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Director, California Policy

October 29, 2021

Submitted via the Workshop Comment Submittal Form and by email to zevfleet@arb.ca.gov

Advanced Clean Fleets
California Air Resources Board
1001 I Street,
Sacramento, CA 95814

Re: Comments on Advanced Clean Fleets (ACF) Regulation September Workshop

The Western States Petroleum Association (WSPA) appreciates the opportunity to comment on the September 9, 2021 public workshop held by the California Air Resources Board (CARB) on the proposed Advanced Clean Fleets (ACF) Regulation.[1] WSPA is a non-profit trade association that represents companies that export for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states, and has been an active participant in air quality planning issues for over 30 years.

We appreciate that CARB has extended the ACF rulemaking schedule to mid- to late-2022. This timeframe is more reasonable for a regulation that will directly impact every Californian . We also appreciate that CARB staff has made available an initial draft of ACF rule language and cost assumptions so that stakeholders can more meaningfully participate in the rulemaking process. With this transmittal, we are presenting the following high-level comments:

Section I – Summary of Comments on Draft Regulatory Language[2,3,4,5]

1. CARB should consider major modifications to the ACF to recognize the low GHG and NO_X potential of other vehicle/fuel systems. CARB could accomplish this by specifying acceptable near-zero-emission vehicle/fuel systems and incorporating them into the regulation by either 1) exempting those systems from the ZEV conversion requirements or 2) granting them partial or full ZEV credit. To support this modification, CARB should

[1] CARB. Notice of Public Workshop on Draft Regulatory Language and Updated Cost Assumptions for the Advanced Clean Fleets Regulation on September 9, 2021. Available at: https://content.govdelivery.com/accounts/CARB/bulletins/2ec4aad. Accessed: September 2021.
[2] CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – 2040 100 Percent ZEV Sales Requirement. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909draft100zev_ADA.pdf. Accessed: September 2021.
[3] CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – Public Fleet Requirements. September 9. Available at: Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909acfdraftpub_ADA.pdf. Accessed September 2021.
[4] CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – High Priority and Federal Fleet Requirements. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909acfdraft_highpriofed_ADA.pdf. Accessed: September 2021.
[5] CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – High Priority and Federal Fleet Requirements. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909acfdraftdrayage.pdf. Accessed: September 2021.

evaluate and compare the emission reduction capability and cost-effectiveness of other near-zero-emission systems versus the current ZEV options of BEV and FCEV. This is the only way to address stakeholder and public concerns about the current ACF's reliance on BEVs given the technology pathway's known feasibility issues and inability to achieve the near-term NO_X reductions CARB has committed to in the most polluted areas of the state.

2. CARB must demonstrate that fleet ZEV targets are technically and commercially feasible per the timing outlined in the proposed regulation and allow for reasonable exemptions where gaps are identified. This demonstration should include, at a minimum, 1) a 5-year (e.g., 2024-2028) forecast of the expected supply availability of ZEV vehicles by vehicle class, service, and manufacturer to California, 2) a projected 5-year demand for the same vehicles per the regulations' requirements, and 3) a review of existing and funded ZEV infrastructure to prevent an imbalance of supply and demand. This demonstration should be conducted by an independent State agency, such as the California Energy Commission (CEC) on a recurring schedule and exemptions should be based on the results of this feasibility analysis. The proposed exemptions do not provide proper allowances for small fleets, emergency vehicles, and specialty vehicles for which a ZEV transition may have serious consequences for the fleets' functionality and include no off-ramp language or flexibility for fleets in the future.

3. The proposed 2040 100% ZEV Sales Requirement represents a significant increase in ZEV sales from what is required under the current ACT rule, which requires 55% of Class 2b-3 trucks, 75% of Class 4-8 trucks, and 40% of truck tractors sales to be ZEV by 2035. We recommend that CARB consider this proposal as a separate rulemaking as it impacts a broader set of stakeholders not previously targeted by the proposed ACF regulation. Therefore, a separate feasibility, emissions, and cost-benefit analyses is needed for this requirement. This sales requirement would impact all vehicles and fleets (such as those in low-population areas and in private non-high-priority fleets), not just the fleets covered by the ACF.

4. CARB must revise the current requirements for drayage and high priority and federal fleets that allow old diesel trucks to remain on the road until the end of their useful life and preventing air districts from meeting near-term criteria air pollutant reduction targets, by considering near-zero-emission vehicle/fuel systems as a potential alternative as described under Comment 1.

5. CARB must standardize the recordkeeping requirements across all proposed ACF regulations to minimize the burden on fleet owners, truck owners, ports / terminal / intermodal railyard operators and manufacturers.

