as envisioned by the Scoping Plan and the ARCHES effort. (45d-094.6)

Agency Response: No change was made in response to this comment because hydrogen fuel production via intermediates such as dimethyl ether and ammonia is not common at this time. In Resolution 24-14, CARB committed to continue to monitor the development and commercialization of electrofuels (“e-fuels”) for inclusion in the next Scoping Plan update and a potential future LCFS update. E-fuels production includes the use of hydrogen intermediates.

L-9 Multiple Comments: *Book-and-Claim of Low-CI Hydrogen to Electricity*

Comment Summary: Bioenergy Association of California urges CARB to consider book and claim of RPS eligible low-CI hydrogen to produce low-CI electricity. This will help accelerate methane capture from dairy farms contributing to the 1383 methane reduction goal. (15d1-136.7)

Comment Summary: Prologis suggests regulation text revisions to section 95488.8(i)(3) to allow book and claim of low-CI hydrogen for cases hydrogen is used to produce electricity using a fuel cell or linear generator for the purposes of remote EV charging. (15d1-204.11)

Agency Response: No change was made in response to these comments. Hydrogen must be physically supplied to an electricity generation source under the regulation. See response L-7 regarding book-and-claim eligibility for linear generators.

Comment: Another concern is that the proposed 15-Day Draft changes to book-and-claim accounting for hydrogen could limit the crediting flexibility for hydrogen producers and significantly limit the market potential for hydrogen in California. With these changes, production of electrolytic hydrogen essentially requires co-location of renewable energy and hydrogen production to qualify, which severely limits electrolytic hydrogen production as the electric grid becomes cleaner and could be used to produce low-carbon hydrogen.

These proposals as well as other provisions discussed in the comments filed by the California Hydrogen Business Council, highlight factors which could slow the development of hydrogen infrastructure and hinder California's broader clean energy goals. PG&E urges additional discussion with stakeholders and consideration of the potential impacts of these modifications to ensure the LCFS regulation is better aligned with renewable energy policies and the hydrogen strategies at both the State and Federal level. (15d1-224.31)

Agency Response: No change was made in response to this comment. The current proposal is flexible to allow book-and-claim of low-CI electricity in hydrogen production and processing if hydrogen produced is directly used in transportation in California. The co-location of renewable energy and hydrogen production is not required in such instances. Regarding expanding the scope of book-and-claim of low-CI electricity to other uses of hydrogen such as feedstock, see response L-10. Also see response O-1 regarding phasing out fossil hydrogen starting January 1, 2035.

Comment: Low-CI Electricity Book & Claim Provisions: Air Products strongly supports CARB's proposal in §95488.8(i)(1) to extend the existing book and claim accounting approach for low-CI electricity to include the process energy associated with other components used to process and distribute hydrogen, like liquefaction and compression. We also appreciate the 15-day amendments treating hydrogen and electricity equitably in terms of the time matching criteria consistently. We believe some important clarifications are still needed in the provisions for the use of low-CI electricity when used to produce hydrogen including striking the newly added qualifier that these provisions only apply to electrolysis as that would unnecessarily limit the extension mentioned above to process energy and the flexibility to provide lower-carbon sources of hydrogen to the mobility market in California. (15d1-135.5)

Agency Response: No change was made in response to this comment. CARB appreciates the Air Products support for extending book-and-claim of low-CI electricity in hydrogen production and processing including liquefaction. The Proposed Amendments strike out the qualifier "electrolysis" to allow book-and-claim of low-CI electricity for all types of hydrogen production and processing, not just to electrolysis.

L-10 Multiple Comments: *Book-and-Claim of Low-CI Electricity for Electrolytic Hydrogen Used As Feedstock to Produce Fuels*

Comment: Allow delivery of low-CI electricity via book-and-claim for electrolytic hydrogen production in the Renewable Hydrogen Refinery Credit Program.

§ 95488.10 subsection (f) prohibits the delivery of low-CI electricity via book-and-claim for electrolytic hydrogen production in the Renewable Hydrogen Refinery Program. Requiring onsite renewable electricity generation restricts the program to pilot scale projects thereby limiting the efficacy of the program in reducing emissions.

California currently has 20 hydrogen production facilities with 1.83 million metric tons of annual hydrogen production capacity. The median production capacity of the fleet is 226,517 metric tons per year. To fully decarbonize the hydrogen supply at the median-sized facility would require 1.3 GWs of electrolysis capacity assuming a 100% utilization rate and a plant efficiency of 50 kWh/kg H₂. A more realistic utilization rate of 50% would increase the requirement to 2.6 GWs of electrolysis capacity. To meet even the 50% utilization rate would require an oversizing of the renewable generation capacity relative to the electrolysis capacity. Hence, to decarbonize even half of the median hydrogen production facility in California would require renewable generation on the scale of the Alta Wind Energy Center in Kern, County, which is the largest wind farm in the United States.

Requiring onsite renewable generation to decarbonize even a portion of a refinery's hydrogen production requires more land than refineries have available onsite. Allowing for the delivery of low-CI electricity via book-and-claim for electrolytic hydrogen production would allow refineries to utilize this program to lower emissions. Without this amendment, this program will likely to be underutilized. (45d-198.2)

Comment: For pathways that utilize hydrogen as a feedstock such as e-fuels, subject the low-CI electricity used to produce the hydrogen to additionality and deliverability requirements consistent with the use of low-CI electricity for hydrogen, rather than low-CI electricity used as a process fuel. (45d-213.4)

Comment: Clarify Section 95488.8(i)(1): Low-CI/renewable hydrogen can be used to produce liquid renewable fuels such as renewable diesel. Can CARB please clarify that 95488.8(i)(1) also applies to low-CI electricity used to produce hydrogen that is then used to produce liquid renewable fuels. It is Neste's understanding that this is CARB's intention, but Section 95488.8(i)(1) should be modified to state "or Used to Produce Hydrogen as a transportation fuel or for alternative fuel production." (45d-295.12)

Comment: To stimulate robust demand for hydrogen, crucial for the rapid expansion of distributed Low-Carbon Intensity (CI) hydrogen production, we propose reinstating CARB's prior eligibility provision for LCFS electricity book-and-claim. Previously, this provision encompassed "hydrogen used in the production of a transportation fuel."

While we appreciate CARB's recent decision to extend eligibility to Low-CI hydrogen derived from sources meeting the criteria outlined in §95488.8(i)(3), we express concern over the LCFS Proposal's restrictive stance on how hydrogen can be used as a fuel. Specifically, the proposal limits book-and-claim eligibility to "hydrogen used as a transportation fuel," deviating from existing regulations that include hydrogen used in the production of a transportation fuel.

CARB's rationale for this restriction is grounded in concerns about the limited availability of Low-CI power in California and the constraints on power supply expansion. Although we acknowledge these concerns and the intent to ensure sufficient Low-CI power for Zero Emission Vehicles (ZEVs), we assert that limiting the use of Low-CI book-and-claim to neat/unblended hydrogen for Fuel Cell Electric Vehicles (FCEVs) impedes the substantial growth of hydrogen supply essential to achieving CARB's ambitious 1,700x growth target by 2045.

Our market-based concern stems from the limitation's impact on the addressable hydrogen market demand, constraining it from small to infinitesimal. To develop multiple facilities in California, hydrogen project developers require substantial capital, and investors seek a clear return on investment (ROI). Arbitrary limitations on electrolytic hydrogen contradict state policies and market conditions. (45d-302.12)

Comment: We respectfully propose that CARB modifies the LCFS amendments to make book-and-claim available for hydrogen used to produce transportation/alternative fuels. Specifically, hydrogen used for transportation fuels would adhere to the Strict Power Purchase Agreement (PPA) book-and-claim power sourcing regime. To align with CARB's goal of maximizing Low-CI power for FCEVs, we recommend reinstating hydrogen used as a fuel in FCEVs to the flexible Renewable Energy Certificate (REC) power sourcing regime outlined in the LCFS Proposal for Low-CI electricity supplied to Battery Electric Vehicles (BEVs) under §95488.8(i)(1)(A)-(B). This approach restores parity between BEVs and FCEVs in book-and-claim power sourcing flexibility.

Recognizing the priority given to ZEVs in the Scoping Plan, hydrogen used neat in FCEVs would be subject to the Flexible REC Book-and-Claim, while hydrogen used to produce transportation fuel (e.g., power-to-liquids, sustainable aviation fuel, or renewable diesel) would adhere to the Strict PPA Tier requirements. This two-tier system accelerates hydrogen supply growth while aligning with the Scoping Plan's emphasis on ZEVs over internal combustion engines. (45d-302.13)

Comment: Allow book-and-claim delivery of low-CI electricity for electrolytic hydrogen production used as a feedstock in liquid transportation fuel. (45d-324.1)

Comment: Allow book-and-claim delivery of low-CI electricity for electrolytic hydrogen production used as a feedstock in liquid transportation fuel.: (45d-324.1)

Comment Summary: HIF USA notes that CARB has revised section 95488.8(i)(1)(A) that restricts the ability to utilize book-and-claim of low-CI electricity for process energy use, particularly hydrogen production via electrolysis which is subsequently used as feedstock in production of eFuels. HIF would like to know if such a revision is intentional and suggests revisions to the regulatory text to accommodate book-and-claim of low-CI electricity to hydrogen used as input to transportation fuel production. (45d-380.2)

Comment: HIF USA shares the concerns of the commenters who spoke at the April 10 workshop5 regarding CARB's proposed regulatory text in 17 C.C.R. § 95488.8(i)(1)(A) which—as proposed in the 45-day package released in December 2023—would restrict the ability of eFuels proponents to use book-and-claim accounting (and specifically, Renewable Energy Certificates (RECs)) to claim the emission benefits of low-CI electricity used to produce hydrogen through electrolysis in the production of eFuels. HIF USA agrees with commenters at the April 10 workshop that CARB should not finalize this regulatory provision as proposed, as it would negatively impact the commercial availability of low-CI eFuels in the California transportation fuel market. HIF seeks to promote the use of eFuels in hard-to-decarbonize sectors where there is significant opportunity to reduce lifecycle emissions, as well as to reduce emissions of conventional pollutants that have impacts in environmental justice communities that are near ports in California.

We appreciate CARB's willingness, as indicated at the April 10 workshop, to reconsider this issue. To facilitate reconsideration, HIF USA refers to and incorporates by reference its previous submittal to CARB addressing the proposed changes to 17 C.C.R. § 95488.8(i)(1)(A).⁶ As explained in that submittal, we encourage CARB to clarify the language of 17 C.C.R. § 95488.8(i)(1)(A) to ensure the continued use of book-and-claim accounting for low-CI electricity used for hydrogen production through electrolysis as a process step for eFuels. Proposed regulatory text to make this clarification was included in HIF USA's comments on the 45-day package. (Apr-051.3)

Comment: Electric Hydrogen Recommends CARB Allow Book-And-Claim Delivery of Low-CI Electricity for Electrolytic Hydrogen Production Used as a Feedstock in Transportation Fuel. (Apr-104.2)

Comment: As further examined in this comment, the critical issue we raise is that the Proposed Regulation precludes the recognition of greenhouse gas ("GHG") emission reductions that are achieved by sourcing Low-CI Power delivered over the grid to produce eFuels. By effectively limiting eFuel production facilities to sourcing grid power that includes fossil-based power, the Proposed Regulation precipitously increases the CI of eFuels. Because eFuels effectively convert electricity into drop-in liquid fuels, blocked access to Low-CI Power prevents LCFS credit generation. Exclusion from LCFS revenue opportunities freezes rather than catalyzes the growth of the eFuel industry and the expansion of new sources of renewable power.

In the 45-day rulemaking package, CARB proposed to retain the existing LCFS structure for Low-CI power for electric vehicle usage as currently exists in section 95488.8(i)(1)(A)-(B). CARB proposed, however, to restrict the use of book-and-claim accounting for hydrogen to hydrogen used directly as a transportation fuel and to exclude eligibility to hydrogen used to produce a transportation fuel as reflected in proposed section 95488.8(i)(1). This proposed elimination of book-and-claim accounting for hydrogen used to produce a transportation fuel is uniquely damaging to eFuels producers. It is through the production of electrolytic hydrogen that eFuel producers convert electric energy into molecular energy that after further processing and synthesis is converted into drop-in liquid fuels that replace fossil gasoline, diesel and jet fuel. Upon the effective date of an LCFS regulation that effectively provides that electrolytic hydrogen can only be produced from grid mix electricity, eFuel producers are transformed from LCFS credit generators to LCFS deficit generators.

Thus, it is not hyperbolic to assert that the Proposed Regulation represents an existential threat to the establishment of eFuel production facilities that would serve the California market. and-claim accounting system that is comparable to the current system for electrolytic hydrogen would be supplying an eSAF to be uplifted in California with a CI score of 3, a lower CI score than currently exists for any alternative jet fuel in the pathways table." (Apr-175.3)

Comment Summary: Infinium Corporations, LLC and the sustainable aviation fuel (SAF) production group urge CARB to allow book-and-claim of low-CI electricity in producing hydrogen as feedstock, efuels and SAF by expanding on the precedence set by the 40B LCA methodology designed for the enabling tax credits for sustainable aviation fuels under the Inflation Reduction Act. (Apr-175.4, Apr-176.1)

Comment: In this LCFS rulemaking, CARB can and should enable hydrogen producers to source Low-CI Power through a viable book-and-claim accounting mechanism. (Apr-188.1)

Comment: Book and Claim Accounting Should Be Preserved for Low-CI Electricity Used to Produce Hydrogen as an Input to E-Fuels. The 15-day Notice does not address HIF USA's concern that the proposed changes to the regulatory text in 17 C.C.R. § 95488.8(i)(1)(A) appear to eliminate book-and-claim accounting for low-CI electricity used to produce electrolytic hydrogen as an input for eFuels. As commenters noted during the April 10, 2024 workshop, and as HIF USA has explained in its previous submittals, CARB's proposed changes to this provision, if finalized, would negatively impact the commercial availability of low-CI e-Fuels in the California transportation fuel market.

CARB has not explained in this rulemaking process the rationale for the proposed change, other than brief comments at the April 10 workshop, in which a CARB representative indicated that the change may reflect CARB's interest in prioritizing the production of hydrogen as a primary transportation fuel rather than as a process input. HIF USA does not believe that elimination of the current book-and-claim allowance for hydrogen produced by electrolysis for transportation purposes is necessary to incentivize the production and use of hydrogen as a transportation fuel—as these two uses of hydrogen are complimentary and not mutually exclusive. In any event, because CARB proposes a significant change to the current regulations, it is obligated to provide a rationale and address the comments provided on this issue.

In sum, we urge CARB to refrain from finalizing any changes to 17 C.C.R. § 95488.8(i)(1)(A) that would preclude the continued use of book-and-claim accounting for low-CI electricity used for hydrogen production through electrolysis as a process step for e-Fuels. We request that CARB review and consider our submittal on this topic in response to the 45-day proposed rule. (15d1-046.2)

Comment: Book and Claim for Hydrogen: Furthering the issue above, to spur the growth of lower carbon hydrogen in California, industrial use of low carbon hydrogen should be credited, so long as the eventual product is used in the transportation market. CARB is narrowly dictating end uses of low carbon energy sources when cleaner hydrogen should be credited within the transportation market, whether used to produce SAF or sent directly into a FCEV. (15d1-118.7)

Comment: Limiting the end uses for hydrogen that is produced using grid-connected electrolysis would limit the amount of hydrogen produced in California, impede effective decarbonization of heavy transportation, and undermine the state's decarbonization goals as stated in the 2022 Scoping Plan.

Hydrogen can be used to directly power fuel cell electric vehicles (FCEVs) but RMI analysis shows that direct electrification of light duty vehicles results in 0.41 kg CO₂e/kWh more reduction than using zero emissions hydrogen. As such, hydrogen should be directed to transportation end uses that cannot be electrified, like aviation, where it can be combined with renewable electricity and efficient supplies of carbon dioxide to yield a liquid synthetic "e-fuel" through ASTM-certified pathways. E-fuels, despite being the least technologically mature pathway for SAF, have the greatest potential for meeting the gap between scaled demand in

2050 and potential scale of biobased SAF pathways. By essentially preventing their use in California's LCFS, CARB risks setting back the in-state clean aviation industry, sending e-fuel SAF producers to other Clean Fuel Standard states to make and sell their fuels. E-fuels are not the only forms of SAF that require hydrogen as a feedstock. Other forms of SAF—including those derived from waste fats, oils, and greases as well as biofeedstocks like corn, soy and canola—all require hydrogen in the process of production, albeit at much smaller volumes than e-fuel SAF. (15d1-192.1)

Comment: Furthermore, only 10% of the clean hydrogen capacity planned by 2030 has currently identified a buyer. At a time when hydrogen hubs across the country are searching for stable offtake agreements, preventing specific industries from offtaking certain types of clean hydrogen could have a serious cooling effect on the hydrogen economy in California, and could disadvantage ARCHES hydrogen producers. According to RMI analysis, heavy duty transport—aviation, shipping, and trucking—will drive most of the demand for hydrogen in California. Scaling up demand for SAF is paramount as shipping fuel is not included in LCFS and trucking demand will ramp up slowly.

Allowing electrolytic hydrogen used as a feedstock to use book-and-claim electricity would afford hydrogen producers flexibility in finding off takers while still benefiting from LCFS and decarbonizing priority offtake sectors, and is in alignment with California's Climate Change Scoping Plan. (15d1-192.2)

Comment: Then finally, I would like to just mention that we were disappointed to see the change in the book and claim accounting for low CI electricity for producing hydrogen as an eFuels input. We think that this is misguided and misunderstanding. It was intended to incentivize hydrogen as a primary transportation fuel, but it assumes that transportation and electrolytic fuel are competing with each other and they aren't. So we ask you to reconsider that. (BHT-68)

Comment: In this final version of the proposed regulatory changes, the LCFS will no longer allow the use of book and claim accounting for hydrogen use as an input to make other transportation fuels as it is authorized by the current regulation. Instead, the proposed LCFS regulation will allow book and claim accounting only for hydrogen used as a transportation fuel, i.e. used in the case of fuel cell vehicles.

We're concerned that for a nascent industry that needs a broad pathway to accelerate adoption and scalability efforts, this approach may constrict the addressable market for hydrogen and thereby dampen investor willingness to invest in new hydrogen production facilities that utilize the book and claim accounting as one method to reduce carbon intensity. We, therefore, would like to recommend to the Board to have staff look at how to expand the hydrogen supply via the LCFS Program via a study. (BHT-99)

Comment: So under the current proposed rules, there is a prioritization on renewable hydrogen used as finished fuel for road transportation within the LCFS and not for renewable hydrogen that's used in the production of other low-carbon fuels. Allowing its use for the production of these derivative fuels will help scale renewable hydrogen production and drive down costs for all applications, including within renewable ammonia, E-methanol, renewable diesel, and sustainable aviation fuel. And here I'll also linger and remind that the recent

commitment and partnership that was announced on SAF will require copious amounts of renewable hydrogen. So we need to be prepared to send those right signals for the supply side to develop that renewable hydrogen here in California. (BHT-101)

Agency Response: No change was made in response to these comments. Staff's proposal for book-and-claim of low-CI electricity to hydrogen does not apply if hydrogen is used as a feedstock to produce another hydrocarbon fuel. However, there is no such restriction for book-and-claim biomethane for hydrogen produced from steam methane reforming or similar processes.

Since California is transitioning away from internal combustion engines, the use of low-CI electricity to produce hydrogen which in turn is used to produce hydrocarbon fuels, while still better than using fossil-derived hydrogen to produce hydrocarbon fuels, is not an optimal use of valuable low-CI electricity when it can be either directly used for EV charging or to produce electrolytic hydrogen for use in FCVs, both of which contribute to the transition to ZEVs. In addition, the use of low-CI electricity to produce hydrogen as a feedstock and subsequently hydrocarbon fuels comes with significant energy efficiency losses resulting in less petroleum fuel displacement and GHG reductions. As the ZEV transition in the on-road sector increases in pace over the coming years, CARB does expect growing opportunities in the future to convert excess low-CI hydrogen or low-CI electricity to hydrocarbon fuels like SAF, methanol, or ammonia that are needed for hard-to-electrify sectors, like aviation and marine. These types of e-fuels are currently eligible as alternative fuels in the LCFS program, but the regulation does not currently allow for book-and-claim of the low-CI electricity used to produce hydrogen that is then used as a feedstock for e-fuel production. Book-and-claim provisions, particularly for low-CI electricity, can help reduce production costs and help expand production and deployment of electricity-reliant fuels. Given the possibility for growth of e-fuels in the future, Board Resolution 24-14 directs the Executive Officer to, "continue to monitor the development and commercialization of electrofuels ("e-fuels") for inclusion in the next Scoping Plan Update and a potential future LCFS update."

Comment: Over 30 refineries around the country, including seven in California, produce renewable diesel and/or SAF for the California transportation market. These refineries currently use steam methane reformers (SMRs) to reform natural gas into hydrogen for fuel processing and production. The 15-Day Changes' prohibition on the use of book-and-claim delivery of low-CI electricity for the production of electrolytic hydrogen used as a feedstock effectively locks in the use of SMRs and prohibits these refineries from switching their hydrogen source to electrolytic hydrogen. This prohibition perpetuates significant local air pollution and greenhouse gas (GHG) pollution for communities adjacent to these refineries. The median SMR in California emits as much as 80 tons of fine particulate matter, 132 tons of NOx, and 777,274 tons of CO2 annually. While the 15-Day Changes allow these refineries to utilize book-and-claim accounting to source renewable natural gas (RNG) to mitigate GHG emissions, sourcing RNG at these facilities does nothing to reduce local air pollution for vulnerable communities adjacent to the refineries. (15d1-173.3)

Comment: Failing to provide equal treatment to RNG and renewable electricity as it relates to the use of book-and-claim accounting is also a missed opportunity to drive investment in the green hydrogen industry into California. Under the European Union's (EU) third Renewable Energy Directive (RED III), the EU is requiring refineries to use at least 42% green hydrogen by 2030 and 60% by 2035. (15d1-173.4)

Agency Response: No change was made in response to these comments. Regarding the restriction on book-and-claim of low-CI electricity used to produce hydrogen as feedstock, see the preceding response. Also see Agency Response G-1 to the comment on allowing fossil hydrogen matched with biomethane attributes. See also CEQA RTC Master Response 4 with regard to the air quality analysis conducted for the Proposed Amendments and R17-3.

Comment: We appreciate the extension of low-CI electricity book-and-claim to include process energy demand for the full hydrogen fuel value chain. However, we believe eligibility for all transportation in the current regulation should be maintained and the resource-shuffling and time-matching requirements should apply equally to both hydrogen and electricity. (Apr-103.6)

Agency Response: No change was made in response to the comments because the proposed regulation order already allows book-and-claim of low-CI electricity for hydrogen production including processing of hydrogen as liquid hydrogen.

L-11 *Book-and-Claim of Low-CI Electricity in Hydrogen Production and Processing*

Comment: Under the Proposed Amendments, CARB has removed the book-and-claim provision that was previously contained in the 45-day package for "process energy". Eliminating this provision will have a significant impact on the CI score of liquefied hydrogen, effectively raising its cost. CARB should advance LCFS policies that improve the economic viability of low-carbon hydrogen, rather than make it more challenging.

The proposed change will result in an environmentally incoherent outcome. RECs are a market-oriented mechanism that enable producers (including hydrogen producers) to compete over clean electricity to power their production processes. Carbon intensity accounting as an enabler for market signals is a necessary component of the hydrogen value chain. Hydrogen production and lower-cost clean hydrogen should be incentivized and available at retail. Upstream investments in clean electricity generation to power the hydrogen production processes should also be encouraged. RECs facilitate these positive outcomes. If RECs are exceedingly expensive or impossible to obtain, they cannot serve this purpose. This would undermine the LCFS's objectives. (15d1-149.4)

Agency Response: No change was made in response to this comment as the comment is not relevant. The proposed amendments to the regulation did not remove the book-and-claim provision of the low-CI electricity used as process energy in hydrogen production and processing.

Comment: We need about 6 -8 MW of power for the plant operation, which is standard processing equipment like pumps, compressors, sensors, and electronics. And this power is

not used for electrolytic H₂ production. We request that we use book and claim of renewable energy credits to cover for this power consumption. (45d-258.1)

Agency Response: No change was made in response to this comment. The proposed regulation allows for book-and-claim of low-CI electricity used as process energy in production and processing of hydrogen that is supplied as a transportation fuel.

Comment: Hydrogen Book and Claim – Allowing for Power Related to Balance of Plant Operations

Regulation: 95488.8(i)(1): Book-and-Claim (B&C) Accounting for Low-Carbon Intensity (CI) Electricity Supplied as a Transportation Fuel, Direct Air Capture projects, or Used to Produce Hydrogen as a transportation fuel. Reporting entities may use indirect accounting mechanisms for low-CI electricity supplied as a transportation fuel, for hydrogen production and processing for hydrogen used as a transportation fuel, or for direct air capture projects, provided the conditions set forth below are met.

Concern: The current proposed regulations do not allow B&C for power related to the balance of plant (BOP) operations. We understand from CARB that B&C may be allowed for BOP on a case-by-case basis. By allowing B&C to expand to BOP, this could act as an incentive for early market hydrogen production enabling a lower CI calculation. By not allowing B&C for BOP could increase CI by more than 60gCo₂/MJ, leading to more than 40 percent decrease in LCFS credits received thereby leading to higher prices and slow adoption.

Recommendation: Fortescue respectfully advocates for allowing B&C for BOP operations in electrolytic hydrogen production, as this is crucial for accelerating green hydrogen adoption in California by enabling producers to further green a larger portion of their power usage, resulting in lower carbon intensities and higher LCFS credit values. BH-088.1)

Agency Response: No change was made in response to this comment. To the extent the balance of plant (BOP) operations are directly related to hydrogen production, processing (including liquefaction) and hydrogen storage/dispensing, the use of electricity in these operations is covered by the proposed book-and-claim of low-CI electricity.

L-12 Multiple Comments: *Limit Attribute Matching Period for Book-and-Claim of Low-CI Electricity*

Comment: The change made to § 95488.8.(i)(1)(C) moves the LCFS methodology further away from hourly matching by changing the matching period from quarterly to three quarters of a year. Robust research has shown that hourly matching (together with incrementality and deliverability) is needed to account for the long-run emissions impacts, as well as consumer price impacts, of electrolytic hydrogen production. (15d1-164.1)

Comment: Time limits for indirect accounting of electrolytic hydrogen to quarterly time periods to ensure low-CI standards are met and emissions are not induced by hydrogen generation during peak demand periods. (15d1-202.2)

Comment: Limit Book-and-Claim Accounting to Quarterly and Move towards Hourly for Electrolytic Hydrogen

The revised 15-day Amendments released by CARB move to allow indirect accounting for Low-CI Hydrogen through book-and-claim methods across 3 quarters for reporting periods. Pacific Environment urges CARB staff to limit accounting periods for low-CI electricity used to produce low-CI hydrogen to the same quarter time period for reporting. Allowing use across 3 quarters would permit hydrogen produced during peak demand periods with the highest CI score to claim low-CI and a highly coveted sustainability score completely disconnected from the reality of emissions generated due to the electricity demand in producing hydrogen.

Green hydrogen is a promising solution for decarbonizing hard-to-abate sectors, like ocean shipping, if done appropriately. The federal government and recent academic research indicate that hourly matching is the gold standard to ensure power drawn from the electricity grid used to generate hydrogen as a transportation fuel does not increase demand during high emissions generating periods.

A time limit of 3 quarters might be reasonable for direct electrification of transportation end uses given the efficiencies gained and the increased deployment of renewable energy within the grid.

But that same time period is not appropriate for electrolytic hydrogen given the much larger energy demands to generate the equivalent amount of energy for transportation use. Electrolytic power demand for hydrogen production could far outstrip the existing and projected increases in renewable energy to serve the grid, increase emissions from greater reliance on fossil fuel plants, and further extend the lifetime of fossil fuel plants used to serve the grid in periods of high power demand.

Unless there is a time period set for a transition to one-quarter or even more granular time periods, there is a risk of investment signals to be sent for increased hydrogen production in the state that places greater demands on the electric system during a time of strong load growth and difficulty matching the pace of development through renewable energy generation.

The LCFS guidance on book-and-claim accounting already has provisions for deliverability and additionality of low-CI electricity, but time matching through limiting quarters available for credit use and retirement remains a critical and unaddressed part of the LCFS revisions. We urge CARB to adopt best practices and signal intent to limit credit matching to one quarter and progressively shorter time periods to hourly in 2028 as the federal government has set.

The three pillars requirements of incrementality, temporal matching, and deliverability will build a robust hydrogen industry that is truly clean and lasts beyond the expiration of 45V. These requirements will ensure the buildout of a durable hydrogen industry that fulfills 45V's goal of reducing carbon emissions and accelerating the clean energy transition. (15d1-202.6)

Comment: Weakening of carbon accounting for electrolytic hydrogen. The 15-day changes may render electrolytic hydrogen even more polluting than hydrogen produced from gas. Staff propose a step backward from the ISOR's already inadequate quarterly matching of low carbon intensity (CI) energy generation with a facility's energy demand.

→ Consistent with the proposed federal rule, CARB should require hourly matching by 2028. (15d1-222.6)

Comment: The 15-day changes to accounting rules for electrolytic hydrogen may render electrolytic hydrogen even more polluting than hydrogen produced from fossil gas; CARB should require hourly matching by 2028.

It is critical to get the carbon accounting right for electrolytic hydrogen because hydrogen produced with California's grid-average electricity creates even more climate pollution than hydrogen produced from fossil gas.

As we explained in our ISOR comments, indirect accounting for low CI electricity that allows matching of low CI energy generation with a facility's energy demand on anything less frequent than an hourly basis would lead to emissions increases that are just as dramatic as relying on grid-average electricity.

According to research from Princeton University, an hourly matching requirement is necessary to avoid spiking pollution on the power grid from electrolytic hydrogen production. Indeed, even a weekly matching standard would lead to emissions increases.

Unfortunately, the 15-day changes commit this very error by allowing book-and-claim accounting for low-CI electricity to span three quarters. This change represents a step backwards from the already-deficient ISOR proposal, which required only quarterly matching. CARB fails to justify the basis for this backward movement and fails to account for the real risk that LCFS hydrogen could increase emissions under this accounting framework, directly counter to the very purpose of the program.

Weakening time-matching requirements will also increase power costs for ratepayers. Princeton's energy modelers found that failing to adhere to all of the "three pillars" (additionality, deliverability, and hourly-matching) would increase power prices in Southern California by 8%. Other studies in Europe examining hourly versus annual matching (which CARB's new proposal swings wildly closer to) resulted in a staggering 43% increase to power prices.

Increasing our already high electric rates and decreasing our grid's already fragile reliability for the sake of easing accounting rules for the heavily subsidized hydrogen industry is unjust and risks severely hampering the energy transition.

CARB should correct this glaring flaw and require electrolytic hydrogen producers who claim to use low CI electricity to meet an hourly matching requirement by 2028. Such a change would be in alignment with standards under development at the U.S. Treasury Department. (15d1-222.32)

Comment: Fifth, the provision allowing three-quarter book-and-claim crediting of low-carbon intensity electricity for electrolytic hydrogen and direct air capture projects--which will likely result in increased greenhouse gas emissions--has been further weakened. CARB has walked back the limitation to electrolytic hydrogen and is now proposing to allow book-and-claim provisions for all types of hydrogen, including hydrogen that uses fossil methane as a feedstock. (15d2-173.8)

Comment: The Second 15-day proposed changes modify the indirect accounting approach (book-and-claim approach) with respect to low carbon intensity (CI) energy. This change requires a 3-month matching period for the claiming of low-CI electricity and 3 years additionality of the resource within the local balancing authority or consistent with PUC 399.16. Reducing the matching requirement, but maintaining flexibility with a 3-month matching approach, is the right balance to begin addressing some of the seasonal shortcomings in renewable energy generation for the grid while ensuring that the growing renewable hydrogen industry in California can create demand for more renewable power to come online. (15d2-220.5)

Comment: CARB should work with the cap-and-trade program, the Energy Commission, and the Legislature to establish a statewide policy incentivizing green electrolytic hydrogen that meets the three pillars standard. Only hydrogen produced this way should be incentivized by the state. (Apr-030.9)

Comment: §95489 (f) - As with §95488.8 (i)(1)(C), aligning LCFS requirements on electricity used for hydrogen production with the “three pillars” approach better aligns it with global best practices in this space. (45d-391.69)

Comment: The LCFS must support truly green electrolytic hydrogen by requiring that it be produced only with zero carbon electricity adhering to the three pillars of additionality, deliverability, and hourly matching. (BHT-159)

Agency Response: No change was made in response to these comments. Staff did not propose to reduce the time span for book-and-claim to one quarter in the Proposed Amendments. Book-and-claim of low-CI electricity spanning three quarters allows sufficient time to plan for procurement of environmental attributes associated with low-CI electricity claimed in LCFS. The hourly matching could be restrictive, reduce availability of low-CI electricity for transportation fueling, increase costs associated with low-CI electricity procurement, and could undermine the main purpose of book-and-claim in the near-term, which is to provide flexibility in the use of low-CI resources.

L-13 Multiple Comments: *Adjustments to Low-CI Electricity Requirements*

Comment: Antora strongly supports the use of clean energy in renewable fuel production, as detailed in the accounting framework for Renewable or Low-CI Process Energy in Section 95488.8(h) of the existing and proposed regulations. Section 95488.8(h) is designed to ensure the integrity of renewable and low-CI process energy used in fuel production, including by ensuring that renewable energy certificates (RECs) and other environmental attributes are not double-counted, as detailed in Section 95488.8(h)(1)(A).

Such a safeguard against double-counting of RECs and similar attributes is important to the integrity of the LCFS’s decarbonization impact, as it ensures that any unit of renewable energy that is used to produce low-CI fuel sold in the LCFS market is not also claimed in another marketplace or program. However, the proposed amendments include a wording change (highlighted below) that could inadvertently provide less clarity to developers and potentially disqualify renewable energy inputs that align with the intent of the regulations:

Any renewable energy certificates or other environmental attributes associated with the energy are not ~~produced~~, issued credits or are retired and not claimed under any other voluntary or mandatory program with the exception of the federal RFS [95488.8(h)(1)(A)]

This language inserts additional ambiguity for project developers due to the nuances of REC issuance, making it unclear whether certain issuance structures qualify. Under the proposed language of the provision, it remains unclear whether “are not issued credits or claimed” is equivalent to (i) “are neither issued credits nor claimed” or (ii) “either are not issued credits or are not claimed.” That is, it is unclear whether both criteria must be met or either criteria alone is sufficient. In the former interpretation, a credit issued but not claimed (as described below). would be ineligible, despite no double-counting occurring—slowing the deployment of renewable fuel production and invalidating currently-eligible projects.

Under the structures of certain renewable energy and renewable fuel projects, a credit may be issued but not claimed, used, or sold except by the load associated with the renewable generation and claimed for the sole purpose of reducing emissions under the LCFS program. The issuance and separate use of the credit is useful in scenarios where separate, affiliated entities may be generating and consuming the electricity and the issue and sale of the REC is useful for accounting purposes between affiliates. In this scenario, the credit is not used to account for emissions reductions under other programs and thus would not represent double-counting when claimed under the LCFS. This scenario is likely to arise for renewable energy assets that provide some energy to low-CI fuel producers and some energy to the grid.

It is therefore critical that Section 95488.8(h)(1)(A) accounts for electricity where a credit is issued but not claimed under any other program. Reverting the language or making an amendment such as the following (bold and underlined) would maintain the integrity of the regulation without inadvertently restricting renewable energy production used and claimed solely for low-CI fuel production:

Any renewable energy certificates or other environmental attributes associated with the energy either are not issued credits or are not claimed under any other voluntary or mandatory program with the exception of the federal RFS.” (45d-250.1)

Agency Response: No change was made in response to this comment. The amended text as written most clearly supports the goal to ensure low-CI electricity supplied as a transportation fuel in California under the LCFS isn’t claimed for another end-use in another voluntary or mandatory program. The amendment text as proposed is consistent with the commenter’s suggested second interpretation option (“either are not issued credits or are not claimed”), but the proposed clarification additions are unnecessary.

Comment: The supply of RECs eligible for demonstrating low-carbon intensity (low-CI) electricity generation for incremental book-and-claim crediting under the LCFS program is limited relative to other state clean fuel standard programs in the WECC due to ARB’s deliverability restrictions on low-CI electricity.

This supply limitation jeopardizes the economic viability of incremental credit generation, particularly at a moment when LCFS prices are historically low and there is no alternate crediting pathway or base credit value available for OEMs.

Recommendations:

Amend the deliverability requirement such that low-CI electricity from generating units registered in WREGIS and located in any state in the WECC may be used for incremental crediting, even if such low-CI electricity is not scheduled into a California balancing authority. (45d-256.23)

Comment: Align Low-CI Electricity Requirements with Other Clean Fuels Programs

CARB should make renewable energy certificates (“RECs”) supplied by generation assets in the entire Western Electricity Coordinating Council (WECC) footprint, and not just directly transmitted into the state, eligible to meet the requirements for low-CI electricity pathways. Broadening REC generation eligibility would incentivize the buildout of renewables where they can have a greater avoided emissions impact and harmonize with the rules governing similar pathways in the Oregon and Washington clean fuels regulations. Increasing the REC supply would also protect against the potentially unintended upward cost pressure we have already seen from limiting eligibility to only resources in-state or directly transmitted into the state. Inflated REC prices, coupled with a depressed LCFS credit price, could undermine participation in the low-CI electricity pathway. We believe a reconsideration of REC eligibility would strike a balance between supporting the development of impactful projects while protecting against the unintended consequences under the existing rules. (45d-228.6)

Comment: 2) Align Deliverability of Low-CI Electricity with other Fuels and other Clean Fuel Standards CARB should level the playing field across pathways for book-and-claim.

Under the existing LCFS regulation, biogas-to-electricity projects participating in the LCFS must physically wheel the power into California, while biomethane projects may be located anywhere in North America and use book-and-claim accounting to demonstrate use for LCFS compliance. The most efficient, cost-effective way to make sure the LCFS program enables the most beneficial projects is to maintain a level playing field for pathways that rely on the same feedstock. A major step towards aligning requirements for projects with the same feedstock (biogas) and unlocking the untapped emissions reductions of biogas-to-electricity supporting transportation electrification, would be to let biogas-to-electricity projects use book-and-claim accounting anywhere in the Western Electricity Coordinating Council (WECC), as is already the case in Oregon under their Clean Fuels Program and in Washington under their Clean Fuel Standard. CARB’s goal of exportability of the LCFS into other jurisdictions, and other jurisdictions are adopting or aligning their respective clean fuel standards with the LCFS, yet CleanFuture encourages CARB to reciprocate and adopt beneficial rules and practices that may originate outside of California. (15d1-243.4)

Agency Response: No change was made in response to this comment. Scheduling low-CI electricity deliverability to the California balancing authority is the requirement under the California Public Utilities Code section 399.16, subdivision (b)(1). To the extent possible, maintaining consistency with other California state agency requirements and policy is desirable.

Comment: Exercise ARB’s authority as a “Program Administrator” under the WREGIS Operating Rules to introduce flexibility specifically for LCFS-eligible RECs into the generating unit registration requirements imposed by WREGIS. (45d-256.24)

Agency Response: No change was made in response to this comment. Staff believes the current arrangement is adequate to handle RECs retirement in the WREGIS account.

L-14 Multiple Comments: *Expand Book-and-Claim Biomethane and Low-CI Electricity to Process Energy Used in Alternative Fuel Production*

Comment: RPMG recommends that the proposed amendments for indirect accounting for low-CI electricity, biomethane and low-CI hydrogen be expanded to allow the use of indirect accounting mechanisms to all pathway types for process energy, e.g. liquid biofuel production. direct connections from renewable or low-CI process energy in order to reduce the CI score. The following is suggested language to § 95488.8 (h) as well as removing the language regarding direct connection § 95488.8 (h)(1)(B).

§ 95488.8. Fuel Pathway Application Requirements Applying to All Classifications.

(1) Low-CI electricity must be supplied from generation equipment under the control of the pathway applicant or subject to a firm power purchase agreement (PPA) from generating equipment within the same balancing authority as the facility.” (45d-092.4)

Comment: .. as written, the current guidance will restrict the use of e-fuels made from low-CI electricity, as these are not included in the current language. Thus the proposal would effectively restrict low-CI electricity from being eligible for attribution unless it was supplied via a direct electricity connection. However, it is likely that as with most green hydrogen production, grid-connected projects will have greater economic competitiveness due to a higher capacity factor. Therefore, to provide more flexibility for e-fuel pathways based on converting green hydrogen into other fuels, we recommend that CARB treat these pathways’ use of low-CI electricity consistent with green hydrogen and direct air capture. This will still maintain crucial safeguards on project vintage, deliverability and double-counting, while providing necessary flexibility for these projects to use renewable electricity supplied via the grid.

Comment: Indirect accounting for low carbon intensity hydrogen production through purchase power agreements (PPAs) should be extended to the production of all low- to zero-carbon biofuels.

In the interest of both technology neutrality and maximizing renewable electricity production and carbon emission reductions, the use of PPAs for book-and-claim accounting should be extended beyond just hydrogen. RFA supports the concepts for PPA accounting to ensure new or expanded capacity, delivery to local balancing authorities and quarterly matching. Extending these concepts to biofuel producers supports further increases in renewable electricity production and further decreases in the carbon intensity of liquid biofuels.

RFA reiterates its support in prior comments for book-and-claim accounting to also be extended to the use of biogas delivered to a pipeline for displacing fossil natural gas in the production of liquid biofuels. This could be subject to the same additionality, deliverability and balancing measures being proposed under the PPA construct.

The LCFS and Scoping Plan have an overarching objective to maximize carbon reductions as quickly as possible to achieve carbon neutrality no later than 2045. Appropriately and consistently extending indirect accounting for both renewable electricity and biogas for liquid biofuel production is a valuable and necessary tool in achieving the state's aggressive climate targets.

The carbon intensity of ethanol is falling faster than any other low carbon fuel supplied to California and RFA ethanol producers have committed to zero carbon ethanol production before 2050. While RFA supports the LCFS, the current proposed amendments to the LCFS program are falling short of maximizing technologically feasible and cost-effective greenhouse gas emission reductions that are possible when utilizing higher blends of ethanol and indirect accounting for renewable process energy incorporation in ethanol production. (45d-171.4)

Comment: We appreciate the extension of low-CI electricity book-and-claim to include process energy demand for the full hydrogen fuel value chain but believe the eligibility for all transportation in the current regulation should be maintained and the resource shuffling and time-matching requirements should apply equally to both hydrogen and electricity. (45d-214.4)

Comment: Some of the proposed revisions to the book-and-claim accounting provisions for low carbon intensity (low-CI) electricity used for hydrogen production are unexplained, unwarranted, and short-sighted; (45d-215.2)

Comment: For unexplained reasons, CARB is seeking to eliminate book-and-claim accounting for low-CI electricity when the electricity is used to make hydrogen that is then used in the manufacture of another transportation fuel (e.g., PtL SAF). (45d-215.10)

Comment: Most importantly, CARB through this rulemaking should put in place regulatory provisions to foster the production and uptake of ultra-low carbon Power-to-Liquid Sustainable Aviation Fuel (PtL SAF) and other PtL fuels; (45d-215.3)

Comment: In our July 3, 2023, comment letter on potential changes to the LCFS Program, we recommended that CARB expand the indirect accounting rules for low-CI electricity under section 95488.8(i) by enabling book-and-claim accounting for low-CI electricity when it is used as a feedstock for the production of PtL transportation fuels. CARB appears not to have considered Twelve's proposal. (45d-215.11)

Comment: We believe that allowing the book-and-claim of RNG to SAF/RD will not only accelerate reaching these targets, but it will also help to reach the roughly 800 million gallons of SAF required to meet Governor Newsom's 20% clean fuels adoption target, 1.5 billion gallons in 2030 to meet the AB 1322 (Rivas) goal, and 3.2 billion gallons by 2045 to meet the 2022 Scoping Plan target. (45d-240.13)

Comment:

CARB Should Allow Biofuel Producers to Access Crediting for Low-CI Power.

The Proposal also fails to recognize the carbon-reduction potential in crediting low-CI power sourcing in the production of biofuels, reserving this crediting mechanism solely for hydrogen used as a transportation fuel. This narrow provision provides no satisfactory justification, instead citing faulty arguments about resource shuffling and restricting low-CI power for other

sources if the provision is expanded. Firstly, the Proposal fails the LCFS' fundamental policy goal of reducing carbon intensity in transportation fuels used in California. Allowing bioethanol producers to source new contracted low-CI power that is not included in a utility resource plan via a power purchase agreement does not impact electricity demand. Secondly, biofuels production occurs largely outside of California, in other electricity markets. Not only does this render the resource shuffling argument moot, but it also denies California the opportunity to lead other jurisdictions towards low-CI power capability. (45d-243.12, Apr-096.4)

Comment: World Energy appreciates the introduction of power sourcing flexibility as proposed under the draft regulation in §95488.8(i)(1). This is important for facilities like our Paramount plant, which is in a dense urban area. Our plant's location will require us to site more remote new renewable energy projects, like the Mojave Desert, which will be within the same balancing authority but may not have a direct, dedicated connection.

We believe in further reducing the CI of the fuels we produce at our plants but look to CARB for an investment signal in the value of this lower carbon electricity. To this end, there are key restrictions within the proposal that may not serve to advance the market.

Specifically, the proposal under §95488.8(i)(1)(C) should be broadened to apply to other renewable fuel / project types, including SAF. This will provide incentives for World Energy and other producers to further lower the CI of the electricity used to produce our renewable fuels, beyond what is available from the grid. We urge CARB to consider that biorefinery locations will frequently be near other industrial and distribution infrastructure, whereas new renewable energy generation will necessarily be sited in more remote areas of the state. Writing the regulation with respect to these land use realities will help World Energy and future renewable fuel production within the state's boundaries. (45d-300.6)

Comment: That the small amount of power used for processing includes energy used for pumps, compressors and electronic control systems, etc. We recommend that CARB allows the use of grid power with book and claim of RECs for process power used to make hydrogen. These loads do not require large grid drawdown and only use for plant controls, pumps and processing and should not receive any different treatment than power used for electrolysis, especially for projects located in California. (45d-319.4)

Comment Summary: Power to liquid pathways have significant potential to deliver low-carbon hydrocarbon fuels and decarbonize the on-road and aviation sectors. The proposed amendment to exclude book-and-claim of low-CI electricity for hydrogen used in producing hydrocarbon fuels is against the decarbonization policy for the aviation sector. (45d-342.1, 45d-345.2)

Comment: § 95488.8 (i)(1)(A)-(B). The proposed LCFS regulatory revisions that CARB released on December 22, 2023, would narrow the power-sourcing landscape for Power-to-Liquid (PtL) producers. We urge CARB to retain and expand the language which prescribes low-carbon intensity electricity (Low-CI electricity) can be sourced. Therefore, AFCC and its member companies propose the following:

(i) add to the LCFS regulation a definition of the term "power-to-liquid fuel," with the term defined to mean transportation fuel that is produced from captured carbon dioxide, water, and low-carbon intensity (low-CI) electricity; and (ii) make low-CI electricity used in the production

of such fuel, including power-to-liquid sustainable aviation fuel (PtL SAF), eligible for book-and-claim accounting. Indirect accounting mechanisms are warranted for the production of PtL SAF and other PtL fuels, and perhaps more importantly, would promote the scale-up of the PtL fuels industry. PtL SAF in particular has the potential to make a significant contribution to the decarbonization of California's aviation sector. (45d-360.9)

Comment: Support for expanded Indirect Accounting Mechanisms for liquid fuel production.

At the moment, the accounting means for book and claim Low-CI electricity provided for in the regulation apply only to the production of hydrogen as a fuel. As clean electricity can meaningfully reduce the CI of liquid fuels, these accounting methods should be extended to the production of liquid fuels.

All credit generation pathways should be able to use hourly time matched Low-CI book and claim accounting, with strong deliverability requirements, to support electrification and lower the carbon intensity of California fuels. (45d-378.3)

Comment: CARB Should Recognize Off-Site Renewable Energy Production for Bioethanol Plants. California LCFS regulations prohibit the use of indirect accounting mechanisms to demonstrate production of fuel using low-CI process energy.

Although CARB's Proposed Amendments contemplate wholesale power contracting as part of a narrow set of fuel pathways (certain hydrogen pathways and direct air capture projects), these revisions do not extend to a fuller range of low carbon fuels like bioethanol. POET believes this is a missed opportunity, and we urge CARB to consider the revisions proposed by the Low-CI Power Coalition, which would broadly incentivize the production of low-CI electricity. POET is a signatory to a separate comment letter submitted today by the Low-CI Power Coalition, and we refer CARB to the discussion presented. (45d-369.6)

Comment: Support for expanded Indirect Accounting Mechanisms for liquid fuel production.

At the moment, the accounting means for book and claim Low-CI electricity provided for in the regulation apply only to the production of hydrogen as a fuel. As clean electricity can meaningfully reduce the CI of liquid fuels, these accounting methods should be extended to the production of liquid fuels.

