May 10, 2024

California Air Resources Board 1001 | Street Sacramento, CA 95815

RE: Proposed Low Carbon Fuel Standard Amendments, Post Workshop Comments

Dear California Air Resources Board Members and Staff,

Thank you for the opportunity to provide our comments and recommendations on the proposed Low Carbon Fuel Standard (LCFS) Amendments. Several members of our coalition participated in the April 10, 2024 workshop and we greatly appreciated the opportunity for stakeholder questions and comments. We also appreciated positive comments from staff with regard to some of our recommendations around program flexibilities that can help achieve state goals. We provide the following written comments as a follow-up to the workshop to respond to outstanding questions and highlight additional information not included in our initial written comments.

The undersigned Joint MHD EV Infrastructure Parties develop multi-fleet EV charging hubs that provide thirdparty owned charging-as-a-service to medium and heavy duty (MHD) EV fleet owners. The signatories represent a sizable share of charging depots under development in the state.

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. However, we believe that reforming the program with the recommendations we provide below will ensure that the LCFS program best supports the State's electrification goals, including and especially Advanced Clean Fleets and Advanced Clean Trucks regulations.

We appreciate the presentation made by staff at the April 10th workshop and the opportunity for additional collaboration and dialogue with CARB staff and interested stakeholders. We would like to take this opportunity to reiterate our 45-day comments, which we have attached as Appendix-1, in light of some of the feedback provided at the workshop.

Our 45-day comments from February 20, 2024, had two main recommendations: A) to address problematic restrictions on the proposed capacity crediting program for the medium and heavy duty (MHD) sector; and B) strengthen and update the overall LCFS program to better support zero emission fuels in order to achieve the state's ZEV goals. These recommendations are intended to ensure that the LCFS regulation is structured in a manner that is flexible enough to support both the market and technology innovations needed to achieve the state's M/HD fleet and infrastructure goals.

A) Address Problematic Restrictions on Capacity Crediting Program (FCI)

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

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.

However, CARB's current proposal will not be effective in supporting electrification. It contains several restrictions that do not adequately consider the constraints on the grid, the needs of freight businesses, and the variety of approaches necessary to serve fleet electrification across use cases. While we appreciate staff's willingness to engage in dialogue, we believe that our recommendations must be adopted if the FCI program is to support the state's electrification goals.

We also appreciate the support of numerous environmental and environmental justice organizations, as well as other charging industry organizations, both in the February 20th filings, and in the April 10 workshop, who echoed our points, and were pleased to note that we are not aware of any recorded opposition to our recommendations. We provide collated excerpts of supportive positions from these organizations in Appendix 2 of our comments.

We provide additional comments to each element as follows:

1. 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 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 Zero-Emission 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

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 outside 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. This position has broad support among environmental stakeholders, as outlined in Appendix 2.

2. 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.

3. 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.

4. 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. For suggested regulatory text edits, please see our earlier comments attached as Appendix 1. We are not aware of any stakeholder opposition or discussion at the workshop and have nothing new to add at this time.

5. 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. We also note that other stakeholders (e.g., NRDC and Earthjustice) made similar recommendations in their last written comments.

B) Strengthen and update the overall LCFS program to better support zero emission fuels in order to achieve the state's ZEV goals

The transition to zero emission freight needs to be economical in order to happen both rapidly and successfully. While California's Advanced Clean Trucks and Advanced Clean Fleets regulations mandate a transition to zero emission vehicles, neither of these landmark regulations address infrastructure needs. Actually achieving the transition depends on many individual stakeholders making large investments in vehicles and fueling infrastructure. These investments hinge on the ability of ZEVs to compete economically and operationally with diesel and gas.

