STATE OF CALIFORNIA
AIR RESOURCES BOARD

Proposed Amendments to the Proposed Advanced Clean Trucks Regulations	**)**	**Hearing Date: June 25, 2020**

COMMENTS OF THE TRUCK AND ENGINE MANUFACTURERS ASSOCIATION

May 28, 2020

Timothy A. Blubaugh
Truck & Engine Manufacturers Association
333 West Wacker Drive, Suite 810
Chicago, IL 60606

STATE OF CALIFORNIA
AIR RESOURCES BOARD

Proposed Amendments to the Proposed Advanced Clean Trucks Regulation	**)**	**Hearing Date: December 12, 2019**

Introduction

The Truck and Engine Manufacturers Association (EMA) hereby submits its comments in opposition to the Proposed Amendments to the Proposed Advanced Clean Trucks (ACT) Regulation that the California Air Resources Board (CARB) released on April 28, 2020, and subsequently revised on May 1, 2020.

EMA represents the world's leading manufacturers of medium- and heavy-duty on-highway trucks and engines. EMA member companies design and manufacture highly-customized vehicles to perform a wide variety of commercial functions including interstate trucking, regional freight shipping, local parcel pickup and delivery, refuse hauling, and construction – to name a few. The vehicles that EMA members produce are the subject of the pending ACT regulation, and accordingly EMA has a direct and significant interest in this rulemaking.

EMA member companies are developing and promoting zero-emission (ZE) commercial vehicles and therefore strongly support efforts to expand the ZE truck market in California. However, we oppose the proposed amendments to the proposed ACT regulation because they double-down on a flawed regulatory approach. As we pointed out in our comments submitted last year on the initial ACT rule proposal, the structure of the proposed regulation would require manufacturers to sell an increasing percentage of ZE trucks even though the businesses who purchase their products would not be required to buy them. In the interest of advancing their commercial enterprises, those businesses may instead choose to simply purchase other truck technologies or extend their vehicle replacement cycles. In addition to failing to mandate that trucking fleets purchase the ZE trucks that the rule would require manufacturers to sell, the proposed rule does not address establishing the essential charging infrastructure. The proposed amendments do not address those critical shortcomings of the original proposal. Instead, the amendments would simply increase and extend the naked sales mandate on truck manufacturers, and therefore the proposed ACT rule remains a fundamentally flawed regulatory approach.

The proposed ACT rule ignores the fact that for many years ZE trucks will cost more for trucking fleets to purchase and operate than traditional vehicles, and that to operate ZE trucks a fleet must also invest in a charging infrastructure at their facilities to power them. Those incremental costs of ZE commercial vehicles must be offset by government-funded incentives until such time that the overall life-cycle costs of ZE trucks, including the costs associated with the establishing a charging infrastructure, are lower than comparable costs associated with traditional vehicles. Those government incentives must be predictable, sufficient, and sustained so the businesses that operate trucks can calculate a financial benefit from converting to ZE technologies.

The coronavirus pandemic has created turmoil in all sectors of our economy and, considering the California government's looming budget crises, it is hard to see how those necessary incentives may be adequately funded. Without those incentives, the substantial ZE truck deployments envisioned by the proposed ACT rule remain merely aspirational and without any rational basis.

The increased ZE truck sales percentages mandated by the proposed amendments to the ACT rule also will significantly increase manufacturers' burden in meeting CARB's anticipated Omnibus Low-NO_X regulations. With ZE sales mandated to increase to 75 percent, the ACT rule would leave very few diesel truck sales in California available to recoup the high costs of developing the emissions-reduction technologies needed to meet the anticipated low-NO_X requirements. The compounding and overlapping nature of the ACT and Low-NO_X rules are likely to create unacceptable market risks for traditional truck manufacturers that may force them to reduce their sales into the California market, or abandon the market altogether.

