October 29, 2021

Richard Corey, Executive Officer
California Air Resources Board
1001 I St.
Sacramento, CA 95818

Submitted electronically

RE: Draft Regulatory Language and Updated Cost Assumptions for the Advanced Clean Fleets Regulation

Mr. Corey,

Thank you for the opportunity to comment on the Draft Regulatory Language and Updated Cost Assumptions for the proposed Advanced Clean Fleets (ACF) regulation. For several years now, the California Trucking Association (CTA), in conjunction with the American Trucking Associations (ATA), has convened experts from the nation's leading fleets to provide input and guidance on the development of zero-emission capable vehicle technologies.

In some cases, these fleets have several decades of experience working with alternative fuels and drivetrains and incorporating these technologies into revenue operations, including many iterations of battery-electric and hydrogen fuel cell vehicles.

High Priority Fleets Requirements

1. ZEV Fleet Milestones should be limited to Group 1 Vehicles

The proposed application of ZEV Fleet Milestones to nearly all classes and use cases of trucks is premature. As noted by staff in the Advanced Clean Trucks Initial Statement of Reasons "Class 7 and 8 tractors…have more limited commercial availability, and have operational characteristics that are not as suitable for electrification…when compared to other medium- and heavy-duty vehicles. Many tractors engage in long haul operations where limited battery-electric range may be a concern, and public hydrogen fueling or fast charging for these vehicles is not yet available."

Table A: ZEV Fleet Milestones by Vehicle Body Type and Year

Percentage of fleet that must be ZEVs	10%	25%	50%	75%	100%
Group 1: Box trucks or vans, two-axle buses, yard tractor	2025	2028	2031	2033	2035 and beyond
Group 2: Work trucks, day cab tractors, three-axle buses	2027	2030	2033	2036	2039 and beyond
Group 3: Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042 and beyond

To address the lack of suitability of Class 7 and 8 tractors for electrification, staff proposes to process exemption requests via the Daily Mileage Exemption, wherein a fleet operator would need to demonstrate it meets the requirements of 95692.2(b). However, it is clear that the vast majority of Class 7 and 8 tractors will apply for this exemption simply due to their operational characteristics.

For instance, EPA estimates that Class 8 sleeper cab tractors travel an average of 125,000 miles per year (500 miles per day and 250 days per year)[1]. Respondents to the American Transportation Research Institute's (ATRI) 2020 Operational Cost of Trucking Survey stated that the average annual mileage of a truck-tractor was 93,955.

EPA assumes operational days per year at 250. Because commercial truck drivers are required to take at least 34 hours off-duty to reset their federally mandated hours of service, a driver could perform a theoretical maximum of 286 operational days per year.

TRACTOR MILES	Miles per day @250 days	Miles per day @286 days
EPA @ 125,000 miles	500	437
ATRI @ 93,955 miles	376	329

The largest battery capacity truck currently qualified to receive Hybrid Voucher Incentive Program funding claims a maximum range of 260 miles from a 653 kWh battery with a minimum charge time of three hours. Therefore, it is not unreasonable to assume that a majority of truck tractors would qualify for the daily mileage exemption. Staff's preliminary estimate is that somewhere between 150,000-200,000 Class 7&8 tractors will be subject to the rule. Assuming 80% of 200,000 tractors applied for the daily mileage exemption, staff would need to process approximately 51 exemptions per day during the course of a 12 year phase-in.

[1] https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P7NS.PDF?Dockey=P100P7NS.PDF
https://www.portoflosangeles.org/business/statistics/container-statistics/historical-teu-statistics-2019

Furthermore, staff should revisit assumptions about depot charging capabilities for even short-haul tractor operation. A 2013 survey conducted by the CALSTART on behalf of LA Metro and Gateway Cities Council of Governments found that 65% of survey respondents in the port drayage fleet at the Ports of Los Angeles and Long Beach did not have on-site diesel fueling. Therefore, it is reasonable to expect that the majority of drayage trucks will primarily rely upon retail charging. Similar fueling patterns may exist in other short-haul operations that might otherwise be tapped for early transition as many terminals and parking facilities may exist on leased or temporarily rented land which would require the land owners themselves to make long term, multi-million dollar investments.