The LCFS program can be an incredibly helpful tool to support the transition to ZEVs. For infrastructure developers, higher credit prices will enable accelerated deployment by attracting investment and improving project viability. Indeed, in slides presented at the April 10 workshop with a focus on infrastructure buildout, calculations referenced a period in which the LCFS credit prices were roughly 3x higher than they are today. For fleets and owner-operators, diesel cost parity is highly dependent on LCFS credit values. When CARB prepared its TCO analysis for ACF, it modeled credit values of \$200 through 2030. The delta between \$200 and today's credit prices represents over \$1,000 per month in increased fuel costs for the average drayage driver of a class 8 BEV daycab.

We encourage CARB to ensure that LCFS program updates support the market. LCFS market traders have not reacted favorably to CARB's proposals, either the December ISOR or the additional proposals floated at the April 10 workshop. In fact, the market dropped ~5% the day after the April 10 workshop, and remains at recent

historical lows as of today, below \$60 a credit. Credit prices at these depressed levels will hinder California's ability to meet its ambitious climate and clean air goals for the transportation sector. As outlined in our earlier comments and addressed in much greater detail by other stakeholders, CARB has multiple options for addressing the credit oversupply and market imbalance in today's market. We encourage staff to consider these issues, and the many comments to date on this topic, when deciding on stringency and eligibility provisions.

We thank CARB staff for facilitating a robust stakeholder engagement process and want to acknowledge the success of the LCFS program in California. LCFS has been an incredibly valuable tool for electrification, and it has great potential to help the state meet ambitious goals for this sector. However, it is imperative that we enact these changes to ensure the success of both the program's future and the electrification of the MHD vehicle sector. For additional details and rationale, please reference our earlier 45-day comments, provided as Appendix 1, as well the selected comments from other stakeholders identified in Appendix 2.

We thank you for your efforts and are happy to follow up with you or CARB staff at any time.

Yours,

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APPENDIX 1

Joint MHD EV Infrastructure Parties 45-Day Comments filed February 20, 2024

February 20, 2024

California Air Resources Board 1001 | Street Sacramento, CA 95815

RE: Proposed Low Carbon Fuel Standard Amendments

Dear California Air Resources Board Members and Staff,

Thank you for the opportunity to provide our comments and recommendations on the proposed Low Carbon Fuel Standard (LCFS) Amendments. We greatly appreciate the California Air Resources Board's (CARB) leadership in supporting and accelerating the transition to zero emission freight. California has led the way on cleaning up the transportation sector by designing and implementing a comprehensive suite of policies to address this multifaceted challenge, including both sticks and carrots to increase vehicle supply, boost demand, and facilitate infrastructure deployment and grid integration. LCFS is a critical piece of this overall puzzle in terms of incentivizing infrastructure buildout and improving the total cost of ownership for electric vehicles, particularly for the medium- and heavy-duty vehicle sector.

The undersigned Joint MHD EV Infrastructure Parties develop single and multi-fleet EV charging hubs that provide third-party owned charging-as-a-service to medium and heavy duty (MHD) EV fleet owners. Multi-fleet EV charging hubs are especially important for enabling small (and many large) businesses without adequate onsite charging capability to electrify their fleet vehicles to reduce costs, improve employee and community health and achieve California policy goals for clean vehicle deployment and decarbonization. Multi-fleet EV charging hubs provide the added benefit of increasing charging infrastructure utilization, enabling more vehicles to charge per charger without triggering costly system upgrades, thereby reducing the overall cost for all utility ratepayers. Our collective business models foster the concentration of electrical loads in strategically chosen locations, facilitating a more seamless transition to MHD EVs for commercial fleets.

With critical adjustments, LCFS has the potential to be the single most important tool in helping the state meet its zero emission transportation goals and recent regulations – the Advanced Clean Trucks (ACT) and Advanced Clean Fleets (ACF) regulations in particular. We appreciate CARB staff's collaboration to date on the provisions most relevant to our businesses, particularly with regard to the MHD Fast Charging Infrastructure (MHD-FCI) provision. We strongly support the creation of the MHD-FCI program, though additional modifications are needed to maximize the clean air and climate benefits it can unlock. We also applaud staff for recognizing the need for program stringency updates to support credit prices as a robust market is needed for LCFS to truly catalyze private investment.