The proposed amendments to the ACT regulation simply increase and extend the percentages in the naked ZE truck sales mandate and completely fail to address the fundamental structural deficiencies of the rule's regulatory approach, and therefore the Board should not adopt them. Instead, the Board should direct staff to develop a more holistic rule that addresses all three critical aspects of the California ZE truck marketplace: (i) available ZE truck products; (ii) fleet purchase, operational, and maintenance needs of ZE trucks; and (iii) development of a robust charging infrastructure at trucking terminals and other fleet facilities. Additionally, the Board should not adopt the ACT rule until sufficient and sustainable government incentives are established so that ZE trucks will not negatively impact the bottom lines of small and large trucking fleets in California. To proceed with the ACT rule as proposed would be an exercise in wishing that the complex challenge of establishing a self-sustaining ZE truck market in California were a simple problem that could be addressed by a simple sales mandate on traditional vehicle manufacturers. Instead of achieving its intended result, the proposed myopic regulatory mandate is likely to compel manufacturers to abandon the California market and, by doing so, harm the small and large trucking businesses in the state that rely on their products and services.

The Proposed Amendments Maintain a Fundamentally Flawed Regulatory Structure and Ignore Important Input Provided by the Board

The proposed amendments retain the flawed framework of the proposed ACT rule and simply mandate that traditional truck manufacturers convert still greater percentages of their California sales to ZE trucks. Like the earlier proposal, the amended proposal fails to address the complex issues of ensuring that trucking fleets will actually purchase and deploy ZE trucks (*i.e.,* which they will only do if ZE trucks will have lower life-cycle costs than other available options) or ensuring that there will be a sufficient infrastructure to charge the ZE trucks. The proposed amendments simply, but substantially, increase and extend the manufacturer sales requirements as shown in the following chart:

Model Year	Class 2b-3 Group*	Class 4-8 Group	Class 7-8 Tractors Group
2024	~~3%~~ 5%	~~7%~~ 9%	~~3%~~ 5%
2025	~~5%~~ 7%	~~9%~~ 11%	~~5%~~ 7%
2026	~~7%~~ 10%	~~11%~~ 13%	~~7%~~ 10%
2027	~~9%~~ 15%	~~13%~~ 20%	~~9%~~ 15%
2028	~~11%~~ 20%	~~24%~~ 30%	~~11%~~ 20%
2029	~~13%~~ 25%	~~37%~~ 40%	~~13%~~ 25%
2030 ~~and beyond~~	~~15%~~ 30%	50%	~~15%~~ 30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035 and beyond	55%	75%	40%

~~*Excluding pickup trucks until the 2027 model year~~

At the December 12, 2019, public hearing, the Board considered staff's initial proposal for the ACT regulation. During the hearing, the Board received nearly six hours of oral testimony on the proposed rule, in addition to over 120 written submissions. During the hearing EMA proposed an implementable approach for the ACT rule that could successfully achieve greater numbers of ZE trucks deployed than the rule proposed, starting earlier than the proposed rule, and focused in environmental justice communities. We proposed that instead of a naked sales mandate, the ACT rule should holistically establish "beachhead" commercial vehicle markets in the segments that are most suitable for electrification. By first addressing the most suitable market segments, CARB could ensure that (i) manufacturers focus their development resources on products for those specific market segments, (ii) fleets operating in those segments begin converting to ZE trucks, and (iii) infrastructure investments can be channeled to those limited fleet facilities that will be deploying increasing numbers of ZE trucks. Once beachheads are established in initial targeted commercial vehicle market segments, the rule could expand to additional segments.

EMA first proposed to CARB staff that the ACT should target the most suitable commercial vehicle market segments for electrification during a meeting on July 24, 2018. Soon after that, we provided staff an analysis tool for weighing the relative suitability of the different market segments and the number of trucks in each segment that could be converted to ZE. Following that initial proposal in the summer of 2018 and through release of the initial ACT rule proposal in October 2019, we attempted to work with staff on the approach to holistically focus on the most suitable market segments. However, the initial ACT rule proposal included only a manufacturer sales mandate that broadly covers all vehicle classes from Class 2b through 8. During the December 12, 2019, Broad hearing we reiterated our position that a targeted approach for the ACT rule could more successfully grow the ZE truck market in California.