If customer cited infrastructure cannot be installed, fleets would have to utilize retail charging for the entirety of their needs, rather than as a supplemental opportunity charging. This would result in devastating losses of productivity and increased costs. Assuming three and a half hours of charging and drive-time at the nearest retail location, this could result in charging taking up anywhere from 25%-44% of a driver's productive time per year.

In short, to be successful, ZEV Fleet Milestones should target vehicles most suitable for electrification and should therefore be limited to Group 1 vehicles. The limited number of Group 2 and 3 vehicles that may be suitable for electrification could be induced to adopt these vehicles earlier with both regulatory and financial incentives. For instance, Group 2 and 3 vehicles could be provided credits to allow owners of Group 1 vehicles more compliance flexibility. These credits could be generated by the fleets themselves or acquired from others. CARB could meet equity goals by applying multipliers to credits generated in disadvantaged communities.

For the above reasons, we urge CARB to focus ZEV Fleet Milestones to vehicles in Group 1 and turn to incentive mechanisms for Group 2 and 3 vehicles.

2. Modify Group 1 ZEV Milestone Dates

% of fleet that must be ZEVs	10%	25%	50%	75%	100%
Group 1	2031	2033	2036	2039	2042

In light of manufacturing bottlenecks and production constraints exacerbated by a historic global supply chain crisis, realistic timelines to install charging infrastructure, and a host of other issues, we recommend CARB consider modifying the Group 1 ZEV Milestone dates as outlined in the table above.

3. Daily Mileage Exemption Needs Revision

We recommend CARB consider revising the daily mileage exemption in the following ways:

- As proposed, a daily mileage exemption is not available until a fleet has converted more than 10% of its existing vehicles to ZEVs. This provision assumes all fleets will be able to convert some of their vehicles to ZEVs, which may not be the case, especially for high

mileage, irregular route operations. In order to ensure the daily mileage exemption is available when needed, the minimum 10% ZEV requirement should be removed.

- Attempting to purchase NZEVs from "all applicable manufacturers of vehicles with commercially available NZEVs" assumes fleets will have knowledge of all NZEV manufacturers, these manufacturers have the financial and service support necessary to fulfill orders, and the vehicles have achieved cost-parity or come at a minimal premium per the cost-effectiveness assumptions being advanced by the rulemaking. This is an implausible request. CARB should work with stakeholders to determine a reasonable, objective set of metrics, such as vehicle applicability, range, service/support network, production capacity, purchase price, etc. that can be used to set a minimum fleet-wide threshold rather instead of requiring individual fleets to submit bids.
- The exemption must address charging infrastructure delays or unavailability. The installation and availability of charging infrastructure is one of the greatest unknowns associated with the deployment of electric trucks. An exemption is needed in the event of infrastructure delays or the non-availability of public charging which impacts a fleet's ability to meet the compliance deadlines.

4. Broker/Common Ownership and Control language picks winners and losers

CARB staff has indicated "Brokers dispatching loads on ad-hoc or limited term basis" and "Load-board operations" would not be covered by the proposed rule.

Plainly, this is a disastrous, highly subjective provision that would undermine CARB's regulatory scheme by placing covered fleets at an enormous competitive disadvantage against multi-billion dollar freight brokers and digital load boards. While we understand why staff desires to fully exempt fleets operating under 50 trucks by also exempting significantly larger transportation intermediaries, CARB cannot have it both ways. Disastrous proposed provisions such as these further support revisiting of applicability of the high priority fleet requirements to Group 2 and 3 vehicles where transportation intermediaries play a large role in the market.

It's also questionable whether the legal and legislative history of CARB's authority to set emission standards would allow the agency to selectively apply purchase mandates by fleet size.