Appendix 1

To fully realize the potential benefits of LCFS for truck electrification, we respectfully make the following recommendations.

- Maximize the benefits of the proposed medium- and heavy-duty fast charging infrastructure (MHD-FCI) program by increasing flexibility to better support the deployment of necessary charging infrastructure in advance of truck deployment at the speed and scale to meet California's policy goals and regulations (e.g. CARB's recent Advanced Clean Fleets)
 - A. **Eliminate geographic limitations** on MHD-FCI eligibility to improve program effectiveness, better align with fleet needs, mitigate delays, and reduce overall costs.
 - B. 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 larger projects.
 - C. Eliminate or reduce the 250kW minimum capacity to enable infrastructure providers to provide the variety of solutions the market needs.
 - D. **Clarify rules around access requirements** for shared depots to avoid creating confusion around eligibility requirements.
 - E. Increase overall MHD-FCI program size to enable infrastructure deployment at the scale and pace required to meet California state goals.
- 7. Strengthen and update the overall LCFS program to better align with long-term state goals and ambitions by implementing changes that support credit prices.

We understand the board vote has been postponed to allow more time for consideration of potential program modifications, including some of what we outline above. We acknowledge the need for additional discussion, but also urge the board to move quickly with a decision in Q2 of this year. Market participants, including infrastructure providers, need certainty around program details and a lengthy delay will chill investment. Additional details and rationale for our highest priority recommendations can be found below.

1. Maximize the benefits of the proposed medium- and heavy-duty fast charging infrastructure (MHD-FCI) program by increasing flexibility to better support the deployment of necessary charging infrastructure.

At this early stage of the market, with under 1,000 medium- and heavy-duty electric trucks and vans on California roads based on recent data^[1], the uncertainty around truck charger utilization in the near term creates a risk that many would-be infrastructure investors are unwilling to take. The result is a lack of sufficient investment in large scale charging for electric trucks, and this in turn is slowing the deployment of the electric trucks. The Fast-Charging Infrastructure (FCI) program has already proven to be an elegant and effective way to overcome this fundamental challenge, and we deeply appreciate CARB's proposal to add an FCI for the MHD sector (MHD-FCI) and the efforts to date to include multi-fleet charging hubs in program design.

With critical adjustments, MHD-FCI could be the single most powerful tool for attracting private capital to this sector, accelerating the rollout of charging infrastructure ahead of vehicle deployment. MHD-FCI has the

potential to provide some certainty around revenue, thereby de-risking these projects and attracting private investment. The key is to design a program that is sufficiently robust and flexible to match California's clean air and climate ambitions. This is a unique opportunity to catalyze deployment of truck charging infrastructure just when it is needed most to support the state's clean truck regulations and programs. The draft proposal has laid the foundation for a strong program. With a few key modifications, MHD-FCI can deliver widespread health, air quality, and climate benefits while attracting private investment to a sector that will need it to scale up to meet the State's goals.

A. Eliminate geographic limitations on MHD-FCI eligibility to improve program effectiveness, better align with fleet needs, mitigate delays, and reduce overall costs, for both Private and Shared MHD-FCI charging site types.

Section § 95486.3 outlines MHD-FCI eligibility requirements, including the following: *"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 entirely as they will undercut program effectiveness, delay deployment, and increase costs for charging and grid upgrades for MHD-FCI Shared charging sites, and are also irrelevant to the MHD-FCI Private charging sites category; public navigability and accessibility are not merits of an MHD-FCI Private charging site that is by definition precisely on route for the associated Private fleet.