Section II – Summary of Comments on Draft ACF Total Cost of Ownership (TCO) Discussion Document[6]

6. CARB's cost analysis underestimates the cost of transitioning to BEV technology as it does not include costs associated with increased electricity production necessary to power them and transmission / distribution infrastructure changes needed to bring the power to the fleets.
7. CARB's TCO analysis underestimates the total ownership costs of a ZEV.
8. CARB overestimates the TCO for natural gas vehicles by including costs for NG vehicle infrastructure that already exists in California.
9. CARB has not addressed the feasibility of meeting potential hydrogen fuel requirements resulting from the proposed ACF regulation.
10. CARB's treatment of infrastructure costs and LCFS credits is inconsistent (and potentially erroneous) across vehicle technologies assessed in the ACF TCO document.
11. CARB must address the inconsistencies in the constant dollar costs in the TCO analysis and provide the basis for several assumptions related to ZEV costs.

Section III – Comments previously submitted to CARB Staff

12. We respectfully request that CARB respond to the specific items we raised in our previous comment letter dated April 17, 2021.[7]

Each of these twelve comments are discussed in further detail in the Attachment.

Sincerely,

Sophie R. Ellinghouse
Director, California Policy

Attachment – Comment Details

[6] CARB. 2021. Draft Advanced Clean Fleets Total Cost of Ownership Discussion Document". September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909costdoc_ADA.pdf. Accessed: September 2021

[7] 2021. WSPA. Comments on the Advanced Clean Fleet Regulation March Workshops. April 17. Available at: https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJlUkAzFVDFMy.pdf. Accessed: September 2021.

ATTACHMENT – COMMENT DETAILS

This Attachment provides greater detail on the twelve itemized comments raised in the main letter.

Section I – Comments on Draft Regulatory Language[8,9,10,11]

1. **CARB should consider major modifications to the ACF to recognize the low GHG and NO_X potential of other vehicle/fuel systems. CARB could accomplish this by specifying acceptable near-zero-emission vehicle/fuel systems and incorporating them into the regulation by either 1) exempting those systems from the ZEV conversion requirements or 2) granting them partial or full ZEV credit. To support this modification, CARB should evaluate and compare the emission reduction capability and cost-effectiveness of other** near-**zero-emission systems versus the current ZEV options of BEV and FCEV. This is the only way to address stakeholder and public concerns about the current ACF's reliance on BEVs given the technology pathway's known feasibility issues and inability to achieve the near-term NO_X reductions CARB has committed to in the most polluted areas of the state.**

   The Federal Clean Air Act (CAA) requires CARB to consider the effect of regulations on regional air pollution, particularly in South Coast (SC) and San Joaquin Valley (SJV) air basins that have to meet upcoming ozone attainment deadlines in 2023 and 2031. Unfortunately, CARB has not only failed to deliver on the mobile source commitments in the 2016 State Implementation Plan (SIP), but it continues to focus on longer-term air quality and climate targets (post-2037) which clearly undermine the State's ability to meet its near-term Federal CAA obligations (2023 and 2031) by undercutting commercially-available near-zero-emission low-NO_X technologies.

   As noted by several stakeholders, the ZEV technologies required by the proposed ACF regulation cannot meet the needs of all the end uses for medium-duty (MD) and heavy-duty (HD) fleets. Hence, CARB's ZEV-centric approach will place significant limitations on fleets whose needs cannot be served by this technology. While CARB notes that the proposed ACF regulation could generate 20.4 tons per day (tpd) reduction in NO_X emissions by 2031 and a 54.3 tpd NO_X reduction by 2037 (to a total of approximately 100 tpd),[12] it fails to provide the details of the methodology used to estimate these emission reductions. As a result, it is not clear if these emission reductions include the increased emissions associated

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8 CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – 2040 100 Percent ZEV Sales Requirement. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909draft100zev_ADA.pdf. Accessed: September 2021.

9 CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – Public Fleet Requirements. September 9. Available at: Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909acfdraftpub_ADA.pdf. Accessed September 2021.

10 CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – High Priority and Federal Fleet Requirements. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909acfdraft_highpriofed_ADA.pdf. Accessed: September 2021.

11 CARB. 2021. Advanced Clean Fleets Regulation – Proposed Draft Regulation Language – High Priority and Federal Fleet Requirements. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909acfdraftdrayage.pdf. Accessed: September 2021.

12 2021. CARB. Advanced Clean Fleet Regulation Workshop Staff Presentation, Slide 20. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-09/210909acfpres_ADA.pdf. Accessed: September 2021.

with increased power production that is required to make the ZEV transition. Further, it is unclear if these reductions are indeed achievable as the technological feasibility and commercial availability of ZEV technologies has not be established. Therefore, it is imperative that CARB provide alternate options for fleet owners to comply with this regulation.

As stated in our comment letter dated April 17, 2021[13] WSPA reiterates the need for CARB to conduct a comprehensive assessment of available multi-technology fuel-neutral strategies to identify acceptable near-zero-emission vehicle/fuel systems that could deliver earlier and more cost-effective air quality and greenhouse gas reductions benefits that the proposed ZEV-centric approach which does not address the needs of all vehicle end uses. After completing this evaluation, CARB should incorporate these near-zero-emission vehicle/fuel systems into the regulation by either 1) exempting those systems from the ZEV conversion requirements or 2) granting them partial or full ZEV credit. This approach would provide alternative options for medium-duty (MD) and heavy-duty (HD) fleets to generate the emission reductions needed to meet the near-term Federal CAA attainment deadlines as well as the long-term climate goals.