Also, we recommend that the definition of "common ownership and control" be consistent with existing CARB regulations and funding guidelines to ensure clarity and consistency. "Common ownership or control" as defined in the Truck and Bus regulation and the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) are as follows:

- HVIP: "If vehicles are under common ownership, for the purposes of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) this means that they are owned by the same person, corporation, partnership, limited liability company, or association, including sharing a Tax Identification Number (TIN) or California Carrier Identification Number (CA#). In addition, vehicles managed day to day by the same directors, officers, or managers, or by corporations controlled by the same majority stockholders are considered to be under common control even if their title is held by different business entities."

- Truck and Bus Regulations: "'Common Ownership or Control' means being owned or managed day to day by the same person, corporation, partnership, or association. Vehicles managed by the same directors, officers, or managers, or by corporations controlled by the same majority stockholders are considered to be under common ownership or control even if their title is held by different business entities. Common ownership or control of a federal government vehicle shall be the primary responsibility of the unit that is directly responsible for its day to day operational control."

4. Rental and Leasing Fleets

CARB currently proposed to require truck rental and leasing companies to meet ZEV milestones for any applicable vehicle which is rented or leased for less than a year. We urge CARB to consider exempting rental and leasing fleets from the regulation at this time. As noted in the draft language, lessees of vehicles rented or leased for a period greater than a year are responsible for meeting their own ZEV fleet milestones. That leaves the short-term rental fleet which is highly transient and serves many small businesses which may not have access to charging infrastructure for the foreseeable future.

Examples might include a florist that rents a truck during peak season(s), a construction company bringing on additional work trucks for a large job or a caterer using a truck for a large concert or sporting event, etc. It's unlikely rental customers such as these will have access to centralized depot charging opportunities. The rental companies themselves indicate they do not have adequate physical space for the entirety of their rental fleet to return and charge each day.

Therefore, we urge CARB to consider exempting rental and leasing fleets.

5. Backup vehicle definition should be revised

The types of vehicles affected by the proposed rule range from local delivery to long-haul trucks. While the annual mileage traveled by these vehicles can be significantly different, the backup vehicle exemption is established at 1,000 miles. This definition needs to be revised to better reflect the different types of vehicle affected. A metric such as 10% of the annual mileage of the vehicle(s) which the backup vehicle would replace would be more appropriate.

6. Vehicles added/removed from an existing fleet should be reporting on an annual basis.

The addition or removal of fleet vehicles should be aligned with the fleet compliance reporting requirements on an annual basis, no later than March 1st. This change will remove what for some fleets would be a monthly reporting requirement and instead track fleet vehicle changes as part of the annual compliance reporting process.

7. A consolidated compliance reporting system is needed.

Trucking fleets currently report to multiple CARB databases (TRUCRS, DTR, ARBER) with additional databases proposed (HDIM, ACF). Much of the required information is reported multiple times (company/contact information) and, in many cases, covers or will cover the same vehicle (TRUCRS, DTR, HDIM, ACF). A streamlined process is needed that provides fleets a single database for all reporting requirements. If done properly, this system should reduce

compliance costs by eliminating duplication and enhance enforcement by providing a single reference point for fleets and enforcement personnel alike.

8. Vehicle Information

Engine families are not a commonly known parameter and should be eliminated from reporting.

9. Operator documentation

The requirements should be consistent with the information found on a shipment's bill of lading and allow the use of electronic forms.

Drayage Truck Requirements

1. CARB must allow a reasonable amount of flexible capacity to remain in the drayage truck registry

Drayage trucks are a critical piece of the global supply chain, which is experiencing an unprecedented level of demand. An unanticipated surge of approximately 30% greater containers in 2021 has resulted in dozens of ocean-going vessels anchored in the San Pedro Bay. A risk modeling firm has estimated up to $90 billion in lost economic activity due to ongoing port congestion[2]. As this current crisis was precipitated by unanticipated demand overwhelming our supply chain infrastructure, failing to ensure adequate drayage supply to serve container terminals and rail ramps could result in similar economic calamity.