All credit generation pathways should be able to use hourly time matched Low-CI book and claim accounting, with strong deliverability requirements, to support electrification and lower the carbon intensity of California fuels. (45d-378.3)

Comment: We also urge a reconsideration of the LCFS provisions regarding low-carbon intensity (CI) power sourcing. Currently limited to hydrogen production, this oversight neglects the substantial CI reduction opportunities available through biofuel production. Allowing bioethanol producers to engage in new low-CI power contracts could significantly advance California's leadership in sustainable energy utilization. (Apr-033.5)

Comment: With the right regulatory signals, and more specifically with CARB allowing producers to use indirect accounting mechanisms (e.g., Renewable Energy Certificates) to account for the low-CI electricity that is integral to the PtL fuel production process, PtL SAF

could make a significant contribution to the decarbonization of California's aviation sector. Absent this flexibility, though, Twelve's E-Jet (and the PtL SAF that other companies plan to produce) probably will not find its way to California for uplift in the state. This would be regrettable, particularly in view of California's well-earned reputation as the leading jurisdiction in the U.S. (and globally) on low carbon fuels policy. (Apr-074.1)

Comment: The requirement for physical delivery of biogas or biomethane, i.e., RNG, to a production facility proposed in section 95488.8(i)(2)(C)(2) would add significant cost burden and environmental impact as truck transport of RNG apparently would be required to decarbonize thermal energy. In addition to unduly burdening RNG suppliers like Gevo, it would be counterproductive to the State's emissions reduction goals. To avoid these results, we encourage CARB to allow for biogas or biomethane to be supplied as process energy using the book-and-claim provisions under the regulation. This would bring the CA-LCFS into alignment with the recent changes in the Renewable Fuel Standard (RFS) Biogas Regulatory Reform – which now allows for biogas to be delivered via commercial natural gas pipelines and used to decarbonize thermal demands. Such an approach encourages future GHG emitting projects to be leveraged at production facilities to lower fuels' carbon intensities and expands the understanding that natural gas in pipeline systems is fungible. (Apr-078.6)

Comment: CARB should be looking for ways to establish crediting mechanisms, such as by removing the limit on book-and-claim treatment for biomethane used for process energy in refineries and crude production facilities. (Apr-094.24)

Comment: Enabling additional fuel pathways, such as biogas-to-electricity and process energy for any fuel pathway, (Apr-101.17)

Comment: Due to this direct experience, Fulcrum is encouraged by the federal 40B SAF guidance that the SAF Interagency Working Group developed. The 40B structure relies heavily on CARB's existing LCFS book-and-claim structure for electricity used as a transportation fuel and for the production of electrolytic hydrogen including hydrogen used to produce a transportation fuel. This existing LCFS regulatory structure coupled with the additional guardrail imposed by DOE presents a superb opportunity for CARB to establish a similar and consistent policy structure available to SAF Producers like Fulcrum. (Apr-173.1)

Comment: Under the current LCFS regulation, there is no viable option for Fulcrum to choose to source zero carbon intensity power, even if Fulcrum is willing to pay a premium for that power and seeks to secure that zero-CI power consistent with Fulcrum's mission: To produce renewable, drop-in aviation fuel at scale from an abundant and low-cost source that doesn't need to be grown or pulled from a well: household garbage.

By aligning SAF book-and-claim within the LCFS with the guidelines developed by the U.S. Department of Energy ("DOE") for section 40B, CARB would grant Fulcrum the ability to source zero carbon intensity power that would be recognized for LCFS CI pathway determination purposes thereby lowering Fulcrum's CI score by 36.72 points to -21.94 gCO₂e/MJ. This change would not just enable Fulcrum to better fulfill its environmental mission but also allow Fulcrum to provide a better return on investment to its investors which would unlock additional investments and facilities. (Apr-173.2)

Comment: Thus, like hydrogen, SAF and direct air capture, there are sound policy reasons to provide eFuels access to Low-CI Power through proven LCFS indirect accounting methods coupled with a new additionality component that is a refinement to the 3-year rule in the Proposed Regulation.

In the last major LCFS rulemaking, CARB recognized the vital importance of enabling Low-CI power sourcing to electrify transportation and established a policy structure that enabled two categories of LCFS credit generators to choose Low-CI electricity over grid mix power. Specifically, CARB authorized the sourcing of Low-CI power for electric vehicle usage and electrolytic hydrogen production via the use of Renewable Energy Certificates (“RECs”).¹³

By establishing an LCA methodology within the LCFS regulation for SAF and eFuels that is consistent with the 40B LCA methodology, CARB will facilitate greater development of these vitally important new fuels for the hard to abate aviation sector as well as for legacy internal combustion engines. Through this regulatory strategy, CARB will also achieve upstream emission reductions and stimulate expansion of Low-CI power generation capacity, storage and transmission.

Due to the importance of Low-CI Electricity to the production of eFuels, and the importance of eFuels to meeting both California’s 2045 carbon neutrality goal and California’s specific goals to displace fossil jet fuel with SAF, we respectfully recommend that CARB modify the proposed LCFS amendments such that eFuel production facilities are authorized to procure Low-CI power for electrolytic hydrogen production and their other energy needs via book-and-claim accounting. (Apr-175.6)

Comment Summary: Fulcrum urges CARB to consider book-and-claim of low-CI electricity used in alternative jet fuel production and provides a regulatory language. (Apr-173.4)

Comment: “We focus this comment on the issue of indirect accounting and how its integration into the LCFS program for ethanol could benefit California in a time of heavy federal spending.

The value of indirect accounting to ethanol is best illustrated by examining the potential carbon intensity reduction that would be available to an ethanol facility that could utilize zero-CI electricity to power a thermal battery.

The use of zero CI power to charge a thermal battery that would provide power and heat to the facility would zero out both the electricity and natural gas CI components and as a result drop the CI score of ethanol delivered from the facility to California to 43.95, a 36% drop in CI score. (Apr-177.1)

Comment: Book-and-Claim Accounting for Process Energy Used to Produce Hydrogen

When hydrogen is produced, its carbon intensity is a product of emissions associated with both the feedstock (which may be gas, if the hydrogen is produced with steam methane reformation, or electricity, if it is produced by electrolysis) and “process energy.” Process energy is the energy that is used to compress, liquefy, and distribute the fuel. The LCFS currently does not allow the use of book-and-claim accounting to reduce the CI of process energy.

CARB's proposed amendments to the LCFS published in the 45-day notice in December 2023 would have allowed the use of book-and-claim accounting for process energy used in the production of hydrogen.[2]

The 15-Day Notice, however, limits the use of book-and-claim accounting to electrolytic hydrogen. (For electrolytic hydrogen, most of the process energy is used to liquefy the hydrogen.)

CARB has never provided a meritorious rationale for limiting the application of book-and-claim accounting under the LCFS. Book-and-claim accounting is efficient, because it allows fuel producers to use renewable feedstocks and energy wherever they may be found to produce the lowest possible carbon-intensity fuels.

With the use of book-and-claim accounting, a fuel producer can obtain renewable power and feedstocks in a single location, without having to build the infrastructure to transport solar, wind or hydroelectric power, or biomethane, to the production facility. The benefits of broad application of book-and-claim accounting would be enormous, and the risks, if any, would be insignificant. CARB has never published any information suggesting that book-and-claim accounting has been or would be abused if it were more widely available. The LCFS's requirements for third-party verification, which are already applied to book-and-claim accounting, assure that any abuse would be rare, and that it would be detected. CARB should, at a minimum, reverse the changes made in the 15-Day Notice to Section 95488.8(i)(1)(C) and allow the use of book-and-claim accounting for process energy used in the production and distribution of hydrogen. Air Liquide also supports the use of book-and-claim accounting more widely, for all fuels, consistent with Air Liquide's belief that the LCFS should provide a level playing field and create a fair marketplace for all fuels.

Recommendation: Allow the use of book-and-claim accounting for process energy for all LCFS pathway evaluations regardless of the hydrogen production methods or energy sources. This would include electricity used in compression, refrigeration, liquefaction, storage, and distribution and all other energy sources used for process heat and distribution. (15d1-081.5)

Comment: Expand Access to Low-CI Power Sourcing for Biofuels Producers With respect to Low-CI power sourcing, the proposal fails to recognize its carbon-reduction potential in biofuels production. The proposal currently only allows this mechanism for hydrogen as a transportation fuel, Direct Air Capture projects, and electricity as a transportation fuel. Firstly, this fails the LCFS' fundamental policy goal of carbon intensity reduction in transportation fuels used in California. Allowing bioethanol producers to source new contracted low-CI power that is not included in a utility resource plan via a power purchase agreement does not impact electricity demand.

Secondly, biofuels production occurs largely in electricity markets outside of California. This renders the argument against expanding low-CI power sourcing due to purported resource shuffling moot. Additionally, by not expanding this provision to biofuels, it denies the state the opportunity to lead other jurisdictions towards increasing their low-CI power generation capability.

Finally, similar to other proposed provisions in the amendments, limiting the approved use of indirect accounting for Low-CI power sourcing to a handful of fuels and processes violates the LCFS' commitment to technology neutrality. (15d1-139.8)

Comment: The specific changes that we are commenting upon are the changes made to proposed §95488.8(i)(1) pertaining to “Book-and-Claim Accounting for Low-CI Electricity Supplied as a Transportation Fuel, Direct Air Capture projects, or Used to Produce Hydrogen as a transportation fuel.” These 15-Day Changes modify the fuels that are eligible to use Book-and-Claim Accounting and modify the requirements for Book-and-Claim Accounting. We disagree with these modifications because the proposed LCFS regulations do not authorize Power-to-Liquid (“PtL”) fuels to use Book-and-Claim Accounting despite the vital importance of PtL fuels to transportation decarbonization. (15d1-146.1)

Comment:...we respectfully request that CARB continue to authorize facilities that produce PtL fuels to source low-carbon intensity electricity (“Low-CI Electricity”) via Book-and-Claim Accounting. PtL fuels, also known as eFuels or synthetic fuels, are drop-in replacement fuels for use in airplanes, ships and motor vehicles that do not trigger the costs or delays inherent to engine or infrastructure changes.

CARB's proposed LCFS regulatory amendments are highly damaging to the nascent PtL industry in that the proposed regulatory structure would require that PtL fuel production facilities source grid mix power both for hydrogen and for their other energy needs. This structure would inhibit the growth of PtL fuels and the expansion of new sources of renewable power. One of the key benefits of PtL fuels is their deep reduction in carbon intensity (over 90%) compared to fossil fuel incumbents. The deep CI reduction hinges on reliance on carbon-free electricity. CARB's LCFS regulations, if they fail to allow Book-and-Claim mechanisms for PtL fuel producers' electricity procurement, will undercut the tremendous potential of PtL fuels to contribute to the decarbonization of internal combustion vehicles (“ICVs”) and, importantly, the aviation sector. Indeed, the proposed LCFS regulatory change impedes fulfillment of the goals of CARB's 2022 Scoping Plan to dramatically decarbonize transport and power and reduces the likelihood that California will achieve its goal to displace 80% of its fossil jet fuel supply with sustainable aviation fuel (“SAF”). It also makes it very challenging to achieve the on-road and jet fuel CI reduction target of 90% by 2045 that CARB has proposed. (15d1-146.3)

Comment: PtL fuels have the potential to provide ultra-low carbon fuel alternative to petroleum derived transportation fuels and to scale rapidly - but only to the extent that PtL producers continue to be allowed to source Low-CI Electricity. Now is the time to enable not disadvantage PtL fuel producers within the LCFS program structure, particularly given the fact that the industry is beginning to commercialize in response to the market signal that the existing LCFS regulatory structure sent to the nascent industry.

PtL fuel producers do not use biomass feedstocks for production but instead utilize carbon dioxide (CO₂) that would otherwise be emitted as waste and water as their only feedstocks to produce PtL fuels. To convert water to hydrogen via electrolysis, PtL fuel production facilities require a substantial amount of power, which needs to come from carbon-free sources in order for the resulting fuels to achieve deep CI reductions. Due to this electricity demand, the proposed regulatory changes would dramatically increase the CI of PtL fuels (i.e., to a level at or above the petroleum baseline CI value) and perpetuate the use of fossil jet fuel and other

petroleum-based fuels in the broader transportation sector. This will effectively stunt the innovative PtL industry, the importance of which has already been recognized in the road, aviation and maritime sectors and in other jurisdictions such as the European Union and the United Kingdom. (15d1-146.4b)

Comment: Due to the vital importance of Low-CI Electricity to the production of PtL fuels, and the importance of PtL fuels to meeting both California's 2045 carbon neutrality goal and California's specific goals to displace fossil jet fuel with SAF, we respectfully recommend that CARB modify the proposed LCFS amendments such that PtL fuel production facilities are authorized to procure Low-CI Electricity for electrolytic hydrogen production and their other energy needs via Book-and-Claim Accounting. (15d1-146.5)

Comment: Electric Hydrogen recommends that CARB make the following two amendments to ensure that the LCFS is fully optimized to drive green hydrogen production, displace fossil fuels, and deliver air quality benefits:

- Amendment 1: Allow book-and-claim delivery of low-CI electricity for electrolytic hydrogen production used as a feedstock in transportation fuel.
- Amendment 2: Allow book-and-claim delivery of low-CI hydrogen in dedicated hydrogen pipelines outside of California. (15d1-173.2)

Comment: In summary, Electric Hydrogen is appreciative of CARB's near-term increase in stringency for the LCFS but believes it must better support the development of a robust electrolytic hydrogen market. Amending the book-and-claim pathways as outlined will help California become a leader in the green hydrogen economy by supporting clean technology innovation, encouraging the transition away from natural gas, and improving local air quality for front-line communities. In this way, the LCFS would help support the statewide clean hydrogen hub and underpin the state's broader climate and air quality goals. (15d1-173.5b)

Comment: Changes made to the regulation and not adjusted in the 15-day package include the exclusion of the use of RECs for hydrogen production to make fuel in:

§ 95488.8. Fuel Pathway Application Requirements Applying to All Classifications.

(i) Indirect Accounting for Low-CI Electricity, Biomethane, and Low-CI Hydrogen.

(1) Book-and-Claim Accounting for Low-CI Electricity Supplied as a Transportation Fuel, Direct Air Capture projects, or Used to Produce Hydrogen as a transportation fuel. (15d1-180.3)

Comment: Reporting entities may use indirect accounting mechanisms for low-CI electricity supplied as a transportation fuel, for hydrogen production and processing for hydrogen used as a transportation fuel, or for direct air capture projects, provided the conditions set forth below are met:

This language limits the use of hydrogen only for transportation and excludes its use in fuel production including hydrogen boost for syngas to SAF, HEFA hydrotreated, and other hydrotreating processes. This is a change from the current regulation and warrants some reconsideration as the use of low CI hydrogen is an essential component of many fuel strategies and allowed in policies such as CORSIA. The exclusion of hydrogen to produce fuel

was not addressed robustly in workshops. So; allow us to identify some of the pros and cons of limiting the use of RECs for the production of hydrogen by electrolysis. (15d1-180.4)

Comment: First, CARB's focus is on the promotion of zero emission hydrogen vehicles and the use of low CI hydrogen in other applications would appear to be misdirecting the hydrogen for the production of liquid fuels. However, the limitation on hydrogen fuel cell vehicles lies in the fueling infrastructure and availability of vehicles and new electrolysis capacity would be built as part of new fuel production facilities including e-fuels and biomass waste to SAF. Therefore, hydrogen produced from new electrolysis facilities for e-fuels would not necessarily be available for transportation applications in California. (15d1-180.5)

Comment: Secondly, ARB might be concerned about stacking of incentives electrolysis from hydrogen that complies with the three pillars of. Renewable production would receive a \$3 per kilogram incentive under section 45v of the inflation reduction act. The additional LCFS credit would correspond to another \$0.65 per kilogram at credit prices of \$50 per tonne. This incentive would accrue to the renewable diesel producer but would be tied to the generation of RECs. Note that the development of renewable hydrogen projects is very challenging and complying with the three pillars will require new ways of tracking renewables and much of the incentive may be passed on to the consumer due to competition if stacking of incentives results in over crediting. (15d1-180.6)

Comment: Finally, ARB may have been concerned about the leveraging of RNG to CNG to hydrogen via electrolysis with the CI becoming more and more negative with every loss in the system. This effectively becomes a form of gearing which ARB has addressed by placing a 50% efficiency limit on biogas to power projects. Many SAF projects are targeting the use of renewable electricity for SAF based on solar and wind. The key point is that the availability of renewable power and renewable hydrogen do not drive the transport market, the availability of vehicle and fueling/ charging infrastructure are the limiting factors. (15d1-180.7)

Comment: More to the point, to our dismay, CARB has not included in the 15-Day Changes proposed language that would allow fuel producers like Twelve to use indirect accounting mechanisms (e.g., Renewable Energy Certificates) to account for the low-CI electricity that is crucial to the PtL fuel production process. (15d1-253.2)

Comment: What is more, while CARB has seen fit in the 15-Day materials to undo some aspects of what it had initially proposed in the 45-Day package, it has not seen fit to reverse course and at least retain the language in section 95488.8(i) that enables fuel producers to use book-and-claim accounting for low-CI electricity when the electricity is used to make hydrogen that is then used in the production of another transportation fuel (e.g., PtL SAF).

These omissions from the 15-Day package make it quite clear that Twelve or any other PtL fuel producer keen on participating in the LCFS Program effectively has no choice but to co-locate its PtL fuel production facilities with, or otherwise ensure the facilities have a direct, behind-the-meter connection to, a renewable power source, an arrangement that is often impractical and infeasible (and in the case of hydropower, difficult or physically impossible to accomplish). As we have conveyed to our potential customers and others, the upshot of this almost certainly will be no E-Jet (or any other company's PtL SAF) flowing into California for uplift at airports there.

In short, if the 15-Day Changes (along with the initial 45-Day amendments) are finalized as proposed, PtL SAF technically would be encompassed within the Program's AJF definition, but fuel producers' inability to procure low-CI electricity via indirect accounting mechanisms would effectively mean the exclusion of PtL SAF (and other PtL transportation fuels) from the LCFS Program. This result would be in contradiction to CARB's assertion in its Initial Statement of Reasons that "the proposed amendments, and the LCFS more broadly, are structured to encourage . . . investment in . . . carbon capture [and] utilization . . . approaches."¹⁷ Rather than providing encouragement for the production and in-state use of PtL SAF (and other PtL transportation fuels, all of which constitute a prime example of carbon capture and utilization¹⁸), CARB would be hampering it. (15d1-253.3)

Comment: Twelve urges CARB to heed this advice and simultaneously make the proposed AJF definitional modification a meaningful one by incorporating into the LCFS amendments package language that would enable book-and-claim accounting for the low-CI electricity that is integral to the production of PtL SAF (and other PtL transportation fuels). With the first barrels of E-Jet slated to be produced at our Moses Lake AirPlant by this time next year, and with other companies moving forward with their own PtL SAF production facilities, now is the time, not several years down the road, for CARB to put in place regulatory provisions that will foster the production and in-state uplift of this innovative, ultra-low carbon intensity jet fuel. By virtue of its deep lifecycle GHG emissions reductions, PtL SAF is well positioned to contribute significantly to the decarbonization of California's aviation sector and the overarching state goal, enshrined in the California Climate Crisis Act, of achieving an 85 percent reduction in anthropogenic GHG emissions (below 1990 levels) by 2045.¹⁹ We respectfully request that CARB recognize this in the LCFS Program. (15d1-253.4)

Comment: Renew Kansas Biofuels Association urges CARB to consider book and claim of low-CI electricity used in biofuel production. The proposal fails to recognize the GHG reduction potential of low-CI electricity by not accommodating low-CI electricity as process energy under the book and claim provision. The Association recommends that biofuels producers be allowed to purchase RECs to replace grid electricity and RECs should not be limited to new renewable sources. The Association opines that since most biofuel producers are located outside of California, this renders the reshuffling argument moot. The staff proposal would be an impediment to other jurisdictions' ability to increase low-CI electricity production. (Apr-035.10)

Comment: With respect to Low-CI power sourcing, the proposal fails to recognize its carbon-reduction potential in biofuels production. The proposal currently only allows this mechanism for hydrogen as a transportation fuel, Direct Air Capture projects, and electricity as a transportation fuel. Firstly, this fails the LCFS' fundamental policy goal of carbon intensity reduction in transportation fuels used in California. Allowing bioethanol producers to source new contracted low-CI power that is not included in a utility resource plan via a power purchase agreement does not impact electricity demand. (15d2-244.11)

Comment: Secondly, biofuels production occurs largely in electricity markets outside of California. This renders the argument against expanding low-CI power sourcing due to purported resource shuffling moot. Additionally, by not expanding this provision to biofuels, it denies the state the opportunity to lead other jurisdictions towards increasing their low-CI power generation capability. (15d2-244.12)

Comment: Finally, similar to other proposed provisions in the amendments, limiting the approved use of indirect accounting for Low-CI power sourcing to a handful of fuels and processes violates the LCFS' commitment to technology neutrality. (15d2-244.13)

Comment: The Second 15-Notice still does not address HIF USA's and other commenters' concerns that the proposed changes to the regulatory text in 17 C.C.R. § 95488.8(i)(1)(A) appear to eliminate book-and-claim accounting for low-CI electricity used to produce electrolytic hydrogen as an input for eFuels. As commenters noted during the April 10, 2024 workshop,⁴ and as HIF USA has explained in its previous submittals, CARB's proposed changes to this provision, if finalized, would negatively impact the commercial availability of low-CI eFuels in the California transportation fuel market.

CARB has not explained in this rulemaking process the rationale for the proposed change, other than brief comments at the April 10 workshop, in which a CARB representative indicated that the change may reflect CARB's interest in prioritizing the production of hydrogen as a primary transportation fuel rather than as a process input. HIF USA does not believe that elimination of the current book-and-claim allowance for hydrogen produced by electrolysis for transportation purposes is necessary to incentivize the production and use of hydrogen as a transportation fuel—as these two uses of hydrogen are complimentary and not mutually exclusive. In any event, because CARB proposes a significant change to the current regulations, it is obligated to provide a rationale and address the comments provided on this issue.

In sum, we urge CARB to refrain from finalizing any changes to 17 C.C.R. § 95488.8(i)(1)(A) that would preclude the continued use of book-and-claim accounting for low-CI electricity used for hydrogen production through electrolysis as a process step for eFuels. We reiterate our request that CARB review and consider our submittal on this topic in response to the 45-day proposed rule. (15d2-282.2)

Agency Response: No further change was made in response to these comments. Note that CARB had earlier proposed to include book-and-claim of low-CI electricity supplied as process energy in hydrogen production and processes such as liquefaction and dispensing in the proposed 45-day regulation order. Because the transition to ZEVs in the transportation sector is the cornerstone of California climate policy, and transition will include an increase in both battery-electric vehicle (BEV) deployment and hydrogen fuel-cell electric vehicle deployment (FCEV), allowing book and claim of low-CI electricity used as process energy in hydrogen processing and dispensing including liquefaction aligns with this goal.

There are a number of reasons for not expanding book-and-claim of biomethane and low-CI electricity for process energy beyond hydrogen production and processing.

- There are several other policies and programs such as renewable portfolio standards that support lower-CI stationary electricity generation.
- The limited supply of low-CI electricity needs to be prioritized for direct BEV transportation fueling and low-CI hydrogen production to support providing affordable and reliable ZEV fueling options.

- For biofuel production facilities, if indirect accounting of biomethane were allowed for renewable or low-CI process energy, the additional tracking, monitoring, and verifying needed under indirect accounting of biomethane attributes would strain limited staff resources to carry out proper fuel pathway evaluations and likely greatly increase costs for more comprehensive third-party verification and complexity of these pathways.
- The existing regulation already includes a more focused provision that allows book-and-claim biomethane for hydrogen production, when that hydrogen is used in the production of transportation fuel, which can help transition biomethane into other fuel production and increase the supply/availability of low-CI hydrogen in the future.
- The GHG benefits of allowing indirect accounting for renewable or low-CI process electricity are expected to be relatively small in general as most alternative fuel production does not rely extensively on electricity consumption (with some exceptions, such as electrolytic hydrogen and e-fuels), and introduction of indirect accounting of low-CI electricity for biofuel production would also increase the complexity of these pathways, increase the staff resources to carry out fuel pathway evaluations for these pathways, and increase the tracking, monitoring, and verification costs of these pathways.

See response L-10 for electrolytic hydrogen used as feedstock to produce fuels regarding e-fuels.

Regarding the comment on biogas to electricity pathways, see response L-7. Regarding the comment about allowing the use of book-and-claim of low-CI electricity to hydrogen used as feedstocks to hydrocarbon fuels, see response L-10. Regarding the comment on book-and-claim of low-CI hydrogen injected into out-of-state hydrogen pipelines, see response L-4.

L-15 Multiple Comments: *Clarification on Requirements for Book-and-Claim of Biomethane for Moving RNG to Electricity*

Comment: Clarify that book-and-claim accounting can be used to support LCFS credit generation when RNG is used to generate electricity utilized for hydrogen production and direct air capture projects; (Apr-181.6)

Comment: Book-and-Claim Accounting and Crediting Opportunities for Low-Carbon Electricity and Hydrogen Production and Direct Air Capture (“DAC”)

CRC also requests that CARB clarify the book-and-claim accounting provisions in the Proposed Rules to allow for LCFS credit generation when low-CI electricity produced from RNG is then used to support DAC or hydrogen production. As an operator, we would like the ability to receive credits for any quantities of low-CI electricity produced onsite using RNGs, but we anticipate these initial projects to be small in scale. As a result, our low carbon operations would benefit from the ability to directly offset purchased quantities of RNG used onsite with the corresponding electricity generation credits. If CARB believes that the Proposed Rules already allow for such a crediting scheme, we request CARB issue a statement confirming that this is a valid approach. (Apr-181.19)

Agency Response: In the 45-day proposal, staff did not offer an option for book-and-claim of biomethane for off-site electricity generation. Based on the several comments received on this topic, staff included an option to allow for book-and-claim of biomethane for producing low-CI electricity using a fuel cell, when the low-CI electricity is used as a transportation fuel. The regulation does not allow book-and-claim of biomethane to low-CI electricity used for hydrogen production or for DAC.

L-16 Multiple Comments: *Book-and-Claim of Biomethane as Intermediate Feedstock*

Comment: CARB should expand the exemption to the deliverability requirements beyond hydrogen to include use in fuel production where biomethane is an intermediate feedstock if the finished fuel is physically delivered into California. (Apr-087.5)

Comment: We ask that CARB consider adding explicit language or clarity around the opportunity to apply Book-and-Claim for renewable hydrogen pathways that involve an intermediate step or use of hydrogen carrier-molecules such as renewable DME. This approach is fundamental to rapidly ramping up the use of renewable hydrogen as envisioned by the Scoping Plan and the ARCHES effort. (Apr-087.6)

Agency Response: No change was made in response to these comments. The existing regulation allows for indirect accounting of pipeline-injected biomethane used to produce hydrogen, including hydrogen that is used in the production of a transportation fuel. To the extent that hydrogen carrier-molecules such as renewable DME are ultimately used in the production of a transportation fuel, they may be eligible for indirect accounting under the LCFS regulation provided that all the applicable indirect accounting requirements for biomethane are met.

L-17 *Hourly Matching for Book-and-Claim of Low-CI Electricity Used in DAC and Electrolytic Hydrogen*

Comment: More substantively, while they provide some clear guidance that will help ensure that GHG reductions from electrically-powered projects match those predicted by the project's CI score, they do not align with current best practices in this space. A potentially superior approach was developed in Europe's Delegated Acts on hydrogen, and proposed in draft regulation regarding the U.S. Section 45V tax credits. Known as the "three pillars" approach to sustainable low-carbon electricity, they require low-CI electricity to be additional to existing regulatory requirements, deliverable to the point of demand, and time-matched at hourly time scales to avoid exacerbating grid peaks or indirectly expanding the use of fossil fueled power generation. The proposed language in §95488.8 (i)(1)(C)1. captures deliverability, and §95488.8(i)(1)(C)5. offers a limited approach to additionality requirements, with several specified exceptions. Hourly time matching is, however, excluded. Fully implementing hourly time matching may be beyond the capability of electricity tracking, certification, and accounting systems at present. The EU Delegated Acts offer a delay, until 2030, before the hourly matching provisions are fully enforced. Adopting a similar approach may be advisable in this case. Committing to such an adoption now sends a strong signal to the market to ensure such capabilities are developed, and allows project developers ample time to prepare for the new requirements. Adopting them into the LCFS would align it with best practices from around the globe on this issue and ensure that expanding demand from electrolysis, e-fuel production, or

other electrically-powered GHG reduction measures do not cause fossil fueled power plants to be used more than they otherwise would. (45d-391.53)

Agency Response: No change was made in response to this comment. DAC and electrolytic hydrogen technologies are in the early stage of commercialization and flexibility in sourcing low-CI electricity via book-and-claim is expected to help initial scaling of this nascent technology that will be needed for California to achieve its carbon neutrality requirements. Also see response L-12.

M. EV Charging

M-1 Multiple Comments: *Support EV Charging at Multi-Family Residences*

Comment: PineSpire supports the proposed updates to the classification of multi-family residential charging as commercial in order to align with how these chargers are often financed and deployed, and making these LCFS incentives more widely accessible. (45d-150.9)

Comment: We support amendments to clarify that the owner of EVSE at multi-unit dwellings that is not serving a dedicated or reserved parking space is eligible to generate credits. (45d-197.8)

Comment: SWTCH appreciates the opportunity to comment in support of expanding the non-residential LCFS credit to include multifamily properties, and recommends two modifications to the current proposal below. (15d1-227.1)

Comment: Support: Non-residential LCFS credits for chargers at multifamily properties. SWTCH supports the amendment proposal to categorize shared multifamily residential (“MFR”) charging stations as non-residential for LCFS credits. This change will enable electric vehicle supply equipment (“EVSE”) owners and developers to claim credits. This, in turn, will encourage more multifamily properties to deploy chargers and create new financing opportunities that reduce the cost of charger deployment for property owners. This proposal presents a powerful new tool to offer the convenience of home charging for residents of multifamily housing and address the gap in charger access for these residents compared to Californians living in single family homes. (15d1-227.5)

Agency Response: No change was made in response to these comments. We appreciate your support of the multi-family residence EV charging proposal.

M-2 Request Changes to eTRUs

Comment: Clarification on changes to treatment of eTRUs. We request CARB to provide further clarification on the proposed changes to eTRUs, including:

- a. In Section 95483.2(b)(8)(B)(6), further define the owner of the fuel dispensing equipment (i.e. charger) as the credit generator, particularly in circumstances where the larger facility may be owned or operated by a different entity.
- b. In the same section, please clarify if the ‘equipment’ referred to in the following clause is a reference to the eTRU itself, or the charger: “then it is optional to provide serial number assigned to each equipment by the OEM and the name of the OEM”.

c. Please address the timeline for implementing these changes and intentions on transferring existing register eTRUs to the newly adopted registration guidelines. (15d2-288.5)

Agency Response: No change was made in response to this comment. Staff's proposal to change the default credit generator to the owner of the facility or location where electricity is dispensed is anticipated to eliminate the burden of registering each electric transport refrigeration unit (eTRU) individually and thus further encourage and facilitate participation. Having one entity register each location enables reporting by direct metering, reduces the burden of reporting parties to maintain a detailed list of active eTRUs at a location for regulatory purposes, and allows for more transparent registration and reporting.

The term equipment as used in subsection 95483.2(b)(8)(B)(6) refers to each piece of equipment that is capable of measuring the electricity dispensed at a facility or location. Consistent with past practice, CARB staff may update or otherwise develop compliance support materials to assist reporting entities with identifying equipment serial numbers.

The timeline for a transition to implementing these and all other provisions of the Proposed Amendments will become more clear following determination of an effective date for the amendments. As with past implementation of LCFS amendments, staff will support stakeholders to ensure notice of the effective date and associated transition.

M-3 Multiple Comments: *Support EV Charging at Multi-Family Residences with Modifications to Non-Shared Parking*

Comment: SCP Supports the proposal to classify Multi-family Residences as non-residential EV Charging for purposes of LCFS credit generation. This proposal will provide much-needed revenue to facilitate EV charging in the important customer segment and should be further expanded to apply to all multi-family residences, not just those with shared parking. (45d-257.1)

Comment: Recommend re-classifying all multi-family chargers as non-residential, regardless of parking space designation. (15d1-203.2)

Comment: Specifically, CSG stresses the critical need for EV charging infrastructure owner-operators (EVSPs) to participate in LCFS base credit generation for multi-unit developments (MUDs).

MUDs are an important sub-section of the residential market due to the relative driver-density per square-foot and the socio-economic plurality of its residents. For example, 38.9% of all residential units in California qualify as "attached units," which amounts to over 4,750,000 attached units in total.¹ More so, over 50% of new builds in California are MUDs, with the overwhelming majority of that figure being composed of structures of five units or more. As such, MUDs represent both a substantial portion of largely unaddressed EV demand, as well as a scalable means of reaching California's climate goals, such as the Advanced Clean Cars II (ACC II) rule. Indeed, ACC II is unachievable without incentivizing the MUD-residing portion of the population.

When it comes to a potential EV charging retrofit, oftentimes, the process starts with residents themselves: would-be EV drivers residing at an MUD express desire for on-site charging. In response, an MUD owner will reach out to CSG, or another EVSP, in order to execute an installation. Yet, while there is demand from residents and will from the property owner, a series of logistical and financial challenges quickly emerge that often sink any hopes of the installation of EV charging infrastructure at the MUD. Firstly, most older MUDs have implicit electrical capacity constraints. Increasing capacity alone sometimes requires significant financial investment. Cascading costs usually follow as well. The location of parking spaces is not necessarily close to an electrical room, for example. In turn, structural alterations are often required, driving up costs further. These construction and electric costs obviously precede the actual cost of installation itself. Thus, the financial outlay for an MUD usually ends up being too burdensome to pursue. CSG's experience and analysis indicate that the total cost to install charging infrastructure in an MUD can range from \$5,000 to \$25,000 *per L2 charger*.

In short, MUD residents are not buying EVs because there is no on-site EV charging option at home. Conversely, MUD owners presently lack the financial incentive to take the risk to install EV charging optionality on-site. As such, a substantial portion of California's transportation pool remains unconverted to EVs, resulting in a massive obstacle towards reaching California's climate goals. This supply-demand disparity is another example of the chicken-or-the-egg dilemma that has beleaguered EV adoption overall. However, with groundbreaking programs like LCFS, that dilemma has been minimized in certain sectors of the overall transportation pool. It is CSG's hope that the MUD sector can likewise be incentivized successfully. Therefore, CSG respectfully asks CARB to consider allowing EVSPs / property owners to participate in base credits *and* incremental credits for residences qualifying as MUDs. Materially, these credits would be generated from communal L2 chargers that are accessible to any resident or guest of the MUD. This base credit participation would help balance the financial risk that EVSPs and property owners undertake each time an MUD decides to install EV charging infrastructure. (15d1-015.1)

Comment: ChargePoint fully supports the proposal to allow multi-family housing to be classified as non-residential charging if parking spaces are not dedicated or restricted as this will help catalyze more investment in multifamily charging. However, we recommend that parking spaces that are dedicated/restricted also be categorized as non-residential charging, which would allow the station owner to claim credits from these stations as well. We see two issues with continuing to treat dedicated/restricted parking spaces as residential:

1)Determining whether parking spaces are dedicated/restricted poses immense tracking challenges.

Parking spaces may not have static dedicated/restricted classifications. Property owners could conceivably change their parking arrangement, which would then require a reallocation of credit generation rights under the current proposal. Furthermore, parking space use cases – in the context of EV charging – are generally not tracked or recorded in any scalable way that would allow for ready determination of classification by individual parking space, and any classification will likely be self-reported. This creates a large issue with verifying the status of parking spaces. Classifying all multi-family charging as non-residential would relieve this

tracking burden, ultimately providing for better uptake in the multi-family space, which is an area critically in need of charging infrastructure investment.

2)Regardless of parking configuration, the property owner/developer is likely to be the entity financing and owning/operating the stations.

Multi-family units are often rental units, so residents typically would not directly participate in the purchase of stations. Given that the property developer/owner is the entity that will bear the cost, the most effective way to incentivize station installation is to provide LCFS value directly to those property developers/owners. Arbitrarily deciding whether to provide value to a property owner based on their parking configuration choice seems like an irrelevant issue and would slow down the installation of stations at multi-family units. Furthermore, even in multi-family housing where the members own their units, the process for installing EV chargers requires coordination across common areas and in some cases collective payment for the system. Given this coordination, the homeowners associations will typically be involved in developing and potentially financing some or all of the project. In this case, the homeowner's association or the owners are the critical entity for making station installation happen, so they should see the benefit from LCFS revenues to drive investment.

To address these two issues, we propose that CARB remove the dedicated/restricted delineation and instead classifies all charging at multi-family housing, regardless of parking configuration, as non-residential.

By allowing multifamily station owners (i.e., property owners and developers) to claim credits for chargers regardless of difficult to determine parking restrictions, it will better align the benefits of the LCFS with the cost of multifamily EV charging and help unlock critical new financing for this segment in need of investment.

Comment: Define all chargers located at MFH as non-residential regardless of parking arrangement. Xeal supports the continued inclusion of MFH EV charging within the LCFS program as well as removing barriers for property owners and operators to invest in EV charging infrastructure. We respectfully request all multi-family housing charging be considered "non-residential EV charging." Property owners own the chargers, regardless of whether they are on dedicated or non-dedicated parking spots and should be eligible to generate the credits. In addition, the parking spots may change from dedicated to non-dedicated, which would complicate reporting – but not change the benefits. Removing complexity and allowing credit parity will further incentivize EV charging development at multifamily housing where EV charging is critically needed. (15d1-35.2)

Comment: Expand LCFS credit generation to all multifamily residences, regardless of parking arrangement. These minor but meaningful modifications to the current proposed LCFS rules will increase and accelerate equitable access to electric vehicle ("EV") charging, further decarbonizing California's transportation fuels. (15d1-227.2, 227.4)

Comment: Recommendation: SWTCH recommends categorizing all multifamily chargers as nonresidential for generating LCFS credits, regardless of whether EV chargers are shared or reserved. SWTCH appreciates the Current Rule Draft's proposed expansion of multifamily residences to be eligible to claim LCFS credits. SWTCH respectfully encourages CARB to consider not only shared chargers as non-residential, as is proposed in the current draft, but

also include chargers serving reserved or dedicated parking spaces. As SWITCH details below, when it comes to station ownership, shared infrastructure, and split decision-making authority, multifamily residences with reserved parking face similar barriers to charger deployment as shared MFR and other non-residential properties. Indeed, when considered through these lenses, reserved MFR parking has little in common with the type of charging one generally considers to be “residential,” i.e. a charger installed in a garage or driveway of a detached single-family house.

Station ownership. Even when charging equipment serves reserved spaces, it is often purchased, installed, and maintained by the property owner or by a third-party owner-operator charging network, as a service for residents. Therefore, when the station owner and the station user are not the same entity, LCFS credits should be allowed to be claimed by the station owner operator to defray the costs of managing and maintaining the investment.

Shared infrastructure. Residents of multifamily housing commonly struggle to install their own reserved chargers due to the shared nature of electrical infrastructure. It is often infeasible for a single reserved space in a separated parking area to install a charger without significant construction and electrical work, which may include adding new electrical service, conduit, trenching, and upgrading a panel. This raises costs beyond what a single resident may be willing to pay and creates a need for an entity - the property owner or third-party owner-operator charging network - to make the investment to own and operate stations on behalf of residents, justifying broader eligibility for LCFS.

Split decision-making authority. Regardless of the parking arrangement, the shared nature of electric service upgrades for multifamily residences splits decision-making responsibilities across many stakeholders. Expanding LCFS eligibility to include reserved chargers would enable more streamlined and holistic decision-making process that flows from a single entity making investment decisions. This will more effectively encourage and incentivize investment in stations on behalf of residents despite the challenges. (15d1-227.6)

Comment: In its Rationale for the proposed amendments, CARB Staff offers compelling reasons why expanding non-residential credits to include MFR chargers will be beneficial:

1. *“Because the current regulatory text broadly designates all crediting for residential charging to the EDUs [Electrical Distribution Utilities], or to the entities who can register individual vehicle identification numbers, rather than to EV supply equipment owners, the latter may not have as strong and direct an incentive to develop more EV supply equipment at MFRs [Multifamily Residences] as could be most optimal and impactful.”* SWITCH concurs with Staff’s first reason that allowing all EV supply equipment [EVSE] owners at MFRs to generate non-residential credits, regardless of parking arrangement, will immediately create a strong incentive to finance and deploy EV chargers at multifamily properties. For non-residential crediting, EVSE owners at MFRs can and often do designate credits to third-party charging networks to help finance projects.

Oregon and Washington’s clean fuel standards are structured such that nonresidential credits are generated for multifamily housing (greater than four units) and the charging station owner can designate another entity to generate credits on their behalf such as a charging network operator. This arrangement also allows charging network operators to leverage charging data

to seamlessly participate in LCFS credit tracking, reporting, and verification relative to utilities or other entities.

2. *“Enabling further charging infrastructure at multifamily residences allows for development in mixed-use zoning and eliminates confusion on charger eligibility.”* SWITCH concurs with Staff’s second reason that mixed-use multifamily residences will benefit from the draft rules. As EV charging expands into mixed-use multifamily residences with commercial and retail spaces, LCFS crediting will accelerate EV charging offerings at these locations. However, SWITCH is concerned that restricting credits based on parking arrangements would pose challenges to data collection, tracking, verification, and reporting based on the current proposed amendment. SWITCH disagrees with the premise that the proposed amendment “eliminates confusion on charger eligibility”. Parking space allocations can frequently change from reserved to shared or vice versa based on property management or even tenant preference. Bifurcating shared vs. reserved chargers will unnecessarily add administrative complexity and uncertainty that will pose challenges both for CARB and for those generating the credits. (15d1-227.7)

Comment: *“More strongly supporting the development of chargers at multifamily residences also encourages car sharing and harmonizes current utility rate and incentive programs.”* In response to Staff’s third reason, SWITCH notes that parking arrangements are not factored into current multifamily EV charging utility rates and incentives. For example, Pacific Gas and Electric recommends multifamily buildings with EV chargers enroll in an Business EV Rate Plan based on electricity demand (kilowatts); there is no mention of whether parking arrangement determines whether a customer will be on a Residential or Business EV rate. Southern California Edison offers two rebates for multifamily EV chargers - a New Construction Rebate and Small Site Rebate - that don’t define eligibility based on reserved or non-reserved parking space status. These are just a few of the rates and incentive programs that major California investor-owned utilities offer to EV drivers at different types of multifamily buildings regardless of parking arrangement.

SWITCH shares Staff’s perspective about the benefits of treating MFR chargers as non-residential. However, despite acknowledging these benefits, the proposed amendment excludes reserved chargers from being considered as non-residential, for reasons that are unclear. Perhaps it is simply assumed to be self-evident that *“Chargers at reserved parking spaces are reserved for residences and therefore would still be considered ‘residential’ charging.”* Upon deeper analysis, as discussed above, the characteristics of reserved MFR chargers are much more similar to shared nonresidential chargers than to actual residential chargers. (15d1-227.8)

Comment: SWITCH supports the proposed amendment to treat shared multifamily residential chargers as non-residential. This is a partial but incomplete step forward. SWITCH respectfully urges CARB to treat all MFR chargers as non-residential, regardless of whether the parking arrangement is shared or reserved. Making this change will more effectively incentivize further deployment of MFR chargers. It will also have the added benefit of being administratively simpler and more uniform to implement. (15d1-227.10)

Comment: Anew opposes the requirement that multi-family residential charging must be in non-designated spaces to qualify as non-residential charging. (15d2-212.14)

Agency Response: No change was made in response to these comments. Chargers at reserved parking spaces are reserved for residences and are still considered “residential” charging. Fuel reporting entities may still generate LCFS credits for chargers at multi-family residences with reserved parking if the chargers are in spaces that are not reserved. Staff anticipate that only some parking spaces at multi-family residences will have EV charging, thus allowing multi-family residences to continue providing reserved spaces while also allowing for EV charging to occur at non-reserved spaces. This proposed amendment is designed to allow a broader group of potentially eligible LCFS credit generators to be rewarded by increasing deployment of multi-family residence EV charging.

M-4 *Support EV Charging at Multi-Family Residences with Modifications to Protect Customers*

Comment: LADWP is concerned with the new language’s shift of allowable use of credit proceeds from benefitting EV drivers and customers to a more general “further transportation electrification efforts.” From LADWP’s experience, even with the current customer focused requirements, credit proceeds are not being passed down to customers via affordable rates or incentives at multi-family residences. After charger installation, single-family residents pay little more than the cost of electricity to fuel their EVs. By contrast, multifamily residents can be subjected to additional fees, benefiting operators or landlords, eliminating the driver’s cost savings versus fueling with gasoline. The cost of charging may be a barrier for EV adoption for residents of multifamily buildings. LADWP recommends that CARB consider amending the proposed language to include provisions to protect the customers, such as requiring non-LSE credit generators EV chargers located next to a multi-family residence to provide affordable rate options to those multifamily residents. (45d-237.7)

Agency Response: No change was made in response to this comment. The text in the proposed section 95491(e)(5) encompasses all non-residential applications and is not specific to multi-family residences. Section 95483(c)(5) of the LCFS regulation continues to support use of proceeds for projects that reduce costs for residential and non-residential EV charging in low-income communities. Staff believes the change is sufficient to enable wider adoption of EV charging while still balancing the need for lower charging rates at multi-family residences.

M-5 *Data Submittal for EV chargers*

Comment: There is the additional benefit realized by CARB connected to the data submittals it requires of automakers to generate LCFS credits. Those data allow CARB to check and validate the methodology and algorithms it uses to award LCFS residential EV charging credits in the first place. Without automaker participation, those valuable data submittals would not be available. These data are widely recognized as vital to the program given the understanding that EV usage and charging behaviors continue to evolve rapidly. (45d-158.4)

Agency Response: No change was made in response to this comment. CARB appreciates the support of automakers in providing CARB with data needed to support credit generation.

M-6 *Allow OEMs to Generate Base Credits*

Agency Response: Changes were made in response to this comment. The 15-day changes include section 95483(c)(1)(B) which allows conditional base credit generation for eligible OEMs.

M-7 *Establish a minimum base credit award for EV OEMs*

Comment: Establish a minimum base credit award for EV OEMs.

Provide a guidance document after finalizing the amendments to clarify a process for determining and announcing the portion of base credits to be awarded to EV OEMs and ensure that the process provides for consistency and only gradual changes year-over-year. (15d1-161.3)

Agency Response: No changes were made in response to these comments. Consistent with past practice, CARB staff may develop compliance support materials to ensure notice in the regulated community for generation of base credits by eligible OEMs if regulatory conditions are met.

M-8 *Multiple Comments: OEMs as Priority for Incremental Credit Generation*

Comment: Allow EV OEMs to generate incremental credits for non-metered residential EV charging by changing 95483(c)(1)(E)(3) to “For non-metered residential EV charging, the EV OEM is eligible to generate incremental credits for supplying low-CI electricity, so long as that EV OEM also provides metered residential EV charging data to generate incremental credits whenever it is possible to do so.”

Clarify that EV OEMs or their designees are the first priority incremental credit generator for metered residential EV charging by changing 95483(c)(1)(E)(2) to “Multiple claims for incremental credits for metered residential EV charging associated with a single FSE ID will be resolved pursuant to the following order of preference: a. The EV OEM of the EV associated with the FSE ID or its designee has first priority to generate credits. b. The Load Serving Entity (LSE) supplying electricity to the EV associated with the FSE ID has second priority; and, c. Any other entity has third priority.” (15d1-161.3)

Comment: The regulation should specify that Original Equipment Manufacturers (OEMs) may act through a designated entity.

To echo our comments submitted in response to the first 15-day rule package, we strongly support the opportunity for OEMs to generate a portion of base residential credits. However, for consistency with the other electricity credit generation types, CARB should include language where applicable (e.g., throughout § 95483(c)(1)) that the OEM **or their designee** may act. Allowing OEMs the option to have a third-party manage their participation in the program would maximize efficiency for both the OEM and CARB and streamline registration and reporting activities. (15d2-185.3)

Agency Response: No changes were made in response to these comments. Any entity is eligible to generate incremental credits for improvements in carbon intensity of electricity used for residential EV charging. EDUs play a critical role and make

significant investments in low-CI electricity generation resources and in the transmission and distribution networks essential for delivering fuel for EV charging, making them primary fuel providers for residential EV charging. EDUs are well positioned to promote the use of electricity as a low carbon transportation fuel by providing better rate options for residential EV charging, adapting and upgrading California's electric grid, and other actions to support a reliable and low-carbon grid. CARB staff believe that keeping Load Serving Entities as the first preference for incremental credit generation will further incentivize lower rate options for consumer adoption of EVs. This does not diminish the important role that automakers play in the transition to ZEV technology, and for this reason they are specified to be second in line to receive incremental credits.

M-9 *Allowing OEMs to Select a Designee as Credit Generator*

Comment: The regulation should specify that Original Equipment Manufacturers (OEMs) may act through a designated entity. We strongly support the opportunity for OEMs to generate a portion of base residential credits. The LCFS plays a key role in California's position as a leader in EV adoption and it makes sense to incentivize and reward OEMs for supplying those EVs. The revenue requirements outlined in § 95483(c)(1) are reasonable and provide sufficient flexibility for OEMs to use profits from credit sales for new and exciting electrification projects. For consistency with the other electricity credit generation types, CARB should include language where applicable (e.g., throughout § 95483(c)(1)) that the OEM or their designee may act. Allowing OEMs the option to have a third-party manage their participation in the program would maximize efficiency for both the OEM and CARB and streamline registration and reporting activities.(15d1-050.3)

Comment: Allow EV OEMs to select a designee to act as the credit generator for base credits, just as EDU's are allowed to select a designee as described at 95483(c)1(A): "[t]he EDU or its designee is the credit generator for base credits for the portion of residential EV charging assigned to that EDU by the Executive Officer." (15d1-161.3)

Agency Response: No changes were made in response to these comments. EV usage continues to evolve rapidly as the LCFS spurs further adoption of EVs. OEMs provide valuable information to support LCFS base credit generation through usage data. Because direct OEM participation in the program may be the most effective way to provide credit revenue that furthers EV adoption, the Proposed Amendments do not allow a designee to act as the credit generator for base credits.

M-10 *Reporting of LCFS Base Credit Usage*

Comment: Audi supports annual reporting to CARB around the use of LCFS credit proceeds by automakers commensurate with the requirements of other LCFS credit generators. (45d-158.6)

Agency Response: Changes were made in response to this comment. The 15-day changes include section 95483(c)(1)(D) which requires OEMs to submit an annual report detailing the use of proceeds from base credits.

M-11 *Zero-CI Electricity Tariffs and Renewable Energy Credits*

Comment: CARB should amend the Regulation to provide that all 100% RPS or zero-CI electricity tariffs are be able to generate LCFS credits without proving that Renewable Energy Credits (RECs) were not retired for the RPS. (45d-257.2)

Agency Response: No change was made in response to this comment. The electricity used for compliance with the LCFS is not also eligible for compliance under the RPS. That is, if 1,000 MWh of electricity is used under the LCFS, then no portion of this amount may be claimed under the RPS; this is a pre-existing regulatory requirement that helps ensure the additional electricity demand resulting from transportation electrification is also met with growth in renewable electricity supplies.