Additionally, CARB must work with the Governor's office to expand and update his current budget proposal for $915 million in investments for ZEV charging infrastructure[14] to include investments in low carbon fuel infrastructure that would power these near-zero-emission vehicle/fuel systems.

2. **CARB must demonstrate that fleet ZEV targets are technically and commercially feasible per the timing outlined in the proposed regulation and allow for reasonable exemptions where gaps are identified. This demonstration should include, at a minimum, 1) a 5-year (e.g., 2024-2028) forecast of the expected supply availability of ZEV vehicles by vehicle class, service, and manufacturer to California, 2) a projected 5-year demand for the same vehicles per the regulations' requirements, and 3) a review of existing and funded ZEV infrastructure to prevent an imbalance of supply and demand. This demonstration should be conducted by an independent State agency, such as the California Energy Commission (CEC) on a recurring schedule and exemptions should be based on the results of this feasibility analysis. The proposed exemptions do not provide proper allowances for small fleets, emergency vehicles, and specialty vehicles for which a ZEV transition may have serious consequences for the fleets' functionality and include no off-ramp language or flexibility for fleets in the future.**

   As noted under Comment 1, stakeholders have repeatedly voiced concerns that ZEVs cannot serve all the end uses for MD/HD fleets. Further, CARB's assumption in the Draft

[13] 2021. WSPA. Comments on the Advanced Clean Fleet Regulation March Workshops. April 17. Available at: https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJlUkAzFVDFMy.pdf. Accessed: September 2021.

[14] CEC 2022 Scoping Plan Update Workshop: Zero-Emission Vehicle Infrastructure. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-06/cec_sp_kickoff-transportation_june2021.pdf. Accessed September 2021.

Cost Discussion Document[15] that one BE truck can perform the work of one diesel truck is unrealistic for several end uses. A recent study[16] conducted by the National Center for Sustainable Transportation (NCST) on Short Haul Goods Movement indicates that 1.4 BE trucks are needed to replace a diesel truck in calendar year 2024. Further the high capital costs of the ZEVs and the lack of public charging infrastructure impose additional burdens on small fleet owners that do not have sufficient cash flow for large down payments or real estate to install chargers. While CARB has included some exemptions in the proposed ACF regulations, there do not address all the above-mentioned issues.

To develop reasonable exemptions that address gaps in ZE technology development and implementation, CARB must solicit the assistance of an independent State agency, such as the CEC, to conduct a comprehensive evaluation of the technical and commercial feasibility of the ZE vehicle penetration timing in the proposed regulation. This should include, at a minimum, a demonstration of 1) a 5-year (e.g., 2024-2028) forecast of the expected supply availability of ZEV vehicles by vehicle class, service, and manufacturer to California, 2) a projected 5-year demand for the same vehicles per the regulations' requirements, and 3) a review of existing and funded ZEV infrastructure to prevent an imbalance of supply and demand. Additionally, the independent State agency must also conduct an ongoing (annual or biannual) analysis of the technological feasibility and commercial viability of implementing the proposed ZEV pathways for various MD/HD vehicle end uses and publish/maintain a list of available ZE vehicle make and models that could be deployed for each end use on their website. This would inform fleet owners of the currently available technology that would meet the needs of their fleet. The CEC is already tracking the progress of electric vehicle penetration and charging infrastructure deployment in the light duty vehicle sector[17,18] and can potentially expand their existing tracking system to encompass the MD/HD vehicle sector.

Additional WSPA notes the following issues related to the exemptions that proposed in the draft ACF regulation:

- For a high priority or federal fleet to be eligible for the Daily Mileage Exemption, the fleet owner must show that (a) 10% of vehicles in the fleet must first be ZEVs, (b) the mileage needs of the vehicle cannot be met by a ZEV for 3 days out of a 30-day period, and (c) that no ZEV infrastructure is available along the vehicle's routes. Many stakeholders agree that a mileage exemption does not capture the full duty requirements of vehicles and an exemption should instead be granted based on the power and hours of operation requirements. Specialty vehicles that do not have high mileage but do have high duty cycles (operating for several days in the field at a time) may be incompatible with

[15] 2021. Draft Advanced Clean Fleets Total Cost of Ownership Discussion Document. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909costdoc_ADA.pdf. Accessed September 2021.

[16] 2020.Genevieve Giuliano, Maged Dessouky, Sue Dexter, Jiawen Fang, Shichun Hu, Seiji Steimetz, Thomas O'Brien, Marshall Miller, Lewis Fulton, . Developing Markets for Zero Emission Vehicles in Short Haul Goods Movement: A Research Report from the National Center for Sustainable Transportation. Available at: https://escholarship.org/uc/item/0nw4q530. Accessed: September 2021.