CARB currently proposes to apply a zero-emission new entrant standard into the drayage truck registry (DTR) starting 10/1/2023, grandfather in existing vehicles through the period of their SB1 Useful Life, and remove any vehicle from the DTR that does not call on a covered facility at least once annually.

To ensure that truck fleets have adequate capacity to service the movement of containerized cargo, they have long registered more vehicles in the DTR than would call on the ports on an annual basis. This was done for flexibility purposes as trucks which were dispatched in other types of revenue service could be called into port drayage during surges in cargo.

This flexibility is simply not possible under CARB's current proposal as it will take years, not weeks or months, to get new zero-emission vehicles ordered and the infrastructure installed to service them.

We recommend eliminating the once annual visit requirement altogether or allow fleets at least a 40% tolerance of vehicles within their SB1 Useful Life that can call on the port, based on their existing fleet size when demand surges occur.

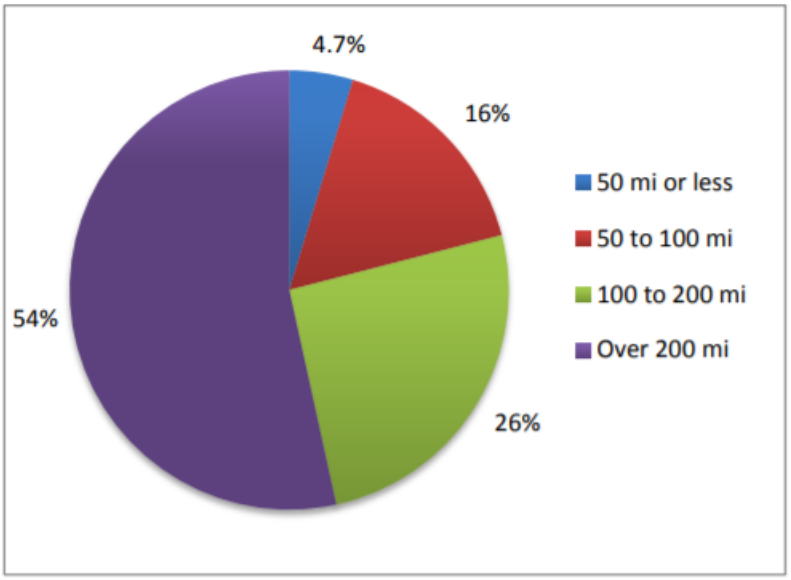
2. CARB must provide adequate offramps to drayage fleets

For many of the same reasons stated in the prior section, the entirety of the Class 8 drayage fleet will have significant barriers to electrification. First, drayage trucks have been mislabeled as

[2] https://www.russell.co.uk/ProductStories/1672/long-beach-and-los-angeles-port-delays-may-disrupt-us-holiday-season

uniformly "short haul". A 2013 survey of approximately 1,000 respondents servicing the Ports of Los Angeles and Long Beach conducted by Calstart[3] found that more than half of respondents indicated that key performance parameters that electric vehicle must achieve are: 1) necessary range (200+ miles), and 2) vehicle must have the capability to be used on all delivery routes.

Figure 4. Survey Results: Minimum Acceptable Distance Before Refueling



CALSTART 2013.

Drayage trucks servicing the Port of Oakland likely have significantly greater mileage requirements given the need to service Reno (400+ mile round trip) and the Southern Central Valley (500+ mile round trip).

Additionally, charging infrastructure requirements for the drayage fleet will be difficult to meet.