M-12 *Multiple Comments: Base Credit Funding for Low-Income Households*

Comment: We believe that credits representing non-metered residential electric vehicle (EV) charging should be used to benefit our disadvantaged and low-income communities that have suffered the greatest impacts of transportation pollution. These communities also face the greatest barriers to adopting clean transportation. The 15-day changes would not serve those communities as well as the previous proposal, so we recommend the following:

1. The majority of the statewide program's funding should be directed toward speeding the transition to zero-emission transportation in the medium and heavy-duty sectors. Pollution and adverse health effects from heavy-duty transportation are primarily and disproportionately borne by low-income communities and communities of color. The transition to zero-emissions (ZE) transportation in those sectors is essential to meeting our air quality and climate standards; this transition is well behind the pace of the light-duty sector, so prioritizing medium and heavy-duty is appropriate. (15d1-174.1)

Comment: Any light-duty EV incentives funded by LCFS credits, whether administered by Electricity Distribution Utilities (EDUs) or Original Equipment Manufacturers (OEMs), should be targeted only to low and moderate-income Californians. Achieving air quality and climate standards requires a focus on equity, so that all our residents benefit from access to clean transportation. Credits should go to assuring that successful existing programs like Clean Cars 4 All are fully funded, as well as supporting innovative new approaches. (15d1-174.2)

Comment: CARB should retain and enhance the existing category of "Multilingual marketing, education and outreach" within the list of pre-approved projects eligible for funding by holdback credits. Equity-focused community groups and stakeholders participating in CARB work groups are consistently asking for greater investment in this area, and specifically for investments that directly fund local community-based organizations (CBOs) who are trusted in priority communities and are best able to support Californians facing the highest barriers to transitioning to EVs. This would also align with how the proposed 15 day changes explicitly add "marketing and outreach programs" as an approved use of base credit proceeds by the OEMs, and create critical opportunities for coordination and collaboration. We recommend that this category be retained in the revised regulations and amended to explicitly pre-approve investments in outreach through CBOs. (15d1-174.3)

Comment: However we are also concerned about a proposed elimination of a critical pre-approved project category. (45d-251.5)

Comment: Secondly, we recommend rescinding and/or modifying some smaller proposed changes that propose to remove equity-focused outreach activities from the program regulations. Specifically: CARB should retain and enhance the existing category of “Multilingual marketing, education, and outreach” within the list of pre-approved projects eligible for funding of holdback equity programs. The Initial Statement of Reasons (ISOR) does not provide an explanation for why CARB is proposing to remove this category, and the proposed removal goes counter to the ISOR’s stated goal of “enhancing the pre-approved projects eligible for funding of holdback equity credits” (emphasis added).² Equity-focused community groups and stakeholders participating in CARB’s Low Carbon Transportation Investments public work groups and convenings consistently are asking for greater investment in this area, and specifically investments that directly fund local community-based organizations who are trusted in priority communities and are best able to support Californians who have the most barriers to transitioning to EVs. We recommend that this category be retained in the revised regulations, and amended to explicitly pre-approve investments in outreach through funding provided to community-based organizations. ISOR doesn’t explain why this is proposed to be removed, but if the concern relates to having electric utilities use holdback credit proceeds to fund their own internal work in this area, the language could be made specific to funding outreach via community based organizations that are based in and serve disadvantaged, low-income, rural, and tribal communities. (45d-251.6)

Education and outreach projects pertaining to transportation electrification technologies and focused on equity communities are still important tools for increased adoption in equity communities, and should be included on the project list. (45d-303.11d)

Comment: Recent surveys by the UC Davis Electric Vehicle Research Center find the majority of California consumers still cannot correctly name a single model of EV, indicating a massive need to improve awareness of EVs. Eliminating marketing and outreach activities from eligibility to be supported by EDU holdback credits may delay resolution of this problem. While it is important to ensure that EDU holdback credits are spent efficiently, and the value of marketing and outreach can be difficult to quantify, current evidence indicates such outreach may still have a role in California’s policy portfolio. (45d-391.31)

Comment: The project list should preserve a narrowly focused project category for direct multilingual education, and outreach serving equity communities. The preservation of this category is not intended to include general marketing or advertising. It is only intended to allow for multilingual education and outreach to equity communities for specific projects. The 15-day changes allow this for automaker programs, but not the EDU holdback programs. Deleting the multilingual education and outreach project category in the regulation will hurt efforts by many EDUs to reach hard-to-serve markets who speak little or no English, many of whom are low-income individuals. (15d-103.4)

Agency Response: No changes were made in response to these comments. Staff’s initial regulatory proposal increased the equity spending requirements such that at least 75 percent of holdback credit annual spending for large and medium investor-owned EDUs and 50 percent of holdback credit annual spending for all other EDUs must be

used to support transportation electrification for the primary benefit of or primarily serving disadvantaged communities and/or low-income communities. The provision allowing proceeds to be spent on multilingual marketing education and outreach was moved to section 95483(c)(1)(D) describing OEM base credit projects. CARB staff believe that OEMs are better positioned to market EVs to California residents and thus moved the multilingual outreach project to the OEM base credit project section. EDUs may still conduct multilingual outreach as a holdback equity project and report the project to CARB to meet the annual reporting requirements outlined in section 95491(e)(5). Lastly, the regulation includes a statewide program that supports a rebate for medium-and-heavy-duty ZEVs not subject to the Advanced Clean Fleets regulation, if the credits are not directed to the automakers.

M-13 Multiple Comments: *Low-CI Electricity*

Comment: Achieving further air quality benefits from the transportation sector, beyond the transportation sector, by reducing both grid and transportation emissions
What an EV does when it is parked is just as important as what an EV does when it is driving. Recognizing V2X in LCFS can turn transportation assets into carbon sinks; bidirectional charging, when optimized for carbon-signals, can lead to a net displacement of CO₂ emissions. By following a carbon signal and discharging at high Carbon Intensity (CI) times and charging at low CI times, V2X EVs create a net environmental benefit, turning EVs into potential carbon sinks. The LCFS market design may need to change to create the incentives for EVs to provide these additional environmental benefits. While this may necessitate an expansion of LCFS's official scope, these goals do align with CARB's broader mission as an organization and the spirit of the LCFS program. (45d-264.2)

Comment: Consideration of WattTime Data for More Accurate Carbon Intensities (CI) Values

Fermata Energy recommends that CARB consider using WattTime Data or a similar provider for LCFS CI values. More accurate, granular data on marginal carbon intensities of charging from grid electricity in California is widely available today, from data providers such as WattTime or electricitymaps.

WattTime provides average and marginal operating emissions rates (AOER and MOER) for California grid areas, at 5-min intervals. WattTime data is used in the Self-Generation Incentive Program (SGIO), which is another CA program that aims to reduce carbon emissions from subsidized assets (battery energy storage systems), for which the data is made available to registered users for free (via CEC's MIDAS open access portal).

Fermata Energy has assessed the difference in the CI assumptions required by the LCFS program vs. the marginal operating emissions rates (MOER) calculated by WattTime. We have compared the two data sets and their impact on emissions calculations for two representative vehicle profiles: a residential and a fleet use case over a year. We found that the LCFS CI assumptions significantly underestimate the emissions relative to using the WattTime MOER (see Appendix Table on page 8). This means that EV market participants optimizing against the LCFS CIs are not achieving as many emissions reductions as they could, even for standard charging technologies.

While Fermata Energy cannot comment on the differences in these underlying models, the extent of the difference between the two data sources (CARB vs. WattTime) warrants investigating the accuracy and reliability of the LCFS assumptions. Fermata Energy recommends that CARB consider re-evaluating the current CI methodology and updating the CI assumptions for the smart charging pathway calculations.

If WattTime data is correct, the current assumptions favor LCFS market participants (including Fermata Energy) by underestimating their CO2 emissions, and therefore giving them access to more credits than they would otherwise be able to obtain using more granular real-time CI values. This leads to potential over compensation of market participants, and unnecessary costs to the program and the state. Improving the data accuracy will therefore improve the actual environmental impact of EV charging (including V2X), incentivize market players to develop better charge management strategies, and lead to lower LCFS program costs by ensuring participants are not overcompensated. (45d-264.3)

Lastly, Fermata Energy recognizes that optimization for CI's and V2X monetization opportunities may sometimes conflict. The formula proposed on hourly CI accounting of V2X net energy flows is not necessarily aligned with our economic interest nor that of our commercial and residential customers. To avoid this misalignment, CARB should ensure that sufficient financial incentives are available through the LCFS program so that participants are incentivized to reduce the carbon emissions. (45d-264.4)

Comment: Fermata Energy's V2X platform incorporates CHAdeMO and CCS connectors in a bidirectional charger and management software platform that connects the EV and electricity user to the grid. Fermata Energy's V2X platform extends the value of an EV and allows the vehicle to act as a dispatchable energy storage resource when the vehicle is not in use.

We would like to propose the following formula to account for energy for transportation for V2X customers that wish to generate LCFS credits. Electricity dispensed from electric vehicle supply equipment ("EVSE") for transportation can be netted out from the overall electricity dispensed for a V2X system that includes a bidirectional charger that has an approved interconnection agreement with the electric distribution company ("EDC") according to the following:

Electricity charged for driving (kWh) = Total electricity charged (kWh) - Electricity discharged (kWh)

Note: Where charged and discharged electricity are the energy flows measured at the charger meter.

Electricity charged for driving (kWh) = [Total electricity charged (kWh) – Electricity discharged(kWh)]

The two energy uses of a V2X charger are 1) driving (transportation) and 2) exports to buildings or the grid, so the total energy charged at any charger will be equal to the energy required to refill the battery for those uses. This means that for V2X services, energy discharged (kWh) = energy charged (kWh). The remainder of charging at a V2X charger is to

refill from driving uses. We understand and appreciate that this proposed methodology above can be adopted with a technical note (e.g., Guidance Document or similar) and therefore does not require an amendment to the LCFS program amendment. However, we take this opportunity to share our above proposed methodology to be included in the public record as CARB considers LCFS program amendments and would prefer the greater certainty that a regulatory amendment provides. (45d-264.1)

Comment: 2. Consideration for Account for V2X Discharge in LCFS Methodology

The stated aims of the LCFS program are: “[...] to decrease the carbon intensity of California's transportation fuel pool and provide an increasing range of low-carbon and renewable alternatives, which reduce petroleum dependency and achieve air quality benefits.”⁵ Fermata Energy understands the scope and purpose of the program, and that LCFS is a fuels regulation aimed at decarbonizing the transportation sector. However, below, we expand upon how accounting for V2X discharge in the LCFS methodology will help CARB achieve the stated goals of the LCFS program and further its mission.⁶ CARB may have to expand the scope of LCFS to fully incentivize the potential of bidirectionally-enabled EVs to support transportation decarbonization and provide the associated air quality benefits.

V2X Discharge Enables EVs to Generate Revenue for Grid Services, Lowering EV TCO, and Helping Accelerate EV Adoption and Renewables Integration in CA

EVs are the primary mechanism to achieve transportation decarbonization. V2X accelerates the transition to electric vehicles, by providing new value streams that increase consumer adoption of EVs by lowering EV total cost of ownership (TCO). This also increases the range of consumer options in selecting an EV, which is aligned with the goals of the LCFS program.

In addition to lower EV TCO, V2X supports renewables integration. By fully unlocking the ability of EVs to respond as grid-supporting, flexible load resources, V2X can help California achieve a cleaner generation profile. Bidirectional EVs can discharge to the grid during the CA system-wide peak and be aggregated into Virtual Power Plants (VPPs) to displace fossil-fuel powered peaker plants. Bidirectional charging can also charge when there is excess solar and wind power generation, thereby reducing renewable energy curtailment.

Proposed formula for CARB to include V2X discharged energy in LCFS accounting

Fermata Energy proposes that CARB make the total energy cycled through the vehicle battery in the course of V2X operations eligible for LCFS credits. The formula would account for the hourly energy charge and discharge flows and the associated hourly carbon emissions, which could lead to either adding or subtracting LCFS credits from a participants' credits earned depending on performance.

The proposed formula for V2X is then:

Where H is the total number of hours in the year, h is the hour, Electricity charged and Electricity discharged are the hourly energy measurements at the charger, and CI is the carbon intensity recorded for hour h.

Worked example of V2X as net carbon sink

Here, we propose the example use case of a delivery truck at a warehouse with V2G charging infrastructure on-site. This medium-heavy duty vehicle has a usable battery capacity of 120 kWh, and is parked at its designated parking space and charger. At 7 am, as instructed by Fermata Energy's algorithms, the truck starts discharging electricity for 2 hours until 9 am, discharging a total of 40 kWh of electricity. During this time, the carbon intensity of the CA grid is 450 gCO₂/kWh on average. Fermata Energy's V2X software ensures that the vehicle is left with enough state of charge to complete its morning duty cycle. At 9 am, the vehicle leaves the warehouse and drives 50 miles, for which it uses 15 kWh of electricity. When the vehicle returns to the warehouse, Fermata Energy charges it from about mid-day to 2:30 pm, recharging 15 + 40 kWh = 55 kWh, when the CI of the grid is 0 gCO₂/kWh. This creates a carbon footprint for the vehicle of $(55 \times 0) - (40 \times 450) = -18,000$ gCO₂/kWh, i.e. a net CO₂ reduction of 18 kg.

CARB has an opportunity to incentivize EVs to generate far greater emissions reductions by making V2X eligible for carbon credits in the LCFS program. Standard EV charging, in comparison, can only minimize emissions from mobility, i.e. offset its own carbon footprint. V2X EVs can generate far greater emissions reductions, beyond the vehicle use itself by enabling discharge to the grid during peak CI times. Fermata Energy recommends that the program fully incentivize these benefits for the state at large by making all V2X discharged and charged energy accountable for LCFS credits. This change would help achieve the program's goal of lowering emissions in the state. (45d-264.2)

Comment: Consideration of WattTime Data for More Accurate Carbon Intensities (CI) Values

Fermata Energy recommends that CARB consider using WattTime Data or a similar provider for LCFS CI values. More accurate, granular data on marginal carbon intensities of charging from grid electricity in California is widely available today, from data providers such as WattTime or electricity maps.

WattTime provides average and marginal operating emissions rates (AOER and MOER) for California grid areas, at 5-min intervals. WattTime data is used in the Self-Generation Incentive Program (SGIO), which is another CA program that aims to reduce carbon emissions from subsidized assets (battery energy storage systems), for which the data is made available to registered users for free (via CEC's MIDAS open access portal).

Fermata Energy has assessed the difference in the CI assumptions required by the LCFS program vs. the marginal operating emissions rates (MOER) calculated by WattTime. We have compared the two data sets and their impact on emissions calculations for two representative vehicle profiles: a residential and a fleet use case over a year. We found that the LCFS CI assumptions significantly underestimate the emissions relative to using the WattTime MOER (see Appendix Table on page 8). This means that EV market participants optimizing against the LCFS CIs are not achieving as many emissions reductions as they could, even for standard charging technologies.

While Fermata Energy cannot comment on the differences in these underlying models, the extent of the difference between the two data sources (CARB vs. WattTime) warrants investigating the accuracy and reliability of the LCFS assumptions. Fermata Energy recommends that CARB consider re-evaluating the current CI methodology and updating the CI assumptions for the smart charging pathway calculations.

If WattTime data is correct, the current assumptions favor LCFS market participants (including Fermata Energy) by underestimating their CO2 emissions, and therefore giving them access to more credits than they would otherwise be able to obtain using more granular real-time CI values. This leads to potential over compensation of market participants, and unnecessary costs to the program and the state. Improving the data accuracy will therefore improve the actual environmental impact of EV charging (including V2X), incentivize market players to develop better charge management strategies, and lead to lower LCFS program costs by ensuring participants are not overcompensated. (45d-264.3)

Comment: Lastly, Fermata Energy recognizes that optimization for CI's and V2X monetization opportunities may sometimes conflict. The formula proposed on hourly CI accounting of V2X net energy flows is not necessarily aligned with our economic interest nor that of our commercial and residential customers. To avoid this misalignment, CARB should ensure that sufficient financial incentives are available through the LCFS program so that participants are incentivized to reduce the carbon emissions. (45d-264.4)

Agency Response: No changes were made in response to these comments. Because the LCFS primarily deals with alternative fuel use in transportation, electricity discharged to the grid without tying to EV charging, or directly discharged for other non-transportation uses such as to a building network, does not qualify for LCFS credits. However, staff appreciates the recommendations for accurately crediting bi-directional vehicle to grid (V2X) projects, and is willing to work with stakeholders to develop this further during implementation of the Proposed Amendments. V2X is also an allowable spending category in the holdback credit spending section of the Proposed Amendments. The current LCFS data management system does not have the capability to connect to a live feed of data through an application programming interface (API), but staff is open to discussing potential future improvements to the time of use charging CI values, which are updated annually through the specified regulatory process in subsection 95488.5(d).

M-14 Geofencing Distance

Comment: As such, we are using this comment opportunity to suggest an update to LCFS Guidance 19-03. Specifically, for Method 2, Option 1, we recommend that the minimum Geofencing Radius (GFR) be reduced from 220 meters. (45d-267.2)

Comment: At the same time, we believe it is not yet too late to update the geofencing radius, which CARB specifies through guidance. While relatively minor in administrative complexity, a change to agency guidance in this respect would be significant in its real-world impact on credit generators...

Update the Geofencing Radius. To avoid double-counting, CARB currently requires that vehicle charging sessions recorded using telematics that occur within 220m of a non-residential charging station be excluded from reporting for residential incremental credits.¹⁰ As the density of public charging networks continues to increase, a 220m geofencing radius risks excluding a growing share of incremental charging claims. Moreover, contemporary GPS accuracy, usually accurate to within 2 meters, means that such a generous radius is no longer necessary nor justifiable.¹¹ Rivian recommends that CARB amend the geofencing radius as part of this rulemaking. At a minimum, we suggest aligning with the 110m radius established by Washington's Clean Fuel Standard guidance but encourage CARB to consider an even smaller figure.¹² (15d1-107.7)

Agency Response: No changes were made in response to this comment. Consistent with past practice, CARB staff may develop or update compliance support materials to ensure notice in the regulated community for generation of incremental credits using a geofencing radius.

N. Electricity Crediting

N-1 Multiple Comments: *Credit Primarily/Only Electrification*

Comment: The LCFS should be focused primarily - if not exclusively - on supporting the transition to electrification of the transportation sector. (45d-379.18)

Comment: Rather subsidies should be reserved for accelerating the electrification of transportation, expanding the grid to enable faster connection of solar and wind energy and protecting natural land so it can better absorb carbon emissions. (45d-389.11)

Comment: PLEASE prioritize upgrading transportation infrastructure to zero emission vehicles. (399-3399.4)

Comment: Governor Newsom's budget proposes significant delays and cuts of hundreds of millions of dollars to vital zero-emission transportation programs, which makes it all the more urgent to use the Low Carbon Fuel Standard to more fully support zero-emissions transportation. (15d1-007.2)

Comment: What other options are available to reduce transportation GHGs and limit the expansion of food-to-fuels conversion process. Electrification of trains and the heavy-duty trucking fleet. (15d1-239.15)

Comment: Replace aging natural gas powerplants with new nuclear ones and restructure incentives to allow for more people to afford solar (either on their own homes or via community programs). (BH-021.6)

Comment: The longevity of liquid fuels for legacy vehicles is expected as we transition toward electric vehicles, however the LCFS program is allocating an outsized share of financial incentives to these fuels. In 2022 80% of the funding in the LCFS program went to combustion fuels instead of electricity, which is arguably more pertinent to the state's near- and long-term expectations or ZEV deployment across the state². Furthermore, the state would see significant benefits if CARB were to increase support for electric school buses and transit buses. Reducing the VMT and emissions are both critical to reaching our climate goals set

forth in the 2022 Scoping Plan, so bolstering these types of vehicles should be prioritized. (Apr-055.4)

Comment: Be it further resolved that the EJAC recommends that CARB reform the LCFS to strengthen the Low Carbon Fuel Standard's support for zero emission vehicles including mass transit vehicles, drayage duty trucks, and heavy duty trucks. (45d-001.10)

Comment: use the Low Carbon Fuel Standard to more fully support zero-emissions transportation (45d-364.2)

Comment: Electrify Metrolink and SMART to allow for more frequent service, especially during weekends where traffic can be as bad as during the weekdays in the LA/SD Metros. (BH-021.3)

Comment: The transition to electric passenger vehicles needs to be accelerated, as recommended by the United Nations Environment Program's 2024 Emissions Gap Report, by incorporating popular EV programs, inactive because of budget cuts, into the LCFS and changing the Advanced Clean Cars II date for selling only new light duty electric vehicles in California to 2030.

The United Nations Environment Program just released its 2024 Emissions Gap Report, recommending that countries concentrate on accelerating programs with agreed-upon, cost-effective technological solutions in order to keep 2030 and 2035 climate goals in sight. The programs recommended for acceleration were renewable electricity, passenger electric vehicles and halting deforestation. This is what California should be doing to meet its 2030 and 2035 emissions reductions goals. California's EV market share of new vehicle sales failed to increase this year. Popular rebate programs such as the Clean Vehicle Rebate Project (CVRP) and Clean Cars 4 All were not funded in last year's budget, nor this year's or next year's estimated budget. Similarly, the major utilities stopped issuing rebates under their California Clean Fuel Reward program in 2022. We strongly recommend that the CVRP and Clean Cars 4 All programs be incorporated into the LCFS program so they will be consistently funded. This would ensure an adequate supply of credits for fossil fuel producers to purchase as biomass-based credits are reduced.

Norway has shown that people will purchase EVs if financial incentives are large enough to make them substantially cheaper than internal combustion energy (ICE) vehicles. Starting in January, Norway will sell only electric passenger vehicles, 10 years ahead of California's schedule. Other European countries will stop selling new ICE vehicles beginning in 2030. Instead of eliminating rebates for EVs when California's adoption of passenger EVs seemed to be ahead of schedule, ARB should have moved the date for ceasing new ICE vehicle sales up to 2030. This in conjunction with more credits for the transition to electric vehicles, including trucks, would ensure that greenhouse gas emission reductions exceed those of the current proposal. While fossil fuel sales might increase initially, by 2030 and beyond they would be much lower. California must focus on known solutions for reducing greenhouse gas emissions not on combustion fuels for which scientists don't agree about whether they actually reduce emissions or not. (BH-051.11)

Comment: Scientific experts have identified acceleration of the transitions to clean electricity and to electric cars and trucks as our best option for reducing greenhouse gas emissions by 2030 and 2035 sufficiently to keep Paris Agreement goals alive. (BH-051.15)

Comment: Third, the transition to electric passenger vehicles needs to be accelerated, as recommended by the United Nations Environment Program's recent 2024 Emissions Gap Report, by incorporating popular EV programs, inactive because of budget cuts, into the LCFS and changing the Advanced Clean Cars II date for selling only new light-duty electric vehicles in California to 2030. (BH-051.4)

Comment: We need to move directly and more rapidly to transportation electrification and put the money that is going into these LCFS fuels programs into electrification. (BH-060.2)

Agency Response: No changes were made directly in response to these comments, but the Proposed Amendments do align with the overall commenter theme of providing significant support for transitioning to ZEVs and lower CI-electricity. The expansion of the ZEV infrastructure crediting, coupled with the strong support for electrification through base credits, and the expanded crediting opportunity for pre-2011 fixed guideway electric rail, are all key parts of the Proposed Amendments and will provide significant an impactful revenue stream to support the transition to ZEVs. As described in the 2022 Scoping Plan Update, in order to achieve our deep decarbonization targets the State must displace fossil fuels. However, the transition to ZEVs will not happen overnight,^{21,22} and currently there are still some end-uses that are not suited for electrification; the State must support low-carbon alternative fuels to decrease demand for fossil fuels in the remaining combustion engines while ZEVs gain a larger footing in the market.

O. Hydrogen

O-1 Multiple Comments: *Allow All Forms of Low-CI Hydrogen Production/Remove Constraints on Allowable Types of Hydrogen Production*

Comment: Incentivizing more production of clean fuels needed in the future, such as low-carbon hydrogen. We continue to view low-carbon hydrogen as a key enabler of an effective energy transition. What is important here is the carbon intensity of the hydrogen that is produced, not the production method itself. We strongly advocate for a regulatory framework that is technology-agnostic, providing a level playing field for the full range of production pathways which can satisfactorily deliver low-carbon hydrogen. This will best enable the emergence of price competition, which should in turn deliver a successful energy transition at least cost to consumers. In particular, regulations need to recognise that producing solid carbon from hydrocarbons is an effective way of sequestering that carbon content. See Section 4 below for more specific discussion on this point. (45d-225.4)

²¹ Supplemental 2023/2024 LCFS Modeling Documentation: <https://ww2.arb.ca.gov/resources/documents/supplemental-20232024-lcfs-modeling-documentation>

²² LCFS Workshop, April 10, 2024: <https://ww2.arb.ca.gov/sites/default/files/2024-04/LCFS%20April%20Workshop%20Slides.pdf>

Comment: However, we are particularly concerned about the following proposal: “Staff is proposing to exclude hydrogen derived from fossil gas from book-and-claim eligibility unless low CI hydrogen is produced using book and claim of biomethane or with CCS and used as a transportation fuel.” We strongly urge that the output of solid carbon when producing hydrogen from hydrocarbons should be recognised as fully equivalent to CCS as a means of mitigating emissions of gaseous CO₂. (45d-225.7)

Comment: Specifically, CARB should not propose to limit end-uses of program-incentivized hydrogen based on a “color” system, limit Book-and-Claim accounting for hydrogen, and impose a new 50% capacity cap. CARB should reconsider these proposals...Hydrogen End-Uses. Limiting end-uses of program-incentivized hydrogen will inhibit the development of additional hydrogen production. Instead, the LCFS program should continue to preserve consumer choice and provide a level playing field for all technologies, embracing fuel- and technology-neutral principles that focus on the meaningful and timely reduction of GHG emissions. WSPA urges CARB to adopt a technology-neutral approach that uses a CI score as the main driver to reduce emissions, rather than a “color” system that constrains uses. The color system creates regulatory uncertainty by facilitating subjective, changing definitions and interpretations of permissible uses, which stifles long-term investment and innovation. CARB assumes that limiting end-uses of hydrogen will funnel new capital investments to certain preferred hydrogen technologies such as electrolysis using renewables, a technology that is, by most estimates,³⁰ at least triple the cost of hydrogen currently produced by SMR....Book-and-Claim Accounting. The proposed regulatory updates would unnecessarily limit Book-and-Claim Accounting for hydrogen, which would likely constrain growth in hydrogen production and deployment. This conflicts with emission reduction measures in the 2022 Scoping Plan Update, which requires significant expansion of hydrogen production. As noted in WSPA’s prior comment letters, the goal of the LCFS program is to incentivize the production of low carbon intensity fuels and energy sources for transportation, rather than fuel/energy dispensing infrastructure. All hydrogen production pathways should be considered based on their CI reduction potential. CI benchmarks should be used as the singular determining factor to drive CI reductions and credit values. (45d-241.28)

Comment: Expand the LCFS crediting requirements for hydrogen fueling infrastructure to explicitly acknowledge that low-CI hydrogen with CCS can be used to meet the carbon intensity targets; (45d-365.2)

Comment: Regarding current requirement of green hydrogen mix me frame, I would like to remind CARB staff members that major renewable sources in California are solar and wind which have seasonal fluctuation. Accordingly, if we are to accept only green hydrogen produced from solar and wind, the green hydrogen production will naturally have seasonal fluctuation. Consequence: without having seasonal hydrogen storage, there will be significant fluctuation in output, which according to market principles, will lead to huge fluctuation in price. CARB staffs must be reminded that we have at least two analogous problems. 1. Curtailment of CO₂ free electricity in California, which shows clear seasonal fluctuation reflecting fluctuation in solar and wind output (see next page). 2. Why we have 15% of natural gas storage capacity to yearly consumption in the US? Seasonal fluctuation of demand. People use heater when it is cold. (15d1-233.1)

Comment: Remove New Proposed Requirement for Renewable Hydrogen Only in Mobility Applications: We strongly recommend that CARB remove the requirement to require all hydrogen used in mobility applications after 2030 be renewable as electricity and other applicable transportation fuels are not required to meet an equally stringent standard in the same timeframe. The new policy requires all hydrogen, starting in about 6 years to be renewable and if it does not meet the requirements, it will be artificially assigned a CI value for diesel, regardless of the actual CI. This is a substantial new requirement that was not subject to workshop discussion or public vetting. Further, given the proposed transition away from a technology-neutral approach for hydrogen, this proposed change will severely limit the development of a robust hydrogen transportation fuels supply in California at a time when a transition to ZEV transportation solutions, including new vehicle and new fueling stations, is being advanced. The proposal also places hydrogen on unequal footing with electricity as a zeroemission fuel or biogas and other pathways, which enjoy longer transition (e.g., 2045) horizons to meet 100% renewable content requirements. The new policy also moves CARB away from the technology-neutral approach that the LCFS has always taken and undermines the beneficial role that carbon capture and sequestration will play in the national energy transition, forgoes additional carbon emission reductions and air quality improvements that low carbon hydrogen can provide, and presents timing challenges. The hydrogen production and associated industry cannot rapidly pivot from existing supplies to this level of new sources to serve the growing ZEV fueling market. (15d1-135.3)

Comment: The most pressing issue is the imposition of a more stringent and separate renewable content standard for hydrogen compared to other zero-emission fuels. This approach diminishes the benefits of diverse hydrogen production pathways and disregards a holistic, ecosystem-based strategy crucial for hydrogen's role in California's energy future. The LCFS is vital for the deployment and decarbonization of hydrogen. However, the new restrictions risk undermining the program's effectiveness by introducing higher costs and conflicting with sound energy policy. (15d1-245.2)

Comment: Moreover, these changes are inconsistent with the broad range of technologies endorsed by the U.S. National Clean Hydrogen Strategy and Roadmap, which are necessary to meet hydrogen production targets and job creation goals through 2050. Without a single workshop to discuss these significant shifts, the state risks setting an energy policy that not only hampers innovation in this emerging field but also imposes unnecessary costs and barriers to integrating hydrogen into a highly renewable energy system. (15d1-245.3)

Comment: Given these substantial impacts, it is imperative to extend the comment period to allow for a thorough review and to ensure that the policy supports, rather than hinders, the development of a robust hydrogen economy. (15d1-245.4)

Comment: Exclusion of Hydrogen Produced from Fossil Fuel Gas: The proposed amendment to exclude hydrogen produced using fossil fuel gas from LCFS credit eligibility, effective January 1, 2031, presents several issues:

Supply Constraints

Drastic Reduction in Supply: Hydrogen produced from fossil fuels, specifically through methods such as steam methane reforming (SMR), currently represents a substantial portion

of the hydrogen supply in the market. This production method is well-established and forms the backbone of the existing hydrogen infrastructure. Removing this source could lead to a significant reduction in available hydrogen, as renewable hydrogen production capacities are still developing and are not yet able to meet current demand levels.

Increased Costs: With a reduced supply of hydrogen, the costs associated with hydrogen production are likely to rise. The infrastructure and economies of scale that currently support fossil-based hydrogen production are not as advanced for renewable hydrogen. Consequently, excluding fossil-based hydrogen could result in higher prices for hydrogen, which would be passed on to end-users.

Market Instability: The sudden exclusion of a major hydrogen source could cause volatility in the hydrogen market, affecting not only supply but also pricing stability. This could create uncertainty for businesses and investors, potentially stalling further investments in hydrogen infrastructure.

Transitional Challenges

Infrastructure Development: Building the infrastructure necessary to produce, transport, and distribute renewable hydrogen at scale requires substantial time and investment. Renewable hydrogen technologies such as electrolysis are still emerging, and their infrastructure is not yet sufficient to replace fossil-based hydrogen in the short term. Excluding fossil-based hydrogen prematurely could disrupt ongoing efforts to develop this infrastructure and slow down the transition process.

Technological Advancements: The renewable hydrogen sector is evolving, but the pace of technological advancements and cost reductions is not uniform across all areas. Immediate exclusion of fossil-based hydrogen may outpace the development and commercialization of new technologies, impeding the smooth transition to fully renewable hydrogen solutions.

Strategic Planning: Energy policy should provide a gradual and strategic path towards renewable alternatives. Abrupt policy shifts can create misalignment between current capabilities and future goals, making it difficult for stakeholders to plan and implement the necessary changes effectively.

Consumer Impact

Increased Costs: As the supply of hydrogen decreases and production costs rise, the price of hydrogen will inevitably increase. This price hike will directly affect consumers and businesses that use hydrogen as a transportation fuel.

Impact on Decarbonization Efforts: Many industries are investing in hydrogen technologies to reduce their carbon footprints. The increased cost and reduced availability of hydrogen could slow down the adoption of hydrogen technologies, hampering efforts to achieve broader decarbonization goals.

Economic Disruption: Higher hydrogen costs could lead to increased operational expenses for companies that rely on hydrogen as a transportation fuel, potentially resulting in higher prices for goods and services. This economic impact could be particularly severe for small and medium-sized enterprises that may struggle to absorb the increased costs. (15d1-024.4)

Comment: Chevron objects to the 2031 crediting restriction proposed for hydrogen from fossil feedstocks. Further, it is inappropriate to substitute the hydrogen carbon intensity with that of fossil diesel. Producers who can demonstrate a lower EER-adjusted CI than the substitute fuels' baseline, even if produced from fossil feedstock, should still be eligible to obtain credits in line with a technology-neutral, science-based approach. Many EER-adjusted pathway CIs for fossil-derived hydrogen are well below the conventional ULSD CI in table 7-1. If the proposed change is finalized, CARB should update the ULSD CI reference to Table 2 rather than table

7-1 to address this concern. This will mitigate an arbitrary market distortion and will keep costs down for consumers to enable FCEV technology adoption.

Over 95% of US production of hydrogen is produced from steam methane reforming of natural gas.³ While new technologies have promise, it will take considerable time to develop these commercially on a large scale. Construction of large-scale facilities takes, at minimum, a 10-year cycle time for full capital project execution. Given that there are virtually no large-scale projects through final investment decision and permitting in California today, 2031 is far too early to create an artificial crediting restriction, much less turn hydrogen into a deficit generator as proposed. The LCFS program already has the proper mechanisms in place to drive the development of renewable hydrogen production. (15d1-042.6)

Comment: Newtrient disagrees with the modification in the 15-day changes to exclude hydrogen produced with blended renewable and fossil gas from receiving LCFS credit by January 1, 2030. Specifically, this language constrains entities that are currently blending biomethane and fossil natural gas to produce a lower-CI hydrogen via steam methane reforming (SMR). This change, which was not discussed in the 45-day package or previous public workshops, has the potential to limit the availability of low-CI hydrogen during a time when hydrogen produced via electrolysis and renewable electricity is still struggling to scale up and reach cost parity. (15d1-052.6)

Comment: EcoEngineers applauds CARB's efforts to support the development of a low-carbon intensity hydrogen economy. However, the LCFS regulation has always been science-based and technology-neutral, and the removal of LCFS crediting eligibility for hydrogen from fossil natural gas after January 1, 2031, defies these long-standing CARB principles within the LCFS. This proposed amendment discounts the potential for carbon capture and sequestration and assumes the carbon intensity of the natural gas grid will remain the same until 2030. The rule effectively eliminates natural gas production pathways with carbon capture, regardless of carbon intensity, including hydrogen produced via steam methane reforming (SMR), autothermal reforming (ATR), or methane pyrolysis, from supporting California's hydrogen economy. Doing so narrows the field of low-carbon producers (and supply), reduces competition among low-carbon hydrogen suppliers, and enables green hydrogen producers to charge a premium for their product absent competition. EcoEngineers strongly recommends that CARB reconsider this amendment. (15d1-059.3)

Comment: Page 3, New Subsection 95482(h) – Removes LCFS credit generation eligibility for hydrogen produced using fossil gas as a feedstock, effective January 1, 2031 (this aligns with the current operational timeline for projects funded under the hydrogen hub grants). Hydrogen is to be low-carbon renewable hydrogen produced through steam methane reformation of

biomethane, electrolysis and biomass gasification. TTP requests that CI scores be the driver for LCFS fuels recognizing that a blended fossil natural gas and renewable natural gas producing a lower CI score for hydrogen is a necessary path to hydrogen that will likely be needed beyond the January 1, 2031 date. (15d1-066.2)

Comment: The proposal to remove credits for hydrogen produced from fossil fuels is a positive step. But delaying implementation of this measure until 2030 means production of hydrogen from fossil fuels will continue to receive financial rewards for another five-plus years, thus incentivizing the harm we should be preventing. (15d1-068.2)

Comment: Rather than outright eliminate credit generation for hydrogen produced using fossil gas as a feedstock, CARB would be better suited to incentivize non-fossil gas hydrogen at a higher level. We currently need all the hydrogen we can produce. Eliminating credits entirely from hydrogen from fossil gas does nothing to encourage and develop a hydrogen market. (15d1-075.2)

Comment: As mentioned above, CARB should not arbitrarily exclude feedstocks for the production of low carbon fuels. Restricting natural gas to produce hydrogen will reduce the availability of hydrogen at the time when CARB is trying to incentivize the development of hydrogen fuel cell vehicles. Once again, the fuel LCFS crediting should be based on its CI score, not on an arbitrary limit, such as the “color” of the fuel. CARB would preempt future technologies that may enable low CI hydrogen from natural gas coupled with carbon capture, for example, or other technologies not yet available or economical.

Furthermore, hydrogen is also used in renewable fuel production. Natural gas greenhouse gas emissions used in the production of hydrogen are accounted for in the life cycle emissions and the CI of renewable fuels. CARB should allow instead more flexibility for enabling book-and-claim options to lower the CI of hydrogen used in renewable fuel production. (15d1-079.3)

Comment: 1. Eligibility of Hydrogen Produced From Fossil Feedstocks to Generate LCFS Credits

The foundation of the LCFS is that every fuel is evaluated on the basis of the carbon emissions that result from its production and use. The emissions associated with each gallon or kilogram of fuel are quantified, in grams of carbon-dioxide-equivalent emissions per megajoule of energy, from “well to wheels,” or from whatever the source of the fuel to the end use of the fuel for transportation purposes. In this sense, the LCFS is technology neutral. The state does not pick winners and losers, and does not. This is one of the primary virtues of the LCFS. The LCFS’s science-based, quantitative approach is efficient and produces the maximum possible climate benefit, because it rewards producers of low-carbon fuels only in proportion to their ability to reduce climate-warming emissions. It does not reward fuels that may in some sense be “renewable” but do not reduce emissions, and it rewards most highly those fuels that have the greatest impact on the climate and the planet. (15d1-081.1)

Comment: The draft amendments in the 15-Day Notice depart from this quantitative, science-based approach with respect to hydrogen. The proposed amendments include a new Section 95482(h) that assigns a carbon intensity to hydrogen unrelated to the emissions associated with its production and use: Effective January 1, 2031, hydrogen produced using fossil gas as

a feedstock is ineligible for LCFS credit generation unless biomethane attributes are matched to the hydrogen production as described in Section 95488.8(i)(2). Any volumes of hydrogen produced using fossil gas as a feedstock must be assigned the ULSD carbon intensity found in Table 7-1 of the LCFS regulation, as well as an EER of 1.

Under this section, hydrogen produced with fossil feedstock is assigned the carbon intensity of diesel fuel unless the fuel producer uses book-and-claim accounting to match environmental attributes to the feedstock used for the production of the hydrogen. Under the proposed amendment, the actual emissions associated with the production and use of the hydrogen fuel are not quantified. The proposed amendment does not allow any credit for the reduction in emissions that may result from production with carbon capture and sequestration (“CCS”).

Hydrogen produced with fossil fuel feedstocks should not be treated differently than other fuels under the LCFS. Although hydrogen produced from fossil fuel feedstocks may not generate any credits under the LCFS as the benchmarks for gasoline and diesel fuels decline over time, it nevertheless has the potential to contribute to reduced emissions in two ways. First, hydrogen produced with fossil fuels may have a very low carbon intensity if the emissions from its production are captured and sequestered with CCS. The 2022 Scoping Plan Update specifically recognizes an important role for hydrogen produced with CCS: “If steam methane reformation is paired with CCS, the hydrogen produced could potentially

be low carbon. ... Steam methane reformation paired with CCS can thus ensure a rapid transition to hydrogen and increase hydrogen availability until such time as electrolysis with renewables can meet the ongoing need”[1] The Scoping Plan Update sets a target of 100 million tons of carbon dioxide removed with CCS by 2045. Discouraging production of hydrogen with CCS is directly contrary to CARB’s climate plans as set forth in the Scoping Plan Update. (15d1-081.2)

Comment: Second, fossil hydrogen is often blended with low-carbon hydrogen to produce the carbon intensity demanded by the market. Hydrogen fuel retailers are currently demanding hydrogen with a zero carbon intensity. To provide that hydrogen, hydrogen producers purchase environmental attributes to apply, with book-and-claim accounting, to the fuel sold. Those attributes, however, often have negative carbon intensity. For example, dairy digester feedstock may have a carbon intensity of negative 300 gCO₂e/MJ, and to obtain a zero CI for the hydrogen produced it may not be necessary to purchase environmental attributes for all of the hydrogen produced. Some fossil hydrogen may be blended with very low carbon hydrogen to produce a CI of zero. If CARB were to adopt the amendments as proposed, hydrogen producers and sellers of environmental attributes would adapt by using multiple feedstocks to obtain the zero CI demanded by the market. But requiring these actors to, in effect, “game the system” would be inefficient. It would result in higher prices for environmental attributes, potentially reduce production or sales of hydrogen, and create market friction where CARB should be seeking the opposite result. (15d1-081.3)

Comment: The policy rationale that CARB provides for this proposed change is not persuasive. CARB states, in the 15-Day Notice, that CARB “is proposing to remove LCFS crediting eligibility for hydrogen produced from fossil fuels at the end of 2030 to align with the current operational timeline for projects funded under the hydrogen hubs grants, which will

expand the supply of renewable hydrogen in California.” In other words, CARB is assuming that the ARCHES hydrogen hub projects will be sufficient to produce enough electrolytic hydrogen, in just six years, to meet the state’s needs. But whether the hydrogen hub projects will produce a vast new supply of renewable hydrogen is unknown. Those projects are in their infancy, and the degree to which they will succeed cannot be predicted with any certainty today. CARB’s reliance on these projects is a quintessential example of counting one’s chickens before they hatch. CARB should be using every available means to reduce carbon emissions, not assuming that some projects, which have not even started yet, much less succeeded, will be sufficient to satisfy the state’s demand for low-carbon hydrogen.

Assigning a carbon intensity to hydrogen that does not reflect its actual carbon intensity is an unnecessary and counterproductive change to the LCFS. It is not justified by the reasons that CARB has provided and will make it less likely that the state will meet its climate change goals.

Moreover, adopting such disruptive changes sends the wrong signal to investors who are considering whether to support low-CI hydrogen projects. The 15-Day Notice represents an unexpected and surprising proposal and will negatively impact the investment and lending communities and ultimately risks provoking a retreat from investment in all low-carbon fuels because of fears of arbitrary and last-minute regulatory changes. CARB must refocus its efforts on sending clear regulatory support for all types of low-CI hydrogen projects.

Recommendation: Do not adopt the 15-day proposed changes regarding the restricted eligibility of fossil-produced hydrogen in the credit generating market. (15d1-081.4)

Comment: Restricting LCFS credits to non-fossil hydrogen after 2031:

- Does not align with CARB’s 2022 Scoping Plan;
- Inhibits economic incentives that will constrict supply and the California hydrogen sector;
- Ignores the State’s technology-neutral approach to carbon reduction; and
- Sends a message to investors that California’s regulatory agencies may arbitrarily change rules that negatively impact the investment landscape without notice laid out by the state’s own legislation.

Consistent with the 2022 Scoping Plan, California energy companies have planned for low carbon intensity (“CI”) hydrogen projects that mitigate carbon emissions by employing carbon capture and storage (“CCS”), with the understanding that these projects would receive LCFS credits. The 2022 Scoping Plan calls for a broad approach to defining low-CI hydrogen projects to support a projected massive increase in demand for hydrogen in the future. Developing a pipeline of low-CI hydrogen projects with CCS is essential to meet state climate targets, which compels CARB to provide long-term incentives in support of this emerging industry. The 15-Day Changes, as proposed, would eliminate these financial incentives by 2031, materially jeopardizing the long-term business justification for these projects and undercutting California’s chance to be a leader in low-CI hydrogen production.

Moreover, finalizing such disruptive changes sends the wrong signal to investors with respect to support for low-CI hydrogen projects. The 15-Day Changes represent an unexpected and surprising proposal, exactly the kind that sends shocks through the investment and lending communities and ultimately risk provoking a sweeping retreat from investment in any type of

low-carbon fuels because of fears of arbitrary and last-minute regulatory changes. CARB must abandon the 15-Day Changes and refocus its efforts on sending clear regulatory support for all types of low-CI hydrogen projects. (15d1-098.1)

Comment: These references were included in the final adopted version of the 2022 Scoping Plan despite multiple commenters calling on CARB to explicitly exclude CCS from its definition of hydrogen production eligible to generate LCFS credits. Adhering to the 2022 Scoping Plan requirements outlined in AB 32, CARB refused to take such a narrow approach and built flexibility into the final 2022 Scoping Plan. The August 2024 15-Day Changes, with the newly proposed Subsection 95482(h), inexplicably and radically depart from CARB's prior actions and as called for by the 2022 Scoping Plan. This change in the Board's direction seems arbitrary and capricious in light of the rulemaking record.

This abrupt change in CARB's stance towards low-CI hydrogen with CCS is further evidenced when compared to the Board's responses to public comments on the draft 2022 Scoping Plan. When a public commenter called for CARB to only support electrolytic hydrogen generation via renewable electricity, the Board responded by stating that: [t]he 2022 Scoping Plan does not prescribe the energy source to produce hydrogen, and therefore, steam methane reformation paired with CCS could be considered in the near term to ensure a rapid transition to hydrogen and increase hydrogen availability until such time as electrolysis with renewables and biomass-based hydrogen can meet the ongoing need. CARB further acknowledged that because "the build-out [of renewable power generation] takes time and is additive to the growth in demand associated with electrification across the economy, the state needs to keep options open for other methods to produce zero carbon hydrogen at the scale needed to meet the projected demand."²⁴ The 15-Day Changes, however, without explanation or support, seemingly ignore CARB's prior express statements supporting broad approaches to identifying low-carbon methods of hydrogen production that will meet state climate goals and should therefore be incentivized. The 15-Day Changes directly conflict with the 2022 Scoping Plan and all other prior signals of regulatory intent from CARB without more than a cursory explanation.

It is unrealistic to expect hydrogen produced from renewable energy will scale sufficiently by the end of the decade to develop the market size California seeks. Developers seek to maximize their investment, thus build financial models based on the ability to operate an electrolyzer as much as possible. As such, electrolyzers that use renewable energy to produce hydrogen need to be paired with energy storage capabilities to ensure maximum use of the equipment. Goldman Sachs, an investment bank that has conducted extensive market research in the hydrogen sector, notes that power prices need to be below US\$30/MWh to compete with hydrogen produced from natural gas combined with carbon capture and storage²⁵ (see chart below labeled "Exhibit 74": the bank refers to this production method as "blue" hydrogen). Current PG&E industrial consumer retail prices in Q1 2024 were ~US\$200/MWh. Lazard, an investment bank with extensive industry research, notes in June 2024 research (see chart below²⁶) that to ensure firm reliability when renewables are intermittent, the levelized cost of wind and solar in the California Independent System Operator (CAISO) region is between US\$123-177/MWh.

These price signals do not incentivize developers to build renewable generation, required storage and hydrogen electrolyzer equipment – and it is unlikely that these pricing dynamics will change sufficiently by 2031. (15d1-098.4)

Comment: The 15-day changes propose an updated definition to “Renewable Hydrogen”. We specifically wish to comment on the language in item (2) which identifies “steam methane reforming of biomethane or other renewable hydrocarbons” as a qualifying process. While we support the explicit inclusion of “other renewable hydrocarbons”, we believe that this definition should also include renewable oxygenates, such as renewable DME, which serve the same function and purpose as renewable hydrocarbons in the production of renewable hydrogen via steam reforming. To better reflect the versatility of renewable feedstocks used in renewable hydrogen production, we recommend that CARB amend the language to include renewable oxygenates. For example, the phrase could be revised to “steam methane reforming of biomethane or other renewable hydrocarbons or oxygenates” or “steam methane reforming of biomethane, renewable hydrocarbons, or renewable oxygenates”. This change would ensure that the definition accurately reflects the range of renewable sources that can be used with steam reforming technologies to maximize renewable hydrogen production, while promoting technology neutrality and innovation in hydrogen production technologies. (15d1-105.6)

Comment: The Amendments should encourage ethanol as a renewable feedstock to produce ultralow-CI transportation fuels. An important benefit of using ethanol as a feedstock is that atmospheric CO₂ can be captured and permanently removed through Proteum’s SnMR™ process combined with CCS. Crops and the cellulosic resources used to produce ethanol capture CO₂ directly from the air which is liberated in Proteum’s SnMR™ process with production of renewable transportation fuels; when sequestered, this CO₂ is permanently removed from the atmosphere. This process is not only renewable but exceeds the carbon abatement benefits of other production processes like electrolytic hydrogen using renewable power. With the support of LCFS credits, it does so in a more economically feasible way than other abatement methods like direct air capture. Accordingly, the use of sustainable ethanol as a feedstock for hydrogen production for transportation fuels should be encouraged. In particular: (i) The definition of “Renewable Hydrogen” should include hydrogen produced from ethanol feedstock; (ii) The definition of “Biomethane” should provide for biomethane produced from reformation of ethanol feedstock; (iii) The definition of “Biomass” should include all plant-based materials, including ethanol to encourage Biomass reformation innovation; and (iv) Reforming of ethanol should be added to the list of suggested hydrogen production methods for drop-in fuels at § 95488.1(d)(4) and innovative production techniques at § 95488.1(d)(6).

To support innovation in the production of low-CI transportation fuel production, the term “renewable hydrocarbon” should be defined and include renewable oxygenated hydrocarbons, including ethanol and other biomass sources, that meet the requirements of § 95488.9(g). (15d1-126.2)

Comment: the proposed restrictions on hydrogen produced using fossil natural gas and carbon capture and sequestration each present several challenges that threaten to surrender the decarbonization potential of a burgeoning hydrogen industry. (15d1-149.5)

Comment: The true emissions intensity of biogas and biomethane sources is very dependent on fugitive methane, which when released into the atmosphere has roughly 80 times the near-

term warming power of carbon dioxide. As EPA acknowledges in its RNG Operations Guide, “fugitive emissions of methane, depending upon their magnitude, can negate the climate and environmental benefits of RNG projects.” The IPCC also references multiple studies

(Scheutz and Fredenslund 2019; Bakkaloglu et al. 2021) that show how fugitive emissions can make biogas production emission intensive.