[17] CEC. Zero Emission Vehicle and Infrastructure Statistics. Available at: https://www.energy.ca.gov/data-reports/energy-insights/zero-emission-vehicle-and-charger-statistics. Accessed: September 2021.

[18] CEC. Tracking Progress. Available at: https://www.energy.ca.gov/data-reports/tracking-progress. Accessed: September 2021.

existing ZEV technology but are not afforded an exemption under the proposed rule. Further, the requirement that 10% of the fleet should be ZEVs seems absurd, particularly for specialty vehicle fleets where ZEVs will not be able to meet their operational needs.

- Under the proposed public fleet requirements, public fleets whose jurisdiction is solely in a designated low population county need not meet the 50% ZEV purchase requirement from 2024-2026. Removing this interim purchasing requirement does not address the need for the establishing a widespread ZEV infrastructure by 2027 when the 100% purchase requirement kicks in. CARB must make further attestations that the infrastructure required to support ZEV fleets will be available in low-population counties before prescribing a fleet purchasing requirement for public fleets.

- There is no exemption for small fleets in the proposed drayage truck requirements. Many drayage truck fleets are dependent on a secondary vehicle market, which does not yet exist for HD ZEVs. Further, as noted earlier, small fleet owners would need a public ZEV fueling infrastructure in place to make this ZEV transition. The lack of guarantees on both of these fronts is very concerning as it would force a several small drayage fleet owners out of business, resulting in a shortage of drayage trucks which could trigger supply chain disruptions at seaports during periods of cargo surges.

- The proposed requirements for high priority, federal and public fleets provide exemptions for emergency vehicles if 75% of trucks of that body type within a fleet are ZEV. This would significantly reduce the number of vehicles available to respond in emergencies such as earthquakes or forest fires that could impact the electric grid and associated ZE fueling infrastructure. The ACF regulation appears to imply that an out-of-state vehicle/vehicle fleet operating in California to assist in a state of emergency would become subject to the ACF after 30 days. The inclusion of this provision further puts Californians at risk as it discourages out-of-state entities from providing aid in emergency situations, which in dire situations can last much longer than 30 days. Further, the definition of emergency vehicles is extremely limited to just energy and water sectors and should be expanded to all essential service vehicles.

As noted in Comment 1 and our previous comment letter dated April 17, 2021[19] alternative technologies such as near-zero-emission vehicle operating on renewable fuels have the potential to generate the emission reduction benefits desired under this program. CARB should consider incorporating these technologies as an alternative compliance option for specialty vehicle fleets, public fleets in designated low population counties, small fleet owners, and emergency vehicles.

3. The proposed 100% ZEV Sales Requirement represents a significant increase in ZEV sales from what is required under the current ACT rule, which requires 55% of Class 2b-3 trucks, 75% of Class 4-8 trucks, and 40% of truck tractors sales to be ZEV by 2035. We recommend that CARB consider this proposal as a separate rulemaking as

[19] 2021. WSPA. Comments on the Advanced Clean Fleet Regulation March Workshops. April 17. Available at: https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJlUkAzFVDFMy.pdf. Accessed: September 2021.

it impacts a broader set of stakeholders not previously targeted by the proposed ACF regulation. Therefore, a separate feasibility, emissions, and cost-benefit analyses is needed for this requirement. This sales requirement would impact all vehicles and fleets (such as those in low-population areas and in private non-high-priority fleets), not just the fleets covered by the ACF.

The proposed 100% ZEV Sales Requirement[20] represents a significant increase from the ZEV sales percentage requirements under the current Advanced Clean Trucks Regulation,[21] i.e., 55% for Class 2b-3 trucks, 75% for Class 4-8 trucks, and 40% for truck tractors in 2035 and beyond. The scope and potential impact of this 100% ZEV Sales Requirement extends far beyond the rest of the proposed ACF regulations, which primarily focus on fleet composition of high priority, federal, public, and drayage fleets. Additionally, as noted under Comment 1, ZEV technologies cannot address the needs of all end uses for MD/HD fleets. It is CARB's responsibility to understand impediments to ZE technology implementation and use the lessons learned from previous programs such the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) to proactively manage this transition. Given the lack of certainty regarding BEV and FCEV technological development for certain end uses and projected infrastructure availability in low-population areas, it is imperative that CARB evaluate the technological feasibility of ZEVs, and include flexibilities in this rulemaking to ensure that alternative fuel/technology vehicles are available in the market for fleets that cannot find a ZEV to meet their needs. As such WSPA recommends that the 2040 100% ZEV Sales Requirement be considered as a separate rulemaking as it affects a broader set of stakeholders, including engine manufacturers and their customers not previously targeted by the proposed ACF regulation. This 100% ZEV Sales Requirement also requires a separate feasibility, emissions, and cost-benefit analyses.