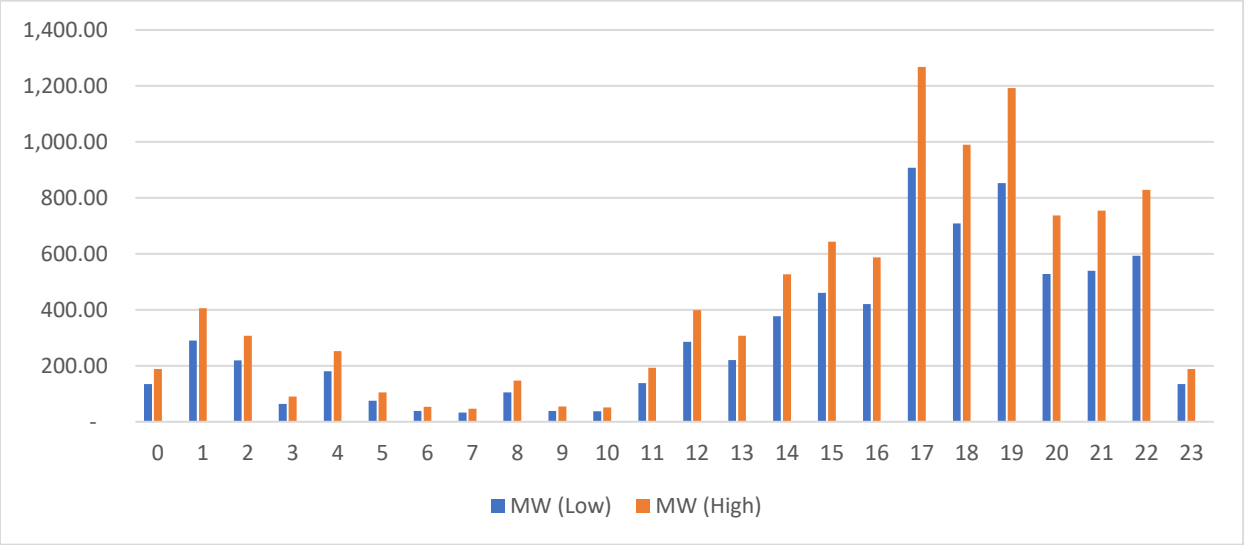
EMFAC2017 estimates that 16,081 Drayage Trucks (T7 POLA Category) will operate in the South Coast Basin in 2035, accruing 3,149,475 miles per day. Assuming an energy efficiency of 2 – 2.8kWh/mile, the Drayage fleet will create an average daily demand of 6,299 – 8,819MWh. We estimate a plausible peak daily demand of at least 7384 – 10,318 MWh based on 2019's POLA container volume peak in July which was 17.2% higher than the 2019 monthly average[4].

At 7384 – 10,318MWh, using CEC's HEVI-Load hourly demand assumptions, we can expect highest demand between 5:00pm – 10:00pm with an estimated peak hourly demand of 907 – 1,267 MW at 5pm. This will intersect with on-peak Time of Use rates[5].

[3] https://calstart.org/wp-content/uploads/2018/10/I-710-Project_Key-Performance-Parameters-for-Drayage-Trucks.pdf

[4] https://www.portoflosangeles.org/business/statistics/container-statistics/historical-teu-statistics-2019

[5] https://www.sce.com/business/rates/electric-car-business-rates/business/rates/electric-car-business-rates



Calstart's 2013 survey indicated that 65% of survey respondents did not have on-site diesel fueling. An unknown percentage of those respondents also indicated use of on-site mobile refueling ("wet hosing"). Therefore, it is reasonable to expect that the majority of drayage trucks will primarily rely upon retail charging, in addition to other mixes of retail charging, on-site depot charging, and opportunity charging at trip end-points.

To approximate what a retail charging location may look like, we will use information contained in an environmental impact report for an existing Flying J truck stop in Jurupa Valley. The project description is as follows:

The Project is a proposal to develop an approximately 11.95 gross-acre property to accommodate a Flying J Travel Center, which is proposed to operate 24 hours per day, seven days per week. Vehicular access to the site would be provided by one right in/right out driveway connecting with Etiwanda and two driveways connecting with Riverside Avenue. See the attached Figure 3, Proposed Site Plan.