During the December 12, 2019, hearing, Board Members provided direction to staff on how to revise and restructure the proposed ACT rule. The Board Members' input included direction to align the sales and purchasing mandates, to consider the beachhead strategy, and to

assess the need to develop a charging infrastructure for ZE commercial vehicles. Following are excerpts from some of the Board Members' direction to staff on those topics:

<u>On aligning the sales and purchase requirements:</u>

- "I think aligning those better really does also help create the market. It sends those signals that this is where we're heading and people begin to put in place things. But you don't want to leave the manufacturers hanging with a requirement that they produce things that does not align with the requirement that people have to buy them, because then again, it's not as likely to achieve the outcomes that we want, which is cleaner air, lower greenhouse gas emissions. But it also places an undue burden on one side of the market." - Board Member Fletcher

- "I think it's urgent that we do the fleet man… – the purchase mandates much sooner than what we're talking – much sooner – having them done much sooner than 2022. I mean, here we are telling these companies to sell all these trucks. Are they're coming at it and they're saying, well, are people going to buy them? They're going to be more expensive. And then we're not sure there's going to be incentives. And, you know, we're uncertain about the charging infrastructure." – Board Member Sperling

- "And so I worry that as we start these fleet rules that our hearing room is going to be overflowing with people that are legitimately concerned, but we're not talking about that yet." – Vice Chair Berg

<u>On the beachhead strategy:</u>

- And that is, we heard a number of people talking about the beachhead concept. And I really think we should be giving some more thought to that, because there are many of these fleets where it does make a lot of sense." – Board Member Sperling

- "Mr. Mandel [EMA President], I guess we're going to work with you a lot, because we want to take you up on some of your offer of how to move this around and get some early action items." – Board Member Riordan

- "I also agree with multiple Board Members about this – being enthusiastic about the sectorial approach, where we can get, as industry says, Mr. Mandel suggested, we could go further in some areas than where the staff is proposing, but maybe be more careful with regard to the heavy-duty tractors that we all want." … "But I like the sectorial approach, because I think we can help those communities if we're careful about working with industry to get cleaner trucks in certain sectors faster." Board Member Balmes

- "I agree with Jed Mandel and the Truck and Engine Manufacturers Association's position that we could look at this in segments. And there are certain segments along this spectrum of trucks that are probably more ready than others. And we can prioritize – prioritize some of those segments and the investments in those

segments, so that we experience early success. I think that's important." – Board Member Mitchell

On the charging infrastructure:

- "So as we move things around, and we accelerate then, there has to be the infrastructure to make it all happen. And it can be costly, and it can be very difficult." Board Member Riordan

- "And I fear that's [insufficient passenger car charging stations] going to be even more of a problem as Ms. Riordan said for commercial fleets. I mean, maybe we're making good progress with infrastructure for commercial fleets. But if it's anywhere near like we were with passenger vehicles, I think – I'm not so sure. So I want to be convinced that we have the infrastructure there." Board Member Balmes

- "I think we've been entirely too casual about infrastructure. We have substantive funding for vehicle light-duty infrastructure. Our success has been frankly disappointing. And I think as we look to infrastructure, we need to evaluate the barriers that have occurred with regard to our current push for vehicular charging stations which I think have largely accrued or partially accrued to zoning kinds of restrictions. We need to be prepared and have a plan to reach out to those entities in order to enable heavy-duty charging infrastructure." – Board Member Eisenhut

- "The other part … is the infrastructure. And this is huge. I mean, we can look at the experience we had with light-duty infrastructure and multiply that about ten times, because heavy-duty infrastructure is going to require a lot of involvement with our utilities. It's going to involve changes to the whole grid operation. It's going to be expensive." Board Member Mitchell

- "And so one of the things that I should – that I think should be happening, as we do this, I think it would be good to form some kind of working group." … "And I suggest that we get that going as soon as possible and that we work – that we start this working group to be working with our staff over the next several months, so that when you come back to us with the rule, we have some good decision makers at this working group that help inform our decisions and the final regulations." Board Member Mitchell

Unfortunately, none of that direction is reflected in the proposed amendments to the ACT rule. The amendments do not align the sales and purchase mandates, they do not adopt any aspect of the beachhead strategy, and they do not address establishing a charging infrastructure at fleet facilities. Instead, the amendments simply increase and extend the percentages originally proposed for the naked manufacturer sales mandate.

The Notice of Public Availability of Modified Text acknowledges that "the Board directed staff to … give consideration to the Truck and Engine Manufacturers Association proposal." However, the proposed amendments go in the opposite direction. They maintain the manufacturer

sales mandate and ignore the issues that must be addressed for fleets to purchase and deploy ZE trucks, the investments that must be made in a charging infrastructure at fleet facilities, and the opportunity to establish beachheads in suitable market segments and environmental justice communities. Contrary to considering the EMA proposal, the amendments would simply increase and extend the flawed unilateral sales mandate.