4. **CARB must revise the current requirements for drayage and high priority and federal fleets that allow old diesel trucks to remain on the road until the end of their useful life and preventing air districts from meeting near-term criteria air pollutant reduction targets, by considering near-zero-emission vehicle/fuel systems as a potential alternative as described under Comment 1.**

   As written, the proposed Alternative Compliance requirements (Section 95692.1(c)) allows a fleet to remain in compliance as long as all ICE vehicles owned by the fleet were purchased prior to January 1, 2024 and remain within their minimum useful life. This allows for fleet owners to pre-buy quantities of ICE vehicles immediately before the regulatory deadline, delaying the emissions benefits of the program and disrupting the usual purchasing cycle of fleets that this proposed regulation is based on. In the example given by CARB staff during the September 9th ACF public workshop, trucks are expected to have approximately 13 years before their minimum useful life, which forces model year (MY) 2015 vehicles and earlier to retire by 2028-2030, which is in line with the 2035 100% ZEV timeline. However by

[20] CARB. 2021. Advanced Clean Fleets Regulation. Proposed Draft Regulation Language. 2040 100 Percent ZEV Sales Requirement. September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909draft100zev_ADA.pdf. Accessed September 2021.

[21] Final Regulation Order. Advanced Clean Trucks Regulation Available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/fro2.pdf. Accessed September 2021.

this logic, a MY 2023 vehicle, or perhaps an entire fleet of MY 2023 vehicles, would be in compliance through 2036 and beyond, completely undermining the emission reductions outlined by this proposed regulation. CARB staff stated that the potential for pre-buy is unavoidable, raising concerns that CARB's proposed emission reduction strategy is vulnerable to delays in ZEV adoption. This loophole needs to be closed by considering near-zero-emission vehicle/fuel systems as a potential alternative as described under Comment 1.

5. **CARB must standardize the recordkeeping requirements across all proposed ACF regulations to minimize the burden on fleet owners, truck owners, ports / terminal / intermodal railyard operators and manufacturers.**

   As noted in Table 1, CARB is requiring several different timelines (5 to 8 years) for the recordkeeping requirement in the proposed requirements for private, federal, public, and drayage fleets. This generates additional work for fleet owners, truck operators, ports / terminal/ intermodal railyard operators, and manufacturers who have to understand and track varying rule requirements. Therefore we request CARB standardize these requirements across all ACF regulations.

Table 1. Recorkeeping Requirements			
Rule Section	**Responsible Party**	**Details of Records Maintained**	**Time Period for Maintenance of Records**
95692.5 (a), (C)	Fleets owner	• Entity and vehicle documentation • Shipping documentation • Emergency operation documentation • Gross annual revenue documentation • Backup Vehicle Records	8 years
95692.5 (a)	Truck operator	Documentation that identifies the entity that is responsible to pay the driver and any applicable shipping paperwork or other documentation that identifies the origin and destination of the cargo and the pick up and termination destination of the cargo.	8 years
95691(d)(4)	Drayage Truck Operator	• Dispatching drayage motor carrier's contact information • Documentation on the destination of the cargo, chassis, and intermodal equipment (container, etc.)	Not defined
95691(d)(5)(E)	Drayage Motor Carrier and Common Owner or Controller Requirements	Maintian following details for all contracted or dispatched drayage trucks sent to a seaport or intermodal railyard: • Truck dispatch date and time • Shipping paper or tracking number • Truck license plate number and issuing state • Drayage Truck Registry (DTR) identification number	5 years

Table 1. Recorkeeping Requirements			
Rule Section	**Responsible Party**	**Details of Records Maintained**	**Time Period for Maintenance of Records**
95691(d)(6)(B)	Marine and Seaport Terminal and Intermodal Railyard	Collect the following information on the dispacting drayage motor carrier • Business name of dispatching drayage motor carrier; • Contact person's name; • Street address, city, state, zip code; • Phone number of the dispatching drayage motor carrier; and • Shipping paper or tracking number Collect the following information for each drayage truck subject to this regulation that enters the facility or property: • Entry date and time • Exit date and time • Registered owner’s name • Operator’s name • Operator’s liscense name • License plate number state of issuance • Vehicle Identification Number (VIN)	5 years

Table 1. Recorkeeping Requirements			
Rule Section	**Responsible Party**	**Details of Records Maintained**	**Time Period for Maintenance of Records**
95693.4	Public Agency	A list of vehicles in the fleet including the vehicle identification number, license plate, vehicle type, vehicle model year, fuel and drivetrain type, vehicle registration information, purchase orders, and public bid contracts. If using exemptions, the fleet owner must keep records used to qualify for the exemptions.	8 years after information is initially reported and 3 years after the vehicle is retired
95694 (g)	Manufacturer	Maintain the following information for each on-road vehicle produced and delivered for sale in California for each model year: • VIN • Fuel and drivetrain type • If the vehicle is not a ZEV, documentation showing the vehicle is an authorized emergency vehicle • Documentation showing vehicle delivery to the ultimate purchaser at a location in California	8 years

Section II – Comments on the Draft ACF TCO Discussion Document[22]

6. CARB's cost analysis inadequate as it does not consider costs associated with increased electricity production necessary to power them and transmission / distribution infrastructure changes needed to bring the power to the fleets.