Furthermore, the gray and black hydrogen producers that purchase credits from dairy biomethane producers in order to qualify under LCFS also heavily emit CO₂—but via current LCFS crediting math this whole process is considered ‘zero emission’.

At the least, CARB should set guardrails so that any negative CI scores are not used to offset a fossil facility’s real emissions in lieu of actual reductions at the facility. (15d1-192.4)

Comment: Commenters urge CARB to...eliminate modifications that sanction hydrogen methane laundering. (15d1-211.5)

Comment: CARB’s proposed changes to section 95482(h) would reinforce and even intensify CARB’s encouragement of methane laundering in the production of dirty hydrogen. Beginning on January 1, 2031, CARB would allow fossil fuel hydrogen to generate credits only if it is paired with the environmental attributes of biomethane.¹⁴ This modification would have the effect of increasing demand for livestock methane by codifying a monopoly whereby the environmental attributes of biomethane are the only avenue for fossil gas hydrogen producers to generate LCFS credits. Similarly, it will send market signals to biomethane producers and investors that there will be increased demand for biomethane to support hydrogen production in 2031 and thereafter. This modification will only encourage more factory farm gas production along with the air, water, and odor pollution that accompanies the concentration of cows, manure, and gas infrastructure. (15d1-211.11)

Comment: As an additional note, CARB lacks authority to adopt LCFS amendments post-2030 or promulgate regulations to encourage hydrogen production.¹⁵ The Legislature has not authorized such rulemaking authority or otherwise directed CARB to use the LCFS as the mechanism for developing hydrogen infrastructure. (15d1-211.12)

Comment: Sunsetting Credit Generation for Hydrogen Restricts Space for Innovation; (15d1-214.4)

Comment: Sunsetting Credit Generation for Hydrogen Restricts Space for Innovation

Staff proposes to add new subsection 95482(h) to remove LCFS credit generation eligibility for hydrogen produced using fossil gas as a feedstock, effective January 1, 2031. Kern opposes this addition and encourages CARB to take a comprehensive, inclusive approach to meeting the hydrogen needs of a clean energy future. CARB has consistently acknowledged the need and support for advanced technologies, and a broad portfolio of fuels to meet the state’s climate goals. While the projected operational timeline for projects funded under the hydrogen hubs grants may appear to support expanded hydrogen production in California, the elimination of a viable, immediately available option before these projects have been realized is short-sighted and again demonstrates a willingness to pick winners and losers.

The production of fossil hydrogen with carbon capture and/or other advanced technologies should be seen as a positive contribution to expanding the supply of low-carbon hydrogen in California, able to supplement production via steam electrolysis, biomass gasification, and steam methane reforming of biomethane. Kern does not utilize steam methane reformers to make hydrogen from fossil gas. Instead, Kern's refining operation produces hydrogen as a byproduct from our gasoline production facilities. Currently combusted on-site as fuel gas in industrial heaters, Kern is actively working with innovative partners on an advanced technology that would capture this hydrogen for use in on-site fuel cells to produce electricity – that is, replacing electricity from cogeneration and the state's grid with zero CI electricity produced on-site by effectively using this existing energy source. Further, use of this captured hydrogen would allow for the replacement of diesel-powered engines in fixed generators and mobile equipment with clean hydrogen-fueled internal combustion engines or hydrogen-powered fuel cells, supporting the move to zero-emission applications in the heavy duty and industrial sectors.

CARB must remain open to a broad array of technologies and avoid adopting policies that stifle innovation. Imposing barriers and prohibitions to the mobilization of existing industry and infrastructure only serves to hamper the development of key solutions and discourage contributors focused on improving our shared climate improvement goals. Kern urges CARB to eliminate this new subsection before final approval of LCFS amendments. (15d1-214.14)

Comment: 2. Exclusion of Hydrogen Produced from Fossil Fuel Gas: The proposed amendment to exclude hydrogen produced using fossil fuel gas from LCFS credit eligibility, effective January 1, 2035, presents several issues:

A. Supply Constraints

I. Drastic Reduction in Supply: Hydrogen produced from fossil fuels, specifically through methods such as steam methane reforming (SMR), currently represents a substantial portion of the hydrogen supply in the market. This production method is well-established and forms the backbone of the existing hydrogen infrastructure. Removing this source could lead to a significant reduction in available hydrogen, as renewable hydrogen production capacities are still developing and are not yet able to meet current demand levels.

II. Increased Costs: With a reduced supply of hydrogen, the costs associated with hydrogen production are likely to rise. The infrastructure and economies of scale that currently support fossil-based hydrogen production are not as advanced for renewable hydrogen. Consequently, excluding fossil-based hydrogen could result in higher prices for hydrogen, which would be passed on to end-users.

III. Market Instability: The sudden exclusion of a major hydrogen source could cause volatility in the hydrogen market, affecting not only supply but also pricing stability. This could create uncertainty for businesses and investors, potentially stalling further investments in hydrogen infrastructure.

B. Transitional Challenges

I. Infrastructure Development: Building the infrastructure necessary to produce, transport, and distribute renewable hydrogen at scale requires substantial time and investment. Renewable

hydrogen technologies such as electrolysis are still emerging, and their infrastructure is not yet sufficient to replace fossil-based hydrogen in the short term. Excluding fossil-based hydrogen prematurely could disrupt ongoing efforts to develop this infrastructure and slow down the transition process.

II. Technological Advancements: The renewable hydrogen sector is evolving, but the pace of technological advancements and cost reductions is not uniform across all areas. Immediate exclusion of fossil-based hydrogen may outpace the development and commercialization of new technologies, impeding the smooth transition to fully renewable hydrogen solutions.

III. Strategic Planning: Energy policy should provide a gradual and strategic path towards renewable alternatives. Abrupt policy shifts can create misalignment between current capabilities and future goals, making it difficult for stakeholders to plan and implement the necessary changes effectively.

C. Consumer Impact

I. Increased Costs: As the supply of hydrogen decreases and production costs rise, the price of hydrogen will inevitably increase. This price hike will directly affect consumers and businesses that use hydrogen as a transportation fuel.

II. Impact on Decarbonization Efforts: Many industries are investing in hydrogen technologies to reduce their carbon footprints. The increased cost and reduced availability of hydrogen could slow down the adoption of hydrogen technologies, hampering efforts to achieve broader decarbonization goals.

III. Economic Disruption: Higher hydrogen costs could lead to increased operational expenses for companies that rely on hydrogen as a transportation fuel, potentially resulting in higher prices for goods and services. This economic impact could be particularly severe for small and medium-sized enterprises that may struggle to absorb the increased costs. (15d2-001.3)

Comment: *Restricting hydrogen feedstocks will forgo important emission benefits.* Sunsetting fossil-based hydrogen credits limits hydrogen production from natural gas, including the deployment of carbon capture and sequestration technologies that would dramatically lower the CI scores. By constraining production eligibility, CARB is failing to achieve the “maximum technologically feasible and cost-effective greenhouse gas emission reductions” in accordance with HSC § 38560. A technology-neutral approach would better align with CARB’s rulemaking obligations under Gov. Code § 11346.2(b)(4)(A), which requires CARB to consider performance standards as an alternative to mandating the use of specific technologies or equipment or prescribing specific actions or procedures. Further, HSC § 38562.2 obligates CARB to “[i]dentify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California to complement emissions reductions . . .”. By disallowing fossil gas feedstocks under the LCFS, CARB is violating the mandate under HSC § 38562.2 and preventing the use of lower-carbon hydrogen production using CCS under the program. (15d2-195.18)

Comment: *Eliminating credits for fossil-based hydrogen will strand existing assets and deter future investments.* The 2035 sunset of fossil-based hydrogen credits does not leave sufficient time for companies to recoup their investment in both CCS retrofits to existing hydrogen production, and facilities that have yet to be built. This will likely deter investment in the production of lower-carbon fossil-based hydrogen. CARB's proposed departure from a technology-neutral, market-based approach sends a clear message to investors that California's regulatory agencies may arbitrarily change rules and negatively impact the investment landscape. Large-scale innovation and new investment in various industrial sectors rely on a diverse portfolio of resources. Arbitrarily restricting production technologies will likely stifle investments and innovation and will drive up program costs. (15d2-195.19)

Comments: Dear Clerk of the Board, While considering revisions to the LCFS, please take into account the needs of the companies that are currently selling retail hydrogen. The folks who drive FCEVs rely on these companies to refuel and currently, the price of the fuel is so high that we are not driving these cars nearly as much as we could; some people are not driving them at all. Many of our Association members and others have indicated that they have stashed their cars in the garage to wait until the price comes down. That means that instead of taking CO2 out of the atmosphere, we are putting more in, which is contrary to the reason we bought these cars in the first place - to slash carbon emissions and to further the climate goals of California. The companies that sell retail hydrogen are on the forefront of hydrogen car and hydrogen truck adoption. Without them, we would not be talking about full decarbonization in California with any hope that it's actually going to happen before the climate crisis we're in gets significantly worse. (15d2-196.1)

Comment: While California's fuel market and LCFS rules allow for equal access and competition among suppliers of fossil-based gasoline, diesel, and liquid biofuels, the same rules as proposed in the draft LCFS regulations, unfortunately, do not apply to low CI hydrogen thus disadvantaging it from fully and fairly participating in the clean fuels transition and ultimately limiting access to a broad supply base. An unequal playing field will delay the availability of low CI hydrogen for the California fuels market, increase costs for California hydrogen consumers, and hinder the energy transition. (15d2-206.1)

Comment: In response to the first 15-day change package, we expressed concern with the new requirement that all hydrogen used in mobility applications be renewable after 2030.¹ This was a substantial new requirement that was not subject to workshop discussion and places hydrogen on unequal footing with electricity as a zero-emission fuel or biogas and other pathways with longer run times to transition to new requirements, moves away from the technology-neutral approach that the LCFS has always taken, undermines the beneficial role of carbon capture and sequestration, forgoes additional emission reductions that low carbon hydrogen can provide, obviates the important work being done at CARB to develop a wide ranging market evaluation of all forms of hydrogen (including non-renewable pathways) as directed by SB 1075, and presents timing challenges for the industry to rapidly move away from existing supplies to new sources. (15d2-206.4)

Comment: Should CARB move forward with proposed restrictions on fossil-based hydrogen pathways, we request resolution language and subsequent guidance that clarifies that the 2030 and 2035 renewable hydrogen requirements only apply to any proportional volume of

hydrogen that is delivered for use in California, rather than the entirety of a hydrogen project including output utilized in markets outside of the state. We also request that the resolution language and guidelines recognize improvements to the CI of fossil hydrogen by requiring renewable credits be purchased in proportion to the residual CI of the dispensed hydrogen above a CI threshold of 0 g/MJ. This way, CI improvements for fossil hydrogen are still incented and consumer costs are minimized with respect to biomethane credit purchases when other measures to reduce the hydrogen CI have been implemented. (15d2-206.6)

Comment: We object to the proposed language added to 95482(h) requiring that 80 percent of hydrogen dispensed as a vehicle fuel be renewable by January 1, 2030. This is the first volumetric mandate ever proposed under the LCFS, which runs counter to the design and intent of the program. Carbon intensity scores and annual benchmarks are the proper mechanisms to encourage a transition to lower-carbon solutions. An arbitrary volumetric requirement is inappropriate. (15d2- 207.14)

Comment: Over 95% of US production of hydrogen is produced from steam methane reforming of natural gas.⁷ While new renewable hydrogen technologies have promise, it will take considerable time to develop these commercially on a large scale. Construction of large-scale facilities takes, at minimum, a 10-year cycle time for full capital project execution from final investment decision. Given that there are virtually no large-scale projects through final investment decision and permitting in California today, 2030 is far too early to implement an 80% renewable hydrogen requirement.

⁷https://www.energy.gov/sites/prod/files/2020/07/f76/USDOE_FE_Hydrogen_Strategy_July2020.pdf (15d2- 207.15)

Comment: In addition, the 80% renewable hydrogen requirement does not include CCUS-enabled hydrogen as a solution. (15d2- 207.16)

Comment: Further, the proposed language provides no procedures for measuring or enforcing this mandate. Is the 80 percent mandate measured company-wide or by facility? Is it an annual requirement? What happens if a company fails to meet the 80 percent requirement? These are not details that can be handled by guidance documents. Absent enforceable regulatory language, the proposed mandate only serves to add uncertainty for potential investors. (15d2-207.17)

Comment: Despite the five-year delay in its effective date, the cutoff of crediting for fossil-based hydrogen is still inappropriate. CARB has highlighted carbon capture and sequestration as a critical element of its Scoping Plan and there is potential for investment in CCUS-enabled hydrogen for California. If the LCFS will not reward such innovation, these investments will be discouraged. (15d2- 207.18)

Comment: Most problematic is the proposal to substitute the ULSD carbon intensity from Table 7-1 and an EER of 1.0 for hydrogen from fossil gas. There is no scientific basis for this. Most EER-adjusted pathways for fossil-derived H₂ are > 40 gCO₂/MJ below ULSD today. This not only disallows crediting but adds a penalty for fueling hydrogen fuel cell vehicles, inhibiting meaningful progress. Without this change, traditional hydrogen will be a deficit-generating fuel by 2035 which will drive producers to lower their CI. Substituting the ULSD CI and EER artificially more than doubles those deficits. (15d2- 207.19)

Comment: Accordingly, the GHC requests that CARB include additional direction to support the market demand and supply for hydrogen as a part of its Board Resolution adopting LCFS amendments. Specifically, GHC requests the Board Resolution require CARB staff to develop additional demand signals to enable the development of lowest-cost hydrogen for the transportation market, including incentives to utilize renewable hydrogen as an input to transportation fuels for the maritime and aviation sectors. (15d2-220.2)

Comment: Per the proposed changes, fossil gas used as feedstock for the production of hydrogen is ineligible for LCFS credit generation starting in 2035, a change from 2030. The GHC supports the need to accelerate the growth of the renewable hydrogen industry in California to replace fossil-based hydrogen over time, but there are investments that need to happen today by the incumbent industry as they transition away from fossil to renewable resources. (15d2-220.3)

Comment: New Provision Effectively Ending RNG to Natural Gas Vehicles by End of Decade will Slow Methane Reductions and Contradicts Other Provisions in Amendment Package

New to the second 15-Day Package, but not included in the staff summary of the material changes, is a major new proposal imposing restrictions on biomethane pathways starting in 2030. Paragraph (g) in section 95482 mandates that for new projects that break ground after December 31, 2029, RNG used in CNG vehicles will receive the CI of natural gas and not the CI of the RNG created after December 31, 2040. This provision has not appeared in previous drafts, and we are concerned that at the very end of this multi-year LCFS amendment process, CARB staff is proposing, for the first time, to end pathways for certain vintage RNG supplying negative CI fuel to trucks, buses and other vehicles. This new restriction will undoubtedly diminish development of new biogas projects several years before the December 31, 2029 deadline as developers will not pursue projects that miss the break ground deadline or begin operation without at least two, ten-year avoided methane crediting periods of LCFS credit generation potential. As a result, this provision curtails an effective tool for eliminating manure related methane emissions at dairies and other facilities, despite other new provisions extending methane abatement credits. DTE strongly objects to the last-minute insertion of this sunset provision that contradicts other changes and will disrupt ongoing efforts to abate methane from agriculture sites. (15d2-224.4)

Comment: CTV believes that the proposed modifications to LCFS credit generation for hydrogen projects introduces significant uncertainty and ambiguity, putting multibillion dollar industry-wide investment in H2 at risk. CARB must modify the 15-Day Changes or risk suppressing California's nascent low-carbon hydrogen industry. (15d2-242.1)

Comment: Moreover, finalizing such disruptive changes sends the wrong signal to investors with respect to support for low-CI hydrogen projects. The 15-Day Changes represent an unexpected and surprising proposal, exactly the kind that sends shocks through the investment and lending communities and ultimately risk provoking a sweeping retreat from investment in any type of low-carbon fuels because of fears of arbitrary and last-minute regulatory changes. CARB must modify the 15-Day Changes and refocus its efforts on supporting the development of California's low-CI hydrogen economy. (15d2-242.3)

Comment: As a California-based company committed to the energy transition, CTV supports CARB’s overall goal of achieving carbon neutrality by 2045 and reducing greenhouse gas (“GHG”) emissions by 2045 to a level that is 85% below 1990 levels. In its Statement of Reasons for the December 2023 proposed LCFS amendments, CARB stated that “[m]eeting this goal will require the deployment of greenhouse gas emission reduction strategies at an unprecedented scale and pace.”⁵ (15d2-242.4)

Comment: Delay to 2045 the phase out of crediting for hydrogen production using fossil gas in Subsection 95482(h);

Delaying the phase out to 2045 would allow sufficient time for development and financial recovery of low-CI hydrogen projects, which is needed for projects to succeed. Additionally, CARB should insert language that revisits the 2045 deadline in case renewable hydrogen takes longer to scale than anticipated.

This would align with the 2022 Scoping Plan’s intent to allow affordable low-CI production methods, like fossil gas + CCS, to meet California’s growing hydrogen demand, while ensuring that renewable hydrogen becomes the dominant source of production when it becomes available in sufficient quantities. (15d2-242.7)

Comment: As explained above, CARB must revisit various provisions of its proposed 15-Day Changes to the LCFS regulations that restrict projects producing hydrogen from fossil gas and CCS from LCFS credit generation starting in 2030. Revisions to the 15-Day Changes are necessary to ensure consistency with the 2022 Scoping Plan and, importantly, to recognize the importance of low-CI hydrogen in meeting the state’s ambitious climate goals. To that end, we respectfully ask CARB to consider the proposed revisions to Subsection 95482(h) contained in this letter. (15d2-242.8)

Comment: In section 95482(h), staff proposes to require that hydrogen produced using fossil gas as a feedstock will become ineligible for LCFS credit generation beginning January 1, 2035, instead of January 1, 2030. In 2030, hydrogen dispensed as a vehicle fuel would need to be at least 80 percent renewable to match the requirement listed in sections 95486.3(a)(4)(F) and 95486.4(a)(4)(G) for hydrogen refueling infrastructure (HRI) crediting. The proposed change, apparently intended to improve alignment of hydrogen renewable content requirements across the LCFS regulation, better align with the renewable requirements for the electricity grid and give more time for non-fossil hydrogen to scale up and effectively displace fossil hydrogen used in California.

Comment: During the Treasury Department’s solicitation of comments for 45V incentives for green hydrogen, multiple informed commenters made clear that goals for electrolytic hydrogen in compliance with the three pillars could be met without compromising requirements.

Given the national context, we see no justification for CARB to give an “extra” seven years to fossil hydrogen.

In addition, your reference to non-fossil hydrogen is misguided. Hydrogen made from biomass is neither emissions-free nor even lower emission than combustion of biomass. LCFS program planners should know that LCAs of all woody biomass sources of energy show positive, not negative or neutral, emissions well past the time we need to be at net zero. (15d2-281.2)

Comment: We thank CARB for extending its proposed deadline for credit generation for hydrogen produced fossil gas from 2030 to 2035. It is crucial that we keep all the tools in our toolbox and these extra years are crucial to ramp up the supply of hydrogen and make it into a viable economy. (15d2-291.2)

Comment: Sunsetting Credit Generation for Hydrogen Restricts Space for Innovation;

In the first 15-day package, Staff proposed to add a new subsection 95482(h) to remove LCFS credit generation eligibility for hydrogen produced using fossil gas as a feedstock, effective January 1, 2031. Kern's previous comments expressed opposition to this addition and encouraged CARB to take a comprehensive, inclusive approach to meeting the hydrogen needs of a clean energy future. Kern appreciates Staff's reconsideration and extension of the sunset date to 2035 by adding a runway allowing some crediting from 2031 to 2034. Nonetheless, these new provisions continue to pick winners and losers rather than allowing space for innovation and inclusive solutions.

CARB has consistently acknowledged the need and support for advanced technologies, and a broad portfolio of fuels to meet the state's climate goals. While the projected operational timeline for projects funded under the hydrogen hubs grants may appear to support expanded hydrogen production in California, the elimination of a viable, immediately available option before these projects have been realized is short-sighted and stifles the very innovation that has historically fueled California.

The production of fossil hydrogen with carbon capture and/or other advanced technologies should be seen as a positive contribution to expanding the supply of low-carbon hydrogen in California, able to supplement production via steam electrolysis, biomass gasification and steam methane reforming of biomethane. Kern does not utilize steam methane reformers to make hydrogen from fossil gas. Instead, Kern's refining operation produces hydrogen as a byproduct from our gasoline production facilities. Currently combusted on-site as fuel gas in industrial heaters, Kern is actively working with innovative partners on an advanced technology that would capture this hydrogen for use in on-site fuel cells to produce electricity – that is, replacing electricity from cogeneration and the state's grid with zero CI electricity produced on-site by effectively using this existing energy source. Further, use of this captured hydrogen would allow for the replacement of diesel-powered engines in fixed generators and mobile equipment with clean hydrogen-fueled internal combustion engines or hydrogen-powered fuel cells, supporting the move to zero-emission applications in the heavy duty and industrial sectors.

CARB must remain open to a broad array of technologies and avoid adopting policies that stifle innovation with the imposition of arbitrary timelines. Imposing barriers and prohibitions to the mobilization of existing industry and infrastructure only serves to hamper the development of key solutions and discourage contributors focused on improving our shared climate improvement goals. Kern again urges CARB to eliminate this new subsection before final approval of LCFS amendments. (15d2-296.2)

Comment: Staff has also not responded to requests for clarification about the hydrogen provisions of the Proposal. As Governor Newsom recently emphasized, transparency is

paramount, but the LCFS process has significantly fallen short of this core standard. (BH-030.12)

Comment: Hydrogen is only as sustainable as it is made. Therefore - Solar, Recycled water would make it more so. I have had FUEL CELL since 2016 - Stations are getting better - Fuel is becoming more expensive. Keep this Technology going. (BH-050.1)

Comment: We are additionally concerned that this Program will incentivize fossil-based hydrogen from fossil fuel feedstocks. Again, this does not align with CARB's goals to move away from fossil fuels. Many refineries are in disadvantaged communities already and this will only exacerbate the issues that concern the communities there. (BHT-32)

Comment: We are concerned however about several of the amendments under consideration today that are putting up artificial barriers to proven lower carbon fuels while we are simultaneously accelerating targets. The proposals restrict crediting for hydrogen and biogas, discourage their use regardless of life cycle emission benefits. These restrictions will discourage investment in hydrogen and CNG stations, renewable hydrogen production and vehicle adoption. (BHT-27)

Comment: Four, limiting crediting for hydrogen will limit cost effective decarbonization options and create market uncertainty. (BHT-65)

Comment: The recent 15-day changes extended credit generation pathways for hydrogen from refineries until 2035. After 2035, it requires refineries to purchase biomethane credits doubling down on harms to both dairy and refinery communities. This new proposal is even worse than the last. (BHT-171)

Comment: Moreover, the exclusion of hydrogen produced from fossil fuels will likely disrupt the hydrogen market. As renewable hydrogen production remains limited, this change could lead to higher hydrogen prices affecting both consumers and industries investing in hydrogen to decarbonize. (BHT-201)

Comment: You see I'm against the low carbon fuel credit, because incentivizes natural gas and also incentivizes fossil fuel-based hydrogen -- fossil fuel -- hydrogen fossil fuels, and it's all leaky -- it often leaks (BHT-251)

Comment: When I bought my Hydrogen Mirai in 2021, fuel cost was \$13/Kilogram. It has now increased to \$36/Kilogram, which is unsustainable for me. I believe Hydrogen is the answer for zero emission vehicles, but the infrastructure needs to improve, and barriers removed to drive the price down. Please do what you can to help with this effort! (BH-061.1)

Comment: Green electrolytic hydrogen: Staff missed a unique opportunity to have the LCFS drive truly green electrolytic hydrogen by requiring that it be produced only with zero-carbon electricity adhering to the "three pillars" of additionality, deliverability, and hourly matching. (BH-034.6)

Comment: First, as to hydrogen and fuel cell development, we continue to urge CARB to ensure that the LCFS drive investment in hydrogen infrastructure. Toyota agrees with our hydrogen fueling partners that the proposed 1.5 times cap on CapEx will chill investment in

necessary hydrogen station development, particularly in these critical early years of infrastructure build-out. (BHT-135)

Comment: To effectively combat climate change, our focus must be on reducing carbon emissions, not on eliminating hydrocarbons. Modern technologies like methane pyrolysis allow us to separate carbon from hydrocarbons, enabling the production of clean hydrogen while utilizing existing infrastructure and minimizing costs. This approach yields hydrogen as clean, if not cleaner, than so-called "green hydrogen," without relying on renewable power.

Categorically excluding fossil fuels from hydrogen production under the LCFS undermines California's environmental goals by ignoring a critical, low-carbon, and scalable solution. Here's why:

1. Fossil fuel-based hydrogen can achieve carbon neutrality or negativity: methane pyrolysis can produce hydrogen with minimal or even negative carbon footprints, offering a competitive and immediate pathway to emission reduction.
2. Urgent decarbonization: delaying the adoption of all viable low-carbon technologies will harm vulnerable communities disproportionately affected by pollution and climate change. We need immediate, practical solutions to meet our environmental targets.
3. Infrastructure reliability: using existing natural gas pipelines for hydrogen distribution ensures reliable supply and enhances fuel cell vehicle adoption. Limiting fossil fuel-derived hydrogen would hinder the transition to clean transportation.
4. Cost competitiveness: a diverse hydrogen market lowers costs and price to end users. Excluding fossil fuel-derived hydrogen stifles innovation, limiting affordable decarbonization options.
5. Water conservation: unlike electrolyzers, hydrogen production from methane pyrolysis requires no water, a crucial advantage in drought-prone areas of California.

We can and should leverage fossil fuels to produce clean hydrogen. Excluding this pathway further delays critical progress in achieving California's urgent climate goals. (BH-045.1)

Agency Response: Staff made changes in response to these comments. Staff had originally proposed that hydrogen produced using fossil gas as a feedstock would become ineligible for LCFS credit generation beginning January 1, 2030. However, in response to stakeholder comments, staff modified the proposal in section 95482(h) to align with the renewable content requirements in sections 95486.3(a)(4)(F) and 95486.4(a)(4)(G) for hydrogen refueling infrastructure (HRI) crediting. In 2030, hydrogen dispensed as a vehicle fuel would need to be at least 80 percent renewable. Hydrogen produced from fossil fuels would still be eligible until January 1, 2035. The timing of this provision in the Proposed Amendments as modified aligns with the current operational timeline for projects funded under the hydrogen hubs grants, which will expand the supply of renewable hydrogen in California starting in the early 2030s and aligns with mandates that 90% of electricity retail sales be renewable or zero carbon by 2035 (SB 1020 (Laird, Chapter 361, Statutes of 2022)).

These proposed amendments do not conflict with the 2022 Scoping Plan Update, as suggested by some stakeholders. The 2022 Scoping Plan Update identified a need for low-carbon, renewable hydrogen for the transportation sector (among other sectors) to displace fossil fuels in support of achieving the State's greenhouse gas emission reduction goals. The 2022 Scoping Plan Update scenario did not include hydrogen produced from fossil fuels, with or without carbon capture, as low-carbon, renewable hydrogen. Instead, it identified as low carbon and renewable hydrogen produced through steam methane reformation of biomethane, electrolysis, and biomass gasification. The 2022 Scoping Plan Update supported use of carbon capture and sequestration technology across industries as one potential technological solution to reduce greenhouse gas emissions; in fact, the biomass gasification to hydrogen pathway included in the 2022 Scoping Plan Update explicitly included carbon capture. The proposed amendments do not preclude the use of carbon capture and sequestration on hydrogen production, provided that fossil gas is not the primary feedstock, as is the case for hydrogen produced from steam methane reformation of fossil gas without matching biomethane attributes. The proposed amendments also continue to allow matching of biomethane attributes to steam methane reformers. With regard to the definitions of renewable hydrogen, biomethane and biomass, please also refer to responses to comments B-33, B-5 and B-4, respectively.

The proposed amendments should not create barriers to deployment of low-carbon hydrogen. CARB Resolution 24-14 directs staff to monitor low-carbon hydrogen availability in California to determine if this provision may unduly restrict investment in low-carbon hydrogen projects and slow progress toward California's zero emission vehicle deployment goals.

O-2 Multiple Comments: *Allow Hydrogen Produced Only From Renewables/Oppose Hydrogen Produced Using Fossil Gas and/or Dairy Biogas*

Comment: CARB must not encourage continued and/or prolonged use of fossil fuels through its petroleum-plus-CCS phase-out loophole. (45d-210.5)

Comment: Hydrogen using fossil fuels plus CCS must not be eligible for reducing the CI score or LCFS credits generally. (45d-210.6)

Comment Summary: The LCFS should only incentivize green hydrogen produced in a manner consistent with Environmental Justice Equity Principles. Unfortunately, the proposal expands the program's support for non-green hydrogen projects by adding book-and-claim crediting for hydrogen produced outside California. Particularly concerning is CARB's proposal to add book-and-claim eligibility for fossil-based hydrogen that uses CCS or book-and-claim biomethane. This would allow out-of-state producers to create hydrogen from fossil fuels and earn LCFS credits by using CCS or purchasing book-and-claim biomethane credits. As a result, California drivers will subsidize the out-of-state production of fossil-based hydrogen." (45d-304.16)

Comment: Eliminate flawed carbon accounting practices that lead to lavish subsidies for dirty hydrogen and undermine green hydrogen production

How CARB calculates CI for factory farm gas also threatens to undermine any hope of a “green” hydrogen future in California.¹³¹ CARB proposes to use the LCFS to build up and entrench factory farm gas production, with a goal of eventually “shift[ing] biomethane to the production of renewable hydrogen or for use in other sectors by 2045.”¹³² Using the same flawed carbon intensity analyses for hydrogen produced from combusted biogas or steam methane reformation paired with factory farm gas offset credits will disadvantage and undercut truly green, electrolytic hydrogen produced from solar, wind, or other clean energy sources. This is because producing dirty hydrogen and buying factory farm gas credits results in lower carbon intensity hydrogen on paper than solar electricity used for electrolysis.

Existing hydrogen pathways exemplify this perversity. For example, CARB recently certified several pathways for hydrogen produced by steam methane reformation of fossil natural gas paired with factory farm gas credits from dairies in New York state.¹³³ While this is for the production of dirty, fossil fuel-based hydrogen, CARB certified CI values ranging from -102.79 to -181.75, many times more lucrative than zero emission hydrogen production using solar or wind that would receive at best a CI of zero.¹³⁴ And CARB staff have certified other dirty hydrogen pathways with even more extreme CI values.¹³⁵ As staff make clear, this is the supposedly “renewable hydrogen” future that the proposed Amendments are designed to lock in. (45d-383.4, 45d-368.41)

Comment: The LCFS offers far greater subsidies for dirty hydrogen than for green hydrogen. The most common hydrogen pathway certified under the LCFS is for dirty gray hydrogen producers cited near refinery communities to book-and-claim avoided methane credit attributes from remote biogas projects. This outcome is entirely predictable because as we explain below, the lavish avoided methane credit CI values, coupled with non-existent deliverability requirements, means vastly higher profits can be generated by producing hydrogen through the status quo, polluting Steam Methane Reformation (SMR) method than by investing in new electrolyzers and accompanying renewable energy. ARCHES—California’s Federal Hydrogen Hub application—is prioritizing development of green hydrogen and expressly committed not to include hydrogen from dairy biomethane or fossil methane paired with biogas credits.⁴⁵ The persistence of avoided methane credits in the LCFS all but guarantees that those excluded production practices will remain the most valued in California and undercuts any rational economic incentive to invest in new electrolyzers. (45d-383.30)

Comment: The proposal to remove credits for hydrogen produced from fossil fuels is a positive step. But delaying implementation of this measure until 2030 means production of hydrogen from fossil fuels will continue to receive financial rewards for another five-plus years, thus incentivizing the harm we should be preventing. (15d1-010.1)

Comment: The proposal to remove credits for hydrogen produced from fossil fuels is a positive step. But delaying implementation of this measure until 2030 means production of hydrogen from fossil fuels will continue to receive financial rewards for another five-plus years, thus incentivizing the harm we should be preventing. (15d1-010a.1)

Comment: The proposal to remove credits for hydrogen produced from fossil fuels is a positive step. But delaying implementation of this measure until 2030 means production of hydrogen from fossil fuels will continue to receive financial rewards for another five-plus years, thus incentivizing the harm we should be preventing. (15d1-010b.1)

Comment: We urge CARB to send the signal now that it will favor investment in the necessary and nascent market for in-state zero-emissions hydrogen production over the production of polluting SMR of fossil gas, greenwashed with (largely out-of-state) biomethane attributes. Staff's proposed changes fail to do so and must be corrected. (15d1-22.31)

Comment: Removing credits for hydrogen produced from fossil fuel is a positive step forward. But delaying implementation of this measure until 2030 means another five-plus years of financial rewards for its production. This serves to further the harm we should be preventing. We would like to encourage far more immediate implementation to prevent any further reliance on dirty, greenhouse gas-intensive hydrogen. (15d1-023.1)

Comment: We appreciate that the latest proposed amendments remove hydrogen produced from fossil gas from credit generation eligibility. However, given the climate imperative to phase out fossil fuels expeditiously, waiting until the end of 2030 to remove credit eligibility for fossil hydrogen is a mistake. Instead, credit eligibility should be removed from fossil hydrogen immediately upon completion of the current LCFS amendment process. (15d1-038.3)

Comment: We appreciate that the latest proposed amendments remove hydrogen produced from fossil gas from credit generation eligibility. However, given the climate imperative to phase out fossil fuels expeditiously, waiting until the end of 2030 to remove credit eligibility for fossil hydrogen is a mistake. Instead, credit eligibility should be removed from fossil hydrogen immediately upon completion of the current LCFS amendment process.

Science Advisory Board, and other scientists have established, wood bioenergy should not be assumed to be carbon neutral;¹³ Using methane to produce hydrogen increases methane leakage risk, with one biogas plant study finding that leaked methane can be as high as 14.9% of total methane production.¹⁴ There is also a significant pollution burden from biogas facilities near communities.¹⁵ The LCFS should not incentivize and subsidize feedstocks that harm the climate and pollute the same communities that have historically borne the pollution burden of our status quo energy portfolio.

At most, the LCFS should only allow hydrogen production where hydrogen generators are powered by new sources of zero-emissions electricity (additionality or incrementality) that directly supply the grid electrolyzers are connected to (deliverability), within the same hour that generators are running (hourly matching). ¹⁶ This is reaffirmed by the IRS's proposed rulemaking in which hydrogen producers could only receive the Section 45V clean hydrogen production tax credit by adhering to the 3 pillars.¹⁷ However, CARB staff's proposed amendments would allow the continued use of problematic feedstocks like dairy biogas and biomass, despite the emissions and environmental burdens they carry.

Even if produced via electrolysis in adherence to the three pillars, the use of hydrogen should be limited to those sectors without a viable present-day alternative, such as replacing existing dirty gray fossil-based hydrogen, crude oil refineries, or steel (15d1-038.4)

Comment: CHCOA believes that hydrogen produced for use in transportation should have a carbon intensity of zero as soon as reasonably possible, taking into consideration the need for increasing volumes of hydrogen to supply a growing industry. Our Green Before the Grid campaign reflects our commitment to this essential goal. (15d1-055.2)

Comment: Limitations on Fossil Hydrogen Favor Livestock Methane

The Notice of Additional Modifications states that “staff proposes to remove LCFS credit generation eligibility for hydrogen produced using fossil gas as a feedstock, effective January 1, 2031.⁸ The text of the proposed amendment, however, provides that hydrogen produced using fossil gas as a feedstock will still be eligible after January 1, 2031, if “biomethane attributes are matched to the hydrogen production.”⁹ This change will require that fossil hydrogen producers that wish to generate credits through the LCFS to purchase the environmental attributes of biomethane. This methane laundering will both expand the market and demand for livestock biomethane and send a signal to the market that the demand for livestock biomethane will increase. This change, too, will increase the value of livestock methane and will encourage the production of biomethane and with it the production and concentration of livestock manure. (15d1-123.4)

Comment: Regarding staff’s proposal to remove credit generation eligibility for hydrogen produced using fossil gas as a feedstock effective 2031, this change is a step in the right direction as we should not be encouraging fossil fuel pathways. We would also like this change to be more comprehensive – the program appears to allow for the crediting of hydrogen produced using biomethane. This feedstock is a combustion fuel like fossil gas, and will behave the same, which makes it nonsensical to differentiate from fossil gas in this setting. (15d1-221.4)

Comment: Failure to propose meaningful deliverability requirements that prevent lavish subsidies for fossil fuel derived hydrogen. Staff’s proposed changes to hydrogen crediting continue to allow fossil gas-derived hydrogen to generate credits so long as producers purchase unbundled environmental attributes from biomethane producers, which are almost exclusively out-of-state. This proposal perversely undermines in-state green hydrogen production and harms California communities near dirty hydrogen facilities. Staff’s proposed changes to deliverability requirements for biomethane are vague, contingent, and unhelpful. Consistent with the RPS, CARB should require deliverability for biomethane by 2025 and end avoided methane crediting for hydrogen production by 2025. (15d1-222.5)

Comment: The proposed changes continue to favor dirty hydrogen and out-of-state biomethane producers over clean, in-state hydrogen production; CARB should apply Renewable Portfolio Standard deliverability requirements starting in 2025 (15d1-222.23)

Comment: Although Staff propose to remove LCFS credit generation eligibility for hydrogen produced using fossil gas as a feedstock starting in 2031,²⁴ this change does nothing to remedy the most damaging and perverse feature of the LCFS’s dirty hydrogen subsidy: the practice of allowing fossil methane-derived hydrogen to participate in the program and receive a negative CI score as long as the hydrogen producer buys environmental attributes from biomethane (which is likely from out of state). Staff’s failure to fix this problem will have many perverse effects and must be remedied.

First, it sends exactly the wrong market signal, subsidizing the entrenched, dirty and lowest cost means of producing hydrogen rather than catalyzing the growth of new, green hydrogen production in California. Indeed, the LCFS’s lavish treatment of dirty hydrogen paired with biomethane attributes directly undermines zero-emissions hydrogen because (1) their cleaner

technology is newer and more expensive, and (2) the best CI they can achieve is 0, whereas SMR facilities that use book-and-claim biomethane can characterize their hydrogen as carbon negative and thus receive a higher price for their hydrogen. The chart below in Figure 2 shows the number of credits earned by the different hydrogen production pathways. While data are only available since 2021, the trend is clear—SMR hydrogen is the winner and electrolytic hydrogen is the loser. Staff’s proposal does nothing to address this perverse effect. Although Staff’s proposal claims it will end in 2031 crediting for the fossil gas SMR hydrogen that is not paired with biomethane (the orange line in Figure 2), it will continue to reward fossil gas methane so long as it is paired with unbundled biomethane attributes (the blue line) and disfavor truly clean hydrogen (the green line). (15d1-222.25)

Comment: Third, reliance on out-of-state biomethane attributes will not help California meet its own climate goals as matching fossil hydrogen with biomethane attributes does not account towards its GHG inventory. Therefore, Staff’s allowance of this practice inconsistent with the Scoping Plan. As we detailed in our ISOR comments, the biomethane from which fossil hydrogen producers could purchase attributes have almost exclusively been produced out-of-state²⁷. Each of the certified hydrogen pathways listed as using biomethane from dairy manure pairs fossil gas feedstocks with unbundled purchases of environmental attributes from Indiana, Wisconsin, New York or Minnesota to earn a negative carbon intensity score.²⁸ Likewise, every single certified pathway for hydrogen that is characterized as using biomethane from swine manure is for a fossil SMR facility that purchases the environmental attributes of biomethane in Missouri, and the only pathway for producing hydrogen that claimed to use biomethane from wastewater sludge was for a fossil SMR facility that purchases environmental attributes from a water treatment plant in Texas.²⁹ Staff do not acknowledge this fact or provide any explanation as to why the LCFS should continue to provide a massive subsidy to out-of-state biomethane producers. (15d1-222.27)

Comment: There is a way to fix the problems caused by the LCFS’s subsidy of dirty hydrogen: (1) Apply deliverability requirements for hydrogen used in the LCFS starting in 2025;³⁰ (15d1-222.28)

Comment: Given the grave problems detailed above, these changes should be a priority for CARB in this rulemaking. Indeed, there is no basis for delaying changes to the LCFS’s treatment of fossil methane-derived hydrogen until 2046, as Staff propose. The longer the LCFS continues to reward fossil gas-derived hydrogen, which depends on fossil methane infrastructure, the greater the stranded asset burden California will face in the future. (15d1-222.30)

Comment: We urge CARB to send the signal now that it will favor investment in the necessary and nascent market for in-state zero-emissions hydrogen production over the production of polluting SMR of fossil gas, greenwashed with (largely out-of-state) biomethane attributes. Staff’s proposed changes fail to do so and must be corrected. (15d1-222.31)

Comment: The LCFS Program should continue to support, not hinder, the near-term development of a hydrogen ecosystem on the path toward deep decarbonization. (15d1-224.8)

Comment: In the 15-Day Draft CARB proposes to remove LCFS credit generation eligibility for hydrogen produced using fossil gas as a feedstock, effective January 1, 2031.⁹ Staff is

proposing to remove LCFS crediting eligibility for hydrogen produced from fossil fuels at the end of 2030 to align with the current operational timeline for projects funded under the hydrogen hubs (ARCHES) grants, which will ideally expand the supply of renewable hydrogen in California. However, there are numerous development challenges which could impact the operational readiness and production capacity of these projects. A diversity of production methods, especially in the near-term, may be critical for supporting expansion of the hydrogen market.

In particular, hydrogen production from fossil fuels using certain methods, such as methane pyrolysis or steam-methane reforming with carbon capture, can achieve a carbon intensity comparable to that of electrolytic hydrogen produced from renewable electricity. These production methods produce low-carbon hydrogen at an affordable price, which could help California with meeting its incremental climate goals more quickly, in conjunction with renewable hydrogen. These production methods can replace fossil fuels with RNG over time as more clean fuels become available, resulting in net-negative CI scores. CARB should carefully consider the implications of prematurely cutting off these production methods from the LCFS program while the hydrogen ecosystem is still developing. The SB 1075 Report on Hydrogen Development, Deployment and Use, as well as the Hydrogen Market Development Strategy are still pending and could provide important insight on the role LCFS should play across various timelines and production types. (15d1-224.30)

Comment: Fourth, CARB is now allowing the fossil fuel-derived hydrogen that is not paired with biomethane credits to remain in the program until 2035, undermining both the State's carbon neutrality goals and its commitments to clean air. By delaying the phase out of fossil gas-derived hydrogen, CARB is kicking the can down the road on one of the most critical energy issues of our time and handing industry yet another undeserved gift at the expense of our climate and communities. (15d2- 173.7)

Comment: GM supports CARB's proposed updates to proposed subsection 95482(h), which extends credit generation eligibility for hydrogen produced using fossil gas as a feedstock to January 1, 2035. The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan Update) identified a need for low-carbon, renewable hydrogen for the transportation sector (among other sectors) to displace fossil fuels in support of achieving California's greenhouse gas emission reduction goals. The 2022 Scoping Plan Update scenario did not include hydrogen produced from fossil fuels, with or without carbon capture as low-carbon, renewable hydrogen. Instead, it identified as low carbon and renewable hydrogen produced through steam methane reformation of biomethane, electrolysis, and biomass gasification. Staff is proposing to remove LCFS crediting eligibility for hydrogen produced from fossil fuels at the end of 2035 which will provide ample opportunities for non-fossil hydrogen to scale up. (15d2-204.5)

Comment: To further continued growth of the nascent hydrogen fuel market, it is premature for CARB to eliminate feedstock pathways for hydrogen. LCFS credit generation should be determined by the carbon intensity of the fuel. LCFS is a mechanism to promote a more robust hydrogen supply for energy intensive transportation electrification. (15d2-204.6)

Comment: The increased time for phasing out fossil fuel hydrogen production credits is prolonging the use of fossil fuel and endangering our air quality and climate with further

greenhouse gas emissions, including nitrogen oxides that produce ozone a potent trigger to asthmatic episodes. Credits for hydrogen produced from fossil gas should be stopped immediately. (15d2-205.1)

Comment: Even though GHC has supported parity for H2 fueled vehicles and battery electric EVs in the past, GHC welcomes greater leadership for more ambitious renewable hydrogen targets generally. Bold renewable targets will stimulate market demand for renewable hydrogen and provide needed certainty for producers. As we have discussed previously in this letter, scale is key to achieving these goals, and setting more ambitious renewable targets will provide a needed market signal to scale production. (15d2-220.6)

Comment: We view the following as significant elements of the proposals that warrant closer scrutiny by the board: Extending the life of fossil fuel-based hydrogen credits from 2030 to 2035 and maintaining lengthy phase-out schedules for other credits of concern (e.g., methane, fossil-fuel projects). (15d2-275.2)

Comment: Additionally, we would like to thank you for allowing LCFS credit generation for 80 percent or more renewable hydrogen dispensed for calendar years 2030-2034. (15d2-280.2)

Comment: Eliminate the loophole allowing fossil fuel-based hydrogen.

Despite overwhelming testimony from refinery communities about the dangers of fossil hydrogen, the Proposal extends credit generation for hydrogen made from fossil fuel feedstocks to 2035. Further, staff's stated restriction on credits for fossil fuel-derived hydrogen is misleading. The restriction still allows fossil-gas derived hydrogen to generate lavish credits so long as producers purchase unbundled environmental biomethane attributes. Similarly, the recent amendment in the 15-day changes misled the reader by noting a requirement that hydrogen must be 80% "renewable" by 2030. The program's definition of renewable allows for a host of polluting hydrogen including fossil hydrogen paired with the environmental attributes of livestock biogas. This bogus credit generation increases revenue for dirty hydrogen producers and other emission sources including factory farms, harms pollution-burdened communities, and undercuts the incentive to invest in genuinely green hydrogen production. (BH-030.6)

Comment: I submitted comments previously and want to say again for the record that giving low carbon fuel credits for hydrogen made from fossil methane natural gas should end immediately. (BH-049.1)

Agency Response: No changes were made in response to these comments. Staff proposed ending the eligibility of hydrogen produced from fossil sources beginning January 1, 2035 unless biomethane attributes are matched to hydrogen production using the book-and-claim provision. The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan Update)²³ identified a need for low-carbon, renewable hydrogen for the transportation sector (among other sectors) to displace fossil fuels in support of achieving the State's greenhouse gas emission reduction goals. Staff also

²³ California Air Resources Board. 2022 Scoping Plan for Achieving Carbon Neutrality. November 16, 2022. https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf

reiterated the findings of the 2022 Scoping Plan Update at the April 2024 LCFS workshop. According to staff's analysis, the number of hydrogen FCEVs is expected to grow significantly over the coming two decades in response to implementation of CARB's Advanced Clean Trucks and Advanced Clean Fleets Regulations. Without a reliable and affordable supply of low-CI hydrogen, the State risks being unable to increase ZEV deployment and risks continued reliance on internal combustion engines and fossil fuels, particularly in the medium and heavy-duty vehicle sector. The 2022 Scoping Plan Update scenario identified an approximately 1700x growth of hydrogen supply would be needed, and that in order to meet this supply growth, hydrogen produced through multiple methods (e.g. steam methane reformation of biomethane, electrolysis, and biomass gasification) would be needed. Staff's analysis in the 2022 Scoping Plan Update also identified that significant additional electricity and hydrogen production and transport infrastructure will need to be built to support future demand, and that construction of new energy production and transport can take many years. Therefore, the proposed LCFS regulation phases down eligibility for fossil derived hydrogen over the next decade, balancing the need for additional time for renewable hydrogen production to grow with the need for near-term affordable hydrogen supplies for the transportation market. The staff proposal to remove LCFS crediting eligibility for hydrogen produced from fossil fuels in 2035 aligns with the current operational timeline for projects funded under the hydrogen hubs grants, which will expand the supply of renewable hydrogen in California.²⁴ Allowing book-and-claim of biomethane in hydrogen production helps the transition of biomethane as an end-use fuel to renewable hydrogen production, in which it contributes to a fuel that powers a ZEV. As part of Board Resolution 24-14, the Board recognized the need to scale hydrogen production to provide adequate low-CI hydrogen and directed the Executive Officer to continue to monitor "Hydrogen fuel availability to meet growing demand and role of state and federal incentives, including alignment with federal hydrogen incentives to increase hydrogen supply."

Renewable hydrogen is defined in the LCFS regulation as, "hydrogen derived from (1) electrolysis of water or aqueous solutions using renewable electricity; (2) catalytic cracking, oxidation, or steam methane reforming of biomethane or other renewable hydrocarbons; or (3) thermochemical conversion of biomass, including the organic portion of municipal solid waste (MSW). Renewable electricity, for the purpose of renewable hydrogen production by electrolysis, means electricity derived from sources that qualify as eligible renewable energy resources as defined in California Public Utilities Code sections 399.11-399.36." Use of indirect accounting of biomethane to produce hydrogen qualifies that hydrogen as renewable under the existing definition, which staff did not propose to change in the proposed amendments. With regard to the carbon intensity of biomethane from dairy operations that is matched to hydrogen production via indirect accounting, please refer to Z-1.2, which discusses avoided methane eligibility under the Proposed Amendments.

²⁴ ARCHES H2. California's renewable hydrogen hub officially launches. July 17, 2024. <https://archesh2.org/arches-officially-launches/>

O-3 Multiple Comments: *Hydrogen Storage and End of Fossil Gas-Based Hydrogen Production*

Comment: Regarding current requirement of green hydrogen mix me frame, I would like to remind CARB staff members that major renewable sources in California are solar and wind which have seasonal fluctuation. Accordingly, if we are to accept only green hydrogen produced from solar and wind, the green hydrogen production will naturally have seasonal fluctuation. Consequence: without having seasonal hydrogen storage, there will be significant fluctuation in output, which according to market principles, will lead to huge fluctuation in price. CARB staffs must be reminded that we have at least two analogous problems. 1. Curtailment of CO2 free electricity in California, which shows clear seasonal fluctuation reflecting fluctuation in solar and wind output (see next page). 2. Why we have 15% of natural gas storage capacity to yearly consumption in the US? Seasonal fluctuation of demand. People use heater when it is cold.