The Travel Center would include the following amenities:

- *Vehicular fueling facilities offering 12 diesel truck lanes and 16 gas lanes for passenger vehicles*
- *A 15,220-square foot building with the following:*
    - *Driver's Lounge*
    - *Restrooms, showers for rent, and public laundry facilities*
    - *Convenience Store (that would not include sales of alcoholic beverages for off-site consumption)*
    - *Deli*

    - *Drive-thru fast food restaurant*
- *Parking spaces to accommodate 104 trucks, 22 bobtails (trucks without a trailer), and 69 passenger vehicles*
- *Truck Scale*
- *Underground diesel fuel and gasoline storage tanks*
- *100-foot high pylon sign along the northern boundary*

Assuming the diesel lanes were replaced 1-for-1 with 200-350kW chargers and the 126 parking spots were able to accommodate 50kW charging with no loss of capacity to accommodate the charging infrastructure, this site could conceivably provide up to 2.4-4.2MW capacity of faster, opportunity charging and up to 6.3MW capacity of slower capacity charging to parked vehicles. At over 10MW possible demand, this location would likely trigger upstream utility infrastructure upgrades.

There is also limited private truck parking, generally. Caltrans indicates there are 3,001 privately operated truck parking spaces by 28 truck stops in Los Angeles, Riverside and San Bernardino County, one-third of which are located in Coachella and Barstow, which will not be utilized by a local drayage fleet[6]:

- 167 spots in Los Angles
- 353 spots Riverside (230 in Coachella)
- 2481 spots in San Bernardino (730 in Barstow)

Assuming all parking spots provided 50kW capacity chargers, the total would reach 150MW of slower capacity charging to parked vehicles. If all 28 locations provided 10 charging lanes at 200-350kW, this would total 56-98MW.

Anecdotally, station developers indicate they are more likely to develop charging infrastructure in ways that do not require upstream utility infrastructure upgrades which can add significant cost and push construction timeframes out by as much as 7 to 10 years. The generally accepted target seems to be projects that are at or near 2-3MW. This means that placing more than ten 200-350kW capacity chargers at any charging location, be it retail, on-site or at a freight facility may trigger significant additional costs and delays.

To meet the estimated charging needs of the drayage fleet, it can be reasonably assumed that several hundreds of these locations would need to be built out. 300-450 sites would need to be available to meet peak demand at 100% utilization. And, as noted in the prior section, opportunity charging at today's speeds would eliminate 25-44% of a driver's available work hours.

[6] https://dot.ca.gov/programs/traffic-operations/legal-truck-access/truck-stops

The Port of Long Beach (POLB) recently hired the consulting firm Starcrest to do an assessment[7] of the electrical infrastructure necessary to support the drayage trucks servicing the port and came to similar conclusions about the scale of charging necessary and issues surrounding opportunity charging with today's charging rates saying "in the near term, it is reasonable to lean towards overnight charging and to minimize, or even forego, opportunity-charging stations until technology improves".

Based on this assessment, POLB estimates it could build a maximum capacity of approximately 22MW worth of charging which could take well into the 2030's to complete. This is a far cry from the 1.2GW possible demand from Southern California's drayage fleet.

Table 20: Projected Added Electrical Load for Tier I Sites

Site	Minimum Added Electrical Load (MW)	Maximum Added Electrical Load (MW)	Grid Impact
Pier A Way and Carrack Avenue	1.2	2.5	Not likely
Clean Energy Fuels	0.3	0.3	Not likely
Pier B Street and Carrack Avenue	8.5	9.8	Likely
Clean Truck Program Center	1.1	3.0	Not likely
Pier S West - Vacant	6	6.7	Likely
Total	**17**	**22**	

Minimum added electrical load is the opportunity charging scenario; the maximum electrical load is the overnight charging scenario.