While CARB has prepared a total cost of ownership analysis that estimates potential cost to fleet owners, it fails to consider the costs incurred by public and private utilities for upgrading the State's infrastructure to support the vast increase of ZEV MD and HD trucks that will result from this ruling. As noted in the California Energy Commission's "Deep Decarbonization in a High Renewables Future", [23] these costs can be substantial. This study estimates a cumulative cost of $0.52 trillion from 2020-2030, $0.77 trillion from 2020-2035, and $1.82 trillion from 2020-2050 for upgrading and maintaining the electric grid under a High Electrification Scenario which meets the State's GHG targets of 40% reduction form 1990 levels by 2030 and 80% reduction by 2050. It is noteworthy that the High Electrification Scenario assumes only an 18% penetration of ZEV in the in-state MD/HD vehicle fleet by 2050, which is significantly lower than that proposed under the ACF. Hence, costs for grid infrastructure upgrades and maintenance could be much higher and CARB should evaluate and disclose these costs.

7. CARB's TCO analysis underestimates the total ownership costs of a ZEV

CARB's TCO analysis contains numerous assumptions and claims that grossly underrepresent the true total cost of ownership of a ZEV. It is imperative that CARB address these misrepresentations in order to provide a fair comparison of the TCO across the different vehicle technologies.

- **CARB underestimates the TCO of BE trucks by assuming that one BE truck can replace one diesel truck.** CARB's TCO analysis fails to acknowledge that a single BE truck will not be able to replace a diesel truck for several end use applications, thereby underestimating the costs for BEVs. As noted in the 2020 NCST study[24] on short haul good movement, even with improved battery technology in 2030, 1.2 BE trucks would be required to replace a since diesel truck. This number would be even higher in the early compliance years.

- **CARB has not accounted for the uncertainty of future LCFS credit prices, which could be even lower especially if demand for deficit-generating fuels are reduced.** LCFS credit revenue depends on future market conditions and availability of credit deficits from the production of higher carbon intensity fuels. With the declining sale of

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[22] CARB. 2021. Draft Advanced Clean Fleets Total Cost of Ownership Discussion Document". September 9. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/210909costdoc_ADA.pdf. Accessed: September 2021

[23] E3 2018 Deep Decarbonization PATHWAYS Report. Available https://www.ethree.com/projects/deepdecarbonization-california-cec/. Accessed September 2021.

[24] Genevieve Giuliano, Maged Dessouky, Sue Dexter, Jiawen Fang, Shichun Hu, Seiji Steimetz, Thomas O'Brien, Marshall Miller, Lewis Fulton. 2020. Developing Markets for Zero Emission Vehicles in Short Haul Goods Movement: A Research Report from the National Center for Sustainable Transportation. Available at: https://escholarship.org/uc/item/0nw4q530. Accessed: September 2021.

fossil fuels (higher carbon intensity fuels) the LCFS deficits would also decline greatly over time.

- **CARB fails to acknowledge that TCO for BEV/FCEV vehicles which rely on retail charging/refueling could be significantly higher.** Several fleets particularly small fleets that do not own the real estate needed to install on-site charging/fueling infrastructure would utilize retail charging/fueling facilities to comply with this regulation. Hence, they would not receive the LCFS credits that CARB has included in the TCO analysis. Excluding the reductions in cost associated with the LCFS credits would significantly increase the TCO for ZEVs. For example the TCO for MY2025 BE day cab would increase by 49%.

- **CARB's overly optimistic projections in battery cost reductions underrepresent the BEV purchase price**. CARB continues to use the Bloomberg Energy's light-duty (LD) battery cost assumptions with a five-year delay to reflect battery price projects for Class 4 to Class 8 trucks consistent with their analyses in the ACT regulation. The have however assumed lower battery prices for Class 2b-3 vehicles by applying a 2-year delay to the Bloomberg Energy's light-duty (LD) battery cost assumptions. As noted previously in Ramboll's assessment of multi-technology pathways for the heavy-heavy-duty truck sector in California,[25] these costs reductions are overly optimistic resulting in a lower TCO for BEVs.

- **CARB's BEV charger costs are likely underestimated as they do not account for chargers with a rating of 150-350 kW**. Table 14 of the TCO Discussion Document assumes that charger costs would range from $5,000 for a 19kW charger to $75,000 for 150kW charger. However as noted in South Coast Air Quality Management District's (SCAQMD's) Final Staff Report on the Warehouse Indirect Source Rule,[26] 350kW chargers could be installed for ZE trucks that could cost as much as $140,000.