Corridor charging does not address operational needs for many high-priority market segments. While corridorbased charging may be part of the solution for long-haul trucking, it does not align well with the duty cycles and day-to-day operations of short haul and return-to-base fleets such as drayage, middle mile, and last mile delivery. These are the vehicles that are expected to electrify first due to ACF regulations and the overall "fit" of battery electric vehicle technology today. These vehicles would benefit from charging in areas where they operate and where they are domiciled, and these locations do not necessarily fall within one mile of a corridor. Additional flexibility is needed to meet needs for the broader MHD sector, beyond just long-haul applications, and to serve the market segments most ripe for rapid decarbonization.

Focusing the program on corridors also inadequately considers grid constraints and the implications that this may have on fleet electrification. Depots will generally have large power demands (often 5-15MW). Land with access to sufficient grid capacity on distribution feeders is very limited, and the number of suitable sites shrinks even further when factoring in zoning, permitting, and ingress/egress requirements. The proposed one-mile restriction would not only further limit where MHD charging can occur but also funnel depots to areas that would necessitate costly and lengthy grid upgrades – with the unfortunate consequence of slowing down charging infrastructure deployment and potentially increasing electric rates for all Californians. Additional flexibility is needed to account for the constraints on our grid and to facilitate timely, cost-effective infrastructure buildout.

The proposed program does include language allowing eligibility for sites adjacent to overnight parking and sites that have received certain state or federal funds. While we appreciate these provisions and they are directionally helpful, this language is still far too limiting. The language around existing parking does not account for grid constraints or for the fact that fleet operations are evolving and parking locations will not be static, particularly given the challenges associated with infrastructure deployment (e.g., grid constraints, landlord restrictions, etc.). Indeed, greenfield sites with overnight parking should not be excluded just because they are not currently providing truck parking. With regard to allowing MHD-FCI for sites that have won competitive grant solicitations, we appreciate the intention but note that (a) funding is limited and budgets are under pressure, so this is a relatively small number of sites, and (b) local funding appears to be excluded despite the fact that many local air districts have programs aimed at MHD-fleet electrification.

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 pressures will minimize the risk of stranded assets and ensure that charger deployments align with fleet operational needs for both Shared 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

B. 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.

Section §95486.3 states "The total number for all FSEs claiming MHDFCI credit owned by a single applicant within ¼ mile of an MHD-FCI site cannot exceed ten." Limiting eligibility to 10 FSEs per site would severely restrict program effectiveness, and would hamstring the ability for charging infrastructure to be deployed at the speed and scale required by the Advanced Clean Fleets and Advanced Clean Trucks regulations.

Our companies are developing depots of various sizes, including within the 100-truck range, as depots of this size have the scale to bring down costs for customers. The purpose of the FCI program is to encourage the

deployment of charging infrastructure in advance of truck availability by providing bridge revenue as truck deployments ramp up. Limiting participation to a small proportion of a site's chargers – in many instances a 90% reduction -- would make the program ineffective for these depots. With this restriction, the program would perversely only support the sites with higher per-port costs – which is not in California's best interests.

According to CEC analysis, we estimate that California must install an average of approximately 66 MHD chargers a day through 2035^[2]. This is an astronomical rate of growth, and the FCI is an elegant tool to help achieve that. Limiting the eligible number of chargers in a depot would be catastrophic to our efforts to meet the scale and scope of infrastructure deployment required by CARB regulation.

Given other provisions in the draft language, we believe it has been suggested that the intention behind the 10 FSE per site limit may be to force 1 MW chargers. If so, there are multiple reasons to reconsider. First, not all customers and use cases require megawatt charging, and there are cost tradeoffs with higher power charging. Secondly, there are also grid benefits to lower power charging -- maximizing the utilization of the existing distribution network thereby minimizes potential rate impacts. Thirdly, 1 MW chargers do not yet exist at broad commercial scale. Finally, there are no trucks currently commercially available that can take 1 MW; though some MW+ models are being developed, they are not expected to be commercially available at scale for some time.