As one can see, curtailment increase from January to June then decrease from July to December. Maximum output of solar takes place in June (summer solstice) and minimum output takes place in December (winter solstice). On the other hand, atmospheric temperature warm up and cool down with delay. As one should be aware of, hot summer days rather take place in July, August and some me continues to September. We use AC when it is hot and use heater when it is cold. Naturally, supply-demand will reflect the seasons. This can be addressed only if we have seasonal storage, which we don't. I encourage CARB staffs to look up these values. Generally speaking, stationary battery way more than \$100/kWh. Tesla Powerwall is sold about \$10k for 13.5kWh, which translates to \$740/kWh. Hydrogen underground storage costs about a few dollar/kWh. Note: one must take the device lifetime into consideration. Lifetime of battery is usually less than 10 years. Gas storage could last a few decades. One can divide these costs by the number of households in California (~13M), which will give you how much a household need to pay in order to build and maintain the storage to address seasonal fluctuation of solar and wind. Please be reminded that curtailment means solar and wind station operators do not have profit out of curtailed electricity. One can store it and sell it when supply is below demand, however, only if the storage solution is affordable for majority. (15d1-233.1)

Comment: Solution: build hydrogen underground storage, H2 pipeline and facilitate H2 market expansion 233.2 233.3 233.4 233.5 With the hydrogen underground storage as affordable seasonal storage, we can introduce sufficient amount of solar and wind. Keep in mind that for the large scale energy transfer, pipeline offers close to 10x lower cost compared to HVDC line (this is also related to surface to volume ratio) enabling us to connect solar and wind generated at geographically separated. The relevance of this is following: generally speaking wind power output in high latitude peaks rather in winter, which is opposite of solar output. Therefore, there will be averaging effect, which will reduce the required amount of storage size. (15d1-233.2)

Comment: Relation to LCFS: timeline is crucial Forcing hydrogen industry to switch to 100% green makes sense only if such a large scale hydrogen storage and pipeline are already in place. If not, there will be significant amount of curtailment (waste) and the entire energy transition effort is going to fail. (15d1-233.3)

Comment: Instead of specifying the specific year without explaining why 2030, please use more reasonable language (ex. when the necessary infrastructure is complete). (15d1-233.4)

Comment: Let me ask the CARB staffs: is it hydrogen producers' responsibility to develop such a massive infrastructure? I suppose the public institutions roles should include facilitating coordination of effects in different industry sectors: energy production, storage and distribution, and various users including transportation sector. (15d1-233.5)

Agency Response: Changes were made in response to these comments. See responses to comments in sections O-1 and O-2 with regard to the proposed timeline of the phaseout in fossil hydrogen availability, use of several different hydrogen production technologies, and alignment with expected hydrogen hub development in California, which will involve construction of hydrogen transmission and storage infrastructure.

O-4 Multiple Comments: *New Hydrogen Pathways*

Comment: using hydrogen to produce fuels for aviation and maritime shipping – both hard-to-abate end uses with limited opportunities for electrification – are clearly “no regrets” opportunities that should be prioritized through the LCFS. (45d-327.9)

Agency Response: Changes were made in response to this comment. Staff agrees that hydrogen is useful fuel or energy carrier and acknowledges that it has potential to help decarbonize hard-to-abate end-uses. Hydrogen is eligible as a fuel that may receive LCFS credits in California for several end-uses, and the Proposed Amendments add new flexibility to use low-carbon hydrogen through indirect accounting.

P. Fuel Supply Equipment Registration

P-1 Credit Generator for Electricity

Comment: As proposed, modifications to the eMHE and eTRU credit ownership will NOT correct existing administrative issues. Staff's intent is to award credit ownership to the fleet operator, however, as proposed, the credit ownership is awarded to the “FSE owner,” with FSE defined as the “facility or location” and if, “there are multiple FSEs capable of measuring the electricity dispensed at the facility or location, then it is optional to provide serial number assigned to each equipment by the OEM and the name of OEM.” This implies that if there are meters installed on site (which is regularly required in eMHE, eTRU, eOGV, and eCHE categories), then the meter owner becomes the credit generator. It is extremely common in leasing and renting arrangements that the charger ownership (and thereby the individualized meter, if available) be withheld by the lessor, and thereby the opportunity to assert ownership of credit generation remains, and worse, that double-counting occurs due to the lack of incentive of the meter owner to notify the FSE operator that credit generation is occurring. The electricity categories are fundamentally different from the liquid and gaseous fuel categories, and FuSE strongly suggests that CARB clarify that the FSE operator be the eligible credit generator in all electrification categories. (45d-218.8)

Agency Response: No change was made in response to this comment because no change is necessary. The regulation states that for electric transport refrigeration units (eTRU), electric cargo handling equipment (eCHE), and electricity provided to ocean-

going vessel (eOGV) applications, the FSE refers to the facility or location where electricity is dispensed for fueling. The regulatory text is sufficiently specific that the credit generator is the owner of the facility or location and not necessarily the owner of the meter.

P-2 Multiple Comments: *Aggregation of Fuel Supply Equipment*

Comment: The LCFS program currently requires non-residential EV charging industries and agencies generating credits from grid electricity to report the quantity of electricity (in kWh) from the FSE, or electric charger.

As an Association, we are concerned with the administrative constraints associated with registering and reporting from each individual FSE. Several transit agencies have designed for an overhead charging system that will implement power cabinets (power source), and depot pantographs (dispenser to conductively charge on top of buses). The overhead charging design is a 3-to-1 ratio (3 pantographs to 1 power cabinet or 3 buses connected to 1 charger). With this, we have concerns about how data will be reported from this type of design, and the need to register and report from each individual charger (power cabinet) and/or pantograph (dispenser). To manage this type of overhead charging system, several transit agencies are also planning to implement a charge management system (CMS) software to efficiently manage charging cycles optimally for getting buses ready for service each day and at its most cost effective. These CMS platforms are still in their infancy stages, with most vendors being third-party to charger manufacturers. It is currently unknown how a third-party vendor's CMS platform will manage multiple charger manufacturers (interoperability) data components and if proprietary parameters will impact data communication when exporting this data. At this time, to maximize credits using time-of-use energy consumption, our members would need to report from the meter/utility bill. (45d-355.5)

Comment: 3) Streamline mechanics of registering with LCFS and tracking credit generation.

- Currently, for battery electric bus reporting, every single charger needs to be maintained in the Alternative Fuels Portal, and the quarterly reporting needs to be maintained at the charger level. However, since each charging system has one dedicated utility meter for that system, without any other operational uses, reporting at the meter level would be more straightforward and administratively less burdensome for transit agencies, ultimately saving on staff time and costs. (Apr-004.3)

Comment: As highlighted in our previous comment letter, the LCFS program currently requires non-residential EV charging industries and agencies generating credits from grid electricity to report the quantity of electricity (in kWh) from the FSE, or electric charger. This creates an obstacle for our member agencies, as several have designated overhead charging systems to power their battery-electric buses. Some overhead charging systems are designed to maximize bus charging times, allowing 3 buses to charge simultaneously while connected to one charger. Because of this design and the current reporting requirements under LCFS, we reserve our concerns about how data will be reported from this type of design, and the need to register and report from each individual charger (power cabinet) and/or pantograph (dispenser). Currently, to maximize credits using time-of-use energy consumption, our

members would need to report from the meter/utility bill or implement a type of charge management system software to charge multiple buses in the most cost effective manner. While useful, this technology is nascent and agencies do not have enough information to determine how this platform will perform when reporting data to CARB. With these issues not being addressed in the most recent set of amendments, the Association maintains, and urges the Board to consider, our concerns about the administrative constraints associated with registering and reporting from each individual FSE. (15d1-223.2)

Agency Response: No change was made in response to these comments because credits are only generated for electricity that is dispensed for EV charging. Allowing for credit generation to occur for electricity further upstream would inappropriately credit for charging losses that don't actually make it to the buses as fuel. CARB staff acknowledge that administrative constraints in data reporting may exist for stakeholders. We look forward to continued engagement with the industry as we seek to efficiently implement the regulatory requirements in a manner that is adaptive to new technologies.

Q. Transit and Public Fleets

Q-1 Multiple Comments: *Credit Generation for Mass Transit*

Comment: Adopt a credit multiplier for zero-emission mass transit vehicles, including school and transit buses. The Scoping Plan calls for a massive reduction in vehicle-miles-traveled to meet State goals. The LCFS' current methodology undervalues zero-emission mass transit vehicles' contributions to reducing the carbon-intensity of California transportation fuels by ignoring their ability to help shift more Californians out of dirtier single-occupancy vehicles. (45d-379.19)

Comment: Allow full credit-generation for fixed-guideway systems (e.g., light rail and trolley buses). Functioning, zero-emission transit agencies are vital for the mobility of low-income Californians and for reaching climate targets. Currently, the LCFS imposes a unique penalty on transit agencies by reducing their ability to generate credits for vehicles on fixed guideway systems installed before 2011. (45d-379.20)

Comment: Enhance credit generation potential for zero-emissions transit and charging infrastructure. Zero-Emission Transit and Charging Infrastructure Summary of Problem: The LCFS rewards combustion fuels in place long before the LCFS (e.g., ethanol and biomethane) yet fails to fully credit an essential climate, VMT-reduction, and equity-based resource: transit. It also unnecessarily restricts credit generation potential for medium- and heavy-duty charging infrastructure, frustrating achievement of California's ZEV goals Earthjustice Recommendation: (1) Adopt a credit multiplier for zero-emissions transit vehicles that reflects their impact on vehicle-miles traveled (VMT); (2) end the unique penalty on transit agencies that installed fixed guideway systems (e.g., light rail) prior to 2011; and (3) enhance credit-generation potential for medium- and heavy-duty charging infrastructure. Why Staff Proposal Is Inadequate: Staff has not considered these transit proposals in the ISOR and would continue the flawed status quo. Staff has added capacity credit opportunities for medium- and heavy-duty infrastructure, but limitations on their use unnecessarily restrict the full potential of the credits.

The LCFS' disfavored treatment of transit systems installed prior to 2011 looks even worse in comparison to the bonus given to biomethane infrastructure installed before the LCFS took effect. CARB rewards entities that installed digesters prior to 2011, when the LCFS began and therefore may be correlated to project development. The LCFS does not appear to have any restrictions for crediting digester projects even while the protocol that the methodology was modeled after (the Cap-and-Trade protocol for Livestock Offset Projects) has some bounds.¹⁰⁹ Factory farms routinely benefit from this rule even when their digesters were installed for economic reasons completely unrelated to the LCFS, as illustrated by the examples in Table 4 below. It is indefensible for CARB to penalize transit agencies for their leadership in installing the first zero-emissions infrastructure, while giving preferential treatment to companies for taking early action to bring combustion fuels to market. (45d-383.5)

Comment: Add a clean air multiplier to the credits system for public non combustion fleets that transport many people at once. (399-3399.12)

Comment: These requested changes included addressing the credit generation disparities between pre-2011 and post-2010 fixed guideway systems and addressing administrative and reporting challenges associated with recording fuel service equipment (FSE) electricity usage. As we expressed at the time, in an era of significant financial constraints at the state and local levels, our industry views LCFS as a vital incentive for encouraging transit and rail agencies to take early and expansive actions to further clean their fleets and as an important tool for offsetting the persistently high costs of zero-emission operations. We are pleased to see that the new proposed LCFS amendments package addresses the most significant of these requested changes by proposing to establish parity in the credit generation of pre-2011 and post-2010 fixed guideway systems. This change will help ensure that California's fixed guideway systems, regardless of their construction year, can continue to deliver and expand robust electrified service to the benefit of Californians across the state. (15d1-223.1)

Comment: CARB appropriately remedies the program's past failure to properly credit fixed guideway systems. CARB should take additional steps to boost transit, including applying a credit multiplier. (15d1-222.9)

Comment: CARB appropriately remedies the program's past failure to properly credit fixed guideway systems; CARB should further boost transit by including credit multipliers for transit. We applaud Staff's proposal to remove the pre-2011/post-2010 delineation for fixed guideway system crediting. We agree that this adjustment improves LCFS support for transit services in California. This is a positive step that corrects a prior CARB error. CARB should maintain this improvement in the final rule. It should also take additional steps to boost transit by also including credit multipliers, as we describe in our ISOR comments. (15d1-222.35)

Comment: Create ZEV multipliers to boost electric school bus and electric public transit bus and rail system deployments. (45d-134.4, 45d-137.5, 45d-163.4, 45d-272.4, 45d-337.4, 45d-372.6)

Comment: CARB should ensure the LCFS continues to support the transition to electrification by retaining a 2.5% credit cap for light duty vehicle fast charging infrastructure credits, increase the flexibility and overall credit cap for the proposed medium and heavy-duty infrastructure credits, facilitate electrification of other modes and applications by establishing default energy

economy ratios, and support a combination of electrification and vehicle mile traveled reduction by updating LCFS eligibility for fixed guideway systems and establishing credit multipliers for mass transit vehicles. (45d-276.2)

Comment: CARB should also implement a credit multiplier for zero-emissions mass transportation vehicles to account for the outsized impact of vehicles that reduce vehicle miles travelled on the carbon-intensity of California's transportation fuels. For example, a 2x multiplier would be appropriate in support of the Scoping Plan objective to double transit capacity and service frequency by 2030. (45d-276.21)

Comment: By focusing on real air pollution solutions, you could add a clean air multiplier to the credits system, especially for public fleets that transport many people at once, would deliver major benefits for California's air quality and throw a lifeline to cash-strapped transit agencies that low-income Californians depend on for mobility. (45d-364.3)

Comment: Adopt a credit multiplier for zero-emission mass transit vehicles, including school and transit buses. The Scoping Plan calls for a massive reduction in vehicle-miles-traveled to meet State goals. The LCFS' current methodology undervalues zero-emission mass transit vehicles' contributions to reducing the carbon-intensity of California transportation fuels by ignoring their ability to help shift more Californians out of dirtier single-occupancy vehicles. (45d-379.19)

Comment: I am literally sick of subversion of clean energy funding into more burning fuels. I am living surrounded by fossil fuel monstrosities, Chevron, Valero, etc., with the periodic releases and the flaring on a regular basis. Put the money into electrified transport from renewable sources. Build the solar infrastructure needed for all electric vehicles! (6400-6886.2)

Comment: By focusing on real air pollution solutions, you could add a clean air multiplier to the credits system, especially for public fleets that transport many people at once, would deliver major benefits for California's air quality and throw a lifeline to cash-strapped transit agencies that low-income Californians depend on for mobility. (15d1-007.3)

Comment: Increase the scope of credit generation for transport electrification from charging infrastructure and fixed guideway public transit to simultaneously help the LCFS achieve equity goals and more ambitious target levels. (45d-213.5)

Comment: **Grant larger credits** to fixed guideways, transit buses and school buses (45d-279.7)

Comment: BART is coping with severe fiscal issues and relies on the revenue obtained from the sale of LCFS credits. The recent steep decline in credit prices has noticeably impacted BART's budget, which is still hundreds of millions of dollars in deficit. (45d-284.2)

Comment: Enhance credit generation potential for zero-emissions transit and charging Infrastructure. (45d-383.5)

Comment: We need LCFS to fund electrifying solutions like school buses and public transit agencies. (399-3399.8)

Comment: Speed up construction of transit projects around the state which can take cars off the road. Even EVs have a carbon footprint during manufacturing and do not alleviate our traffic problems. (BH-021.2)

Comment: FuSE supports the amended text reflecting the transition of EXD Displaced calculated values not applying to forklifts, and similarly should be expanded to fixed guideways. Original intent and discussion of a model year threshold in both applications was tied to the implementation date of the LCFS program¹, the equipment's already deployed status, and not to the physical difference in equipment efficiencies across those model year threshold dates. The elimination of any model year association with technology deployments, especially as the LCFS program ages, makes less and less sense with newer technologies being deployed and streamlines the administrative work with submitting and reviewing applications greatly. There is no meaningful purpose for pre-2011 or post-2010 designations in these categories, or any others moving forward should new transportation equipment types be introduced in the future. (45d-218.2)

Comment: *Prioritize support for zero emissions transit to support communities and reduce car dependence*

To ensure the LCFS is aligned with the vehicle mile reduction targets of the scoping plan, CARB should remove the penalty on credit generation for fixed guideway systems installed prior to 2011. This penalty is inconsistent with the treatment of other fuels and should be corrected to ensure the LCFS appropriately supports one of the most vital strategies to support CARB's Policy Framework to Advance Sustainable and Equitable Communities. If older fixed guideway transit system were treated the same as newer systems, they would generate 3.1 to 4.6 times as many LCFS credits, depending on the type of vehicles that use the system. This would help cash-strapped systems maintain and improve service, reduce car dependence and ease the associated burdens that are inequitably borne by California's low-income communities and communities of color. (45d-276.20)

Comment: We are supportive of most of the amendments issued by CARB staff on December 19, 2023, but one important issue remains unaddressed. BART and several other participants highlighted in written and verbal comments in Fall 2023 that the LCFS crediting process results in a discriminatory approach to electric rail. Namely, pre-2011 fixed guideway systems receive a fraction of the credits compared to post-2010 fixed guideway systems. BART contains a small number of extensions that were built after 2010 and those are granted 4.6 times more credits per kilowatt-hour used than 90% of BART's system that falls into the pre-2011 category.

This differing treatment is a product of the modeling performed at the beginning of the LCFS program which established a baseline that treated all rail in place at that time as existing, and the rail after as new. New rail was presumed to reduce substantially more VMT than existing rail. However, the reality of an operating train system is that all sections of all-electric rail provide an alternative to driving for passengers. The newer sections of BART rail do not use electricity differently or more efficiently and, as a result, every kilowatt-hour used by the system operates the same as any other. While we understand the original modeling performed, granting different kilowatt-hours different amounts of LCFS credits is not equitable, as nearly all other fuel pathways in the LCFS program do not suffer from this artificial distinction.

Now is the time to remedy this aspect of the LCFS program. Transit systems all over the state are facing severe fiscal issues and the additional LCFS credits could help ameliorate. BART is one of only a few electric transit systems eligible under the program and is by far the largest generator of LCFS credits in that category. And it still receives less than half a percent of the program's credits, thereby having no discernible impact on credit prices...Public transit is essential to California's achievement of its climate goals. We urge CARB to establish parity for fixed guideway systems within the LCFS program. (45d-284.3,45d-284.5)

Comment: NCPA encourages CARB to revisit the credit mechanisms for fixed guideway systems to ensure that transit systems generate the credits warranted for their role in transitioning Californians to transportation electrification. It is unreasonable for pre-2011 fixed guideway systems to receive a fraction of the LCFS credits that post-2010 fixed guideway systems receive, considering there is no efficiency difference recorded in the actual operation of newer vs. older railway systems. Systems like the Bay Area Rapid Transit (BART) provide public transit services that are essential to California's climate goals, and the inequitable treatment of fixed guideway credits should be rectified in the current rulemaking to help ensure that transit agencies can continue to provide services. (45d-303.13)

Comment: Additionally, we request that CARB continue to review options to further support transit and rail agencies that participate in the LCFS program. The specific changes we request would address current disparities in credit generation between pre-2011 fixed guideway systems and post-2010 fixed guideway systems, administrative challenges related to registration and reporting of electricity usage from the fuel service equipment (FSE), and the scope of reporting of electricity usage.

The LCFS program currently affords pre-2011 fixed guideway systems fewer credits for their electricity usage than post-2010 fixed guideway systems due to disparities in CARB's Energy Economy Ratio. We understand that this current disparity reflects modeling performed by CARB at the beginning of the LCFS program, which established a baseline that treated all rail in place at that time as existing, and rail constructed after as new. CARB posited then that new rail would reduce significantly more VMT than existing rail. We believe this distinction and justification is arbitrary and does not reflect the reality that rail – no matter when it was constructed – significantly reduces VMT and that the level of VMT reduction at any one point in time or segment of service may vary depending on a series of exogenous factors.

With rail agencies facing operations funding shortfalls and higher expenses, the Association implores CARB to increase the level of credit generation for pre-2011 fixed guideway systems to bring it into alignment with post-2010 fixed guideway systems. The additional credits generated from this change will be vital as rail agencies work to continue to provide service with diminished local funding sources.(45d-355.3, 45d-355.4)

Comment: FuSE supports the amended text reflecting the transition of EXD Displaced calculated values not applying to forklifts, and similarly should be expanded to fixed guideways. Original intent and discussion of a model year threshold in both applications was tied to the implementation date of the LCFS program¹, the equipment's already deployed status, and not to the physical difference in equipment efficiencies across those model year threshold dates. The elimination of any model year association with technology deployments, especially as the LCFS program ages, makes less and less sense with newer technologies

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This differing treatment is a product of the modeling performed at the beginning of the LCFS program which established a baseline that treated all rail in place at that time as existing, and the rail after as new. New rail was presumed to reduce substantially more VMT than existing rail. However, the reality of an operating train system is that all sections of all-electric rail provide an alternative to driving for passengers. The newer sections of BART rail do not use electricity differently or more efficiently and, as a result, every kilowatt-hour used by the system operates the same as any other. While we understand the original modeling performed, granting different kilowatt-hours different amounts of LCFS credits is not equitable, as nearly all other fuel pathways in the LCFS program do not suffer from this artificial distinction.

Now is the time to remedy this aspect of the LCFS program. Transit systems all over the state are facing severe fiscal issues and the additional LCFS credits could help ameliorate. BART is one of only a few electric transit systems eligible under the program and is by far the largest generator of LCFS credits in that category. And it still receives less than half a percent of the program's credits, thereby having no discernible impact on credit prices...Public transit is essential to California's achievement of its climate goals. We urge CARB to establish parity for fixed guideway systems within the LCFS program. (45d-284.3,45d-284.5)

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transitioning Californians to transportation electrification. It is unreasonable for pre-2011 fixed guideway systems to receive a fraction of the LCFS credits that post-2010 fixed guideway systems receive, considering there is no efficiency difference recorded in the actual operation of newer vs. older railway systems. Systems like the Bay Area Rapid Transit (BART) provide public transit services that are essential to California's climate goals, and the inequitable treatment of fixed guideway credits should be rectified in the current rulemaking to help ensure that transit agencies can continue to provide services. (45d-303.13)

Comment: Additionally, we request that CARB continue to review options to further support transit and rail agencies that participate in the LCFS program. The specific changes we request would address current disparities in credit generation between pre-2011 fixed guideway systems and post-2010 fixed guideway systems, administrative challenges related to registration and reporting of electricity usage from the fuel service equipment (FSE), and the scope of reporting of electricity usage.

The LCFS program currently affords pre-2011 fixed guideway systems fewer credits for their electricity usage than post-2010 fixed guideway systems due to disparities in CARB's Energy Economy Ratio. We understand that this current disparity reflects modeling performed by CARB at the beginning of the LCFS program, which established a baseline that treated all rail in place at that time as existing, and rail constructed after as new. CARB posited then that new rail would reduce significantly more VMT than existing rail. We believe this distinction and justification is arbitrary and does not reflect the reality that rail – no matter when it was constructed – significantly reduces VMT and that the level of VMT reduction at any one point in time or segment of service may vary depending on a series of exogenous factors.

With rail agencies facing operations funding shortfalls and higher expenses, the Association implores CARB to increase the level of credit generation for pre-2011 fixed guideway systems to bring it into alignment with post-2010 fixed guideway systems. The additional credits generated from this change will be vital as rail agencies work to continue to provide service with diminished local funding sources.(45d-355.3, 45d-355.4)

Comment: 1) Create parity in the credit generation between post-2011 and pre-2010 fixed guideway systems.

- MTS has a legacy system that was built pre-2010, however it requires constant investment to keep the system in a state of good repair. MTS's main Trolley line, the Blue Line, was completely overhauled and rehabilitated after 2011, at a cost of over \$300 million, yet is still considered a pre-2010 system. MTS also has a new Trolley extension that does qualify as a post-2011 system, and it generates about three times as many credits as the legacy system yet operates with the same technology in the vehicles and electrification of the entire system. This disparity is creating millions of dollars in potential lost revenue MTS could be putting towards enhancing and growing its service. (Apr-004.1)

Comment: 2) Explore providing a credit enhancement for transit.

- As a transit operator, MTS faces challenges in the next few years addressing significant operating deficits as well as cost increases related to CARB's Innovative Clean Transit

regulation. The consideration of providing a credit enhancement for transit can greatly assist in addressing cost increases seen throughout this industry. (Apr-004.2)

Comment: FuSE supports the amended text reflecting the transition of EXD Displaced calculated values not applying to forklifts, and similarly should be expanded to fixed guideways. Original intent and discussion of a model year threshold in both applications was tied to the implementation date of the LCFS program¹, the equipment's already deployed status, and not to the physical difference in equipment efficiencies across those model year threshold dates. The elimination of any model year association with technology deployments, especially as the LCFS program ages, makes less and less sense with newer technologies being deployed and streamlines the administrative work with submitting and reviewing applications greatly. There is no meaningful purpose for pre-2011 or post-2010 designations in these categories, or any others moving forward should new transportation equipment types be introduced in the future. (Apr-054.2)

Comment: BART applauds CARB staff's proposal to remove the pre-2011/post-2010 delineation for Fixed Guideway System crediting thus recognizing that electric rail – no matter when it was constructed – significantly reduces Vehicle Miles Traveled (VMT) and emissions. BART also supports the amendments that will strengthen the price of LCFS credits because BART relies on revenues from the sales of those credits to help fund its system. We strongly support the staff's proposal to provide equal treatment to all fixed guideway systems for the purposes of LCFS crediting. Transit systems all over the state are facing severe fiscal issues and the additional LCFS credits are vital to help rail agencies continue to provide service with diminished local funding sources. Given the very small percentage of total LCFS credits that fixed guideways generate, this change will have no discernible impact on credit prices while significantly helping with BART's current fiscal difficulties. (15d1-099.1)

Comment: On page 6 of these 15-Day Changes, in the Summary of Proposed Modifications, CARB states: In section 95486.1(a)(4), staff proposes to remove the pre-2011/post-2010 delineation for Fixed Guideway System crediting. This adjustment provides equal treatment to all fixed guideway systems for the purposes of LCFS crediting and improves LCFS support for transit services in California. Specifically, this proposal would delete a short section in the existing regulation that restricts the application of an energy efficiency multiplier (Energy Economy Ratio or EER) to only those portions of Fixed Guideway (electric rail) Systems that began operations after 2010. By deleting this section, as CARB notes, the EER multiplier would apply to older systems as well as newer systems.

Our agencies strongly support this modification which we see as both technically accurate and policy that supports and incentivizes the continued use and maintenance of clean transit systems. Applying the EER multiplier to LCFS credit generation for pre-2011 systems will generate substantial additional revenue for transit operations throughout the state, in tangible alignment with several of CARB's priorities outlined in its 2022 Scoping Plan for Achieving Carbon Neutrality, including the need to reduce vehicle miles traveled through use of public mass transit. (15d1-137.1)

Comment: NCPA supports CARB's proposal to eliminate the pre-2011/post-2010 delineation for Fixed Guideway System crediting, recognizing that no efficiency difference is recorded in the actual operation of newer vs. older railway systems (15d1-151.1)

Comment: Only built fixed guideway systems after the baseline year should qualify for LCFS crediting (15d1-171.10)

Comment: We are heartened by certain items in the package of 15-day changes, which we believe are indicative of productive collaboration between staff and stakeholders to identify opportunities to improve upon the current program. Removing the pre-2011/post-2010 delineation for Fixed Guideway System crediting is one such fix that we appreciate as it creates more comprehensive crediting across transportation modes, which should be the ultimate goal of the program. (15d1-221.1)

Comment: CARB appropriately remedies the program's past failure to properly credit fixed guideway systems.

☐ CARB should take additional steps to boost transit, including applying a credit multiplier. (15d1-222.9)

Comment: CARB appropriately remedies the program's past failure to properly credit fixed guideway systems; CARB should further boost transit by including credit multipliers for transit.

We applaud Staff's proposal to remove the pre-2011/post-2010 delineation for fixed guideway system crediting. We agree that this adjustment improves LCFS support for transit services in California. This is a positive step that corrects a prior CARB error. CARB should maintain this improvement in the final rule. It should also take additional steps to boost transit by also including credit multipliers, as we describe in our ISOR comments.⁴¹ (15d1-222.35)

Comment: These requested changes included addressing the credit generation disparities between pre-2011 and post-2010 fixed guideway systems and addressing administrative and reporting challenges associated with recording fuel service equipment (FSE) electricity usage. As we expressed at the time, in an era of significant financial constraints at the state and local levels, our industry views LCFS as a vital incentive for encouraging transit and rail agencies to take early and expansive actions to further clean their fleets and as an important tool for offsetting the persistently high costs of zero-emission operations. We are pleased to see that the new proposed LCFS amendments package addresses the most significant of these requested changes by proposing to establish parity in the credit generation of pre-2011 and post-2010 fixed guideway systems. This change will help ensure that California's fixed guideway systems, regardless of their construction year, can continue to deliver and expand robust electrified service to the benefit of Californians across the state. (15d1-223.1)

Comment: MTS is pleased to see that the proposed LCFS amendments address a key priority for MTS and the California Transit Association, which will further enhance the value of LCFS. In particular, the proposed amendments would establish parity in the credit generation of pre-2011 and post-2010 electrified fixed guideway systems, like ours. This change will help ensure that California's fixed guideway systems, regardless of their construction year, can continue to deliver and expand robust electrified service to the benefit of Californians across the state.

For these reasons, we voice our support for the LCFS and the adoption of the proposed amendments to the program on November 8. (BH-011.2)

Comment: The SFPUC and our customer agencies strongly support the LCFS and want to thank staff for their hard work on this rulemaking, as well as our strong support for the proposed amendment that would equate LCFS credit generating potential of older fixed guideway electric rail systems with that of newer such systems. This amendment will provide crucial support for clean public transit systems working to reduce emissions and vehicle miles traveled throughout California. (BHT-231)

Agency Response: Changes were made in response to these comments. The first 15-day changes removed the delineation for fixed guideway systems that limited credit generation for projects that existed before 2011.

The Proposed Amendments include medium- and heavy-duty vehicles not otherwise regulated as eligible for rebates part of the Clean Fuel Reward program. Additional changes to holdback equity projects include provisions to promote additional incentives that directly support the use of public transit, as well as a list of projects that are pre-approved for holdback equity credit spending and approval guidelines for additional projects to follow. Staff believe the provisions provide sufficient incentive to further California's transportation electrification goals in the medium-duty and heavy-duty sectors. The Proposed Amendments also include new crediting opportunities for ZEV refueling infrastructure, which include the medium-duty and heavy-duty sectors.

Q-2 Multiple Comments: *Line Loss of Energy for Public Transit Fleets*

Comment: Loss of Credit (Energy Loss/Line Loss)

Since January 2022, several transit agencies have experienced an overall loss of energy or line loss from what's reported at the meters to what's been reported at the FSEs. At full deployment, this loss can equate to hundreds of thousands of dollars in credit loss per quarter and millions of dollars in credit loss annually. Reporting with an energy loss or line loss (consumption in kWh) also doesn't accurately reflect the well-to-wheel GHG analysis for running a battery electric bus in-service. (45d-355.6)

Comment: Also noted in our previous comment letter, several transit agencies have reported a significant loss of energy (also known as line loss), and these figures differed greatly from those reported at the meters to those reported at the FSEs. Line loss is an unavoidable issue for many agencies and refers to the loss or consumption of energy in kilowatt hours (kWh) during the transmission or distribution of energy from the electric grid to the bus. This is a major concern because, at full deployment, this energy loss can equate to hundreds of thousands of dollars in credit loss per quarter and millions of dollars in credit loss annually. Though not a direct result of FSE reporting, line loss could also be addressed by authorizing agencies to report energy usage from the meter, as this would allow agencies to record the most accurate balance of accessible energy. Even so, reporting with a line loss would not accurately reflect the well-to-wheel GHG analysis for running a battery electric bus in-service. (15d1-223.3)

Agency Response: No changes were made in response to this comment. CARB staff acknowledges that a loss occurs between the meter and the fueling supply equipment when charging. Reporting the energy by fueling supply equipment allows CARB to more accurately assess the energy needed to fuel EVs and may also incentivize

manufacturers of EV charging equipment to develop and implement designs that can reduce losses during transmission of electricity.

R. Environmental Justice

R-1 Multiple Comments: *CARB Policy on Racial Equity*

Comment: Continued siting of new fuel production facilities in overburdened communities is a reasonably foreseeable compliance response which exacerbates entrenched air quality problems that could be avoided by requiring LCFS participants to site all new production facilities in locations receiving a CalEnviroScreen score of “X” or lower as a condition for generating credit. (45d-154.21)

Comment: Departures from Normal Procedures or Substantive Conclusions

CARB staff’s actions depart from CARB’s policies on Racial Equity. On October 22, 2020, CARB adopted Resolution 20-33, alternatively entitled “A Commitment to Racial Equity and Social Justice”²³⁴ to advance racial equity and social justice. It is CARB policy to “continue identifying and implementing best practices for community engagement, especially in communities suffering environmental injustice and racial discrimination and to apply these practices throughout all of CARB’s activities.” Further, CARB committed to create an “environment in which all people feel safe, valued, acknowledged and respected.”²³⁵

In order to implement Resolution 20-33, CARB developed a “racial equity lens,” which consists of questions “for CARB staff to plan develop, and review regulations, policy documents, and informational materials and for items going before the Board” in orders to “conduct meaningful racial equity analysis.”²³⁶ According to CARB’s website, these questions assist CARB decision making by: “Describing the legal, policy, and organizational frameworks at CARB for staff to consider racial equity; Identifying the information staff should consider in assessing the equity impacts of actions and decision making at CARB; and characterizing and highlighting questions about racial equity that staff should ask and address in each step of the process.”²³⁷ This lens also requires CARB to consider alternatives with a focus on “which would do the most to address existing disparities and which might have unintended consequences.”²³⁸

In direct departure from this policy, staff’s ISOR and proposed Amendments disregard racial equity and testimony of residents living in “communities suffering environmental injustice and racial discrimination.” As stated above, despite consistent, sustained, and clear engaged from residents of communities near factory farm dairies, the ISOR makes not a single reference to that engagement. Residents can hardly feel “valued, acknowledged, and respected” when their sustained engagement is erased by staff from the rulemaking record. Staff’s failure to follow its own community engagement best practices or apply its racial equity lens to its treatment of factory farm gas in the LCFS is evidence of intentional discrimination. (45d-368.51)

Comment: In addition, beyond the concerns over the substance of the current LCFS Proposal, we call on CARB to **initiate a review of how CARB incorporates EJAC input into decisions**. Our organizations remain deeply concerned about how CARB has routinely ignored EJAC input in this process. **Indeed, in its October 31, 2024 response to CARB, EJAC explains in detail how CARB has systematically failed to address EJAC’s LCFS**

recommendations.⁵ The Chair and Executive Officer should convene a 360 review of this agency's failure to actually incorporate EJAC feedback into significant proposals like the LCFS. (BH-030.9)

Comment: The stakeholders that are endorsing this well-spoken individual paid to work in this area, who are likely to directly profit from this 'green' transition. This is a huge program, and it has large ramifications for business, consumers, and many other residents of California.

Unfortunately, this LCFS is not supported by the communities that are disproportionately impacted by existing facilities where these fuels will be produced or used. We don't stand to make any money from this, other than maybe some air monitoring to quantify how disproportionately impacted communities are affected. We just get the negative externalities - refineries, water quality impacts, and increased truck traffic that goes up 60% during a time when population growth is projected to be flat.

I urge the Board to get the buy-in of communities that live next to these facilities in addition to those of the business stakeholders.

It is not enough to just please the business community. EJAC and EJ communities should not be sidelined when developing policies of this magnitude, but that is what this proposal has done. Some of the business stakeholders need to be made sad, it can't just be on the backs of our most vulnerable and marginalized communities. (BH-072.1)

Agency Response: No changes were made in response to these comments. Regarding production facility siting, see CEQA RTC Master Response 4, 313-3, and R17-5. Staff appreciate community participation regarding dairies both in comments and during LCFS-hosted community meetings and EJAC meetings. In response to the comments relating to collaboration with stakeholders, staff conducted extensive feedback and considered input from a large number of stakeholders with a diversity of recommendations. Staff has been engaging with the public on potential future changes to the LCFS program for several years. Beginning in October 2020 and ending in November 2024, staff conducted ten public workshops and two LCFS community meetings, held four Board meetings (including two joint meetings with CARB's Environmental Justice Advisory Committee), and participated in an extensive number of meetings with individual stakeholders to discuss concepts for potential amendments to the LCFS regulation and address various concerns. Staff also provided opportunity during workshops for stakeholders to provide oral feedback and additional opportunity for stakeholders to provide written feedback for at least two weeks following the workshops. This feedback played a key role in informing the proposed amendments and was posted publicly on the LCFS Meetings and Workshop webpage. All workshops and community meetings were held virtually to allow for remote participation during the COVID-19 pandemic, which also allowed for wider participation. Staff's approach to public engagement follows (and expands upon) the precedent of previous LCFS rulemakings.

See Z-1.2 for responses to community comments about dairy biomethane crediting.

R-2 *Phase Out Fossil Fuel Production*

Comment: Accelerate the reduction and replacement of fossil fuel production and consumption in California. (45d-200.10)

Agency Response: Statutory direction calls for California to achieve carbon neutrality and reduce emissions by 85% below 1990 levels by 2045 and reduce emissions by at least 40% below 1990 levels by 2030.²⁵ The LCFS supports these statutory targets by providing financial support to our zero emission vehicle regulations and deployment of cleaner alternative fuels. Many of the strategies that we are using to address climate change are the same strategies that will also drastically improve air quality. Fossil fuel use in vehicles is the single biggest source of greenhouse gas and criteria pollutant emissions in the State.

The Board has already taken steps towards the goals identified in the 2022 Scoping Plan Update and our legislative-mandated GHG reduction targets, and more importantly to achieve health protective state and federal air quality standards, by adopting regulations such as Advanced Clean Cars II, Advanced Clean Fleets, Advanced Clean Trucks, and other rules that promote and hasten the deployment of low and zero-emission technologies.

The LCFS is a key part of the strategy. The LCFS provides economic incentives for the private sector to produce and lower the cost of cleaner fuels like electricity, hydrogen, and biofuels, and to build charging and hydrogen fueling infrastructure, all of which is needed to displace fossil fuels and reduce transportation sector emissions. The LCFS has supported the displacement of billions of gallons of petroleum fuels with lower carbon alternatives. As stated in the ISOR, the proposed regulation is focused on “increasing the stringency of the program to reduce emissions and decarbonize the transportation fuel sector, which will also aggressively reduce our dependence on fossil fuels.”

R-3 *Multiple Comments: Support Zero Emission Fuel/Technology*

Comment: Incentivize private investment in new non-polluting and zero-carbon fuel production in California. Invest in the infrastructure to support reliable refueling for transportation such as electricity. (45d-200.11)

Comment: Electrification needs to be the focus. Regarding equity measures in impacted communities, the credits should first be directed to providing clean electric public buses and school buses, along with the necessary charging infrastructure. Impacted communities should have a say in where the equity dollars are spent. (45d-297.2)

Agency Response: Changes were made in response to these comments. The LCFS supports successful implementation of California’s existing ZEV regulations by reducing the cost of electricity and hydrogen fueling, making it more financially viable to deploy and fuel ZEV technology, and expanding the availability of ZEV charging and fueling

²⁵ Health & Saf. Code, §§ 38562.2, 38566.

infrastructure. And this extends beyond the on-road fleet as well. The LCFS is also providing significant support to electrified shorepower as well as zero-emission forklifts, cargo handling equipment, and transportation refrigeration units.

The proposed amendments decrease the required credit contributions to the Clean Fuel Reward program and increased the percent of holdback credits the EDUs receive from 50 percent to 75 percent, both actions resulting in higher percentages of crediting used to support transportation electrification for the impacted communities identified in subsection 95483(c)(1)(A)(5). Additionally, the amendments include new categories for holdback equity crediting that focus on increasing access to electrified transportation and workforce training to support transportation electrification. Transportation electrification projects that are identified in, or consistent with, a Community Emission Reduction Plan created in response to AB 617 were also added as an eligible use of these credits.

R-4 Multiple Comments: *Monitor Program Holistically*

Comment: Monitor for and ensure that raw materials used to produce low-carbon fuels or technologies do not result in unintended consequences, including allowing for ongoing pollution in low income communities, communities of color, and environmentally burdened regions and communities. (45d-200.13)

Comment: Just because LCFS as it was created 15 years ago does not mean it has to last until 2045. Let's look at a clean air economy through holistic eyes. Who benefits and who is harmed from each of these programs. (45d-297.18)

Agency Response: Staff are committed to implementing the proposed amendments and CARB Resolution 24-14 approving the amendments, which includes direction for continued discussions and guidance on the regulation, monitoring implementation and policy effectiveness, providing additional public transparency on program results, evaluating new opportunities around efuels, marine, hydrogen, electricity, and other technology innovations, and working with the Board and the public on updates to the program as needed and as part of future Scoping Plan updates. Staff continually monitor developments in the market both to ensure effective market functioning and that the program implementation is resulting in desired outcomes.

R-5 Multiple Comments: *Pollution*

Comment: Do not authorize LCFS credits for CCS infrastructure in EJ communities that would increase net criteria pollution; knowingly incentivizing projects that would increase net criteria pollutant emissions as described in section 95489(e)(1)(c), perpetuates and worsens a long legacy of environmental racism. (45d-200.18)

Comment: There has been an explosion of logistic facilities (warehouses) especially in communities that already are impacted by pollution and often currently don't meet the Clean Air Standards. Please encourage our State legislators to pass moratoriums on these centers until some priority system is established for who gets the funding, i.e., trucks at ports. (45d-297.3)

Comment: In the original LCFS bill the leg analysis states, “Create air monitoring and mitigation plan. Avoid any significant impact on residents in communities affected by high-cumulative exposure burden.” This applies to biodigesters. Refining biofuels, and hydrogen projects, et al.

Remember to calculate the use of energy needed to create the outcomes. Pipes leak whether above the ground, underground, or under water. (45d-297.10)

Comment: There needs to be more awareness around the harm of viruses from birds and animals too closely habituated and fed grains.

I appreciate that CARB works with Natural Resources and Transportations and hope there is a holistic approach also with Water, since so many of these energy producing facilities negatively impact our water supplies. (45d-297.13)

Comment: In addition to the biofuel incentives, the proposal supports several other technology pathways that will be used by the fossil fuel industry, including at oil refineries, and will extend air pollution from fossil fuels. These include incentives for fossil-based hydrogen production, pathways for avoided methane crediting from livestock manure, delayed phaseout of petroleum project crediting, and incentives for carbon capture and sequestration (CCS) and direct air capture (DAC). To the extent that these incentives delay the phase down of oil refining in California, they violate AB 32’s requirements to ensure emission reductions do not disproportionately burden low-income communities and do not interfere with efforts to achieve air quality standards.⁵⁶

Most of California’s oil refineries are in the San Francisco Bay area, Los Angeles area, and San Joaquin Valley, none of which are in attainment of state and federal air quality standards. Oil refineries are predominantly concentrated near communities of color and low-income communities due to decades of racist housing and land use policies. One important example of an area experiencing extreme environmental injustices due to the oil industry is the Carson/Wilmington/Long Beach area, which has five oil refineries that account for over a third of the state’s overall refining capacity.⁵⁷ Carson/Wilmington/Long Beach residents also deal with pollution from a large oilfield, two major ports, nine rail yards, four major freeways, and multiple chemical facilities.⁵⁸ Most of the residents living in this area are people of color. Air pollution levels in this area regularly exceed federal and state standards, and oil refineries are one of the area’s largest industrial sources of criteria pollution and toxic pollution. To reduce the pollution burden of communities in Carson/Wilmington/Long Beach, along with all other California refinery communities, the LCFS cannot continue to support the oil industry’s false climate solutions. (45d-304.15)

Comment: Focus on real air pollution solutions, not greenwashing...Reward the folks who are cleaning up our air not polluters! (45d-399-3399.11, 45d-399-3399.13)

Comment: It can’t be said enough that biorefining is still a species of refining, and, as such, releases dangerous emissions with dire impacts on frontline communities. The production of renewable diesel is *at best* an interim solution, whose necessity we hope will be short-lived. (15d1-023.4)

Comment: As the legacy of the conversion of SF Bay Area refineries to making high emissions high deforestation risk liquid biofuels is still being defined, it would certainly behoove members of the Board to consider what they would like that legacy to be, how they will contribute to that legacy, and what their responsibility will be in shaping that legacy. (15d1-217.6)

Comment: Second, Staff fail to address impacts to air quality in communities impacted by SMR facilities that will continue to reap rewards from the LCFS. Evidence shows that SMR facilities emit health-harming pollution such as NOx, carbon monoxide, and fine particulate matter.²⁶ The LCFS's generous crediting of SMR fossil hydrogen paired with biomethane attributes threatens the achievement of air quality standards in California's most polluted air basins. (15d1-222.26)

Comment: Second, CARB's allowance of book-and-claim accounting for fossil gas-derived hydrogen will lock in dirty hydrogen production for decades to come and kneecap growth of truly green hydrogen in California. With biomethane receiving the excessively lavish subsidies described above, its unbundled environmental attributes will be readily available to greenwash dirty hydrogen under the Proposed Amendments. Supercharging more dirty hydrogen production in California means more pollution in already overburdened communities. (15d2-173.5)

Comment:

- V. The LCFS Will Continue to Be Dominated by Combustible Fuels, Which Will Impede Attainment of Air Quality Standards.

An additional frustration is that the LCFS Proposal is untethered from air quality planning. The program will continue to be dominated by combustible fuels despite air plans saying we must shift to zero-emissions everywhere feasible by this year for the 1997 8-hour ozone standard, 2031 for the 2008 8-hour ozone standard, and 2037 for the 2015 8-hour ozone standard. In fact, CARB's action to withdraw the South Coast's Section 185 Contingency Measure Plan for the 1997 8-hour ozone standard-which included a commitment to actually achieve additional Nitrogen Oxide (NOx) reductions from the LCFS-signals the complete separation of its climate efforts from air quality planning. By abandoning shifts to make the LCFS program consistent with air quality needs to get to zero-emissions, CARB continues its legacy of not doing what is necessary to actually attain air quality standards. (15d2-173.10)

Agency Response: No changes were made based on this comment. Please refer to CEQA RTC Master Responses 4, and responses to comments 15.1- 65, R22-36, and H38-25 and Agency Responses to R-1 and R-4.

R-6 Multiple Comments: *Health and Safety*

Comment: The proposal's incentives for biofuel consumption, particularly renewable diesel, will interfere with efforts to reduce pollution in oil refinery communities and will create new health and safety risks in those communities.

The proposal fails to recognize evidence of new health and safety risks associated with biofuel refining.

The existing biofuel conversions have also demonstrated that biofuel refining creates new health and safety risks for local communities, which CARB does not recognize in the proposal. Biofuel refining may require more intensive use of hydrogen compared to fossil fuels, which can cause more frequent flaring hazards.²⁵ This is supported by site-specific evidence: since the Marathon Martinez facility reopened as a biofuel refinery in late 2022, there have been over 46 flaring incidents reported by the refinery.²⁶

The Martinez refinery has also had an alarming number of health and safety emergencies. In a 2022 incident that the refinery failed to report, it released 20 to 24 tons of spent catalyst chemicals into the community, where residents found dust containing heavy metals settled onto front yards and vehicles.²⁷ In November 2023, the refinery had two major fires that refinery officials described as “facility-wide emergencies;” one of these fires resulted in life-threatening injuries for a refinery worker and released over 200,000 pounds of renewable diesel fuel.²⁸ These incidents have triggered a federal investigation by the U.S. Chemical Safety Board and led the Contra Costa Health department and Bay Area Air Quality Management District to conduct a surprise inspection at the facility, and local health officials have publicly expressed concerns about the frequency of safety incidents at the refinery since reopening.²⁹

Despite this clear evidence that producing biofuels at oil refineries can create serious, understudied health and safety risks, CARB’s proposal has not acknowledged these risks nor accounted for them in its analyses of the proposal and the regulatory alternatives. (45d-304.1, 45d-304.9)

Comment: We urge you to change critical aspects of the Proposed LCFS Amended program that undermine California’s climate goals and that directly harm historically disadvantaged, low income and frontline communities. (15d1-201.1)

Comment: In this amendment process, it remains key that the LCFS program doesn’t further incentivize fuels or feedstocks with known environmental and public health impacts. Currently, the program rewards fuels with dubious air quality benefits and environmental issues associated with their production. The carbon intensity of some of these fuels does not reflect their true environmental impact, which is something we cannot move forward with if we truly intend to decarbonize the transportation sector. Moreover, inaccurate accounting of these fuels’ carbon intensities will continue to skew credit prices. (15d1-221.5)

Comment: When I receive notices of consideration of credits for biomass fuels shipped from overseas or across the country, I don’t know how to respond, and this goes to convolutions allowed to accommodate for various industry “needs”. Statements of overriding consideration have harmed disadvantaged communities and the same will occur if credits for fossil gas hydrogen and “renewable credits” mitigations are allowed to continue. (15d2-205.4)

Comment: As a member of the Stockton AB617 Steering Committee I am well aware of the regulatory and mitigation environment associated with the implementation of our CERP. As the Delta-Sierra Group Conservation Chair I am well aware of the disproportionate harms that have occurred in Stockton over many years and continues today with findings of overriding consideration that affect disadvantaged communities in Stockton, CA. (15d2- 205.5)

Comment: To further comment on process concerns, we are alarmed that very little of the EJAC's eight-point resolution has been integrated into the proposed amendments. In both iterations of the 15-day changes, we see nods to stakeholder comments but none to the EJAC's thorough history of feedback. We hope to see further utilization of resources provided by EJAC in rulemakings with robust discussion about impacts to environmental justice communities. (15d2-292.4)

Comment: As you have heard today, millions of people throughout CA are dying or being injured by asthma and other respiratory diseases, caused in part by burning biodiesel and biomethane in trucks that should be electrified.

Save lives! Listen to Senator Flores! Vote No! (BH-048.1)

Comment: I am very concerned about the impact of air pollution on public health. I urge you to vote NO on LCFS amendments! If you have ever known anyone with asthma, you know that it is a terrible illness that robs people of their comfort, their livelihood and their very lives. I had a dear friend who died in an asthma attack, gasping for breath. How terrible!

And the reality is that the poor and people of color suffer disproportionately from asthma and other respiratory illnesses. In addition to the serious impact on asthma and respiratory diseases, we in California have an opportunity to transition to new technologies. We should not be using biomethane and biodiesel...why not electrify? (BH-052.1)

Comment: As you have heard today, far too many people throughout CA are being harmed by asthma and other respiratory diseases, caused in part by burning diesel, biodiesel and biomethane in trucks and other vehicles that should be electrified. (BH-060.1)

Agency Response: No changes were made based on this comment. Please refer to CEQA RTC Master Responses 2 and 4, and responses to comments 15.1- 65, R22-36, and H38-25 and Agency Responses to R-1 and R-4.