It is clear that CARB should focus initial requirements solely on trucks where existing zero-emission vehicles can meet range requirements and who can charge overnight. However, even where such trucks exist, feedback from our membership suggests additional hurdles to be overcome. For instance, it is not uncommon for fleets to park drayage trucks in temporary lots on rented land as permitting of permanent truck parking is both difficult and expensive. It is highly unlikely that landowners of temporary truck parking will commit to an up to a decade-long, multi-million dollar process of installing multi-MW charging capacity. And given that the Port of Long Beach's assessment of charging build-out suggests it will take well into the 2030's to build out sufficient public charging infrastructure for 1,350 electric trucks, CARB must focus on both best possible use cases for zero-emission vehicles in the near-term when setting mandates or providing sufficient off-ramps for the acknowledged challenges fleets will face in meeting the new entry requirement.

CARB staff has already acknowledged that not all trucks under the high priority fleet rule will be able to be transitioned to zero-emissions. Therefore, we recommend that CARB include the daily mileage exemption process, with suggested revisions, to drayage fleets.

[7] https://thehelm.polb.com/download/379/zero-emissions/12744/final-polb-charging-study-12-sep-2021.pdf

Cost Assumptions Document

- Pg. 11: "Long haul applications can be electrified through a combination of fuel cell technologies and battery-electric vehicles utilizing charging during rest breaks and in-between shifts."
    - The underlying Lawrence Berkeley National Labs study presupposes widespread availability of 500kW or Megawatt+ level retail charging. We do not believe CARB should cite this study to justify the above statement as no such charging infrastructure exists today or is likely to in the near future. Staff should, instead, analyze cost based on additional labor cost and foregone revenue based on currently available charging speeds or limits imposed by battery management systems, a realistic pace of build out to calculate additional drive time to available chargers, etc.
- Pg. 11: "This discussion document assumes that a single fleet will own and operate a truck for a significant portion of its life in California"
    - We recommend a range of operating years should be reflected. Operating years can have a significant impact on TCO. To provide a more comprehensive assessment, the analysis should be broaden to show impacts across a range of truck ownership periods.
- Pg. 15: Table 4.
    - We recommend CARB publish real world data on efficiency from pilot programs it has funded. CTA has reviewed efficiency data from the data logger of three Class 8 electric drayage trucks that indicates the real world efficiency of these vehicles has been 2.8kWh/mile. Additionally, manufacturer specifications for the six Class 8 tractors eligible through HVIP average 2.53 kWh/mile. At a minimum, CARB should be performing a sensitivity analysis to represent a possible range of efficiency given the large discrepancy between 2.1 and 2.8kWh/mile.
- Pg. 16: Table 5
    - We recommend CARB do further analysis on the price of ZE technologies as the figures on this table are lower than prices quoted for 2022-2023 delivery. For instance, member feedback would suggest that a Class 8 battery-electric daycab is being quoted at $375,000. That price is unlikely to fall to $202,000 by 2025.
- Pg. 16: "Taxes"
    - Tax impacts needs to be expanded to other fuels. While the analysis identifies sales tax impacts across the various categories of vehicle purchases, a similar tax analysis has not been included for the various fuels. In addition to excise and sales taxes associated with the purchase of diesel fuel (which appears to be included in the fuel price but not differentiated), the consumption of electricity can include an Electricity Consumption Tax (ECT), utility user taxes (UUT), and surcharges such as a Public Purpose Program (PPP) surcharge. These additional taxes/surcharges need to be identified and, where applicable, included as a line item in the TCO analysis.
- Pg. 17: "Fuel Costs"
    - As a supplement to the TCO analysis, a thorough analysis of the impact on fuel tax and fee revenue is needed. More than $1.50 of every gallon of diesel fuel sold in California goes to federal and state taxes and environmental-related fees. Federal

and state excise taxes are the primary funding source for the state's road and bridge maintenance and construction while the sales tax contributes to the state's General Fund. Environmental fees such as the underground storage tank fee and state's Cap-and-Trade Program and Low Carbon Fuel Standard also receive funding from the purchase of diesel fuel. The impact on state funding for these programs, which will receive less funding as a result of shifting from diesel to other fuels absent comparable assessments, needs to be evaluated. Additionally, these taxes and fees should be removed or isolated in the TOC analysis to ensure consistent comparison to non-taxed/non-fee electricity or hydrogen. In addition, the LCFS costs associated with diesel, which was estimated to be $0.14 per gallon per credit price of $100 per metric ton in 2020 (CEC, Petroleum Market Advisory Committee Final Report, 2017) should be reflected as a LCFS line item rather than aggregated into the price of diesel.