Finally, as noted above, the proposed amendments also include a limit on individual entities claiming credits beyond 10 MW of nameplate charger capacity within ¼ of that entity's site. This overall site claiming capacity limit is sufficient to ensure a diversity of sites and applicants; there is no need for a separate FSE cap.

- Recommendation: 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.
- C. Eliminate or reduce the 250kW minimum capacity to enable infrastructure providers to provide the variety of solutions the market needs.

Section §95486.3 creates a minimum per-FSE power rating threshold: *"Each FSE at an MHD-FCI site must have a minimum nameplate power rating of 250 kW."* This is unnecessary and should be either removed or reduced.

The state has a policy interest in having vehicles charged as "low and slow" as possible. Lower power charging will maximize utilization of the existing distribution network, putting downward pressure on rates. For light duty vehicles, for example, home charging is encouraged at L1 and L2 levels. In the MHD sector, many trucks are not able to charge 'at home', as where they are domiciled may not have sufficient hosting capacity to serve the massive amounts of power that a fleet of trucks with very large batteries need, and small operators often do not own property or have long term leases sufficient to amortize the high costs of installing chargers. In these instances, 3rd party depots play the role of both 'home charging' (i.e. overnight dwell) and pulling into a DCFC on a highway for a mid-route refill.

There is a tradeoff between the speed of charging and the cost to serve the massive numbers of vehicles that must be electrified, and artificially biasing the market toward higher power charging through size minimums for all use cases will both increase costs and grid impacts. This is why many 3rd party depots are designed with a mix of fast opportunity chargers and slower (and cheaper) overnight or long dwell chargers - to have a mix of technologies aligned to varying use cases, designed to keep costs as low as possible while meeting a range of needs. We believe that the market can and should decide on the appropriate power levels for depot charging. Further, this is a matter of equity, as the entities that will be most impacted by the higher costs are the less-well-capitalized fleets and drivers that cannot charge 'at home' and must rely on 3rd party depots.

- Recommendation: Eliminate the 250kW 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 150kW as the minimum nameplate power rating.
- D. Clarify rules around access requirements for shared depots to avoid creating confusion around eligibility requirements.

Appendix A-1 defines "shared MHD-FCI charging site" as "...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..." and states that " The site must not have obstructions or obstacles precluding the fleet vehicles from entering site premises, and no registered equipment training shall be required for individuals to use the site." It is our understanding that CARB intends to allow shared depot charging, which we strongly support. These sites generally will have security measures (e.g., security fencing and access control) to ensure safety of vehicles and cargo and to ensure access to customers from multiple authorized fleets. These sorts of standard security measures should not be considered obstacles. We recommend clarifying language to align with market needs and eliminate any future questions around eligibility.

Recommendation: 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."

E. Increase overall MHD-FCI program size to enable infrastructure deployment at the scale and pace required to meet California state goals.

The MHD-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 MHD charging capacity, increasing as utilization ramps up over time.^[3] According to the CEC's AB 2127 analysis, the state will need about 2,900 MW of MHD charging by 2025 and 11.6 GW of MHD charging by 2030.^[4] Additional support is needed to attract the scale of private capital required,

particularly at this nascent stage of the market with uncertainty around commercial-scale truck deployment timelines and with both fleets and OEMs citing infrastructure as a primary limiting factor.

Recommendation: 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.

2. Strengthen and update the overall LCFS program to better align with long-term state goals and ambitions.

LCFS has played a critical role in reducing transportation-related emissions in California since its inception. However, the market has become imbalanced in recent years, credit prices have fallen precipitously, and the program is beginning to diverge from California's longer term market transformation goals for the transportation sector.