S. Rulemaking Procedure

S-1 Multiple Comments: *Public Process and Transparency*

Comment: Earthjustice respectfully requests that the California Air Resources Board (CARB) hold the March 21, 2024 meeting on the Low Carbon Fuel Standard (LCFS) as a non-voting item and bring back a final proposal for the Board to vote in July of this year. (45d-018.1)

Comment: We request a reasonable opportunity to allow important conversations and a public workshop by staff to discuss recent changes.

The request to defer the vote to July would allow Board members to direct staff on the current proposal at a non-voting March meeting and allow staff to hold a public workshop on the significant changes made since past workshops and in accordance with additional Board direction at the non-voting meeting. This public engagement is crucial given the major implications of this program. (45d-018.2)

Comment: I highly encourage you to follow the recommendation made by Earthjustice to hold a non-voting Board hearing prior to the Board vote. Staff made significant changes to the proposal at the last minute that were not discussed at workshops or informational Board

hearings, nor were they included in modeling that staff performed for the ISOR and Draft Environmental Impact Analysis.⁵ Moreover, staff have been surprisingly non-transparent in the amount of information included in the rulemaking materials, which is a change from prior LCFS rulemakings.⁶ It is so important to provide stakeholders with the opportunity to convince Board members, as a group and in a public setting, to change course prior to the voting meeting. I strongly urge you not to shortcut this process.

⁵ Confirmed by email with CARB staff.

⁶ When contacted by stakeholders to provide more comprehensive data, assumptions, and calculations that were relied upon in making the determination that the Proposed Amendments scenario is superior to each of the Alternative scenarios, staff refused to provide the information, requiring at least one stakeholder to submit a Public Record Act request. Unfortunately, this information will not be available in time to inform comments during the 45-day period.

(45d-154.5)

Comment: SCE also understands the need for a brief postponement of the public hearing to consider the amendments, given the number of items that require staff's attention and time to address. However, to ensure the timely implementation of important modifications to stringency, the statewide Clean Fuel Reward program, and utility Holdback project requirements, SCE requests that the extension not extend beyond the end of Q2 2024.

(45d-178.5)

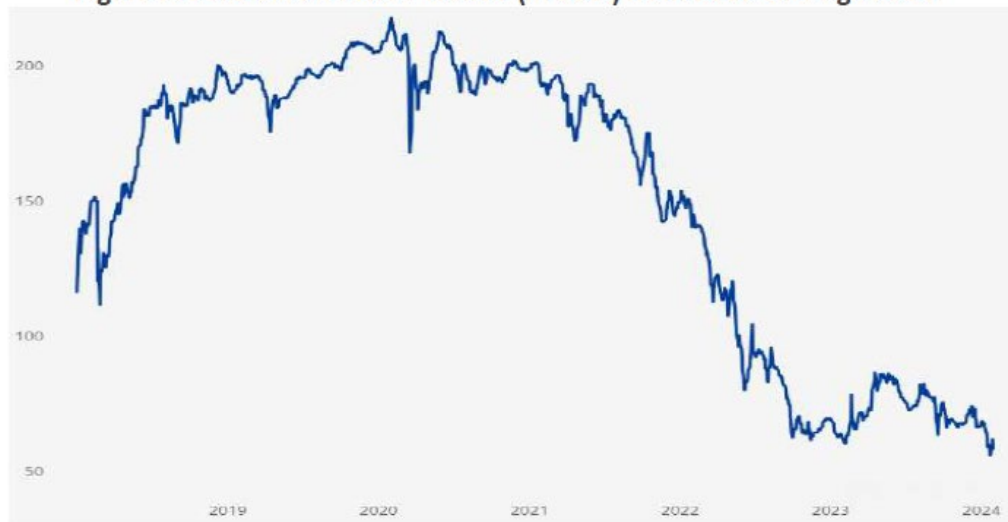
Comment: EVCA and CalETC recommend the hearing on the new LCFS be no later than 2nd Quarter 2024, ...

EVCA and CalETC recommend the hearing on the new LCFS be no later than the 2nd Quarter 2024.

The first CARB workshop on amending the current LCFS was in late 2020. We previously recommended the new LCFS go into effect in January 2023 if not sooner. The market participants need a new LCFS in effect by the end of this year at the latest. (45d-188.1)

Comment: Neste believes that finalizing this rulemaking quickly is the highest priority. The LCFS credit market continues to be unstable due to the record amount of renewable energy generating significantly more credits than are required to offset deficits created by the currently outdated CI targets. As shown below in Figure 1, the LCFS credit prices continue to go down because the CI reduction goals are not strict enough, and delays in this rulemaking have made the problem worse. The market had expected CARB to complete this rulemaking to be complete in late 2023, but it only officially started in January 2024. Thus, the instability of the credit market continues to get worse as shown in Figure 1 and it will take that much longer to recover. This continued uncertainty about credit prices makes it difficult for the industry to make its investment decisions and thus essential emissions reductions are on pause. Other LCFS programs, such as Oregon's Clean Fuels Program, have essential program upgrades on pause as well because most believed California's LCFS rulemaking would be complete by now. We urge CARB to prioritize this rulemaking and ensure it is completed by 2nd quarter 2024.

Figure 1: LCFS Credit Prices Trends (in USD) from 2019 through 2024



...

Ensure the regulatory updates go into effect in 2024 to avoid further unrealized emissions reductions due to overperformance of the credit market;

...

The time for action is now, and the future of our planet is counting on CARB's leadership to address climate change. Modeling work being conducted by the Low Carbon Fuels Coalition (LCFC) shows that CARB can be aggressive without jeopardizing the stability of the LCFS. As such, we recommend that CARB pursue aggressive action on this rulemaking, as any hesitation will only favor fossil fuels and delay emission reductions. (45d-295.1)

Comment: The delay in hearing the rule and any further delays in implementation will further stifle any private investments in cleaner transportation fuels, especially HRS. (45d-329.3)

Comment: On behalf of more than three dozen cross-sectoral organizations, we respectfully submit the attached critical process and substantive recommendations for CARB to fix the LCFS. We urge CARB to provide non-voting, informational Board hearing, which will allow for more time and the opportunity for meaningful public and Board engagement. This need for more engagement opportunities is underscored by the major deficiencies that remain in the current proposal. (45d-337.1)

Comment: Implement Rule Changes in 2024, Being Careful to Not Sacrifice Stringency

With a supply and demand imbalance of over 6 million MT per year, as of the last reported data,⁵⁶ the speed in which CARB implements new rules is of vital importance to market participants. With actual

reductions in carbon emissions exceeding 15%,⁵⁷ surpassing expectations since 2020, and seeing LCFS credit prices fall since that time from ~\$200 to a low of \$57 so far this year,⁵⁸ delaying a stringency increase and step-change will likely continue to suppress credit values,

market confidence and investment in clean fuels in California. While every quarter delay matters, Tesla encourages CARB staff to continue to focus on rules that correct near-term credit pricing in support of reinvestment in emissions reducing efforts.

⁵⁶ <https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries>

⁵⁷ <https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries>

⁵⁸ See California Low Carbon Fuel Standard Credit Price from July 2020 through February 13, 2024, <https://www.neste.com/investors/market-data/lcfs-fuel-standard-credit-price>

(45d-353.6)

Comment: Voltera acknowledges that the Board has postponed voting on the proposed amendments. While Voltera acknowledges CARB's need for additional discussion, we urge the Board to move expeditiously to send clear and stable market signals to the ZEV infrastructure sector. (45d-387.11)

Comment: Given the importance of this program and the potentially far-ranging consequences of the proposed amendments, PG&E appreciates the extension of the rulemaking timeline to allow sufficient time to ensure all stakeholder input is considered, while still prioritizing completion of the rule by this summer. There are a number of important policy and technical details that all parties could benefit from additional engagement on. (45d-388.1)

Comment: However, low prices of LCFS credits challenge the Port's ability to fund these essential projects. The District understands the dynamic balance between supply and demand in the LCFS credit market, but kindly requests the California Air Resources Board (CARB) consider expediting the timeline for implementing these amendments.

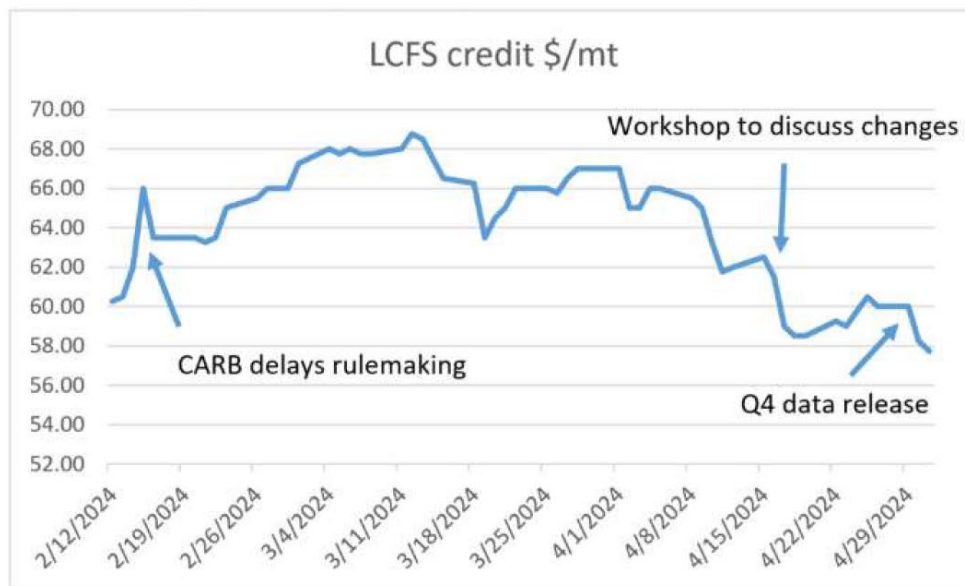
While the District acknowledges the prevailing surplus and the influx of renewable diesel into the state, it is concerned about the foreseeable bear market predicted for 2024 and 2025. Therefore, **the District appreciates your careful consideration of its request to expedite the implementation of the proposed LCFS Amendments.** (45d-395.3)

Comment: Lastly, the ABC would like to reiterate the absolute importance of concluding this rulemaking as soon as possible. On top of the delays we have already seen, any further delays will continue to diminish the necessary policy signal the market needs to facilitate and encourage investments in clean fuels. Thus, the ABC strongly urges CARB staff and the Board to finalize this rulemaking by mid-2024. (Apr-056.5)

Comment: Neste continues to believe that finalizing this rulemaking quickly is the highest priority and that CARB must pursue more aggressive CI reductions. The sharp price declines since CARB released the 45-day regulatory package, and the continued decline since CARB delayed the rulemaking and hosted the April 10th workshop, demonstrate that the market firmly believes the CI reduction goals currently being discussed are not aggressive enough to balance out the credit market (see Figure 1 below). The market price is reflecting the broad belief that there are too many credits available today and the demand for those credits is unlikely to outpace supply in the near future. Market participants that are holding credits are selling them at lower and lower prices because the supply of credits continues to outpace demand, as reflected by the continued increases in the credit bank quarter after quarter. Current market prices reflect the belief that supply will remain above demand even after this rulemaking and prices for credits currently trading for 2025 transfer (currently only \$3 above

prompt values) demonstrate a lack of confidence in the proposed regulatory updates having any meaningful effect on the supply and demand imbalance. We urge CARB to prioritize this rulemaking and ensure it is completed by 2nd quarter 2024.

Figure 1: LCFS Credit Prices Trends (in USD) from February 2024 through May 2024



Neste recommends the following as part of the LCFS rulemaking to ensure it adequately addresses market concerns:

- Ensure the regulatory updates go into effect in 2024 to avoid further unrealized emissions reductions due to overperformance of the credit market; (Apr-066.1)

Comment: The delays in the regulatory amendment process have prevented the implementation of the amendments in the first quarter of 2024. (Apr-082.3)

Comment: The only barrier hobbling the program's continued success is the regulatory delay in enhancing overall program ambition. (Apr-098.2)

Comment: The simple fact is that many RNG projects in planning and construction in California rely on LCFS revenues to be built and operated. At current LCFS prices, and in the face of the programmatic uncertainty created by this almost four years¹⁰ of discussion on this rulemaking, new RNG projects driven by the LCFS will be extremely limited until this rule is finalized. We thank CARB for your continued work and look forward to the swift conclusion of this LCFS rulemaking. (Apr-098.17)

Comment: Amp Americas ("Amp") appreciates the California Air Resource Board's ("CARB's") leadership on addressing climate change and the significant success the LCFS program has had in decarbonizing transportation, as described by the benefits and outcomes highlighted in the workshop slides. Amp especially appreciates CARB staff's thorough and ongoing stakeholder engagement throughout the LCFS amendment process.

Amp strongly supports amending the LCFS quickly and in a manner that will ensure its ongoing success as a driver of investment in a broad array of low carbon fuels for California, including dairy methane capture projects. (Apr-101.1)

Comment: We very much appreciate the diligent effort CARB staff, leadership, and the Board are putting into this rule-making process. Over the past 2 years, staff have hosted numerous workshops, heard from myriad stakeholders, and modeled countless scenarios. All this effort is critical to putting forth the best proposal to balance climate and market impact with affordability and other program goals.

At this point, however, we strongly urge CARB staff to put forth its best proposal and for the Board to vote on it as soon as possible. The longer this rulemaking delays, the more the program and low carbon fuels market suffers. A prompt vote on the LCFS rulemaking is critical to reinvigorating the market and maintaining California's climate policy leadership. (Apr-101.12)

Comment: We commend you and CARB Staff for consistently being open to feedback from a wide variety of stakeholders with – often strong – opinions of what an ideal LCFS program would look like. In this letter, we will continue to offer feedback on next steps, but the underlying emphasis of this letter should be unequivocal: it is time to finalize this process. The first meeting CARB hosted on potential changes to the LCFS program was in October 2020, when LCFS credits priced at \$195/MT and the credit bank was under 8 million; credits are currently \$48/MT and the credit bank has ballooned to 23 million. Pricing continues to fall as the market simply does not believe CARB will ever take action. Investment in projects has ceased. Operating projects are shuttering. It is time.

We urge CARB to finalize this rulemaking with a vote at the June or July board meeting. (Apr-102.1)

Comment: ... we believe that those considerations must be secondary at this stage to CARB finalizing the implementation of this rulemaking with an appropriate level of programmatic ambition. For years, we have collaborated with CARB and other market stakeholders in an effort to form a more perfect LCFS program, and we seem to be approaching the resolution of that process. It is vital for it to result in a program that can once again attract the needed investment to decarbonize California's transportation system with speed and scale.

To reach that end state, the core adjustments from the latest proposal we request are:

- Finalizing the LCFS rulemaking at the June or July CARB board meeting; (Apr-102.5)

Comment: Air Products supports adopting and implementing the amendment package as soon as possible with an effective date for any stringency improvements in 2024 via pro-ration. (Apr-103.1)

Comment: World Energy recognizes the time and work CARB staff has put into this rulemaking process. However, we urge CARB to finalize the rulemaking quickly and present the proposal to the CARB Board as early as possible. The proposed amendments are important to ensuring the program continues lowering the CI of fuels, but they will need to be implemented soon to send the correct market signals. As the rulemaking timeline continues to

extend, uncertainty is arising both for LCFS participants and investors, which can be detrimental to the program. Finalizing the LCFS rulemaking will provide clarity to the market that low carbon fuels will continue to play a crucial role in decarbonizing California's transportation sector.

World Energy recognizes the time and work CARB staff has put into this rulemaking process. However, we urge CARB to finalize the rulemaking quickly and present the proposal to the CARB Board as early as possible. The proposed amendments are important to ensuring the program continues lowering the CI of fuels, but they will need to be implemented soon to send the correct market signals. As the rulemaking timeline continues to extend, uncertainty is arising both for LCFS participants and investors, which can be detrimental to the program. Finalizing the LCFS rulemaking will provide clarity to the market that low carbon fuels will continue to play a crucial role in decarbonizing California's transportation sector. (Apr-105.1)

Comment: That is also why the future of the regulation, as determined by this rulemaking, is so important. We reiterate our prior comments that concluding this process with an ambitious set of amendments in 2024 is crucial for market certainty. We welcome the timeline presented by the staff at the workshop indicating that amendments will go into effect later this year or in early 2025. (Apr-116.6)

Comment: We urge CARB to finalize this rulemaking as soon as possible.

We deeply appreciate the work that Staff are doing to update the LCFS rule and understand that CARB has many high-priority and urgent rulemakings to contend with this year. However, we've seen that even rumors of further delays can have significant impacts on the market, and strongly recommend that CARB push to have an approved rule before the end of this year. (Apr-128.10)

Comment: Lastly, the ABC would like to reiterate the absolute importance of concluding this rulemaking as soon as possible. On top of the delays we have already seen, any further delays will continue to diminish the necessary policy signal the market needs to facilitate and encourage investments in clean fuels. Thus, the ABC strongly urges CARB staff and the Board to finalize this rulemaking by mid-2024. (Apr-137.6)

Comment: PG&E Encourages an Expedient Conclusion to this Regulatory Amendment Process

PG&E supported the delay of the March Board hearing and understands CARB's cautious and deliberate approach to decision making around this incredibly important and nuanced program. Indeed, the large volume of public comments provided to CARB and the importance of the concerns raised by stakeholders about CARB's proposed amendments warrants additional consideration, and the April public workshop provided an important venue for this discourse to continue. However, PG&E reiterates the importance of moving this regulatory package across the finish line as soon as practicable. The investments at stake in support of attaining the State's various energy, environmental and clean transportation goals are too important to let linger indefinitely, and the current market imbalances are too significant to let the perfect be the enemy of the good in finalizing the current regulatory process. (Apr-151.1)

Comment: However, the program's continued success is jeopardized by the regulatory delay in amending the program and the uncertainty around whether those amendments will be sufficiently ambitious.

LCFS prices have dropped 25%, to \$48.75/MT, in the 30 days since the April 10th workshop.² That is an echo of the price response after the release of the ISOR, when prices dropped 20%. The market continues to send a clear signal to ARB that without timely and aggressive action, it believes the program's performance will continue to outpace its targets, with the result that the LCFS could be a victim of its own success.

² OPIS Carbon Market Report, May 9th, 2024.

(Apr-157.1)

Comment: The nearly four-year regulatory amendment process makes it imperative that ARB takes immediate and aggressive action to reset the LCFS program's ambitions ahead of its performance. Additional delays and insufficiently ambitious adjustments to ARB's current proposals will only exacerbate the near-term oversupply and exert additional downward pressure on prices, risking a sharp drop in clean fuels and technologies investment. Such an outcome would impede, rather than build upon, the program's clear success to date.

(Apr-157.5)

Comment: Additionally, LDC believes this proposal warrants an additional public workshop, environmental impact analysis, and 45 day comment period. These changes are substantial and not reasonably foreseeable based on previous notices. Notably, the Initial Statement of Reasons (ISOR) there is only a single mention of a vegetable oil cap, and only within the context of the Comprehensive Environmental Justice Scenario, which was found to increase overall GHG emissions. (15d1-026.2)

Comment: In closing, we note that there is sufficient time before the November Board meeting for CARB to issue a second 15-day package. We urge CARB to do so. (15d1-187.11)

Comment: WIE encourages CARB to finalize rules in a timely manner that support a balanced and steady market and allow the industry to innovate and adapt, driving further reductions in greenhouse gas emissions while maintaining the economic viability of renewable fuels in California. This approach will ensure that the state's carbon market remains robust, supporting both environmental and economic objectives. (15d1-226.6)

Comment: Therefore, Neste makes the following recommends related to the proposed 15-day package in order to protect consumer fuel prices, to continue incentivizing investments in SAF, and to be more aligned with the 45-day package published in December 2023:

1. We urge CARB to issue another 15-day package to respond to feedback and correct problems created by this 15-day package; (15d1-228.5)

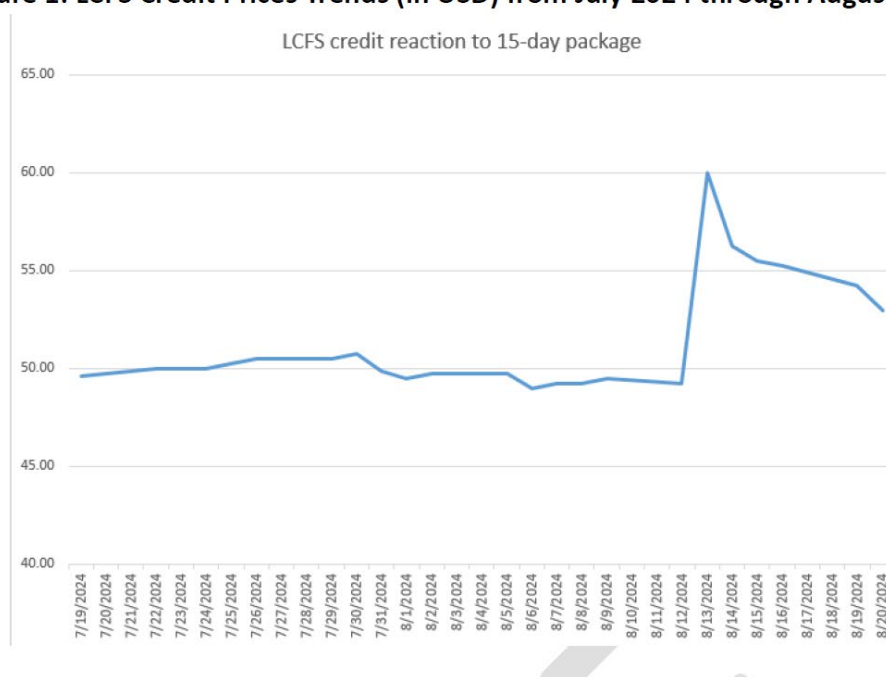
Comment: Ensure that regulatory updates go into effect in January, 2025, to avoid further unrealized emissions reductions due to current overperformance of the credit market; (15d1-228.6)

Comment: Return to CARB's policy goals stated in its April 10, 2024 public workshop; (15d1-228.7)

Comment: Ensure that regulatory updates go into effect in January, 2025, to avoid further unrealized emissions reductions due to current overperformance of the credit market.

Neste continues to believe that finalizing this rulemaking by January, 2025, is the highest priority and that CARB must pursue more aggressive CI reductions. Figure 1 below shows that the market remains unconvinced that the proposed 15-day package changes will be sufficient to balance the ongoing growth in the credit bank. While 2025 may show signs of a modest draw in the bank, the smaller annual compliance target changes from year to year will quickly shift the balance back toward credit bank growth by 2026. Prices are likely to continue hovering in the same range without stronger targets. We urge CARB to prioritize this rulemaking and ensure the amended regulation is in effect in January, 2025.

Figure 1: LCFS Credit Prices Trends (in USD) from July 2024 through August 2024



(15d1-228.15)

Comment: In summary, as a long-time, public supporter of California's LCFS program, Neste urges CARB to reject proposed risky policy experiments outside of the 45-day package that undermine the proven policy frameworks of one of California's longest running and most successful climate programs. We urge CARB to re-evaluate and propose an additional 15-day package that avoids the unintended consequences, implementation feasibility, and program reliability issues raised in this package. Consideration of these issues for industry decisions about long term capital investments for both road and aviation fuels, as well as for agriculture production and practices can also lead to higher costs for consumers. The impacts on aviation fuels in particular requires attention. (15d1-228.45)

Comment: 6) Regulatory uncertainty dampens investor confidence and should be minimized. (15d1-237.6)

Comment: WTE has other projects under development consideration that have been in part put into suspension due in large part to the recent dips and uncertainties of the LCFS program. Investor sentiments have served to hold the development of these projects back until direction of the LCFS program becomes clearer. We look forward to CARB instituting improvements in the 2024 Rulemaking that we hope will result in increased program certainty. (15d1-241.1)

Comment: With the Administrative Procedure Act (APA) deadline fast approaching, we strongly urge the board to approve the proposal without further delay on November 8th.

Prompt finalization is necessary to sustain the state's momentum on decarbonization efforts. (15d2-091.1)

Comment: CARB contends that "no additional environmental analysis or recirculation of the EIA is required."⁶ CARB is wrong. CEQA requires lead agencies to recirculate an environmental impact report when the agency makes changes to the project that substantially increase the severity of an environmental impact previously considered or a new significant environmental impact would result from the project. Pub. Res. Code § 21092.1; 14 Cal. Code Regs. § 15088.5; *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1993) 6 Cal.4th 1112, 1130; *Western Placer Citizens for an Agricultural & Rural Environment v. County of Placer* (2006) 144 Cal.App.4th 890, 899-903. (15d2-169.2)

Comment: Unfortunately, transparency regarding LCFS costs has been somewhat lacking and the staff's recent efforts to obfuscate the issue have been disappointing. (15d2-183.12)

Comment: I am disappointed with several elements of this final amendment package, and with the process that brought us here. I have been working closely with CARB staff on the LCFS for more than 15 years, and the last year has been one of the least collaborative. This was a lost opportunity and has weakened support for the policy in California and across the United States.

On the two issues where I have engaged most deeply, bio-based diesel and manure biomethane, CARB has done too little and kicked the can down the road where it should have acted now. (BH-023.1)

Comment: The attached petition reflects Californians' call for transparency in evaluating the financial impact of the proposed LCFS amendments on consumers. We urge CARB to provide clear, public information on the cost implications of these changes before moving forward with any policy amendments.

...

We deserve transparency from our government, and we should know how much more we will be paying before any amendments are approved that further increase the financial burden on consumers. (BH-079.3)

Comment: The transparency that you guys brought up, great, you guys are doing it. Just keep that transparency. We do want those companies and city officials' programs to give us that transparency, and give the communities the power to refuse the -- any industrial buildings that contribute to the air pollution that we have in marginalized communities. (BHT-5)

Comment: I also want to raise immense frustration with the entire process. I find it deeply cynical to hold this vote three days after the most momentous election of our time capitalizing on the chaos of the moment to sneak in approval of this program, waiting until the very last moment so that you can wash your hands of this mess and say it's too late to make any changes. (BHT-172)

Agency Response: CARB and the LCFS program have always prioritized providing transparency on the program's outcomes and conducting stakeholder engagement to improve the program. Staff postponed the Board Hearing, originally scheduled for March 21, 2024, to November 8, 2024, to give more time for engagement with stakeholders and consideration of feedback provided in response to the regulatory proposals. Staff also conducted an additional all-day workshop on April 10, 2024, to discuss significant comments and concerns raised on the LCFS at past workshops and in the initial 45-day comment period.

Staff also determined that additional modifications are appropriate for the proposed amendments and developed two proposed modifications (first and second 15-day changes). These modifications were available for public comment for 15 days starting on August 12, 2024, and ending on August 27, 2024, for the first 15-day changes, and starting on October 1, 2024, and ending on October 16, 2024, for the second 15-day changes.

Additionally, at the end of the Draft Environmental Impact Analysis (EIA) comment period, which began on January 5, 2024, and ended on February 20, 2024, staff identified revisions to certain aspects of the originally proposed amendments that merit revisions, which were updated through the first 15-day changes released on August 12, 2024, to the project description in the Draft EIA. Additional background information and analysis about whether dairy herd size expansion may be a reasonably foreseeable compliance response to the proposed amendments was also added in the project description. In addition, in response to public comment, the air quality and greenhouse gas (GHG) evaluations have been reassessed and expanded with additional information for clarity. As a result, staff released the Recirculated Draft Environmental Impact Analysis for the Proposed Amendments for public review and comment for a period of 45 days that began on August 16, 2024, and ended on September 30, 2024.

In response to the comment related to the public process lacking collaboration with stakeholders, staff has been engaging with the public on potential future changes to the LCFS program for several years. Beginning in October 2020 and ending in November 2024, staff conducted ten public workshops and two LCFS community meetings, held four Board meetings (including two joint meetings with CARB's Environmental Justice Advisory Committee), and participated in an extensive number of meetings with individual stakeholders to discuss concepts for potential amendments to the LCFS

regulation and address various concerns.²⁶ Staff also provided opportunity during the workshops for stakeholders to provide oral feedback and additional opportunity for stakeholders to provide written feedback for at least two weeks following the workshops. This feedback played a key role in informing the proposed amendments and was also posted publicly on the LCFS Meetings and Workshop webpage. All workshops and community meetings were held virtually to allow for remote participation during the COVID-19 pandemic, which also allowed for wider participation. Staff's approach to public engagement follows (and expands upon) the precedent of previous LCFS rulemakings.

For each of the workshops, meetings, and Board hearings, CARB staff publicly posted materials and opened comment dockets to solicit feedback on posted materials and the meetings. In response to the comments requesting additional information on the analytical modeling utilized during the rulemaking, staff posted all supplemental analysis relied upon to the Supplemental 2023/2024 LCFS Modeling Documentation webpage²⁷ to provide even more transparency than what is required by law. Going forward, CARB staff will continue to provide significant transparency into the California transportation fuels market. The regulation and the proposed amendments have detailed reporting and verification requirements, which provide unprecedented transparency in the transportation fuels market and allows CARB to provide detailed information about low carbon fuel production processes, feedstocks, and emissions to the public.

CARB staff post LCFS information quarterly, including fuel volumes and credits, credit prices and transactions, fuel and feedstock volumes, and carbon intensity values for approved fuel production pathways. This data gives the public and market participants clear line-of-sight on the investment landscape and progress towards meeting California's climate goals. CARB publishes a substantial amount of program data on the LCFS data dashboard, with frequent updates of the program's progress, each with the underlying data posted publicly on our website. CARB publicly posts LCFS data related to progress decarbonizing transportation and achieving future compliance targets, monthly credit prices reported by CARB and third-parties, as well as credit and deficit generation, the share of alternative fuels produced in-state versus out-of-state, detailed historical data on fuels and feedstocks for all fuels reported in our program from the quarterly data summary spreadsheet, and other data on the program results and program implementation. And to provide even greater transparency on the fuels market, at the Board Hearing, held on November 8, 2024, to consider the amendments to the

²⁶ CARB, *LCFS public engagement*, 2024. <https://ww2.arb.ca.gov/sites/default/files/2024-11/LCFS%20public%20engagement.pdf>

²⁷ California Air Resources Board. *Supplemental 2023/2024 LCFS Modeling Documentation*. Webpage. Updated August 12, 2024. <https://ww2.arb.ca.gov/resources/documents/supplemental-20232024-lcfs-modeling-documentation>

LCFS, the Board directed staff to make public even more information to support public transparency on the performance of the LCFS program.²⁸

S-2 Multiple Comments: *Additional Rulemakings*

Comment: Understanding that CARB is introducing the AAM to enable the LCFS to adjust more rapidly to strong performance, it is important that CARB continues to conduct rulemaking's every few years to allow technical adjustments in the recognition of improvements and modeling. Since the original proposal for rulemaking changes in 2022, there have been several legislative bills and executive orders passed affecting the transportation market in California alone, not to mention the hundreds of policy proposals made nationally and internationally. The assumptions made by CARB regarding the future of the transportation market, including both the vehicle market and fueling, should be continually reviewed. It would also be valuable to establish more frequent stakeholder engagement to hear concerns and recommendations well ahead of preparing for the next rulemaking. (45d-165.1)

Comment: Unresolved Issues Point to Need for Additional Rulemaking in the Near Term

From the start of the workshop and engagement process that led up to this rulemaking, Staff were extremely clear that the scope would be strictly limited in order to allow timely and efficient adoption of changes that could stabilize the LCFS credit market and help strengthen the LCFS credit price. The workshops, engagement opportunities, and discussion materials circulated since then have reflected this agenda. Given the recent significant decline in LCFS credit prices, this focus on corrective measures is understandable.

The limited scope, however, meant that many critical and complex structural topics that, when fully explored, might offer avenues to improve the efficiency, resilience, and effectiveness of the LCFS as decarbonization proceeds were excluded from this rulemaking. These include, but are not limited to, consideration of updated EERs, updating how the regulation addresses ILUC impacts, addressing appropriate crediting from fossil fuel displacement in a transitioning fleet, treatment of interactions or potential double-counting with other climate programs, harmonizing LCFS protocols with other jurisdictions that have similar programs in place or coming online, preparing for radical LCFS credit market shifts anticipated in the 2030's as program revenues begin declining due to reduced gasoline consumption, expanding the LCFS to cover air, water, and rail fuels, and integrating vehicle or transportation-system effects into fuel CI assessment, differentiation between so-called "bridge" fuels and those with the capacity to achieve carbon neutrality, etc. As discussed in earlier sections of this comment, several of these -out-of-date EERs, estimation error due to fuel displacement assumptions, ILUC risk mitigation, and additionality considerations - have demonstrated actual or potential capacity to negatively affect the LCFS and/or progress toward California's climate, environmental, and equity goals within the next 5-10 years. The other issues deserve careful consideration and the

²⁸ California Air Resources Board. *Public Hearing to Consider Proposed Low Carbon Fuel Standard Amendments*. Resolution 24.14. November 8, 2024. Available at: <https://ww2.arb.ca.gov/sites/default/files/barcu/board/res/2024/res24-14.pdf>

opportunity for public discussions in a forum that includes stakeholders from a variety of perspectives and LCFS program staff.

It is especially important in the transportation fuel space to make policy changes as early as possible, in order to avoid a situation that requires precipitous action that may create stranded assets, excessive fuel price volatility, or erode policy certainty about the LCFS market. The LCFS has in the past conducted major rulemakings following the release of the Scoping Plan; if past patterns hold this would imply the next significant LCFS rulemaking in 2028. By that time, failure to address some of the issues listed above could lead to another destabilization of LCFS credit markets. While many of these issues are complex and will take significant time and resources to address, most are amenable to solutions that can be gradually implemented, to minimize disruption. Waiting until a crisis emerges increases the chance that precipitous, disruptive change will be required.

CARB should commit now to a follow-up LCFS rulemaking, without any limitations to its scope, at the earliest possible opportunity. (45d-391.14)

Comment: It is especially important in the transportation fuel space to make policy changes as early as possible, in order to avoid a situation that requires precipitous action that may create stranded assets, excessive fuel price volatility, or erode policy certainty about the LCFS market. The LCFS has in the past conducted major rulemakings following the release of the Scoping Plan; if past patterns hold this would imply the next significant LCFS rulemaking in 2028. By that time, failure to address some of the issues listed above could lead to another destabilization of LCFS credit markets. While many of these issues are complex and will take significant time and resources to address, most are amenable to solutions that can be gradually implemented, to minimize disruption. Waiting until a crisis emerges increases the chance that precipitous, disruptive change will be required.

CARB should commit to a follow-up LCFS rulemaking, without any limitations to its scope, at the earliest possible opportunity. (Apr-163.23)

Comment: The need for a subsequent immediate opening of another LCFS revision process, unrestricted in scope to proactively address revisions needed as the program matures;... (15d1-202.1)

Comment: Begin Another Period of LCFS Rulemaking with no Restrictions on Scope

Pacific Environment urges CARB to open another period of rulemaking immediately at the close of the current revisions period. The length of time needed to address this round of revisions and the number of comment letters submitted indicate the high level of interest across stakeholders with a diverse range of opinions and analyses to discuss.

A number of topics were unable to be fully addressed in this round of revisions. Creating a protocol of frequent revisions will allow for greater attention to any remaining unresolved issues and any future ones that may arise as the program continues to grow. (15d1-202.4)

Comment: From the start of the workshop and engagement process that led up to this rulemaking, Staff were clear that the scope would be strictly limited in order to allow timely and efficient adoption of changes that could stabilize the LCFS credit market and help strengthen

the LCFS credit price. The workshops, engagement opportunities, and discussion materials circulated since then have reflected this agenda. Given the significant decline in LCFS credit prices, this focus on corrective measures is understandable.

The limited scope, however, meant that many critical and complex structural topics that, when fully explored, might offer avenues to improve the efficiency, resilience, and effectiveness of the LCFS as decarbonization proceeds were excluded from this rulemaking. These include, but are not limited to, consideration of updated EERs, updating how the regulation addresses ILUC impacts, addressing appropriate crediting from fossil fuel displacement in a transitioning fleet, treatment of interactions or potential double-counting with other climate programs, harmonizing LCFS protocols with other jurisdictions that have similar programs in place or coming online, preparing for radical LCFS credit market shifts anticipated in the 2030's as program revenues begin declining due to reduced gasoline consumption, expanding the LCFS to cover air, water, and rail fuels, and integrating vehicle or transportation-system effects into fuel CI assessment, differentiation between so-called "bridge" fuels and those with the capacity to achieve carbon neutrality, etc. As discussed in earlier sections of this comment, several of these issues have demonstrated actual or potential capacity to negatively affect the LCFS and/or progress toward California's climate, environmental, and equity goals within the next 5-10 years. The other issues deserve careful consideration and the opportunity for public discussions in a forum that includes stakeholders from a variety of perspectives and LCFS program staff.

It is especially important in the transportation fuel space to make policy changes as early as possible, in order to avoid a situation that requires precipitous action that may create stranded assets, excessive fuel price volatility, or erode policy certainty about the LCFS market. The LCFS has in the past conducted major rulemakings following the release of the Scoping Plan; if past patterns hold this would imply the next significant LCFS rulemaking in 2028. By that time, failure to address some of the issues listed above could lead to another destabilization of LCFS credit markets. While many of these issues are complex and will take significant time and resources to address, most are amenable to solutions that can be gradually implemented, to minimize disruption. Waiting until a crisis emerges increases the chance that precipitous, disruptive change will be required.

CARB should commit to a follow-up LCFS rulemaking, without any limitations to its scope, at the earliest possible opportunity. (15d1-251.24)

Comment: However, CARB should also commit to returning to the rule to considering at least a 35% CI reduction by 2030 through a future rulemaking. (15d2-269.6)

Comment: From the start of this rulemaking process, Staff were clear that the scope would be strictly limited in order to allow timely and efficient adoption of changes that could stabilize the LCFS credit market and help strengthen the LCFS credit price. The workshops, engagement opportunities, and discussion materials circulated since then have reflected this agenda. Given the significant decline in LCFS credit prices, and the challenges this presents to California's long-term climate goals, this focus on corrective measures is understandable.

The limited scope, however, meant ignoring many critical and complex structural topics that, when fully explored, might offer avenues to improve the efficiency, resilience, and

effectiveness of the LCFS. These include, but are not limited to, consideration of updated EERs, updating how the regulation addresses ILUC impacts, addressing appropriate crediting from fossil fuel displacement in a transitioning fleet, treatment of interactions or potential double-counting with other climate programs, harmonizing LCFS protocols with other jurisdictions that have similar programs in place or coming online, preparing for radical LCFS credit market shifts anticipated in the 2030's as fossil fuels rapidly exit California's fuel supply, expanding the LCFS to cover air, water, and rail fuels, integrating vehicle or transportation-system effects into fuel CI assessment, differentiation between so-called "bridge" fuels and those with the capacity to achieve carbon neutrality, etc. As discussed in our many comments on this rulemaking, these issues have demonstrated actual or potential capacity to negatively affect the LCFS and/or progress toward California's climate, environmental, and equity goals within the next 5-10 years. The other issues deserve careful consideration and the opportunity for public discussions in a forum that includes stakeholders from a variety of perspectives.

It is especially important in the transportation fuel space to make policy changes as early as possible, in order to avoid a situation that requires precipitous action that may create stranded assets, excessive fuel price volatility, or erode policy certainty about California's climate policy portfolio. The LCFS has in the past conducted major rulemakings following the release of the Scoping Plan; if past patterns hold this would imply the next significant LCFS rulemaking in 2028. By that time, failure to address some of the issues listed above could lead to another destabilization of LCFS credit markets. While many of these issues are complex and will take significant time and resources to address, most are amenable to solutions that can be gradually implemented, to minimize disruption. Waiting until a crisis emerges increases the chance that precipitous, disruptive change will be required.

CARB should commit to a follow-up LCFS rulemaking, without any limitations to its scope, at the earliest possible opportunity. (15d2-287.12)

Comment: Given all the remaining outstanding concerns from environmental and front-line communities, we also urge CARB to open another period of rulemaking immediately at the close of this one, as a number of topics were unable to fully be addressed in this round of revisions. (BHT-226)

Comment: What I will say, and this is unambiguously clear, is that there is a need to open another rulemaking as soon as possible without any limitations on scope. Because of the crisis of the LCFS credit market, this rulemaking was always meant to exclude several major structural issues that will -- they are not crises right now, but if they wait until the next scheduled major rulemaking after the next Scoping Plan, likely in 2028, there will be a crisis at that point. So it is vital that we, as soon as possible, open another rulemaking to address these deeper structural issues, and I look forward to get to work on those after we move forward. (BHT-242)

Agency Response: Staff will initiate future rulemakings to continue to improve and enhance the LCFS to support California's climate goals as necessary and appropriate, and will engage with stakeholders throughout the process of any future rulemaking.

S-3 Multiple Comments: *Support for the Public Process*

Comment: We support the stakeholder process and are very grateful for the opportunity to provide feedback on the planned project in this way we would be delighted if our feedback was taken into account. (45d-374.5)

Comment Summary: Various soybean associations appreciate much of the work that CARB staff highlighted in the April 10 workshop. They agree that the robust public process that CARB has championed throughout the LCFS update work has offered significant opportunities for engagement. The workshop highlighted that liquid fuels will continue to be needed in the transportation sector in California for at least the next decade, and they believe the role of soy-based biofuels to lower emissions in today's remaining liquid fuel market is vitally important to help mitigate the impacts of climate change. (Apr-093.2, Apr-140.4)

Comment: We greatly appreciate the additional time CARB staff has invested in considering strengthening the LCFS 2030 targets and proposing the important step of eliminating the current aviation fuel exemption for intrastate fossil jet fuel from the standard, as well as responding to and discussing our and others' concerns with the proposed LCFS revisions during its April 10th public workshop. (Apr-117.1)

Comment: We strongly support CARB's rulemaking process. The staff's recent proposed workshop approaches appear well grounded at striking a balance among stakeholders, and we support expeditiously implementing the most ambitious versions of these without further delay. (Apr-158.1)

Comment: First and foremost, we wish to express our appreciation to the Board for providing this opportunity for public input and to ARB staff for providing the input files necessary to meaningfully comment on the ISOR and the April Workshop. The LCFS amendment proceedings have generated substantial feedback from various stakeholders. The Board's decision to pause the proceedings—enabling additional discussion and re-evaluation—reflects its dual commitments to promoting public participation and making regulatory decisions informed by rigorous data and analysis.

To this end, we are grateful that CARB staff responded to requests related to the December 2023 ISOR, including our own, by making CATS model input and output files for each ISOR scenario publicly available, along with several new scenarios discussed at the April Workshop. In so doing, CARB encouraged transparency, public input, and engagement in the LCFS amendment process.

Additionally, we commend CARB for its continued commitment to the policy goals of the LCFS, which align with our shared objectives of shifting California's fuel mix to sustainable supplies while prioritizing decarbonization and innovation. (Apr-192.1)

Comment: Kern appreciates CARB Staff's tremendous work throughout the rulemaking process, particularly for demonstrating the significant contributions that lower CI liquid fuels have delivered toward achieving the state's climate goals and the continued need for these fuels for many years to come. (15d1-214.8)

Comment: We commend the agency for its technical analysis and interest in continuing to improve the effectiveness of one of its flagship climate programs. (15d1-219.1)

Comment: We remain grateful for CARB's extensive efforts to solicit feedback from stakeholders who are deeply invested in the LCFS's success,... (15d2-224.2)

Comment: Additionally, we greatly appreciate the efforts of CARB staff on the LCFS and its engagement with stakeholders in moving forward to meet California's carbon / GHG reduction goals. (15d2-274.1)

Comment: We commend Staff for facilitating a robust series of workshops over the last two years, and for their willingness to engage with stakeholders on this complex issue. (15d2-287.1)

Comment: Kern appreciates CARB Staff's tremendous work throughout the rulemaking process, particularly for demonstrating the significant contributions that lower CI liquid fuels have delivered toward achieving the state's climate goals and the continued need for these fuels for many years to come. (15d2-296.4)

Comment: Neste appreciates the work that has been done on this rulemaking and remains in strong support of the LCFS program. (15d2-300.1)

Comment: We appreciate CARB engaging stakeholders' input on a variety of forward-looking concepts for the future of the LCFS. (15d2-302.1)

Comment: LADWP appreciates CARB's collaboration with the stakeholders and consideration of the feedback provided thus far. LADWP looks forward to working with CARB staff on the development of future guidance documents for the implementation of these new provisions. (BH-014.9)

Comment: The first thing to staff, really it's amazing, Jordan, Jacob, Matt, Rajinder, Steve really the amount of time that staff has spent on this is amazing. Also, the amount of work on compromises, things to try and work with industry and stakeholders really has been amazing running over four years. (BHT-173)

Agency Response: Staff appreciates the support of the commenters during the public process of this rulemaking.

In response to the comment related to implementing the most ambitious version of the proposed amendments without further delay, please see Response S-1.

S-4 Multiple Comments: *Concerns with April 2024 Workshop*

Comment: CARB staff continue to suppress the issues that have been raised by the undersigned organizations, the Environmental Justice Advisory Committee, environmental justice organizations, and several Board members. The workshop did not include those issues which we have consistently raised throughout the rulemaking process, including (1) ending avoided methane crediting; (2) adopting Senate Bill 1383 regulations; and (3) protecting the civil rights of San Joaquin Valley and refinery communities.

Defensores del Valle Central para el Agua y el Aire Limpio (“Defensores”) and the other signatories to this letter have amplified concerns regarding the proliferation of factory farm gas and its harmful effects on communities’ health. We have tried to ensure that CARB addresses those concerns throughout – and even prior to – this rulemaking. Unfortunately, CARB staff have consistently chosen to ignore those concerns while blatantly erasing communities’ lived experiences and the impacts communities suffer every day. Accordingly, when Defensores’ members learned that CARB staff excluded their concerns from the workshop agenda, Defensores decided to boycott the workshop.

Defensores’ decision was a wise call. CARB staff leading the meeting attempted to dismiss and discredit comments from environmental justice and public interest stakeholders. Additionally, CARB staff gave priority to in-person participation despite the meeting notice advertising the ability to make comments in person or virtually. In fact, CARB staff ended the Workshop at 4 p.m. even though many remote participants had not had an opportunity to comment, including Food & Water Watch. There was no interpretation available for in-person or remote participants. Had Defensores members participated, had they even been able to participate given the decision to cut off public comments and lack of interpreters, it seems that they would have been reminded by CARB staff, as the other signatories to this letter were, that the LCFS rulemaking would continue to ignore their experience and expertise.

We urge you to watch the entire video of the workshop with a civil rights lens and ask yourself, “if I was participating in this workshop as a member of the public concerned about the impacts of the rule changes, would I feel heard or dismissed?” Any neutral observer of the April 10 workshop would have reached the same conclusion that we communicate to you today: CARB staff is not considering the concerns of all Californians, including those who live, breathe, and drink near large scale livestock operations or refineries. We call on you and the rest of the Board to reset this rulemaking with a civil rights lens, set an even playing field for environmental justice issues, and ensure that CARB staff respect and understand communities’ lived experiences.

Rather than repeat the issues we have consistently raised for several years, which have been ignored by CARB staff, we direct you to our comments in the docket on both the ISOR and the environmental analysis, as well as comments from Defensores. (Apr-052.1)

Comment: We were shocked to see the CARB staff deliberately exclude discussion about how the LCFS is incentivizing factory farm biogas expansion in our communities during the April public workshop on the Low Carbon Fuel Standard. The workshop ignored factory farm biogas incentives despite CARB’s leadership calling on staff to take the issues seriously and find just solutions, and made it clear that Governor Newsom and board members need to rein in the staff. It was deeply troubling to see CARB staff completely ignore the significant impacts of factory farm biogas on the environment, rural economies, and public health despite years of effort by our communities and many others to raise the alarm about why expanding the use of digesters for factory farm waste is a false climate solution that does real harm to communities around the country. (Apr-077.1)

Comment: From the start of the workshop and engagement process that led up to this rulemaking, Staff were clear that the scope would be strictly limited in order to allow timely and efficient adoption of changes that could stabilize the LCFS credit market and help strengthen

the LCFS credit price. The workshops, engagement opportunities, and discussion materials circulated since then have reflected this agenda. Given the significant decline in LCFS credit prices, this focus on corrective measures is understandable.

The limited scope, however, meant that many critical and complex structural topics that, when fully explored, might offer avenues to improve the efficiency, resilience, and effectiveness of the LCFS as decarbonization proceeds were excluded from this rulemaking. These include, but are not limited to, consideration of updated EERs, updating how the regulation addresses ILUC impacts, addressing appropriate crediting from fossil fuel displacement in a transitioning fleet, treatment of interactions or potential double-counting with other climate programs, harmonizing LCFS protocols with other jurisdictions that have similar programs in place or coming online, preparing for radical LCFS credit market shifts anticipated in the 2030's as program revenues begin declining due to reduced gasoline consumption, expanding the LCFS to cover air, water, and rail fuels, and integrating vehicle or transportation-system effects into fuel CI assessment, differentiation between so-called "bridge" fuels and those with the capacity to achieve carbon neutrality, etc. As discussed in earlier sections of this comment, several of these issues have demonstrated actual or potential capacity to negatively affect the LCFS and/or progress toward California's climate, environmental, and equity goals within the next 5-10 years. The other issues deserve careful consideration and the opportunity for public discussions in a forum that includes stakeholders from a variety of perspectives and LCFS program staff. (Apr-163.22)

Comment: LCFS -low carbon fuel 'standard' or is the S for 'scam'

First, I failed to see this issue receive wide-spread public dissemination (newspapers, radio, TV, social media, etc.), so I feel that you really are not soliciting comments. Is it because this plan sells out family farms at the expense of corporate farms? Is it because it sells out the environment in the name of helping it? I only came upon the information by reading an opinion column by a small farmer. Sadly, I believe 'follow the money' is the only game in town these days. (Apr-178.1)

Comment: I am writing as an environmental attorney deeply concerned about the recent proceedings related to the proposed amendments to the Low Carbon Fuel Standard (LCFS). It has come to my attention that during the public workshop held on April 10th, crucial discussions about the incentivization of factory farm biogas were conspicuously absent from the agenda.

This omission is particularly alarming given the direct instructions from CARB's leadership to address this issue thoroughly and to seek equitable solutions. The LCFS, while a California policy, is influencing the expansion of factory farms and biogas projects across the United States, affecting states such as Arizona, Idaho, and New York, among others. This has placed undue burdens on rural communities and has raised significant environmental and public health concerns that deserve immediate attention and action.