- **CARB residual value for ZE trucks are overestimated as they fail to account for the accelerated depreciation rates for ZEV**. CARB analysis assumes that ZEVs depreciate at the same rate as diesel powered vehicles (Page 31 of the TCO Discussion Document). This is inconsistent with the historical trends which indicate an accelerated depreciation of ZEVs compared to their diesel counterparts. A recent white paper prepared by CALSTART for the International ZEV Alliance found that ZEVs have a more rapid rate of depreciation compared to their diesel counterparts, leading to a higher capital cost.[27] Additionally, Fleet Forward found that the biggest cost factor for BEVs is

[25] The report was submitted as an attachment to WSPA previous comment on the ACF Regulation letter dated April 17, 2021. It is also available at: https://www.wspa.org/resource/ramboll-multi-technology-pathways-study/. Accessed: September 2021.

[26] SCAQMD. 2020. Final Staff Report on the Warehouse Indirect Source Rule. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10. May 7. Accessed: September 2021.

[27] Dan Welch, Cristiano Facanha, Rob Kroon, David Bruil, Floris Jousma, and Harm Weken. 2020. Moving Zero-Emission Freight Toward Commercialization. October. Available at: https://globaldrivetozero.org/site/wp-content/uploads/2020/12/Moving-Zero-Emission-Freight-Toward-Commercialization.pdf. Accessed: September 2021.

depreciation, which strongly impacts the TCO associated with these vehicles.[28] As battery technology continues to improve and change, the technology outdates itself rapidly, leading to a depreciation that is faster than diesel vehicles. There is no sign that the improvements in ZEV technology will slow; so the depreciation of these vehicles will most likely continue to be much higher than diesel vehicles for several years.

8. **CARB overestimates the TCO for natural gas vehicles by including costs for NG vehicle infrastructure that already an exists in California.**

CARB's TCO analysis assumes that the deployment of natural gas vehicles will require infrastructure upgrades of $40,000 per vehicle that add to the total cost of ownership of the vehicle. However, this assumption is unfounded. A robust infrastructure of fueling locations for natural gas has been available for over 5 years and additional stations do not appear to be needed for an expanded fleet of trucks.[29] Maps of the nearly 200 public-access natural gas fueling stations in California and 850 fueling stations in the nation are available through the California Natural Gas Vehicle Coalition and the Alternative Fuels Data Center.[30,31] It is notable that CARB did not include any infrastructure costs for FCEV when the number of hydrogen gas stations currently available in California is far lower (only 62) [32] than the NG fueling stations. This unequal treatment of NG and FCEV in the TCO analysis makes the results look more favorable for BE and FCE trucks as compared to NG trucks. CARB should update their analyses to remove any infrastructure costs associated with NG trucks.

9. **CARB has not addressed the feasibility of meeting potential hydrogen fuel requirements resulting from the proposed ACF regulation.**

CARB has not assessed the viability and feasibility of meeting potential hydrogen fuel demand that may result from the proposed ACF regulation. CARB assumes that hydrogen refueling stations will be "available at strategic locations around seaports and major distribution hubs", (Page 20 of the TCO Discussion Document) but does not provide any analysis to demonstrate that this will be adequate to support the number of hydrogen-fueled trucks that would likely result from the proposed ACF regulation. Further, CARB estimates in their Annual Evaluation of Fuel Cell Vehicle Deployment Report[33] that potential hydrogen sales for transportation will be around 14 million kg/year in 2027. However, per a study

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[28] 2021. Electric Models: Depreciation Still Drags Down Ownership Costs. March 2. Available at: https://www.fleetforward.com/10137843/electric-models-depreciation-still-drags-down-ownership-costs. Accessed: September 2021.

[29] California Energy Commission. Transportation Natural Gas in California. Available at: https://ww2.energy.ca.gov/almanac/transportation_data/cng-lng.html. Accessed: September 2021.

[30] California Natural Gas Vehicle Coalition. Fueling Stations. Available at: https://cngvc.org/news/fueling-stations/. Accessed: September 2021.

[31] United Stated Department of Energy. Natural Gas Fueling Station Locations. Available at: https://afdc.energy.gov/fuels/natural_gas_locations.html#/find/nearest?fuel=CNG. Accessed: September 2021.

[32] CARB. 2021. 2021 Annual Evaluation of Fuel Cell Electric Vehicle Deployment. September. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-09/2021_AB-8_FINAL.pdf. Accessed: September 2021.

[33] 2021 Annual Evaluation of Fuel Cell Electric Vehicle Deployment. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-09/2021_AB-8_FINAL.pdf. Accessed: September 2021.

performed by the University of California Institute of Transportation Studies,[34] the projected annual demand for hydrogen fuel from MD/HD drayage trucks alone in California could be as high as 200,000 kg/day in 2027 (which works out to 52 million kg/year assuming operations for 260 days/year). We encourage CARB to engage industry stakeholders to evaluate the adequacy of hydrogen fuel and demonstrate that it is a feasible approach to reducing emissions from California's truck fleet.

10. CARB's treatment of infrastructure costs and LCFS credits is inconsistent (and potentially erroneous) across vehicle technologies assessed in the ACF TCO document.