From our standpoint as a group of companies interested in rapid and widespread electrification, the primary overarching issue with the LCFS market is that historically low credit prices are undermining investor confidence in the market. When CARB prepared its TCO analysis for ACF, it modeled credit values of \$200 through 2030^[5] – but credit values have plummeted to around \$60^[6] and the market has not reacted positively to the most recent proposed language. CARB is proposing multiple regulatory changes to begin addressing the challenges undercutting this market, including a proposal to step down program stringency in 2025 as well as the creation of Automatic Acceleration Mechanism. We generally support these provisions and appreciate the recognition that both are necessary given recent market dynamics. However, despite these proposals, we have not yet identified any analysts or brokers who see a near-term rebound in credit prices absent additional changes to the proposed regulation.

- 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.^[2]

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.

Appendix 1

California continues to play a leadership role in reducing emissions, improving air quality, and supporting private sector innovation through strong market signals. The state has set very ambitious targets and timelines for electrifying medium- and heavy-duty vehicles, calling for a complete market transformation that will require massive investment, cross-sector collaboration, and forward-looking policy intervention. Companies like ours are stepping in to help achieve our shared goals, but infrastructure investment on the scale we need to see has not yet materialized. With the modifications outlined above, LCFS can be the single most powerful tool California has to attract the private capital needed to build out truck charging infrastructure. LCFS is one of the few remaining tools California has to drive investment in charging infrastructure with looming budget deficits and a crisis of rising electricity rates. We must not miss this opportunity to better align LCFS with California's goals.

We thank you for your efforts and are happy to follow up with you or CARB staff at any time.

Yours,

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 ^[2] This calculation is based on the CEC AB 2127 report:

Assembly Bill 2127 Second Electric Vehicle Charging Infrastructure Assessment: Assessing Charging Needs to Support Zero-Emission Vehicles in 2030 and 2035 | California Energy Commission. To support medium- and heavy-duty plug-in electric vehicles, California will need about 109,000 depot chargers and 5,500 public chargers for 155,000 vehicles in 2030, and 256,000 depot chargers and 8,500 public chargers for 377,000 vehicles in 2035.

^[3] This calculation was derived leveraging the formulas from Appendix A-2 Proposed Regulation Order, section § 95486.3.(b)(2)(G) and section § 95486.3.(b)(5)(G) with the following assumptions: previous quarter deficits = 8,082,115 MT (based on CARB CATS model 2025 forecast); shared MHD-FCI charging site model selection; 85% uptime; and 5% utilization. Supported capacity will vary with utilization, uptime, and other assumptions.

^[4] The California Energy Commission's AB 2127 report uses the HEVI-load model to forecast the number of depot and public chargers required for MHD charging under the AATE3 primary scenario. This forecast predicts the number of chargers and their respective power ratings that will be required in 2025 and 2030, as seen in Appendix-H, Table H-1. The sum of the total MHD charging capacity based on this forecast was calculated to be 2,900 MW and 11,600 MW by 2025 and 2030, respectively, by taking the sum-product of the number of chargers and their respective power rating.

^[5] Appendix G of ACF regulation, p. 21, accessed at:

https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appg.pdf

^[6] <u>Weekly LCFS Credit Transfer Activity Reports | California Air Resources Board</u>. The average for February 5th-11th was \$60.52.

¹²¹ For example, see "Assembly Bill 32 Environmental Justice Advisory Committee (EJAC) DRAFT Recommendations to the California Air Resources Board (CARB) on the Low Carbon Fuel Standard Regulation Updates" (available online at <u>1-lcfs2024-</u><u>VjMFaQNjUGABWFA0.pdf (ca.gov)</u>) as well as comments submitted by the World Resources Institute (WRI) and others.

APPENDIX 2

Stakeholder Support for Joint MHD EV Infrastructure Parties Recommendations for LCFS Reform: Summary and Selected Quotes

Below are selected quotes from other stakeholders on the issues highlighted in our comments. This is not intended to be an exhaustive list, and nor is it a full summary of any stakeholder's comments, as we do not intend to speak for other parties. Emphasis added.

Comments from Nonprofit Environmental Organizations

Coalition for Clean Air recommended removing geographic restrictions.