It is disheartening to observe that instead of fostering an open dialogue about these critical impacts, there appears to be a deliberate attempt by CARB staff to shield the program from scrutiny and protect investor profits at the expense of the communities affected by these

policies. Such actions undermine the integrity of CARB as a regulatory body and erode public trust in its commitment to environmental justice and public health.

...

I demand a reevaluation of the LCFS amendments to prioritize the health and wellbeing of all affected communities, particularly those in California's Central Valley, who bear the brunt of these environmental injustices. We must align the LCFS with practices that support true sustainable energy solutions and uphold CARB's mission to protect the environment and public health. (Apr-196.1)

Agency Response: CARB values the input it receives on its regulations. Staff conducted a workshop on April 10, 2024, to primarily discuss significant changes since the past workshops and feedback received on LCFS modeling and comments on crop-based biofuels, so not all topics were covered during the workshop. Staff informed the public of these focus topics with the workshop notice, and the workshop materials were published in advance of the workshop in order to allow timely and efficient discussion of the topics presented at the workshop. At the workshop Staff prioritized in-person commenters and ended the workshop at 4pm, despite not being able to hear from all online participants, to respect the time of those participating. Staff welcomed all written feedback from all stakeholders after the conclusion of the workshop. Staff did not provide interpretation for this workshop because no requests for interpretation were made prior to the workshop.

In response to the comment related to discussing other topics, CARB continued to engage with stakeholders throughout the rulemaking process, especially in reviewing public comments received. See Response S-2 for a more detailed description of public engagement and transparency efforts. While CARB staff did not present topics related to dairies at the April 10 workshop, CARB staff participated in numerous discussions on dairies and the LCFS over the past three years, including at Environmental Justice Advisory Committee meetings, at LCFS-focused community meetings, LCFS public workshops, and in other avenues to discuss and consider feedback on dairy biomethane. Separate from the rulemaking process, CARB staff held an all-day workshop in Fresno²⁹ on August 22, 2024, to present data and analysis on LCFS and dairy herd sizes. For more information on this topic see Master Response 1 from the *Response to Comments on the Draft and Recirculated Environmental Impact Analyses Prepared for the Amendments to the Low Carbon Fuel Standard*.³⁰

In response to the comment related to soliciting comments, staff disseminated LCFS-related information to the public via email to subscribers of the "Low Carbon Fuel Standard Program" and "Fuels (General)" listservs. Through these listservs, about

²⁹ California Air Resources Board. *Dairy Sector Workshop* webpage. Webpage. Available at: <https://ww2.arb.ca.gov/events/dairy-sector-workshop>

³⁰ California Air Resources Board. *Response To Comments on the Draft and Recirculated Environmental Impact Analyses Prepared for the Amendments to the Low Carbon Fuel Standard*. November 6, 2024. Available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_rtc.pdf

11,500 individuals or companies were notified for each workshop, hearing, and notice release through the existing subscription lists.

S-5 Multiple Comments: *Changes in 15-Day Package not Related to Original Proposal*

Comment: Several proposals in this package are not sufficiently related to what was proposed in the original 45-day package to be included in a 15-day package.

...

Amendments Not Related to the Original Proposal

CARB has included several proposals in this 15-day package that significantly depart from the content of the original 45-day proposals in January. The 15-day comment period does not provide sufficient time for analysis and response warranted for newly introduced amendments that will result in significant impacts upon the regulated community. Consequently, several of the amendments appearing in the 15-day package are in violation of both the spirit and letter of the notice requirements of §11346.8(c) of the California Administrative Procedures Act. These include:

- **Proposed limits on soybean and canola oil-based fuels** – the original notice included a discussion of a potential cap on crop-based fuels and a reasoned rejection of the concept. No regulatory amendments were proposed related to capping these fuels. Therefore, the regulated community had no reason to anticipate the seismic reversal of this decision and the addition of this new section. A change of such substantial impact, the possibility of which was essentially rejected in the original proposed amendments, warrants a full 45-day comment period.
- **Cutoff for New Biomass-Based Diesel Pathways** – CARB’s proposal to refuse the approval of new pathway applications based on ZEV adoption levels was not previously discussed or proposed.
- **Elimination of crediting for fossil hydrogen** – this is not a concept that was contemplated or proposed in the January notice. It is not appropriate for a 15-day package.
- **Restrictions on Hydrogen Refueling Infrastructure (HRI) Crediting** – sunseting the existing program prior to December 31, 2025 with the effective date of the 2024 amendments and requiring state and federal grant funding for program eligibility.
- **Awarding electricity credits to OEMs** – the proposal to divert base electric vehicle charging credits to OEMs was not part of the original notice and is not sufficiently related to any amendments that were proposed.
- **Increased credit for legacy rail** – the original package did not contemplate the change to crediting for pre-baseline fixed guideway systems.

These proposals should be withdrawn for potential consideration in a future 45-day package. (15d1-042.1)

Comment: Given the complexity and substantial alteration of the original 45-day proposal late in this rulemaking process, CARB should provide for a minimum of an additional 15-day comment period. The current 15 day comment period effectively denies the public adequate opportunity to develop meaningful comments *and* reasonably assess the new and extensive proposals, including the proposed cap on the use of soy and canola oils and the proposed

2031 prohibition on hydrogen produced from fossil gas feedstocks. This could substantially impact the availability of hydrogen for use in both fuel cells and heavy-duty internal combustion engines. (15d1-090.1)

Comment: California Resource Corporation's Concerns with the August 2024 15-Day Changes

1. CARB's 15-Day Changes Do Not Comply with California Administrative Law

The California APA requires that any substantial modification to a proposed rule must be available for public comment for a minimum of 45 days, unless the modification is “sufficiently related” to the original proposal.⁶ Only if a modification is “sufficiently related” to the original proposed rule, such that a reasonable member of the directly affected public could have determined from the notice that these changes to the regulation could have resulted, can a California agency make the modification available for a 15-day public comment period.⁷ The 45-day public comment period—one of only a few ways the public can help shape rulemaking—is integral to allow the public sufficient time to consider and analyze new rules that could have drastic impacts on their business operations and efficiently convey this information to the agency.

⁶ Ca. Gov. Code § 11346.8(c).

⁷ 1 Cal. Admin. Code § 42.

The proposed addition of Subsection 95482(h) in CARB's August 12, 2024 15-Day Changes to the proposed December 2023 LCFS amendments is not sufficiently related to those earlier proposed amendments and, as such, is deficient under the California APA. The inquiry into whether a modification is sufficiently related focuses on whether the change concerns “the same subject or issue” as the original proposed rule and whether the original proposed rule provided any “*specific indication*” of the changes that may be made.⁸ Here, commentors had no indication that CARB would propose to remove hydrogen produced using fossil gas from credit generation eligibility under the LCFS. This *drastic* change to Section 95482, completely removing an entire category of fuels from eligibility, is not sufficiently related to the previous proposal, which only proposed minor changes related to fossil jet fuel and biomass-based diesel fuel credits. The public could not have had any indication that a modification to hydrogen generation credits was under consideration, and thus, commentors are “hampered in effectively opposing those changes.”⁹ To rectify this APA deficiency, we ask CARB to set aside these 15-Day Changes or reissue the proposed changes under a 45-day public comment period.

⁸ *Wendz v. Ca. Dep't of Edu.*, 311 Cal. Rptr. 3d 213, 246 (Cal. App. 1 Dist. 2023) (quoting *Small Refiner Lead Phase-Down Task Force v. United States E.P.A.*, 705 F.2d 506, 548 (D.D.C. 1983)). In *Wendz*, a case not dissimilar to the rulemaking proceeding at issue here, the California Court of Appeal found that a proposed Superintendent of Public Instruction rule that placed a cap on the number of members on a Regional Migrant Parent Advisory Council, which was later modified to prohibit alternate members, was not sufficiently related because the public did not have adequate notice that the agency might prohibit the use of alternate members. In that case, the Court of Appeal found this portion of the rule invalid because a 45-day notice was required for the modified proposal. *Id.* at 247.

⁹ *Id.* at 246.

(15d1-098.2)

Comment: *Third*, CARB's late addition of these provisions likely conflicts with CARB's rulemaking obligations under Gov. Code § 11346.8(c), which makes clear that CARB cannot significantly alter its proposal from what was originally proposed in the 45-day notice without providing a new 45-day public comment period. To avoid triggering a new 45-day comment period, any substantive proposed changes in a supplemental 15-day comment period must be "sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action." The 15-day changes are not sufficiently related to the original proposal to provide stakeholders with sufficient notice of CARB's newly added proposal. (15d1-171.24)

Comment: At a minimum, CARB should take additional time and effort to more fully consider the important issues involved and give parties the chance to more fully respond to the proposal. While NDSP has endeavored to identify all of the issues to date in this comment letter, 15 days is not a sufficient amount of time to fully address CARB's proposed vegetable oil cap and other significant and unexpected changes in the proposal. NDSP therefore strongly recommends that CARB extend the comment period and hold an additional public workshop on these potential changes. (15d1-181.3)

Comment: NDSP notes that in the 15-Day Changes, the proposed cap on vegetable oil was the first time stakeholders had any opportunity to review these provisions or its concept. Given the precedent-setting nature of this program in the U.S., and the potential for significant cost and compliance burden to stakeholders, NDSP requests that CARB, as it did on February 14, take additional time to allow stakeholders to properly vet the intent, impact, and implications of the proposed requirements. Specifically, NDSP recommends that CARB at a minimum both extend the period for written comments and hold another public workshop. (15d1-181.18)

Comment: The Proposed Amendments, although couched as minor regulatory revisions, will have significant and meaningful impacts on the LCFS program and its regulated parties—including WIRA members. Consequently, a 15-day comment period during which to study and remark on these substantial changes is simply insufficient given the importance of this matter.

For example, the Board's publicly-noticed materials contain no discussion or consideration of the operational and economic impacts the Proposed Amendments will have on regulated entities. This dearth of analysis evidences a need to take a harder, closer look at these issues. On the contrary, the 15-day public notice for the Proposed Amendments seems to downplay their impacts, stating that "the modifications consist of provision clarifications, minor revisions removing certain proposals, such as removing jet fuel as a required fuel, and updated modeling, which does not alter the compliance responses such that the significance determinations change." But this is not the case—the Proposed Amendments as drafted will have significant impacts.

While environmental analysis is a separate issue, the Proposed Amendments will result in extensive market and cost impacts to businesses that will be required to comply with the Proposed Amendments. The Board must consider the regulatory impacts these Proposed Amendments will have, including resulting economic harms to LCFS-regulated parties.

...

In conclusion, WIRA respectfully encourages the Board to identify additional opportunities to engage with the regulated community to better appreciate the Proposed Amendments and to explore potential reasonable alternatives. (15d1-210.1)

Comment: Despite our well-supported recommendations for improvements to the LCFS and CARB's process, CARB has not incorporated any of them in the 15-day changes, with the single exception of improvements to fixed guideway crediting. Further, CARB had nearly six months to revise its initial proposal, but is now giving the public only 15 days to review and comment on these substantial and complex changes. Such a process is not conducive to public understanding and discourse around the significant changes proposed. (15d1-222.37)

Comment: PG&E urges additional opportunities for discussion of the new provisions released in the 15-Day Draft and looks forward to continuing collaboration with CARB staff and public stakeholders on potential amendments to the Program that will best support the State's climate goals in a timely, and effective manner. (15d1-224.32)

Comment: The scope and magnitude of the proposed changes in this package leaves little time for proper analysis and to understand its long-term impact - comments are due by August 27th. The tardiness of this release also leaves little time to provide additional information to CARB before the Board votes to adopt these amendments at its November 8, 2024 meeting. The discussions over potential changes to LCFS have been going on for years yet these substantial changes are just now being proposed with only 3 months left in the process. (15d1-226.4)

Comment: Neste is disappointed by the lack of public discussion on the substantial package that go well beyond what would be expected in a 15-day package. Many are not connected to the 45-day package.³

³ https://oal.ca.gov/rulemaking_participation/#six

Neste is a long-time, public supporter of California's LCFS program. As such, it is unfortunate to see that the new proposed package contains risky policy experiments that undermine the proven policy frameworks of one of California's longest running and most successful climate programs. The proposal raises serious concerns about unintended consequences, implementation feasibility, and program reliability. Industries consider all of these factors in decisions about long-term capital investments and job creation related to both road and aviation fuels, as well as for agriculture production and practices. These cost implications may lead to higher costs for consumers and fuel supply instabilities without delivering significant environmental improvements as compared to CARB's proposals in the 45-day regulatory package. We encourage CARB to reconsider the changes made in this 15-day package and focus on sending the right market signals that drive investments in production of renewable energy.

Neste emphasizes the significant negative impact that the proposed changes in this 15-day package will have on renewable energy in California and throughout the U.S. (15d1-228.2)

Comment: However, the proposed 15-day changes deviate from the prior proposal that simply needed fine tuning to achieve the goals of the LCFS and support implementation of other CARB policies. The departure from a technology-neutral performance standard to one that dictates innovation pathways with extremely specific requirements will have negative

consequences impacting the development of hydrogen as an alternative fuel and energy carrier in California.

Need for an Additional 15-day Comment Period

The recent 15-day changes to the regulation package have introduced significant challenges that undermine the progress made during the years leading up to and the release of the initial 45-day comment period. These modifications have not been previously workshopped and seem more political than policy. This is a major concern for this nascent industry as many of the changes undermine years of collaboration with CARB staff to achieve a positive market signal while our existing hydrogen refueling station (HRS) network is struggling with current LCFS market conditions. (15d1-245.1)

Comment: Given these substantial impacts, it is imperative to extend the comment period to allow for a thorough review and to ensure that the policy supports, rather than hinders, the development of a robust hydrogen economy. (15d1-245.4)

Comment: Again, CARB's late addition of these provisions likely conflicts with CARB's rulemaking obligations under Gov. Code § 11346.8(c), which makes clear that CARB cannot significantly alter its proposal from what was originally proposed in the 45-day notice without providing a new 45-day public comment period. To avoid triggering a new 45-day comment period, any substantive proposed changes in a supplemental 15-day comment period must be "sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action." These additional 15-day changes are not sufficiently related to the original proposal to provide stakeholders with sufficient notice of CARB's revised proposal. (15d2-195.22)

Comment: Moreover, the decision to cap soy and canola BBD at 2023 levels, even if calculated correctly, constitutes a substantial change to the regulatory provisions and is not related to the original proposal, and should therefore require a 45-day notice in the California Regulatory Notice Register. (15d2-228.5)

Comment: Finally, the Proposed Cap on sunflower-based fuels is a violation of the California Administrative Procedures Act (the "APA"). The principle of fair notice is a fundamental underpinning of the California APA, and serves to ensure that regulated industries are able to engage meaningfully in the rulemaking process. Indeed, the APA requires a 45-day notice for any "substantial" changes to a proposal that are not "sufficiently related" to the original text.⁶ The addition of the Proposed Cap is both a substantial change and one that diverges significantly from the initial proposal. Limiting stakeholders to a 15-day comment period undermines the fair notice requirement and thus impedes the ability of the public to evaluate, and respond to, the Proposed Amendments. (15d2-257.8)

Agency Response: The proposed changes to the proposed amendments posted for a 15-day public comment period on August 12, 2024, were related to the original proposal. Because those changes were sufficiently related, a 15-day public comment period was appropriate and consistent with applicable requirements. Specifically:

- Crop-Based Biofuels Sustainability Guardrails: The Notice of Public Hearing to Consider Proposed LCFS Amendments listed among the objectives of the

Proposed Amendments: “Strengthen guardrails on crop-based fuels to prevent deforestation or other potential adverse impacts.”³¹ This objective followed direction from the Board at the September 2023 informational Board update on the LCFS to explore guardrails with regard to crop-based fuels. The proposed soy/canola/sunflower oil crediting threshold added to subsection 95482(i), and the provision granting the Executive Officer discretion to stop approving crop-based biofuel pathways upon achievement of ZEV adoption goals added to subsection 95488(d), are both changes flowing directly from the initially stated rulemaking objective to strengthen sustainability guardrails, board direction reflected in the initial Notice, and public comments on the initial proposal. See Master Response 2 in the CEQA Response to Comments with regard to the distinction between a volumetric cap on biofuels, which is not part of the Proposed Amendments, and the 20% soy/canola/sunflower oil provision proposed by staff.

- Alignment with the 2022 Scoping Plan: The proposed change to phase out LCFS crediting eligibility for hydrogen produced using fossil gas as a feedstock is directly responsive to the rulemaking objective to “Incentivizing more production of clean fuels needed in the future, such as low-carbon hydrogen.”³² Another goal of the rulemaking mentioned in the initial Notice was to “align the crediting opportunities in the LCFS with the fuel and technology pathways identified in the 2022 Scoping Plan Update”.³³ The proposal to remove LCFS crediting eligibility for hydrogen produced from fossil fuels at the end of 2035 with the addition of subsection 95482(h) flowed directly from that initial objective of the rulemaking, and was responsive to public comments on the initial rulemaking proposal. The 2022 Scoping Plan identified a need for low-carbon, renewable hydrogen (not including fossil hydrogen) for the transportation sector to displace fossil fuels in support of achieving the State’s GHG emission reduction goals. The change to the proposal also aligns with the current operational timeline for projects funded under the hydrogen hubs grants, which are expected to result in significant increases in renewable hydrogen and reduce demand for fossil-based hydrogen.
- Expand Zero Emission Vehicle Infrastructure Crediting: In the initial rulemaking proposal, staff proposed to expand the current, preexisting ZEV infrastructure capacity crediting provisions to more strongly support the medium- and heavy-duty sector. This proposal was responsive to the rulemaking’s objective of “Supporting electric and hydrogen truck refueling” identified in the LCFS 45-day Notice.³¹ In the first 15-day package, staff proposed to improve and reorganize the initial proposal by combining the current ZEV infrastructure crediting provision specified in 95486.2(a) with the proposal to support the medium- and heavy-duty sector included in the initial proposal with a new sections 95486.3 and 95486.4.

³¹ LCFS 45-day Notice. Page 4.

https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_notice.pdf

³² *Id.*

³³ LCFS 45-day Notice. Page 5.

https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_notice.pdf

With the reorganized proposal, the originally-proposed separate light-duty provision in 95486.2(a) would be superfluous, which is why it is sunsetting on the effective date of the amendments. The 15-day change developed directly from the original proposal and underlying objectives of the amendments.

- **Base Credits to Original Equipment Manufacturers (OEMs) of Plug-in Electric Vehicles:** The proposal to incorporate a path for conditional issuance of credits associated with residential electricity charging to OEMs of plug-in electric vehicles in the first 15-day package is related to the initially noticed proposal because the initial proposal included changes to the allocation and uses of those credits contained in subsection 95483(c)(1) of the regulation. By conditionally allocating credits to OEMs to support acceleration of transportation electrification, the 15-day modification would aim to support the first goal of the amendments listed in the Notice³¹: “Increasing the stringency of the program to more aggressively decarbonize fuels and thereby reduce our dependence on fossil fuels.”
- **Fixed Guideway Crediting:** The Notice listed “Strengthening the program’s equity provisions to promote investment in disadvantaged, low-income and rural communities” as an objective of the Proposed Amendments.³¹ The proposed removal of the pre-2011/post-2010 delineation for Fixed Guideway System crediting furthers that objective because fixed guideway and transit crediting is a priority for many stakeholders advocating for more crediting support for disadvantaged, low-income and rural communities.

Regarding updates to the economic impact analysis supporting the amendments to incorporate 15-day changes, please see Section II.B.

S-6 Multiple Comments: *Approve Amended LCFS Program*

Comment: Finalization of the LCFS program rules package is urgently needed to bring the credit market into balance after three years of low values and provide sustained incentives for low-carbon fuels, especially the ultra-low CI fuels needed to achieve a 90% reduction by 2045. We urge you to approve the rules package without any further delay. (15d2-202.1)

Comment: We strongly encourage CARB to adopt LCFS amendments at its November 8, 2024 Board meeting, and implement the amendment package as soon as possible following adoption to ensure that the 9% stepdown in stringency takes effect in Q1 2025. We look forward to continuing to work with CARB and stakeholders to effectively implement this critical policy and advance the state’s clean energy and climate change goals. (15d2-206.15)

Comment: Despite these outstanding questions and policy interactions, **we support the second 15-day changes and the overall LCFS program.** We are at a pivotal moment for a variety of climate and clean air goals that depend in part on the LCFS. Timely adoption and implementation are needed to provide clear market signals for this nascent industry. The issues above should not cause a delay. (15d2-217.6)

Comment: Electrify America appreciates the opportunity to provide comments on CARB's second 15-day proposal and commends staff for the thorough engagement process during the

development of the new LCFS amendments. We believe the proposed changes represent a meaningful step towards cleaning up California's transportation sector and supporting the EV transition. We encourage CARB to adopt the amendments at its November 8, 2024, Board meeting and to quickly finalize the regulatory package to ensure amendments take effect as soon as possible and the step down applies in Q1 2025. (15d2-218.7)

Comment: In this vein, adopting amendments that revive a robust and resilient LCFS market, primarily through addressing the credit/deficit imbalance that is currently depressing LCFS credit prices, is the most important way the program can continue to inspire similar action beyond California's borders. While the second 15-day changes make incremental improvements upon the prior draft amendments, PG&E acknowledges that not all stakeholder concerns will be addressed, PG&E's included. These concerns notwithstanding, we urge the Board not to let perfect be the enemy of the good; in this case the "good" being the revitalization of a functioning LCFS market along with meaningful and important program enhancements and refinements. Further delay of the approval of these critical LCFS amendments will be devastating for the program, risk significant market uncertainty and disruption, and harm CARB and California's pioneering reputation in this space. (15d2-221.1)

Comment: For these reasons, LACI strongly supports extending and strengthening LCFS to keep the Los Angeles region and California on track to reach our climate targets and ensure the equitable adoption of ZEVs for all. (15d2-223.3)

Comment: Lastly, the ABC strongly urges the Board to swiftly adopt the amendments now. (15d2-256.10)

Comment: NCPA SUPPORTS the proposed changes to the LCFS program and encourages the Board to adopt the amended LCFS program. The LCFS is vital for the continued deployment of publicly owned utility (POU) transportation electrification programs, and NCPA and its Members urge CARB to continue this important program. (15d2-265.1)

Comment: We appreciate the Board's consideration of these comments, and urge the Board to adopt the proposed amendments to the LCFS program. (15d2-265.13)

Comment: Clean Energy supports the adoption of the proposed update to the Low Carbon Fuel Standard (LCFS) and would like to express our appreciation for a thorough public process. CARB remains committed to a fuel neutral approach using the best scientific data to measure greenhouse gas emissions performance to ensure the cleanest fuels are used in our state. (15d2-266.1)

Comment: We appreciate the California Air Resources Board's (CARB's) continued efforts over the last four years to balance the input of diverse stakeholders in developing the current LCFS update. We see missed opportunities in the results, including the decision to forgo a more stringent greenhouse gas reduction target. Nonetheless, we believe that the Board should approve this final set of changes to increase investor confidence in the future of the LCFS program. (15d2-267.1)

Comment: This Rulemaking Represents a Lost Opportunity for Climate Progress. Four Years of LCFS Uncertainty and Low Credit Prices Has Slowed Growth in All Low Carbon Fuels.

1.1 The Second 15-Day Package Should Be Adopted to Address Near-Term Oversupply. However, the Proposal Fails to Maximize LCFS GHG Abatement and is an Insufficient Response to the Magnitude of the Climate Crisis.

Climate change impacts are in the headlines again. Sacramento recorded the hottest temperature experienced in October since weather recordkeeping began (nearly 150 years ago) following a summer that contained the hottest 20-day stretch in the city's history.^{2,3} The Southern portions of the United States were hit by devastating back-to-back hurricanes in just the past few days.⁴ Ensuring that the LCFS is ambitious enough to continue California's leadership on clean fuels and match the magnitude of the climate challenge remains the most critical topic addressed in this rulemaking.

² <https://www.sacbee.com/news/local/article293455944.html>

³ <https://www.sacbee.com/news/weather-news/article290082049.html>

⁴ <https://www.worldweatherattribution.org/yes-another-hurricane-wetter-windier-and-more-destructivebecause-of-climate-change/>

Incenting private capital to invest in a diverse portfolio of low carbon fuels to achieve all technologically feasible GHG reductions in a cost-effective fashion was previously a cornerstone of the LCFS program. CARB initiated discussion of how to increase LCFS targets almost exactly four years ago,⁵ yet much of the period since has been spent probing (and at times degrading) these core programmatic concepts rather than building on prior LCFS success.⁶

⁵ See the October 14, 2020, CARB LCFS Workshop that discussed how to begin to improve the LCFS targets to align with the Governors Executive Order N-79-20 which states we needed to, "more quickly move toward our low-carbon, sustainable and resilient future." See: https://ww2.arb.ca.gov/sites/default/files/2020-10/101420presentation_carb.pdf

⁶ Back in 2020 the LCFS was being praised for its effectiveness and seriously being considered by many other jurisdictions: [https://ghginstitute.org/2020/01/22/the-low-carbon-fuel-standard-has-succeeded-but-how-does-it-work/#:~:text=So%20far%2C%20California%20has%20successfully,2018\)%20with%20its%20LCFS%20program.](https://ghginstitute.org/2020/01/22/the-low-carbon-fuel-standard-has-succeeded-but-how-does-it-work/#:~:text=So%20far%2C%20California%20has%20successfully,2018)%20with%20its%20LCFS%20program.)

Throughout this process, RNG Coalition and a diverse group of clean fuel voices contracted with the consulting firm ICF to independently analyze what level of greenhouse gas improvement is feasible from clean fuels and related sectors. ICF's work continues to show significantly different outcomes than CARB's analysis, especially with respect to the greater magnitude of greenhouse gas benefit that could be achieved by RNG and other clean fuels, the rate of drawdown of the credit bank, and associated cost and price trends.

Simply put, if all clean fuels were more clearly incented, greater GHG reduction—at less cost than predicted by CARB's analysis—would occur. Even with the constraints in the proposal through the Second 15-Day Package, the ICF work continues to show that a CI reduction of >40% by 2030 is feasible, which would be in-line with economy wide goals for GHG reduction.

The rule should be adopted as proposed at the November hearing, because the proposed increase in near-term stringency is needed to address near-term oversupply. (15d2-269.5)

Comment: CARB should adopt the Proposed Rule in November. While imperfect, the proposed rule can still help leverage renewable gas production to reduce methane emissions,

improve organic waste management, and decarbonize California's transportation sector. (15d2-269.13)

Comment: We urge the rule's adoption at the November 8, 2024 CARB Board hearing. (15d2-300.3)

Comment: Particular given the outcome of the election on Tuesday, the state of California is at a pivotal moment in the fight against the increasing effects of climate change. The LCFS program is a lynchpin to decarbonize transportation in order to achieve the goals established under AB32. The program has **significantly exceeded expectations for greenhouse gas reductions**, and done so **at far less than anticipated cost**.

To continue and build on this success, the Low Carbon Fuels Coalition respectfully urges a Yea vote to pass the amendments. (BH-004.3)

Comment: On behalf of the San Diego Metropolitan Transit System (MTS), I write to you today to voice our support for the California Air Resources Board's Low Carbon Fuel Standard and to encourage the board to adopt the proposed amendments to the program on November 8. This program has served as a critical funding source for public transit agencies across California and has helped to significantly accelerate the adoption of zero-emission transit vehicles and support transit operations, ensuring that everyday Californians, including our most vulnerable residents, have access to a clean and sustainable mobility option.

...

CARB estimates that over the life of the program, California transit agencies have generated credits worth almost \$700 million. MTS began participating in the LCFS in 2013 and has generated over \$45 million in total from the program. In the aftermath of the pandemic and in the face of continued operations funding shortfalls, this funding is more critical to California transit agencies than ever before. (BH-011.1)

Comment: We urge your support and approval of the amendments to ensure California's further progress and leadership in EV adoption. (BH-012.2)

Comment: We are writing to you today as a broad coalition of executive leaders in the medium- and heavy- duty zero-emission transportation sector in support of a **yes vote** approving the proposed extension and expansion of the LCFS program at the upcoming November 8th Board meeting.

...

The LCFS program supports transportation electrification by facilitating infrastructure deployment, lowering fueling costs, and incentivizing the purchase of zero-emission vehicles. The proposed amendments being voted on at the November 8th Board Meeting significantly enhance these efforts. (BH-013.1)

Comment: While we acknowledge that there are legitimate concerns on a variety of issues, including crop-based biofuels, the LCFS program remains an essential tool for advancing California's transportation electrification goals and regulations – particularly given current budget shortfalls and electricity rate affordability concerns. There is no other program in

California's panoply of climate efforts that can replace the level and length of funding for transportation electrification that this proposal provides, and failure to extend the program would have a devastating impact on California's zero-emission freight efforts. We strongly encourage the Board to adopt the proposed LCFS modifications and move forward with this important regulation, while concurrently committing to continuous future improvement. (BH-013.4)

Comment: LADWP supports the adoption of the proposed modifications to the LCFS by the Board. (BH-014.10)

Comment: CMUA appreciates the opportunity to provide these comments on the LCFS Proposed Amendments and the Second 15-Day Package and encourages the Board to vote in favor of these proposed changes. (BH-018.10)

Comment: Once again, Rivian thanks the Board and the staff for the care and thought put into this important rulemaking. A strong LCFS is crucial if the state is to achieve its goals. We respectfully encourage a vote to adopt the proposed amendments today and look forward to further engagement on implementation. (BH-054.4)

Comment: We support the proposed amendments to the LCFS. They will expedite California's transition to electric transportation and enable the state to meet its Zero-Emission Vehicle goals. The LCFS is an important driver of **innovation**, **equity**, and **public health**. It has spurred **innovation** across the entire supply chain; in electric vehicles, battery technology, and charging infrastructure.

Plug In America surveys thousands of EV drivers who consistently report that access to charging is a key consideration for transitioning to EVs. Providing convenient, reliable charging infrastructure is crucial to expanding EV access. This proposal supports the expansion of charging infrastructure in California and provides consistent funding for programs that increase **equitable** EV adoption so that all drivers can experience the cost and climate benefits of EVs.

The LCFS proposal will continue to reduce transportation pollution, particularly in vulnerable communities, supporting environmental justice, and saving billions of dollars in **avoided health damages**. Now, more than ever, California's leadership in climate protection has global implications. Plug In America believes this proposal supports California's climate and Zero Emission Vehicle goals. We ask that you do not hesitate. **Please vote to adopt the proposed amendments to the LCFS.** (BH-064.1)

Comment: Please support the adoption of the proposed LCFS changes today! (BH-076.2)

Comment: Please adopt the modifications to the LCFS... (BH-078.1)

Comment: I urge you to support the adoption of the proposed changes to the LCFS. Anything less sends another lousy market signal to automakers, infrastructure developers, fuel producers and others; we've seen enough of that already from the CEC leadership. (BH-081.2)

Comment Summary: I urge you to support the adoption of the proposed changes to the LCFS TODAY! (BH-084.2, BH-085.2, BH-092.2, BH-099.2, BH-100.2)

Comment: I urge the adoption of proposed low carbon fuel standard amendments. (BH-091.2)

Comment: Sam Wade with the Coalition for Renewable Natural Gas here in support of the proposal before you today.

This vote is critical.

...

Simply put, a yes vote today is a vote for taking the most cost effective path to a stable climate. (BHT-2)

Comment: I have confidence that the reductions our projects and others like it are providing benefits to the state, and I urge the Board to adopt the proposed LCFS amendments. (BHT-23a)

Comment: Adopting the proposed LCFS regulations are important to protect the investments already made by the State and to incentivize further investment in clean energy technologies, which directly benefit disadvantaged communities within the state.

...

It would be a mistake to forego additional emission reduction opportunities that are right in front of us, and so therefore, I urge the Board to adopt the LCFS proposal. Failing to do so would result in higher emissions and worse health outcomes. (BHT-25a)

Comment: PG&E continues to support California's ambitious climate and air quality goals and adopting amendments here today that revive a robust and resilient LCFS market is a critical step in achieving them.

...

However, further delay of the approval of these critical amendments will be devastating for the Program, risk significant market uncertainty and disruption, and harm CARB and California's pioneering reputation in this space. For these reasons, PG&E strongly encourages the Board to finalize this rulemaking and improve these critically important amendments here today.

...

So for these various reasons, PG&E reiterates its support of the LCFS program and recommended approval of the amendment package. (BHT-42)

Comment: The LCFS, from our perspective, is an essential enabler for this transition. Biofuels definitely still a big part of the Program. But in recent years, LCFS has started to play a transformative role in supporting electrification. It's helping deploy charging. It's helping bring down costs, and it's even helping to deploy vehicles directly.

...

On balance, however, what you have before you today is a proposal that will support a wide range of climate and clean air goals in California. I think more than ever, we need to use every tool we have at our disposal right now, and this is one of those tools. So we urge you to move forward. (BHT-43)

Comment: So the question is how to transition to the zero-emission future while supporting usage of low-emission fuel vehicles during the interim -- with the lowest emission fuels in the interim. Our view is that staff and Board have threaded this needle quite effectively who the proposed amendments to the LCFS regulations, and we urge the Board to approve the regulation as it stands today. (BHT-44)

Comment: Lastly, we strongly encourage the Board to adopt the new amendments today. Any further delay into the rulemaking diminishes the clear signal that the market needs to facilitate and encourage continued investments in clean fuels. Without a strong policy signal, the State risks missing opportunities for future GHG emissions -- excuse me, reduce GHG emissions from transportation fuels. (BHT-59a)

Comment: We support the approval of the proposed rule. We're certainly not getting everything that we want, but hey, that's compromise. If we want the market to motivate private capital, this -- approving this rule is absolutely vital.

...

We endorse the proposed package. (BHT-60)

Comment: I'm speaking today in support of the proposed LCFS rule and urge its adoption today.

...

While there's always room for future improvement, in our view, there's no reason to delay adoption of this proposal today. (BHT-70)

Comment: We wanted to express our support for the proposed amendments to the LCFS and ask that you vote yes today. (BHT-83)

Comment: The LCFS is one of the strongest carbon markets in the world. We need to continue to perpetuate that and show California's leadership. Every day lost adds expenses to the next day, so we urge you to adopt. (BHT-86)

Comment: Brightmark supports the updates to the LCFS because it will provide some certainty for stakeholders considering investments in carbon-negative projects. And a delay would only drag out uncertainty delaying the private investments needed for California to achieve carbon neutrality in 2045. (BHT-90)

Comment: I'm here in support of the adoption of the proposed regulation today and the resolution. This is a step in the right direction and will help address the urgent need to act to maintain the integrity of the LCFS and continue making progress on our climate goals.

...

The LCFS provides needed funding to support zero-emission vehicles and zero-emission vehicle infrastructure. And it importantly does so without adding cost to our customer's bills.

...

Finally, SDG&E and SoCalGas further appreciate the LCFS continued support for clean fuels like renewable natural gas to support short- and mid-term needs and hydrogen to support the longer term transition to carbon neutrality. As the Scoping Plan established, clean fuels will be important to both complement and support electrification, facilitating progress toward carbon neutrality. With affordability as a top priority for our companies, LCFS is as important now as it ever has been and we urge your aye vote. (BHT-93)

Comment: We strongly support adoption of the amendment package today. Adoption today will send the needed market signal to encourage cleaner fuel use in California and meet the state's zero-emission vehicle air quality and climate goals. We appreciate the inclusion of reports to the Board on hydrogen fuel availability, as directed in the resolution and we look forward to working with staff on these reports. (BHT-94)

Comment: While the final proposal before you today does not resolve all the concerns of our industry, we believe the proposed amendments are supportable and we urge the Board to vote in favor of them today. Their enactment will reinvigorate investment in low-carbon fuels, support ongoing and future project development, and continue the prioritization of dairy methane emission reductions, which is a critical piece to achieving California's methane abatement mandates and maintaining the State's leadership on this important climate issue. (BHT-96)

Comment: H Cycle is supportive of the package and encourage the Board to adopt it.

...

Finally, as has been articulated, this Program is a step in the right direction to advance towards the green economy, and clean air benefits advocated by many of those who you heard from today. (BHT-98)

Comment: To us, the LCFS plays two important roles, one as a predicate for reducing emissions, and two, as being an investment attractor.

...

We, therefore, encourage the Board to adopt the language being considered today and allow the market to provide California with low carbon energy that is accessible for all Californians and reliable for those same consumers. (BHT-105)

Comment: And Clean Energy is very happy to support today's LCF amendments.

...

According to CARB's own analysis, the amended program would spur development and use -- use of sustainable aviation fuels, cover the costs of infrastructure needed to support our zero-emission truck goals, and inject over a hundred billion into the EV market alone.

...

I implore you to adopt these amendments today. This is a incredibly cost effective and powerful program that we need. (BHT-106)

Comment: SCE supports the proposed amendments for the LCFS Regulation, because we believe that LCFS is or has and continues to be a critical component of California's advancement towards a decarbonized economy.

...

The LCFS regulation has played an instrumental role in accelerating the electric vehicles. And although the amended version of the LCFS Regulation is not perfect, it builds upon and strengthens the current regulation and should be adopted. (BHT-107)

Comment: I'm here on behalf of World Energy to voice support for the Low Carbon Fuel Standard and urge you to adopt the package before you today.

...

The LCFS is crucial to California and an essential tool to further drive carbon intensity reductions. We urge your support of the Program today. (BHT-109)

Comment: NCGA would like to voice our support for the LCFS and urge Board members to approve the proposed amendments during today's hearing. The finalization of this rulemaking is crucial, so that the proposed amendments can take effect immediately and ensure that the Program can capture the maximum emissions reductions. (BHT-110)

Comment: Adopting the proposed LCFS amendments will ensure that we continue to have a diverse range of fuel options, especially RNG, which delivers some of the most significant greenhouse gas reductions available today. (BHT-113)

Comment: The Rodeo Renewable Energy Complex is fueling the future with the next generation of cutting edge liquid fuels. This conversion was, by and large, driven by the State's policy direction to embrace and promote the production of lower carbon fuels in California.

LCFS plays a central role in the State's climate plan. And with your support, it will continue to foster the production of renewable fuels. While we may recommend tweaks around the edges that could be made, overall we knew it was important for us to be here today to share with you that we support the direction of the Program. That's because it serves to support jobs and investments in the clean energy economy. We believe that the process CARB has gone through to provide a review of the Program is important to keep the regulation current and working towards incentivizing low-carbon fuel production in the State. We ask that you support the package before you today. (BHT-114)

Comment: To us, this is the model of how to do this right. This is what just transition should look like. The Rodeo Energy Complex advances our strategy to expand renewable fuels production. It is the fueling future of the next generation of cutting edge liquid fuels production and beyond. This conversion was driven by policies such as the Low Carbon Fuel Standard.

Converting the facility meant saving 500 jobs, including almost 300 union represented jobs. Therefore, on behalf of the USW Local 326, we ask that this Board support the package that is before you today, because it serves to support jobs, the environment, our community, and investments in the clean energy economy. (BHT-115)

Comment: We urge you to support the proposed LCFS amendments. The LCFS has significantly beat carbon reduction targets at lower than predicted cost thanks to tech neutrality and crediting carbon reductions in transportation from whatever source. Despite our members concerns for the proposal that selectively disadvantaged certain feedstocks and fuel pathways to nudge the Program away from the tech neutrality that has been a hallmark of the LCFS success, our primary concern has been to rebalance the credit market and restore investor confidence. (BHT-116)

Comment: And I want to express strong support for the proposed LCFS amendments before you today. My comments also reflect the views of our EV and EV charging coalition partners, ChargePoint, Rivian, and SWITCH.

The LCFS remains fundamental to California's transportation decarbonization efforts and we commend CARB for updating the regulation to more closely align with the State's goals for zero-emission vehicle deployment and overall climate policies, which include the goal of deploying over one million non-residential EV chargers by 2030 to support CARB's signature ACC II regulations.

The final LCFS package is instrumental to accelerate the installation of EV charging infrastructure and adoption of EVs, and ultimately will provide Californians with more opportunities to ride and drive electric with confidence.

...

With that in mind, we respectfully urge the Board to adopt the proposal before you today. (BHT-121)

Comment: And so really, what we've seen is how important this Program can work as long as it is balanced appropriately, like it was a few years ago.

...

So I actually am very, very strongly supportive of the proposals today as it helps to address these issues, namely things like running -- getting the carbon intensity target down to really drive the prices back up and move the right direction, increasing the light-duty and expanding to medium- and heavy-duty support for zero-emission infrastructure credits, so we can make the strong investments needed, and, of course, extending the Program beyond 2030, so we have more longer term certainty in this Program to help justify here.

So again, thank you very much, even just the last couple months. You've really heard us and I think made this program more effective and really heard the community here. And I really urge you to adopt these changes. (BHT-124)

Comment: And on behalf of the Electric Vehicle Charging Association, we'd like to express our strong support for the proposed amendments to the Low Carbon Fuel Standard. EVCA is a trade association comprised of roughly two dozen leasing companies within the EV charging ecosystem and we'd like to wholeheartedly echo the Chair's comments and many of the other comments made by other commenters today about how critical LCFS is in providing a sustained market-based mechanism to encourage private sector investment in California's clean energy economy.

...

To put it simply, a strengthened LCFS paves the way for Californians to participate in the EV transition, saving over a thousand dollars in gasoline expenses annually and cleaning the air we breathe. ... And today's amendments are essential to correcting recent trends within the Program that have adversely impacted charger deployment. We urge the Board to adopt today's amendments and we thank you for your time. (BHT-125)

Comment: I am pleased to offer Toyota's support of the LCFS Program and our shared mission towards decarbonization. We believe this Program is necessary to drive California towards cost effective lower carbon alternative fuels. As such, we support the adoption of these amendments without delay. (BHT-134)

Comment: We urge strong support today for adoption. It's not everything that the industry had requested and needed, but after three years, it's time to adopt the update.

This Program has been around for years. Adoption today will increase decarbonization of transportation displace fossil fuels, incentivize the removal of diesel from our roads, provide market certainty and investor confidence, help meet climate and clean air goals, and provide economic benefits from projects, including green jobs. (BHT-139)

Comment: And we are -- also appreciate the robust collaboration with CARB staff during the amendment process and look forward to continuing to work together to meet the requirements in the timeline outlined within the proposed amendments.

We respectfully request an aye vote on the LCFS Program. (BHT-145)

Comment: We support many of the key features in the proposed LCFS revisions and we ask the Board today to adopt these proposed revisions. (BHT-163)

Comment: We urge CARB Board to approve the amendments, so that the LCFS Program and other climate policy can continue to drive climate impact and emissions reductions. (BHT-167)

Comment: We wish to thank the Board for your consideration and urge the Board to approve the proposed amendments. (BHT-168a)

Comment: So California's climate policies are threatened by some groups who want to rush and all electric transformation. I know it and you know it that we are nowhere near ready for this.

...

So one proposal you're hearing is to narrowly support only electric vehicles with investment, which would ignore the health and environmental benefits that other views can provide -- clean fuels that is. A policy that ignores the benefits of clean fuels will lead to the displacement of thousands of jobs. And without proper transition strategies, it would increase economic inequalities. And a big yes on LCFS. (BHT-169)

Comment: I'm here today to encourage CARB to support the motion to adopt LCFS Regulation as drafted.

...

I believe that the LCFS Program has been very beneficial in helping both my family and many others implement more sustainable practices on our farm. And without it, I do not think that the same kind of emission reductions and improvements in agricultural sustainability would be possible.

...

So again, I encourage CARB to support the motion to adopt LCFS regulations as draft. (BHT-180)

Comment: CMUA is pleased to support the LCFS.

In particular, we support many of the changes presented in the second 15-day package, which we addressed, which addressed concerns that CMUA had previously submitted.

...

California's POU's utilize LCFS credit value to develop programs to further promote transportation electrification consistent with the needs of the communities they serve. The LCFS Program is key to reducing GHG emissions from the transportation sector. But alone, California cannot solve the climate crisis. To that point, California's LCFS Program serves as an example of a successful approach to reduce emissions that can be adopted in other regions.

Again, CMUA appreciates the opportunity to provide these comments on the LCFs proposed amendments and we encourage the Board to vote in favor of these proposed changes. (BHT-182)

Comment: We strongly support the proposed regulation and urge the Board to adopt it today. It is very clear from the data that the benefits of the Program far outweigh the costs. And that is especially true when you're talking about low-carbon fuels that are produced from organic waste. That -- those fuels not only reduce pollution from fossil fuels, but they also reduce pollution upstream from landfills, dairies, wildfires, and open burning of forest and ag waste. (BHT-184)

Comment: We support the amendments to the LCFS Program as presented today. LCFS funds are vital for public utility programs that support transportation electrification and the needed infrastructure buildout.

...

These programs and more have only been possible due to the LCFS program and LCFS funding is invested back into our communities. We urge your approval of the LCFS amendments today. (BHT-187)

Comment: We look forward to continuing to work with CARB and other stakeholders to support the inclusion of ocean-going fuels in the next LCFS rulemaking and urge approval of the current proposed amendments. (BHT-195a)

Comment: We strongly urge the Board today for a speedy approval of the LCFS proposal as written. (BHT-197a)

Comment: I'm here to reaffirm our support for the LCFS Program and to propose amendments that will help utilities continue our transportation electrification programs and expand our equity programs for priority populations.

...

LADWP supports the Board's adoption of the proposed modifications to the LCFS regulation. (BHT-203)

Comment: We support the LCFS Program and urge the Board to adopt the proposed amendments. Utility programs funded through LCFS provide benefits to all ratepayers through downward pressure on electric utility rates, and lower rates enable ratepayers to electrify.

...

These LCFS amendments are critical to enable SMUD to continue to offer these programs while also keeping rates affordable. Again, we support the adoption of the proposed amendments and appreciate the careful consideration that CARB staff, stakeholders, and the Board have devoted to the rulemaking. (BHT-204)

Comment: To keep LA and the State on track to meet our climate and transportation targets, while ensuring equitable access to ZEVs for all communities, CARB should approve today's amendments, preserving and continually improving program rules that support charging infrastructure and finding new ways to use LCF revenues to grow the light-, medium- and heavy-duty EV market as quickly as possible. (BHT-205)

Comment: LCFS plays an essential role in supporting California's ambitious transportation electrification and climate goals. WeaveGrid strongly supports the LCFS Program and urges the Board to adopt the proposed amendments.

...

These proposed amendments can accommodate a growing number of EVs on California's roads and lower the carbon intensity and cost of EV charging by more readily integrating renewable energy and shifting EV charging to when and where there is less electric grid congestion. (BHT-206)

Comment: As requested by our partners at the Pacific Merchant Shipping Association and California Trucking Association, again I ask that you adopt the amendments today. (BHT-214a)

Comment: This is Christine Wolfe with Waste Management urging your yes vote today. Staff's recommendation strengthened this cost-effective, technology-neutral program that has shown itself to be one of the most effective tools to meet the climate mandates enacted by the Legislature, including AB 1279 and SB 1383, while giving fleets performing essential public services like ours a pathway to decarbonization. (BHT-218)

Comment: We specifically support several key aspects of the proposed amendments, including revised CI targets, the extension of capacity credits for EV infrastructure, and new rules that would allow automakers to share in the generation of residential base credits.

...

This proposal will help our growing industry sustain this momentum. Once again Rivian thanks the Board and the staff for the care and thought put into this proposal. We respectfully encourage your vote to adopt the proposed amendments today and look forward to further engagement and implementation. (BHT-222)

Comment: I encourage CARB to support the motion to adopt LCFS regulations as drafted. (BHT-224)

Comment: The California Hydrogen Business Council supports the final version of this regulation as proposed today and urges the Board to vote for approval. (BHT-237)

Comment: And as such, I urge the Board to approve the LCFS amendments. (BHT-244)

Comment: CARB's support of the LCFS regulation is crucial. It allows us to build on what's already working demonstrating that California can lead the way on sustainability through innovation, not overregulation. I urge you to adopt the LCFS Regulation as written to help keep California's dairy industry moving forward in a positive direction. (BHT-254)

Comment: Under the LCFS, the State of California works with dairy farmers to develop digesters and alternative manure management programs that significantly curb methane emissions, something that climate experts across the globe agree is the best and fastest strategy for combating climate change.

...

It makes zero sense to change course and undue the progress that is already made when we are this close to the finish line.

I urge the members of the Air Resource Board to approve the suggested changes to the Low Carbon Fuel Standard so that this good work can continue. (BHT-255)

Comment: And so having said that, I think the Board should adopt these amendments, move forward, continue to put California on pace to be the leader, not just in the U.S., but around the globe when it comes to low-carbon fuel adoption. (BHT-256)

Agency Response: Staff appreciates the commenters' support for the proposed amendments to the LCFS. On November 8, 2024, the Board approved the amendments at the Board Hearing to consider amendments to the LCFS with Resolution 24-14.

S-7 Multiple Comments: *Do Not Approve Amended LCFS Program*

Comment: Based on the current status of the proposal, **I recommend that the Board seriously consider voting No on the amendments** and direct staff to start over next year with a proposal that addresses Board Member concerns about crop-based biofuels, RNG crediting and deliverability, and includes a fully transparent discussion of potential costs of the amendments and the pros/cons of various strategies for reducing these costs. (15d2-183.13)

Comment: "I am requesting a delay in the vote on the "Proposed Low Carbon Fuel Amendments" until updated cost projections are provided to the public." (15d2-230.1)

Comment: I am writing to request that your upcoming vote regarding Low Carbon Fuel Amendments be delayed, or shelved entirely. (15d2-238.1)

Comment: We believe that the current draft of the LCFS language creates uncertainty in the marketplace, pushes unnecessary costs onto consumers, and limits the efficacy of the program in reducing CI of existing transportation fuels. We urge CARB to hold off on adopting these amendments to the program. (15d2-304.1)

Comment: Reasonable compliance targets, accurate CIs, and considerations of impact to renewable fuels production are necessary for an industry shift to meet set targets. We again request that CARB delay or vote to reject these most recent amendments to the program and continue to work with stakeholders on appropriate updates to the rule that protect consumers from unnecessary costs and improve CI reductions across all fuels. (15d2-304.7)

Comment: These disappointing amendments missed several important opportunities to fix the LCFS in this rulemaking period. However, we can't go back, so I urge the board to make a few targeted changes before finalizing these amendments and to commit to the longer-term work of getting the LCFS in shape to steer California towards a clean transportation future. Learning from experience and improving the LCFS over time will serve California well and set an example that other jurisdictions can adapt to their own circumstances, which is ultimately how California's policies can have the greatest impact. (BH-023.4)

Comment: For these reasons, the Kern County Board of Supervisors respectfully opposes the proposed changes outlined in Section 95482(h) and asks CARB to delay this vote to allow your staff, interested stakeholders, and the public more time to analyze the long-term economic impacts these policies will have on California. There simply needs to be more time and opportunity to properly vet these critical issues. (BH-026.2)

Comment: The undersigned public interest organizations write to urge the California Air Resources Board (CARB) to vote NO on the proposed amendments to the Low Carbon Fuel Standard (LCFS) scheduled for a vote on November 8th, and to direct staff to develop a proposal that aligns with science and environmental justice. (BH-030.1)

Comment: As it stands, CARB Staff's LCFS Proposal continues to disregard necessary public health and environmental justice protections. The Proposal ultimately fails to disclose impacts, make the LCFS more equitable and less reliant on outdated combustion fuels, and align the program with CARB's own air quality standards and ZEV goals. It is therefore not worthy of your vote. **We urge Board Members to vote NO on the proposed LCFS amendments and to send it back to staff with direction to fix the program consistent with the above recommendations in 2025.** (BH-030.13)

Comment: We, from Climate Action California, recommend that the Board not approve the Proposed Amendments to the Low Carbon Fuel Standard (LCFS). (BH-051.1)

Comment: On behalf of Environmental Health Coalition, our organization stands in solidarity with other frontline environmental justice communities across the state of California who are living with the negative impacts from the LCFS program. The climate crisis demands bolder action from CARB. We cannot continue to gift public funds to polluting industries. Do not pass the proposal. It sets in place for too long, harmful and dangerous fuels that are climate dead ends.