- Pg 19: "Electricity prices for depot charging are calculated using CARB's Battery-Electric Truck and Bus Charging Calculator and assumes a fleet of 20 vehicles using a managed charging strategy with the applicable rate schedule. Day cab tractors are assumed to be charged in a four-hour shift at night along with opportunity midday charging sessions at the depot. All other trucks are assumed to charge overnight."
    - This approach significantly underestimates cost. We recommend using the CEC's demand scenarios to better characterize potential charging patterns. These scenarios suggest there would be significant demand during peak rates.
- Pg 19: "For retail charging, staff assumes the price for medium- and heavy-duty retail charging would be similar to current direct current fast charging costs for light-duty at $0.31/kWh."
    - Link provided indicates that retail prices are $.043/kWh. Furthermore, we recommend CARB do additional analysis on differences between light duty and medium and heavy duty retail charging development. Light infrastructure is typically co-located with existing parking facilities. It's not unreasonable to assume that medium and heavy-duty retail locations will require significant land acquisitions to accommodate the footprint of larger vehicles.
- Pg 22: Table 7
    - The MPG estimates for diesel and natural gas vehicles appear to be incorrect. Table 7 indicates fuel economy for diesel and natural gas vehicles will decrease after 2025. This runs counter to the fuel economy benefits purported by the federal Phase 2 GHG/Fuel Economy Standards. Further evaluation and explanation of these projections is needed.
- Pg 22-23: Low Carbon Fuel Standard Revenue
    - As previously discussed in these comments, it is not reasonable to assume that all trucks subject to the ACF will utilize owned, customer cited chargers. Therefore, it's not reasonable to assume that all benefits of LCFS credits will pass through to fleets. Staff should also analyze how changes to LCFS to allow for capacity credits for medium and heavy duty charging projects may impact credit passthrough.
- Pg 30: "Because sleeper cab tractors are assumed to use publicly accessible retail charging, no infrastructure costs are modelled."
    - Costs for all infrastructure driven by the regulation should be analyzed. There is no such retail charging infrastructure at this time.

- Pg 30: “Residual Values”
    - Residual values evaluation should be expanded. The analysis indicates that most BEVs will “primarily utilize depot charging while Class 8 sleeper cab tractors will primarily rely on retail charging.“ Due to infrastructure needs, natural gas vehicles share similar characteristic to the purported depot charging operations. The residual value analysis should include an evaluation of natural gas vehicles in order to more closely assess the resale value of vehicles with similar refueling habits.
- General Comments
    - CARB should include dwell time for charging and refueling in the TCO calculation using a similar approach as was taken in NREL’s TCO analysis[8].
    - CARB should include the financial impacts of vehicles being able to carry less freight as described in a recent Argonne TCO analysis.[9]

CTA, ATA and our fleet advisors appreciate the work being done to analyze the far reaching impacts this technology transformation will have on the state’s supply chain and trucking fleets. We urge you to address these comments as you further develop the proposal. We will continue to work with fleets to further evaluate these technologies and identify implementation issues as they arise. Please reach out to us if you have questions or need clarifications.

Thank You,

Chris Shimoda, Sr. Vice President of Government Affairs
California Trucking Association

Mike Tunnell, Director of Environmental Affairs and Research
American Trucking Associations

[8] https://www.nrel.gov/docs/fy21osti/71796.pdf
[9] https://publications.anl.gov/anlpubs/2021/05/167399.pdf