- "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.
- But the success of the MHD-FCI provision will be constrained by the geographic limitation...We
 recommend removing these geographic restrictions, as they will undercut program effectiveness, delay
 deployment, and increase costs for charging and grid upgrades."

Earthjustice recommended suggested eliminating geographic restrictions and increasing the overall program cap to 5%

- "Eliminate the geographic restrictions, which 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. Local and regional fleets will not necessarily charge near these corridors but are highly suitable to early electrification, and the LCFS should help enable operators to overcome one of the few remaining barriers to getting their fleets off diesel. Orienting the capacity credits only toward longer-hauls and limiting to freight corridors missed the opportunity to accelerate near-term action. It is also unclear why this provision is necessary, since Earthjustice has not seen information that suggests an overbuilding of medium-and heavy-duty charging stations. Charging providers already have a fundamental incentive to cite stations as conveniently as possible for fleets that are interested in electrifying."
- Increase capacity credits to 5% of prior quarter deficits. Currently, the language appears to suggest that both kinds of stations will cumulatively share the 2.5% of prior quarter deficits. This should be increased to 5% each to enable larger capacity charging deployments

EDF recommended removing the 250kW minimum threshold and 10 FSE per site cap.

 "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." • "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."

NRDC recommended removing geographic limits (or expanding to five miles), relaxing requirements on charging levels, allowing more than 10 FSE per site, and increasing overall program size.

 "LCFS should allow locations anywhere in California especially for shared depots, or within 5 miles from a corridor rather than just 1 mile. Sites should be able to have a mix of charging levels to meet different customer needs and be as large as 15 MW. Sites should also be allowed to be as large as 100 connectors to allow for future scaling as seen on the light-duty charging infrastructure side. Single fleets should also receive the same credit formula as public locations and shared depots. Finally, we also recommend the proposed cap on prior quarter deficits be raised to 5% based on the California Energy Commission's analysis."

UCS recommends increasing geographic flexibility and relaxing the 10 FSE/site limit.

- "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. While we appreciate that the current proposed language may be intended to prioritize some of the hardest to electrify MHDVs, the program should include flexibilities to respond to both current and future market trends and align with the ACT and ACF's influences on the market. The proposed geographic restrictions may reduce opportunities for developing zero-emission fueling stations geared towards regional haul and last-mile delivery vehicles in the near term. As mentioned above, these vehicles are far more likely to return to a home base depot each night and are currently well-suited for electrification given their duty cycles and model availability. These vehicles are also on an accelerated electrification timeline in both the ACT and ACF. The LCFS would be in better alignment with these market trends and regulations by allowing for increased geographic flexibility. Increasing geographic flexibility may help to address common barriers to charging station development including grid capacity, land availability, and zoning. By restricting eligibility to sites currently used as vehicle parking or depots, the program fails to consider that these sites may not have existing grid capacity to support fleet electrification. As such, opportunities to accelerate near-term freight electrification may be stifled. A more strategic approach may be to consider phased-in restrictions that consider factors such as market trends, vehicle availability, and grid readiness and aligns with existing regulatory requirements for fleets and vehicles manufacturers."
- "The program should also allow for additional station size and power flexibilities over the near term to
 influence accelerated zero-emission MHDV deployment. The proposed restriction of 10 FSEs or 10 MW
 for MHD-FCI sites within one-quarter mile may reduce appetite for early investments in station
 development. We understand the need for balanced credit generation to maintain sustainable credit
 prices, however, such restrictions should not be placed on electrified commercial transportation given
 its emerging natural and clear environmental upsides over combustion fuels."

Comments from Utilities

SCE recommends rejecting the 1-mile corridor requirement due to grid constraints and resulting delays and cost increases.

- "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. 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."
 - "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."

Comments from Other Industry Stakeholders and Associations

Additional support for our recommendations comes from **CalETC/EVCA** and **CALSTART** in written comments, and from **LACI** in verbal comments at the workshop.