Credits need to be adjusted to maximize benefits for electric vehicles and not biofuels or hydrogen produced by fossil fuels. The proposed amendments will not help electrification of heavy-duty freight enough and will perpetuate air and water pollution from dairies. The LCFS must be fixed to cut harmful methane crediting, place a cap on renewable diesel credits, include aviation fuels in the program and support clean shipping. I urge a no vote. Make the amendments needed to protect EJ communities before locking in a broken program. (BH-074.1)

Comment: On behalf of members of the California State Senate Republican Caucus, I am writing to inform you that in just a few days 12,981 Californians have signed a petition urging the California Air Resources Board (CARB) to postpone the upcoming vote on proposed amendments to the Low-Carbon Fuel Standard (LCFS) program.

...

As a concerned resident of California, I am writing to urge you to postpone the upcoming vote on the proposed amendments to the Low-Carbon Fuel Standard (LCFS) program until the full impact of these changes on consumer fuel prices is disclosed.

...

I respectfully ask that you postpone the vote on these amendments until CARB provides clear, public information on the cost and impact of the proposed changes. Californians deserve to be fully informed before any policy amendments that could further drive up the cost of living are enacted. (BH-079.1)

Comment: VOTE NO (BH-080.1)

Comment: I am urging the Board to vote No on these amendments and direct staff to start over next year with a proposal that addresses Board Member and environmental community concerns about biofuels and includes a robust discussion of strategies for reducing program costs for lower-income consumers of gasoline. (BH-093.1)

Comment: After carefully studying the proposed amendments to the low carbon fuel standard, I urge the board to reject the proposed amendments on the basis that they will discourage investment in clean fuel technologies and increase fuel prices for some of California's most vulnerable communities.

This recommendation is based on many factors. Some of which include:

- Accelerating the carbon intensity reduction target to 22% by 2025 is too steep a ramp-up in such a short period of time.
- Putting a 20% cap on credits for biomass-based diesel from feedstocks would encourage some to return to using petroleum-based diesel, thus increasing carbon emissions from that fuel source.
- Excluding hydrogen produced from fossil fuels from credit eligibility will make hydrogen harder and more expensive to use and will disincentive investment in this area.

Undoubtedly, the biggest reason I urge the board to reject these amendments is the disproportionate financial hardship they will cause many of California's most economically disadvantaged residents.

I recognize that CARB staff is putting forward what they believe is in California's best interests, but these amendments will cause severe financial stress for many.

...

I urge the Board to reject the proposed amendments. (BH-095.1)

Comment: Please vote "no" to the LCFS update. What we as a state need to focus on is zero emissions transportation - not on transportation fueled by biofuels and dirty hydrogen. I live close to two refineries which have converted to the production of biofuels. Such investments deepen the hole we have dug for ourselves, lengthening the time we pollute our sky with greenhouse gasses. (BH-097.1)

Comment: Please do not implement this proposed regulation. (BH-098.2)

Comment: So again, urging you to vote no on this measure and want you to more closely consider the needs that have been expressed in the Environmental Justice Committee -- Advisory Group. (BHT-1a)

Comment: My name is Alberto Leon and I'm here to ask you to please vote against this regulation, because we're just getting out of one problem to get into another one. This is just going to create more pollution and it gravely affects our communities. And that is the reason why we are all here to ask you to make a responsible decision, so that our communities will not continue to be impacted. And this isn't just a local challenge. It is a challenge that we're seeing worldwide, particularly in large cities where we see all these impacts of huge pollution. And that's why what we really want is to get to zero emissions, instead of just getting out of this problem to create a new one for our communities. So we ask that you act responsibly. Thank you. (BHT-6)

Comment: And today, we urge you to say no. (BHT-13)

Comment: The reason I come to you today is that you are considering the proposed LCFS amendments, the Low Carbon Fuel Standards that are produced using ethanol, biomass, and others. Both you and I know that these fuels are generating polluting emissions that lead to more people suffering from asthma and cancer. CARB, you shouldn't give credits or bonuses to corporations, because in addition to being corrupt and criminal, they are merely benefiting from the loopholes in this standard, and giving these credits to companies that don't even move a finger to actually reduce emissions. The only road to zero emissions is electrification. That's why I'm here to fight for clean energy and for you to vote no on these LCFS amendments. You should rather give these credits to people who are suffering from asthma and from cancer from this pollution. (BHT-16)

Comment: CARB, yourself, you have said there is no safe level of diesel to be breathing in. Yet, you want to keep funding these false solutions, like renewable diesel, that doesn't cut -- that does not cut the impact so us. And yet, you want to take some of the efforts away at the last minute from medium- and heavy-duty electrification.

...

And it has been very clear from you all that we have to head to zero emissions. And without the funding to help this transition, our families will be most impacted both by not being able to access the transition, but also because you're delaying our health to us and that relief.

...

And given the moment we're in, we know it's more important than ever to send a signal to the market that electrification is going to be okay for the next four years.

This Program doesn't do that right now. So please, we urge a no vote. Let's fix the Program. (BHT-20)

Comment: I am here to ask that you vote no on this proposed Low Carbon Fuel Standard. What we want and what we need is a program that will help us electrify trucks, a program that will help our community. In the Inland Empire, diesel pollution is costing huge impacts on – of -- on our community's health, my family's health. There are so many trucks in Inland Empire on the roads seven days a week, 24 hours a day, every day. And that diesel we breathe in and it is a poison to our health. That's why the best alternative is to electrify trucks.

When you talk about zero emissions, let's mean zero emissions. Hydrogen, ethanol, biomass fuels are not truly clean energies, nor zero emissions, because the carbon dioxide and nitrogen oxide are still harmful emissions that harm my community's health, a community that's already overburdened. So when it comes to this rule, it is obsolete, and it's a mockery for our communities, but it is good business for all of the businesses that can merely buy credits in their little circle of corruption. Polluters have money. Don't give them more money. Instead, invest in our communities and listen to our communities. (BHT-21)

Comment: For that reason, and for the years of community advocacy that CARB staff is so determined to undermine, this Board must vote no. (BHT-22a)

Comment: I'm asking you to vote no on this, because it may look beautiful on paper, it may seem like it's great, but it doesn't result in clean air.

...

So I'm here to ask you to please vote no on this standard, because it seems like it helps, but it really doesn't. It doesn't result in zero emissions. It's just a legal way for the companies that pollute more to be able to pay. (BHT-24)

Comment: Today, we are here to urge CARB to vote no on the LCFS as amended on behalf of our communities for the following reasons. (BHT-29)

Comment: For these reasons, we urge CARB to go back to the drawing board, fix the LCFS to align with CARB's goals to phase out reliance on fossil fuels and reduce emissions. (BHT-33a)

Comment: I'm here today to urge a no vote from the CARB Board.

...

I urge this Board to stand with environmental justice communities, uphold public health by voting now on the LCFS. (BHT-37)

Comment: I've come here today, because I'm hoping I can get a vote of no from you guys. It seems like the dairies are more important and -- than the communities. I'm fighting for my children. I'm fighting for their -- for their children, and my community, and the communities around us. Let me see. What happened to fighting for people and not the dollar. I'm hoping that you will vote no.

I've got something to read here that I found today and I would really like everyone to listen to it. It's a study that was made by some scientists. Manure to the energy project has a direct negative impact on front-line communities, in a recent study, the composition and toxicity of the biogas product from different feedstocks in California. Scientists have found that the concentrations of minor chemicals and biological components in biogas have the potential to be toxic to humans and the environment.

...

And I'm hoping, really hoping and praying that you will vote no. (BHT-39)

Comment: I would also like to ask that you please vote no on this. Thank you. (BHT-40)

Comment: I'm asking the Board to fix the LCFS and vote no today on the proposed amendments. This Program is something we can all agree crucial tool in California's climate strategy. It must be modernized and needs to support critical health and environmental outcomes to communities in California. Yet, with where we're at today, the amended rule falls short of the LCFS's role in thoroughly and equitably decarbonizing transportation.

We've seen robust conversation from stakeholders and hard work from staff, as seen by the two rounds of 15-day changes. Ultimately though, the asks of enviros and EJ aren't thoroughly reflected. We're concerned that passing the amendments would come at the expense of legitimate climate benefits and community protections. We'd like to see the Program accomplish several things including limiting the volume of lipid biofuels, phasing out harmful avoided methane crediting, and properly investing in electrifying trucks.

During this process, there's been meaningful testimonies from impacted community members, which we've seen a lot of today, as well as several recommendations shared from the EJAC. The asks of these groups must be addressed. It's concerning that we're hearing from experts who are saying that these amendments don't resolve equity issues that the Program overincentivizes solutions with known environmental harms and that we're not making ambitious progress towards our zero-emission future. We need an LCFS that champions the best interests of Californians especially those who are most impacted by climate and air quality issues. For these reasons, we need to fix the LCFS and I urge the Board's no vote today. (BHT-74)

Comment: And the rule is not about zero emissions. What you are proposing does not achieve zero emissions. What we had asked for did achieve zero emissions. So your plan is not the correct plan. So we want you to vote no.

...

So our request is to please actually achieve zero emissions. (BHT-75)

Comment: It's not possible to give so much money to the polluters. We instead need programs that will help us electrify the truck fleet. We don't want false solutions. What I'm asking for is for you to vote no on this Low Carbon Fuel Standard amendments, and for you to create a program that will be fair and that will follow the recommendations of the environmental justice community. (BHT-76)

Comment: Vote no, so you can make these changes. (BHT-92a)

Comment: So making fuel from food is only one of the many problems with the LCFS. Unfortunately, despite some good elements, there are numerous technologies promoted by the LCFS that are making the climate situation worse faster. Thus, we ask that the Board vote no on the amendments package. (BHT-104a)

Comment: Vote no on this proposal. There is still time to fix it. (BHT-143a)

Comment: We support the overall Program, but we think this set of amendments are misguided.

...

There are most importantly environmental justice issues and we wouldn't see so many of our environmental justice allies here if it worked in favor of their communities. And there are also technical scientific arguments against it. (BHT-146)

Comment: We're here today because like you've heard many of our community members tell you we're saying no. You have time. There is this idea that you don't have time to make this intentional, to make the correct choices. That's not true. (BHT-147)

Comment: I think right now we're at a time where you have the opportunity to revisit and amend this rule, so that it actually works for our communities.

...

And there's actually recommendations before you from the Environmental Justice Advisory Committee. And so I urge you, one, to vote no and please take the recommendations and prioritize electric zero emissions. (BHT-149)

Comment: I'm asking you to vote no on LCFS and focus on our future, focus on the future of our kids and their health, please.

...

We're not in 2009 anymore, when this was first passed, like our choices aren't just gas or biofuels. We have other solutions now. ... We can stay focused on what we said we were going to do, we cannot stop just half way at biofuels, but go all the way to full electrification.

...

Is there anything that we can do about this? And I think there is. I think it's a no on LCFS, a no to repeating our past mistakes, because our children's futures depend on it. (BHT-150)

Comment: I work on the western region for Clean Transportation For All and I want to uplift many of the comments that came before me in voting no on the LCFS. At Sierra Club, we believe in climate solutions and environmental justice can go hand in hand. Biofuels, and ethanol, and renewable natural gas from digestion isn't going to cut it and perpetuating these false solutions is giving a clear signal for other states to do the same.

...

So please don't set us backwards here and we encourage you to work with the EJAC and the environmental justice groups that have basically painted a new alternative away from supporting internal combustion engines and fuels. (BHT-151)

Comment: I am many here today to urge you to vote no on the current version of the Low Carbon Fuel Standard. You already heard many of the powerful reasons to reject this proposal, but I want to focus on what is an incredibly missed opportunity when it comes to California's policy to reach zero-emission goals, and that is the transportation sector.

...

Transitioning to – freight trucks to zero emissions is a must, if we're going to address these injustices.

The revisions before you today are not worth your yes vote. The Program will funnel a majority of its funds to polluting biofuels and biogas, rather than investing in common sense solutions that are California's north star goal of full-scale electrification. (BHT-152)

Comment: I'm also here to urge you to vote no on the LCFS given the negative impacts on environmental justice communities.

...

I would like to echo my colleagues' concerns regarding refineries. Biofuel factories are nearly as polluting as refineries and endanger our communities. (BHT-160)

Comment: You heard from the people who are suffering in the Central Valley and elsewhere from these fossil fuel -- excuse me -- biofuels because you know that biodiesel produces just as much NOx, and therefore as much as pollution, and asthma, and other kinds of diseases as regular diesel.

...

I know that you Board members really care about the health of people, so I know that you're going to reject this horrible proposal that is before you now, send it back to staff, and come back with no more of these liquid biofuels that are killing people every day in the Central Valley and elsewhere. (BHT-181)

Comment: I echo the many previous calls for you to vote no on these unacceptable changes to the LCFS.

...

In sum, staff has attempted to undermine future regulation of factory farm methane. I respectfully urge you not to let them. Emissions from large dairies are an existential threat and CARB must act like it.

Please vote no, fix the LCFS, and insist on effective and equitable regulation of factory methane. (BHT-183)

Comment: I am urging the Board to vote no on these amendments and direct staff to start over next year with a proposal that addresses Board member and environmental community concerns about biofuels and includes a robust discussion of strategies for reducing Program costs for lower income consumers of gasoline. (BHT-188)

Comment: We urge this Board to prioritize the health of communities and true climate solutions over short-term acquiescence and special interest, and encourage you to reject the current proposal. (BHT-212a)

Comment: I'm testifying today to respectfully request that the Board reject the proposal and go back swiftly to adopt a proposal that's more in line with California's need to get to zero emissions to address our air pollution crisis, and our climate crisis.

...

We need to use this Program to more effectively push electrification, particularly in the medium- and heavy-duty sector as we're about to face a potentially hostile federal administration on California's standards.

...

And so I think the Board needs to measure twice and cut once, go back, fix the problems with the current proposal, make it more aligned with electrification. (BHT-253)

Agency Response: Staff acknowledges the commenter's concern for the proposed amendments to the LCFS. On November 8, 2024, the Board approved the amendments at the Board Hearing to consider amendments to the LCFS.

In response to comments related to prioritizing the transition to zero emission, please see Responses N-1 and U-1.

T. Authority and Other Legal Objections

T-1 Multiple Comments: *Additionality*

Comment: Third, the proposed Amendments continue to ignore that the LCFS is a market-based compliance mechanism and that CARB must ensure the additionality of LCFS greenhouse gas emission reductions. (45d-368.4)

Comment: Second, the LCFS is a market-based compliance mechanism and, as such, CARB must ensure the validity of LCFS greenhouse gas emissions reductions pursuant to state law. (45d-368.32)

Comment: CARB adopted the 2018 LCFS amendments in violation of Health & Safety Code § 38562(d)(2) because it failed in those amendments to ensure that LCFS emissions reductions

would be additional. Further, CARB has approved dozens of fuel pathways for fuels derived from dairy and swine manure despite comments on the lack of additionality for those fuel pathways.¹⁵⁸ The Commenters specifically identified how those pathways lack additionality because the emissions reductions are required by the DDRDP program, are required by the Aliso Canyon Mitigation Agreement, and are thus required by law and/or otherwise would have occurred regardless of the LCFS. Despite those comments, CARB has certified those pathways and allowed those biofuel producers to generate LCFS credits which deficit holders may utilize to sell polluting fossil fuels. These unlawful pathway certifications represent exactly the type of double-counting abuse (indeed triple-counting abuse for pathways related to the DDRDP and the Aliso Canyon Mitigation Agreement) the Legislature specifically prohibited. CARB should correct these fuel pathways pursuant to its authority under the existing LCFS regulations¹⁵⁹ and proceed as the Legislature has commanded. (45d-368.45)

Comment: Specifically, these community members and organizations have spotlighted CARB's unlawful operation of the LCFS outside its regulatory authority—including CARB's operation of the LCFS as a pollution trading scheme that fuels industry and investor profits while dumping the resulting pollution and related costs on rural, low-income, and/or Latino/a/e communities. CARB staff, in their proposed rule and Initial Statement of Reasons ("ISOR"), have ignored these concerns, along with the people raising them and the facts underpinning them. CARB must comply with its legal obligations and reform the LCFS.

Comment: The LCFS is a market-based compliance mechanism and, as such, CARB must ensure the validity of LCFS greenhouse gas emissions reductions pursuant to state law.

The LCFS bears all the identifying features of a market-based compliance mechanism. Accordingly, CARB must ensure that greenhouse gas emissions reductions are real, permanent, quantifiable, verifiable, enforceable, and additional. CARB initially adopted the LCFS as a discrete early action measure. But now CARB insists that the LCFS remains an early action measure for which CARB need not ensure additionality,¹³⁹ despite the fact that the LCFS is no longer discrete or early. CARB was never authorized to dodge the safeguards the Legislature thought necessary for market-based compliance mechanisms by transforming early action measures into long-term, evolving, and expansive programs. But this is precisely what CARB did in 2018 when it amended the program to establish carbon intensity benchmarks and greenhouse gas emissions beyond the 2020 statewide greenhouse gas emissions limit. And CARB now proposes amendments to increase the 2018 amendments' carbon intensity benchmarks between 2020 and 2030 and establish new carbon intensity benchmarks between 2031 and 2045. The early action measure provision of AB 32 does not authorize CARB's 2018 amendments for post-2020 emissions reductions or the proposed Amendments. The LCFS today, as an AB 32 program authorized by Cal. Health & Safety Code § 38562 and not an early action measure under section 38560.5, is subject to the Legislature's command to ensure that market-based compliance mechanisms provide real, permanent, quantifiable, verifiable, enforceable, and additional reductions.

The LCFS is a market-based compliance mechanism, and any greenhouse gas emissions reductions shall be real, permanent, quantifiable, verifiable, enforceable, and additional.

Section 38562(d)(1) of the Health & Safety Code requires that any regulation CARB adopts pursuant to Parts 4 and 5 of Division 25.5 of the Health & Safety Code shall ensure that any reduction in greenhouse gas emissions is real, permanent, quantifiable, verifiable, and enforceable. Moreover, any market-based compliance mechanism adopted pursuant to Part 5 must ensure the reductions are “in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur.”¹⁴⁰ The LCFS unquestionably meets the definition of a market-based compliance mechanism.¹⁴¹ The LCFS imposes an economy-wide limit on the carbon intensity of transportation fuels, requires any fuel producer to meet the carbon intensity benchmark, and any producer that does not meet their obligation—a deficit holder—must purchase credits to lower the overall carbon intensity of their fuels to comply with the LCFS.¹⁴² And CARB maintains the LCFS credit bank, acting as a market maker between the purchasers and sellers of LCFS credits.¹⁴³

CARB itself described the LCFS as a market-based mechanism when promulgating amendments to the LCFS:

The LCFS is a market-based approach designed to reduce the carbon intensity of transportation fuels by 10 percent by 2020, from a 2010 baseline. It is important to note that the Cap-and-Trade Program and the LCFS program have complementary, but not identical programmatic goals: Cap-and-Trade is designed to reduce greenhouse gasses from multiple sources by setting a firm limit on GHGs; the LCFS is designed to reduce the carbon intensity of transportation fuels. As a market-based, fuel-neutral program, the LCFS provides regulated parties with flexibility to achieve the most cost-effective approach for reducing transportation fuels’ carbon intensity. . . .

CARB staff disagrees that the LCFS is fundamentally a command-and-control system. The LCFS is a fuel-neutral, market-based program that does not give preference to specific transportation fuels and instead bases compliance on a system of credits and deficits based on each fuel’s carbon intensity. Carbon intensity (CI) is a measure of the GHG emissions associated with the various production, distribution, and consumption steps in the “life cycle” of a transportation fuel. It is difficult to respond with depth to this assertion because the commenter provides no specifics to support the claim that the LCFS is not market-based. Notably, the commenter does not describe what components of the program could be considered command-and-control.¹⁴⁴

Additionally, CARB’s descriptions of the LCFS program closely parallel the statute’s definition of “market-based compliance mechanism.” The definition states that a market-based compliance mechanism means either of the following:

- 1) A system of market-based declining annual aggregate emissions limitations for sources or categories of sources that emit greenhouse gases.
- 2) Greenhouse gas emissions exchanges, banking, credits, and other transactions, governed by rules and protocols established by the state board, that result in the same greenhouse gas emission reduction, over the same time period, as direct compliance with a greenhouse gas emission limit or emission reduction measure adopted by the state board pursuant to this division.¹⁴⁵

CARB explains that the LCFS has a “market for credit transactions,” where “entities with credits to sell can opt to pledge credits into the market and entities needing credits must purchase their pro-rata share of these pledged credits.”¹⁴⁶ CARB explains that credits are generated relative “to a declining CI benchmark for each year.”¹⁴⁷ The LCFS exhibits many if not most of the features of a market-based compliance mechanism, including a Cap-and-Trade allowance-like system with yearly declinations,¹⁴⁸ transaction rules,¹⁴⁹ recordkeeping and auditing requirements,¹⁵⁰ an account system to manage credit transfers—the LCFS Reporting Tool and Credit Bank & Transfer System (LRT-CBTS)¹⁵¹—and a portal that applicants must use to demonstrate compliance,¹⁵² among others. In addition to CARB’s interpretation, designation, and treatment of the program as a market-based mechanism and the overall structure of the regulation evincing the same, the designation of California’s LCFS as a market-based mechanism is ubiquitous in academic and technical literature.¹⁵³

Moreover, the self-evident nature of the LCFS as a market-based compliance mechanism gives rise to the primary objective for these proposed amendments. CARB seeks to correct an over-supply of credits in the market which the 2018 LCFS amendments caused when CARB adopted its avoided methane crediting policy and failed to limit crop-based biofuels. Both of these policy choices caused market failure, with an oversupply of credits from manure-based and crop-based fuels that cratered credit prices.¹⁵⁴ CARB now proposes to increase the carbon intensity benchmark from 20 percent in 2030 to 30 percent in 2030, as well as a significant increase in the carbon intensity benchmark in 2025, to drastically increase the demand for credits and thus increase credit prices. CARB projects these changes to its control of, and regulation over, the market will yield 558 MMTCO₂e of cumulative emissions reductions between 2025 and 2045.

As a market-based compliance mechanism that plainly meets both prongs of the statutory definition, CARB has no authority to ignore the mandates in Health & Safety Code § 38562(d)(1) and (d)(2). Rather, the LCFS must ensure that the greenhouse gas emissions reductions CARB claims through 2030 are real, permanent, quantifiable, verifiable, enforceable, and additional.¹⁵⁵ No provision of the proposed amendments complies with this mandate and CARB thus unlawfully and arbitrarily proposes to adopt the LCFS amendments without ensuring the validity of claimed emissions reductions. (45d-368.43)

Comment: The LCFS is not an early action measure as CARB asserted when it denied the Petition for Reconsideration.

CARB has claimed that it may implement the LCFS as an early action measure not subject to additionality for as long as and for whatever purposes staff wish.¹⁵⁶ However, the Legislature did not enact an open-ended early action measure provision to authorize subsequent rules and regulations for emissions reductions beyond the 2020 statewide greenhouse gas emissions limit. The plain language of the early action measure provision and its place within the broader statutory scheme demonstrates that early action measures served the narrow function of implementing certain measures before CARB adopted the primary measures authorized by section 38562 of the Health & Safety Code to achieve the 2020 statewide greenhouse gas limit.¹⁵⁷ Nor did the Legislature amend section 38560.5 of the Health & Safety Code at any point after its initial adoption to expand the limited role early action measures played in the

statutory scheme. In sum, early action measures were designed to be just that - measures that could be implemented prior to implementation of those measures authorized by section 38562 and measures that could help reach the statewide greenhouse gas emissions limit by 2020. CARB thus lacks statutory authority to proceed with these proposed Amendments as an early action measure. Accordingly, the LCFS today is only authorized by section 38562 and therefore CARB must ensure the additionality of emissions reductions before certifying credit generation. (45d-368.44)

Agency Response: No changes were made in response to these objections. The LCFS regulations have been developed, adopted, and amended over the years based upon statutory authority contained in Health & Safety Code sections 38560 and 38560.5, among other authority sources. No version of the LCFS regulations has ever referenced Health and Safety Code section 38562 as authorizing authority. Health and Safety Code section 38562 applies to the Cap-and-Trade regulations published at title 17, California Code of Regulations (CCR), sections 95801 through 96022, but does not apply to the LCFS. In particular, the LCFS has never contained a general additionality requirement. The LCFS is designed to incentivize increased production of low carbon intensity fuels by rewarding the supply of volumes of such fuels. The LCFS program is more akin to the Renewables Portfolio Standard for the electricity sector in its role to decarbonize the transportation sector energy supply.

T-2 Multiple Comments: *Development of biomethane and hydrogen as fuels for stationary sources outside CARB's delegated authority*

Comment: Fourth, the Amendments attempt to use the LCFS to achieve post-2030 greenhouse gas emissions reductions, including the development of biomethane and hydrogen fuels for stationary sources, outside of CARB's delegated authority...

CARB unlawfully and arbitrarily proposes LCFS Amendments to implement the 2022 Scoping Plan to achieve post-2030 policies and the 2045 target set by Assembly Bill 1279.

CARB's proposed LCFS amendments exceed its statutory authority when it proposes post-2030 carbon intensity benchmarks and unilaterally decides to use the LCFS to build-out biomethane and hydrogen infrastructure for use as stationary source fuels. The Legislature has not authorized such rulemaking authority or otherwise directed CARB to use the LCFS as the mechanism for developing hydrogen infrastructure. Because CARB does not operate with unbounded rulemaking authority, CARB may not proceed as proposed and should instead seek appropriate authority from the Legislature...

CARB acknowledges, as it must, that biomethane-based fuels have no future in California's transportation fuels market. But CARB further proposes – without any authority from the Legislature – to adopt regulations that turn the LCFS into the policy mechanism to build out fuel supplies and fuel infrastructure, especially for hydrogen fuel ultimately for use in stationary sources. (45d-368.5)

Comment: Other legislation recently adopted by the Legislature provide further indicia of CARB's limited rulemaking authority. Most significantly, the Legislature passed Senate Bill 596 and Senate Bill 1075 to provide policy direction on the cement and hydrogen sectors,

respectively.²⁰³ Senate Bill 596 directs CARB to prepare a comprehensive strategy for the cement sector by July 1, 2023, one of the hard to decarbonize stationary source sectors which the 2022 Scoping Plan Update identifies. The Legislature authorizes CARB to implement that cement strategy only “upon appropriation by the Legislature.”²⁰⁴ In Senate Bill 1075, the Legislature directed CARB to prepare an evaluation of hydrogen, including green hydrogen, by June 1, 2024, that shall include policy recommendations, a description of potential strategies supporting hydrogen infrastructure, and an analysis of hydrogen use as a climate strategy.²⁰⁵ Senate Bill 1075 did not authorize CARB to adopt rules or regulations to implement the hydrogen strategy. (45d-368.47)

Agency Response: No change was made to the Proposed Amendments in response to these comments. The comments object that the Proposed Amendments exceed established CARB authority to develop and implement LCFS regulations. In fact, the Proposed Amendments are strongly supported by underlying authority. Many of the objectives of the amendments are explicitly designed to align the LCFS with recent authority, notably including Health and Safety Code section 38562.2 (from AB 1279) and associated long-term science-based policy goals. This alignment with broader state policy and statutory directives to decarbonize the California economy is consistent with market signals shown by these LCFS amendments to spur the development of low carbon transportation fuels, and the acknowledgement of needed transitions for those fuels to other difficult to decarbonize end uses.

T-3 Multiple Comments: *Title VI*

Comment: Second, CARB is required to ensure that the LCFS complies with CA 11135, CA 12955, and Title VI of the Civil Rights Act of 1964 to prevent discrimination.⁶⁶ (45d-368.19)

Comment: Finally, CARB must ensure that the proposed Amendments do not violate state and federal civil rights and fair housing laws...

State law provides that “[n]o person...shall, on the basis of...race, color, ...ancestry, national origin, ethnic group identification” or other protected classes “be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination under, any program or activity that is conducted, operated, or administered by the state or by any state agency...”²⁰⁶ Further, Section 601 to Title VI of the Civil Rights Act provides that no person shall, “on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity.”²⁰⁷

It is important to note that “... a disparate impact claim can be established without proving discriminatory intent.”²⁰⁸ However, “just as ‘[e]vidence of discriminatory intent can bolster a disparate impact case,’ allegations of discriminatory intent can bolster allegations that a disparate impact was caused by the challenged practice.”²⁰⁹

Here, for the reasons discussed above, and in this section, CARB’s proposal to continue incentivizing the capture of dairy methane and production of factory farm gas will cause a disparate impact on Latino/a/e communities in the San Joaquin Valley based on race, national origin, and ethnic group identification.

Specifically, as discussed more fully below, the proposed amendments exacerbate and entrench disproportionate impacts on Latino/a/e people and communities due to their role in supporting the development of more methane digesters and encouraging herd expansions and consolidation. These two complementary phenomena—the expansion and concentration of dairy herds and the installation and operation of digesters—disproportionately impact people and communities living near those facilities and the San Joaquin Valley, where the vast majority of large-scale dairies, expanding dairies, and digesters are located...

The proposed Amendments and the circumstances surrounding the development and release of the staff proposal indicate intentional discrimination.

Intentional discrimination under Title VI of the Federal Civil Rights Laws can be found when, based on the totality of the circumstances, direct and circumstantial evidence demonstrates that action was taken at least in part because of its adverse impact on a protected class.²²⁵ Similarly, state civil rights law recognizes intentional discrimination. Notably regulations pending final approval indicate that there's a cognizable claim of intentional discrimination if discriminatory or purposeful intent is simply a motivating factor (among several motivating factors) in a decision.²²⁶

Courts have considered a non-exhaustive list of factors which can demonstrate intentional discrimination under Federal civil rights law even without explicit statements of that impermissible intent.²²⁷ These factors are considered in the totality of circumstances and no single factor is necessary in order to show discriminatory intent.²²⁸ These factors include^{229,230}:

- Statistics demonstrating a clear pattern of discriminatory effect
- The historical background of the decision
- The sequence of events leading up to the decision
- Departures from normal procedures or substantive conclusions
- Foreseeability of the consequences of the state action

(1) Statistics Demonstrating a Clear Pattern of Discriminatory

As discussed throughout these comments, the existing LCFS program results in disproportionate and negative harm on communities of color and people of color, particularly Latino/a/e people and communities. The proposed Amendments will intensify these impacts...

The proposed LCFS Amendments violate state and federal fair housing laws.

As discussed above, the Amendments, if implemented, will increase groundwater pollution, groundwater depletion, ammonia emissions, odor, flies, and air pollution in communities near dairies and the San Joaquin Valley broadly. Such impacts effectively preclude the full use and enjoyment of dwellings by impacting drinking water supplies, increasing exposure to noxious and toxic emissions, and creating a nuisance. Similarly, the proposed LCFS amendments would have probable impacts on land use decisions, including livestock operation expansions and installation of digesters which in turn will increase air and water pollution along with nuisance odors and flies the San Joaquin Valley and communities near large-scale dairy livestock operations. Accordingly, the proposed Amendments will, if adopted and implemented, violate both state and federal fair housing laws. (45d-368.35)

Comment: Staff's failure to consider the harmful impacts of the LCFS on the San Joaquin Valley constitutes a disparate impact on Latino/a/e communities.

As discussed throughout these comments, CARB staff has consistently failed to consider or address public comments from community residents who live near dairies, including dairies producing factory farm gas and dairies participating in LCFS fuel pathways.²²⁴ These comments have included specific information about how dairies and digesters impact public health and quality of life. CARB staff's failure to consider or address these comments has a disparate impact itself. Additionally, it distorts the administrative record in a manner that has secondary disparate impacts, as articulated throughout these comments...

The Sequence of Events Leading Up to the Decision

Commenters and other stakeholders—most importantly people living near dairies—have repeatedly conveyed information to CARB about the environmental and human health harms that dairy digester subsidies and the LCFS create in the San Joaquin Valley.²³³ Staff's proposed Amendments and ISOR entirely ignore this information. In fact, even the "Environmental Justice" section of the ISOR fails to acknowledge the testimony, data, and facts from residents of the San Joaquin Valley about the impacts they face as a result of dairy operations, dairy expansions, and the installation and operation of digesters.

Additionally, CARB's failure to initiate rulemaking to adopt livestock methane emission regulations in advance of adopting LCFS amendments indicates CARB's lack of consideration for the role its policies play in causing negative and disproportionate impacts on Latino/a/e communities.

In sum, the sequence of events leading up to the release of the ISOR shows a clear pattern of CARB staff's refusal to address or even consider the adverse and detrimental impacts of the proposed Amendments to the San Joaquin Valley and Latino/a/e communities. Staff chose instead to move forward with a policy that would perpetuate and exacerbate this harm. (45d-368.50)

Comment: *CARB's proposed Amendments are at odds with its duty to affirmatively further fair housing.*

Guidance from the state's Housing and Community Development Department issued guidance on agencies' duty to Affirmatively Further Fair Housing noting the expansive nature of the mandate: "Any program or activities that impact housing and community development should address the obligation to affirmatively further fair housing. Community development should be considered broadly as any processes or issues related to community members or social and physical surroundings."²⁴³

HCD's guidance memo goes on to identify ways in which agencies should ensure their compliance with their duty to AFFH. Potential activities include:

- **Gather and Analyze Data:** To better understand affirmatively furthering fair housing, agencies should explore available data related to the topic area to identify spatial patterns and trends and evaluate the impacts of programs and activities.

- Engage the Community: Proactively reach out to individuals and organizations that represent lower income households, people in protected classes, and households with special needs to develop open and mutual communication. Solicit input and communicate on a regular and ongoing basis, not just during formal public comment periods.
- Assess Programs and Activities: Inventory programs and activities and explore opportunities to affirmatively further fair housing.

The proposed amendments will exacerbate economic and environmental obstacles to opportunity in lower income communities and people and communities of color in the San Joaquin Valley. The proposed Amendments, if adopted and implemented, would increase exposure to ammonia in communities near large dairies, increase PM2.5 and ozone in an already compromised San Joaquin Valley, increase nitrate contamination of drinking water, increase odors inside and outside homes, and deplete groundwater in already over drafted aquifers. All of these impacts negatively impact access to opportunity in lower income communities of color in violation of CARB's duty to Affirmatively Further Fair Housing. Furthermore, CARB's failure to consider the significant and disproportionate impacts, especially in light of the numerous comments the agency has received highlighting these impacts, constitutes a further violation of their duty to affirmatively further fair housing. CARB appeared to neither gather and analyze data regarding the impacts of the LCFS on lower income communities of color in the San Joaquin Valley, nor meaningfully engage community members as evidenced by a complete erasure of concerns raised throughout the LCFS rulemaking process, nor assess opportunities to affirmatively further fair housing through the LCFS.

Additionally, the proposed Amendments will have a significant impact on gas prices, a cost that will be borne disproportionately by Latino and Black people and communities and lower income people and communities, especially communities that have limited access to transit. Increasing costs for Latino and Black people and communities, lower income people, lower income communities, and communities without reliable transit has a direct and negative impact on access to opportunity. Accordingly, CARB's failure to address increased and disproportionate costs of the program for lower income households and communities, people and communities of color, and communities without adequate transit options is directly at odds with CARB's duty to affirmatively further fair housing. (45d-368.52)

Agency Response: No changes to the Proposed Amendments were made in response these comments, which do not include a specific recommendation for a change to the rulemaking proposal. Regarding the objections that the rulemaking proposal or rulemaking procedure may have been noncompliant with various authorities: CARB staff has worked diligently to conduct an open and transparent rulemaking to amend this important program that is compliant with all applicable laws. Moreover, staff disagrees with the objection that these environmentally protective amendments may harm rather than help Californians, including California's most vulnerable communities. See CEQA RTC Master Response 4, Staff Report: Initial Statement of Reasons (ISOR), Final Environmental Impact Assessment [Appendix D: Final Environmental Impact Analysis for the Proposed Low Carbon Fuel Standard Regulation](#), and response to Z-1.5.

T-4 Multiple Comments: SB 1383

Third, CARB may not attempt to use the LCFS Amendments to achieve the Senate Bill 1383 methane reduction mandate...

Avoided methane crediting relies on the assumption of perpetual free venting of methane manure from the most polluting factory farm practices. This assumption is arbitrary because CARB is legally obligated to consider and have a preference for direct, regulatory reductions in manure methane emissions.¹¹⁵ As explained below, CARB cannot use the LCFS in place of absolute, direct reductions under SB 1383; it likewise cannot set a baseline for determining factory farm gas fuels' CI under the LCFS that pretends SB 1383 does not exist.

Furthermore, it is arbitrary for CARB to assume that raising livestock must result in massive manure methane emissions. It was only when factory farms began structuring their operations to expand in size and reduce costs by relying on liquification, storage in lagoons, and disposal via land application that manure methane became a major climate issue.¹¹⁶ For example, manure allowed to decompose on a pasture or handled and managed in a dry system does not emit meaningful methane. The reason is simple: methane is generated in anaerobic environments. Allow manure to decompose in the presence of oxygen, and methanogenic microorganisms will not proliferate and thus will not produce methane and other gasses.¹¹⁷ But as the California dairy industry expanded into larger and larger factory farms, it "tend[ed] to utilize more liquid-based systems to manage ... and store manure. Thus, the shift toward larger dairy cattle and swine facilities since 1990 has translated into an increasing use of liquid manure management systems, which have higher potential CH₄ emissions than dry systems."¹¹⁸

And now that CARB has structured incentives, through avoided methane crediting, to encourage and entrench liquid manure systems, CARB's use of a baseline that it itself has manufactured due to its failure to adopt direct regulations has become circular and self-fulfilling. Factory farms intentionally and unrestrictedly polluting the climate cannot be used as the standard by which progress is measured...

In 2016, the Legislature passed Senate Bill 1383 and required CARB to adopt regulations to reduce methane emissions from manure management by 40 percent from 2013 levels by 2030.¹⁶⁰ The Legislature also directed CARB to prioritize direct emissions reductions.¹⁶¹ But the proposed LCFS amendments ignore these mandatory duties. Instead, CARB arbitrarily and capriciously proposes these amendments as the policy mechanism to achieve the legislatively required methane reductions. CARB relies on alleged methane reductions achieved by current and anticipated anaerobic digester projects receiving LCFS credits. But CARB's preferred policy ignores its duty to adopt regulations and its duty to prioritize direct emissions reductions...

CARB has a mandatory duty to adopt regulations to achieve the Senate Bill 1383 methane reduction mandate.

As CARB has acknowledged, the dairy and livestock sector produces more than half of California's methane emissions.¹⁶² Senate Bill 1383 mandates that CARB "shall adopt regulations to reduce methane emissions from livestock manure management operations and dairy manure management operations" to meet the 2030 target.¹⁶³ As CARB has further

acknowledged, Senate Bill 1383 “sets a methane emissions reductions target . . . of 40 percent below 2013 levels, or . . . 9 million metric tons carbon dioxide equivalent (MMTCO₂e) by 2030.”¹⁶⁴

As required by Senate Bill 1383, CARB prepared a progress report. But the report concedes that, even with assumed statewide dairy herd size decreases, the dairy and livestock sector would achieve “only about half of the emissions reductions needed to achieve the 2030 target.”¹⁶⁵ But despite the legal duty to promulgate regulations, CARB’s Executive Officer recently disavowed any intention of initiating such rulemaking in 2024.¹⁶⁶ And CARB takes several years to adopt major regulations.¹⁶⁷ Instead of adopting regulations and complying with Health & Safety Code section 39730.7(b)(1), CARB proposes to rely on the LCFS instead.¹⁶⁸ (45d-368.33)

Comment: CARB also fails to reconcile the claimed progress towards the Senate Bill 1383 reductions with the facts that (1) the LCFS considers digester projects as achieving methane reductions; (2) rewards those projects with LCFS credits representing those methane reductions; (3) authorizes deficit holders – oil companies – to buy those credits to offset the carbon intensity of their fossil fuels; and (4) the methane reductions from digesters offset fossil fuel emissions. With the LCFS transferring the alleged methane reductions from anaerobic digester-related fuel pathways to authorize more climate pollution from fossil fuels in the LCFS, CARB arbitrarily and capriciously proposes to credit the same methane reductions toward the Senate Bill 1383-required methane reductions. CARB cannot have it both ways and cannot explain how the same digesters generate credits that allow more emissions from fossil fuels yet also somehow reduce the climate pollution the Legislature required. As a result, CARB violates its legislatively imposed duties to limit methane pollution and arbitrarily and capriciously claims the LCFS pollution trading scheme reduces methane pollution...

But CARB does not explain how methane reductions count towards the Senate Bill 1383 obligation when the incentives for private investment in digesters—LCFS credits awarded for compressed natural gas, hydrogen, and electricity fuels—serve a direct function as offsets in the LCFS pollution trading scheme. The LCFS allows producers of fossil transportation fuels with high greenhouse gas emissions to offset their fuels’ impact on the climate by purchasing credits derived from fuels such as manure-based natural gas, hydrogen, and electricity.¹⁷⁸ A given fuel’s carbon intensity represents the greenhouse gas emissions of a given fuel divided by its energy content.¹⁷⁹ As explained herein, CARB awards manure-based fuels negative carbon intensities based on the avoided methane crediting policy. Those credits representing methane emission reductions are then purchased by fossil fuel producers to comply with the carbon intensity benchmark, thereby assigning those claimed reductions to their own fossil fuel operations. CARB thus arbitrarily and capriciously claims the LCFS provides methane reductions to comply with Senate Bill 1383 when those reductions are used by oil companies to demonstrate their own compliance with the LCFS. (45d-368.46)

Agency Response: No changes were made in response to the inaccurate objection that authorization by Health and Safety Code section 39730.7 (from SB 1383) for CARB to adopt regulations to reduce methane emissions from livestock manure management operations and dairy manure management operations overrides CARB’s authority to encourage methane emissions reductions associated with transportation fuels used in

California through the LCFS. Health and Safety Code section 39730.7(e) explicitly acknowledges the interplay between the regulatory development it authorized and the preexisting LCFS regulations. The current LCFS regulation and the Proposed Amendments remain consistent with direction from that section and other statutory direction and authorization. For more information on the development of a regulation authorized by section 39730.7, please see the response to the comments grouped under Z-1.5.

T-5 Multiple Comments: AB 1279

Comment: Fourth, CARB may not attempt to use the LCFS Amendments to implement the 2022 Scoping Plan to achieve post-2030 policies and the 2045 target set by Assembly Bill 1279...

CARB lacks statutory authority to adopt these proposed Amendments to the LCFS.

CARB only has the authority to promulgate regulations that the Legislature has granted. CARB does not operate with carte blanche regulatory authority. And the Legislature has not given CARB the power to adopt these proposed amendments to the LCFS.

In 2006, the Legislature authorized CARB to adopt early action measures, greenhouse gas emissions limits, and emissions reduction measures when it passed Assembly Bill 32.¹⁹⁷ This rulemaking authority extended only to achieving the statewide greenhouse gas emissions limit (1990 greenhouse gas emission levels) by 2020.¹⁹⁸ In 2016, the Legislature passed several, interrelated pieces of climate legislation including Senate Bill 32 and Senate Bill 1383. These bills modified and limited CARB's rulemaking authority.

The Legislature authorized CARB to adopt rules and regulations to achieve the 2030 targets set by Senate Bill 32 and Senate Bill 1383. Specifically, the Legislature gave CARB the authority to adopt "rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division" and mandated that CARB "ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit."¹⁹⁹ The Legislature also specifically directed CARB to adopt regulations to reduce methane from manure management. "The state board, in consultation with the department, shall adopt regulations to reduce methane emissions from livestock manure management operations and dairy manure management operations, consistent with this section and the strategy, by up to 40 percent below the dairy sector's and livestock sector's 2013 levels by 2030."²⁰⁰

The Legislature has not authorized CARB to adopt rules or regulations to achieve reductions in greenhouse gas emissions to achieve the 2045 policy goals of Assembly Bill 1279. Unlike the framework of the earlier climate legislation, the Legislature directed CARB to prepare a Scoping Plan Update to recommend policies for achieving carbon neutrality and an 85 percent reduction in greenhouse gas emissions by 2045.²⁰¹ Unlike Senate Bill 32, the Legislature did not give CARB rulemaking authority to adopt rules and regulations to achieve the AB 1279 goals.²⁰² (45d-368.34)

Comment: As a result, CARB does not have the rulemaking authority to adopt the proposed LCFS amendments. CARB lacks authority under Health & Safety Code § 38560.5 – the

Assembly Bill 32 early action measure provision – to proceed with a rulemaking to achieve post-2020 emissions reductions. CARB rulemaking authority to achieve the 2030 targets established by Senate Bill 32 and Senate Bill 1383 authorize and cabin CARB’s rulemaking authority related those 2030 targets. Critically, the Legislature has not authorized CARB to adopt rules or regulations to implement the LCFS after 2030, including establishing carbon intensity benchmarks through to 2045. Where the Legislature has established climate policy for the post-2030 period, it has directed CARB to make recommendations and to date has not authorized CARB to adopt rules or regulations to implement those recommendations. CARB does not enjoy carte blanche rulemaking authority to achieve its stated objectives, and these proposed amendments are thus ultra vires. (45d-368.48)

Agency Response: No changes were made in response to the inaccurate objection that the establishment of state policy to “Achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative greenhouse gas emissions thereafter” by Health and Safety Code section 38562.2 (from AB 1279) abrogated CARB’s preexisting authority to develop regulations to reduce greenhouse gas emissions such as the LCFS. Health and Safety Code subsection 38562.2(c)(1) specifies that the net zero policy “is in addition to, and does not replace or supersede, the statewide greenhouse gas emissions reduction targets in Section 38566.” CARB develops and implements the LCFS regulations pursuant to the authorization and direction from Health and Safety Code section 38560, among other authorities, that CARB “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.”

T-6 AB 197

Comment: Therefore, the appropriate baseline would reflect CARB’s regulatory authority to directly regulate manure methane emissions to achieve “direct emission reductions” as prioritized by AB 197...

CARB has a mandatory duty to prioritize direct emissions reductions.

The Legislature has further commanded CARB to favor direct emissions reductions over pollution trading schemes like the LCFS. Assembly Bill 197 imposes a duty on CARB to prioritize direct emissions reductions when adopting regulations like those mandated by Senate Bill 1383. Specifically, CARB “shall . . . prioritize . . . [e]mission reduction rules and regulations that result in direct emission reductions[.]”¹⁶⁹ In other words, CARB has a mandatory duty to prioritize “greenhouse gas emission reduction action[s] made by a greenhouse gas emission source at that source”¹⁷⁰ over voluntary, market-based pollution trading schemes.¹⁷¹

This legislative mandate further underscores CARB’s unequivocal duty in Senate Bill 1383 to adopt regulations to limit methane from manure management with a priority for direct emissions reductions. CARB acknowledged the difference between direct emissions reductions and market-based mechanisms, and that the LCFS does not substitute for rules and regulations that result in direct emissions reductions, when it contrasted “Regulations to Ensure Emission Reductions” with “Incentives and Market Development” in its Short-Lived

Climate Pollutant Reduction Strategy.¹⁷² For example, under “Incentives and Market Development,” CARB discusses “help[ing] the industry reduce emissions before regulatory requirements take effect.”¹⁷³ In this section CARB also discusses “environmental credits from dairy-related transportation fuel projects,” “credits under the LCFS, increasing the market value of manure products,” “installing anaerobic digesters at dairies,” and “[e]nabling pipeline injection of biomethane and minimizing associated costs” to “help direct dairy biogas into the transportation sector and allow for the generation of LCFS and RIN credits, which [can] provide an especially valuable revenue stream.”¹⁷⁴

Accordingly, CARB should initiate a rulemaking pursuant to Senate Bill 1383 and prioritize direct emissions reductions rather than continuing to undermine those mandates through LCFS subsidies. (45d-368.39)

Agency Response: No changes were made in response to the recommendation that CARB develop a different regulation instead of the Proposed Amendments, because the Proposed Amendments meet the specified objectives. CARB’s work to amend the LCFS and simultaneously develop other complementary regulations as appropriate is consistent with Health and Safety Code section 38562.5 (from Assembly Bill 197, E. Garcia, Chapter 250, Statutes of 2016) and other authorities. For more information on the development of a regulation authorized by section 39730.7, please see the response to the comments grouped under Z-1.5.

T-7 Severability

Comment: Severability: Given the significant number of updates that will occur as part of this rulemaking, Neste recommends that CARB make the following updates to the Severability language in Section 95497.

§ 95497. Severability.

Each provision of this subarticle shall be deemed severable, and in the event that any provision, or part thereof, in this subarticle is held to be invalid, or temporarily unenforceable, the remainder of this subarticle shall continue in effect. (45d-295.15)

Agency Response: No change was made in response to this recommendation because no change is necessary. The regulatory term “any provision” more clearly broadly expresses the regulatory meaning of any part of the regulations than the suggested clarification. Similarly, temporary unenforceability is adequately and concisely covered by the broad word “invalid.”