CARB is grossly inconsistent in their treatment of infrastructure costs and taking credit for associated LCFS credits (or lack thereof) in their ACF TCO assessment:

- In the TCO for sleeper cab tractors BEVs, CARB staff has assumed zero costs for charging infrastructure since they have assumed sleeper cab tractors will only use publicly accessible retail charging (Page 30 of the TCO Discussion Document). However, they further claim that charging station operators "will pass-through LCFS credit revenue to fleets" and account for LCFS credits which lower operational costs for sleeper cab tractor BEVs. CARB needs to clearly substantiate this assumption, especially since they note in the TCO document that LCFS credits "are typically claimed by the fuel producer" (Page 23 of the TCO Discussion Document).
- In the TCO for hydrogen vehicles, CARB staff have assumed zero infrastructure costs, stating that hydrogen refueling stations will be "available at strategic locations around seaports and major distribution hubs" (Page 20 of the TCO Discussion Document). However, they include LCFS credits which lower the lifetime vehicle costs by up to $72,000. This is incorrect, as LCFS credits "are typically claimed by the fuel producer" as CARB have acknowledged elsewhere in their TCO.

It is imperative that CARB evaluate the costs associated with all vehicle technologies in a fair and consistent manner, instead of cherry-picking assumptions that appear to suit their narrative and are unsubstantiated.

11. CARB must address the inconsistencies in the constant dollar costs in the TCO analysis and provide the basis for several assumptions related to ZEV costs.

CARB uses inconsistent constant dollar values throughout the TCO report as noted below:

- Page 10 of the TCO Cost Discussion Document states that, "This analysis follows Department of Finance guidelines and as a result uses 2020 constant dollars and does not use discount rates."
- Page 17 of the TCO Cost Discussion Document states that, "Gasoline and diesel fuel prices to 2030 are taken from the California Energy Commission's (CEC) "Fuel Price

[34] Gouzhen Li, Joan Ogden, Marshall Miller. 2021. Hydrogen Infrastructure Requirements for Zero-Emission Freight Applications in California. March 1. Available at: https://escholarship.org/content/qt5cs440qj/qt5cs440qj.pdf?t=qq2kyr. Accessed: September 2021

Forecasts" and are adjusted to 2021 dollars using the California consumer price index (CPI)."

- Page 20 of the TCO Cost Discussion Document states that, "Electricity price changes over time are modeled using CEC's "Revised Transportation Energy Demand Forecast, 2018-2030", adjusted to 2018 dollars using California CPI."

We request CARB to review and update the TCO analysis so all costs are represented by a single baseline constant dollar values.

Further, CARB fails to provide a basis for the following assumptions related to ZEV costs:

- Page 13 of the TCO Cost Discussion Document states that "the final retail price of a ZEV is the sum of the total component costs adjusted by an additional ten percent for other upfront costs such as research, development, retooling, and overhead."
- Page 14 of the TCO Cost Discussion Document states that, "Staff then modeled an additional 35 percent buffer to account for battery degradation and some operational variability."
- Page 15 of the TCO Cost Discussion Document states that, "The hydrogen fuel cell vehicles are modeled using a 10-kWh battery and a fuel cell stack whose power output is half the vehicle's peak power needs."

We request CARB to review these assumptions and reference the source documentation they used to develop them in the TCO Cost Discussion Document.

Section III – Comments previously submitted to CARB Staff

12. CARB must respond to our previous comment letter dated April 17, 2021 following the March 4th ACF workshop.

WSPA submitted the following comments as part of its April 17, 2021 comment letter[35] in response to the ACF public workshop held on March 2nd and 4th. We request that CARB review and respond to these comments which are summarized below:

1. Update the proposed ACF to be consistent with state and federal requirements, including its near term Federal Clean Air Act (CAA) obligations in 2023 and 2031 that it has shown can be met using commercially available low-NOx technologies.
2. Include multi-technology, fuel neutral strategies project alternatives in its Environmental Assessment (EA).
3. Consider the full lifecycle emissions from combinations of vehicle technologies and alternative transportation fuels, including but not limited to, the use of:
    - Renewable natural gas, hydrogen, gasoline, and diesel fuels

[35] 2021. WSPA. Comments on the Advanced Clean Fleet Regulation March Workshops. April 17. Available at: https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJlUkAzFVDFMy.pdf. Accessed: September 2021.

- Lower carbon petroleum fuels
- Ethanol
- Biodiesel
- Synthetic fuels
- Advanced biofuels (e.g., cellulose)
- Electricity (accounting for renewable and non-renewable sources)

4. Conduct assessments used to determine whether fleet ZEV targets are technically and commercially feasible and allow for exemptions for circumstances beyond fleet control,
5. Determine the cost of charging/fueling infrastructure and grid updates that would be needed to meet the ACF zero emission vehicle (ZEV) targets.
6. Share the cost and emissions data with related assumptions used in the ACF analysis.