Not only do the proposed amendments reject the beachhead strategy, they pick two of the commercial vehicle applications that are least suitable for electrification and mandate that manufacturers sell even more ZE trucks into those market segments. The rule advances and increases the requirement that manufacturers sell ZE heavy-duty pickup trucks, even though those trucks are purchased almost exclusively for their hauling and towing capacity – performance aspects that will be very challenging to meet with a battery-electric powertrain. Additionally, the proposed amendments more than double the percentages for sales of Class 7 and 8 tractors that are designed to tow loaded semitrailers over long distances – an extremely challenging vehicle configuration and duty cycle for a battery-electric powertrain. Instead of following the Board's direction and holistically considering the most suitable market segments, or even simply increasing the mandated sales percentages equally in all vehicle weight classes, the proposed rule singles out two of the least suitable segments for the greatest increases.

By ignoring a targeted market segment approach, the proposed amendments to the proposed ACT rule are counter to CARB's existing strategy for establishing ZE beachheads in other commercial vehicle segments. CARB is deploying a beachhead approach with the Innovative Clean Transit regulation that requires municipalities to begin converting to ZE buses beginning in 2023. Additionally, CARB recently finalized the Zero-Emission Airport Shuttle Regulation that requires fleets to begin converting airport shuttles to ZE buses beginning in 2027. In 2022, CARB plans to establish a regulation to mandate converting port drayage tractors to ZE. With each of those rules, CARB is focusing on a beachhead segment for the deployment of ZE commercial vehicles. However, the proposed ACT rule ignores that precedent – and the Board's direction – to mandate the sale of ZE trucks across entire vehicle weight classes.

The Proposed ACT Rule is Based on Inaccurate Projections of the Costs Associated with Deploying Zero-Emission Trucks

During the ACT rulemaking CARB correctly identified that to establish a self-sustaining market in California for ZE commercial vehicles, it will be essential for buyers to be able to accurately compare the total cost of ownership (TCO) of a ZE truck to a traditional vehicle. A commercial vehicle represents a capital investment by a business, and it must return a profit. To ensure that purchasing a new truck is a wise investment, a trucking business must consider (i) up-front purchase price, (ii) operational and maintenance costs, (iii) charging infrastructure costs, (iv) electricity costs, and (v) residual value. The business will only purchase a ZE truck if it can calculate that those life-cycles costs will improve its bottom line. The fleet business may also consider government incentives in that calculation, so long as those incentives will be available over the time it takes to convert the entire fleet of trucks to ZE. Without that assurance, a fleet likely will not be able to factor in incentives when calculating whether it make financial sense to begin converting to ZE trucks.

To support the ACT rule, CARB conducted a TCO analysis that concluded ZE trucks will have favorable life-cycles costs to diesel-fueled trucks by 2024. Unfortunately, that TCO analysis includes many overly-optimistic and assumptions and its conclusions have not been validated. In developing the TCO analysis, CARB chose to ignore an immense amount of data on the real-world operation of hundreds of ZE trucks in the Low Carbon Transport Heavy-Duty Pilot and Demonstration Projects that CARB is funding with hundreds of millions of dollars. Additionally, CARB did not substantiate the TCO analysis by having it reviewed by any fleets that have purchased ZE trucks. Instead, CARB subjectively made many inaccurate assumptions that resulted in a TCO analysis that heavily favors battery-electric trucks. Following are several of those inaccurate assumptions:

- Assumes very long operating life, when many fleets replace trucks after a short period of ownership.

- Assumes low purchase prices that ignore amortization of the costs of product design, development, validation, warranty, and aftermarket support.

- Assumes low battery prices based on battery-electric passenger cars, when truck operating conditions and duty cycles will demand different technologies.

- Underestimates the negative impacts of low battery-electric truck residual values, when residual value is critical to a fleet's purchasing decision.

- Predicts very long battery replacement cycles, even no replacements over an assumed 26-year life of Class 2b-3 vehicles, when truck operation and charging characteristics will accelerate battery degradation.

- Includes battery-electric truck mileage ranges that will be unacceptable to truck customers – ranges that will be shortened further by the heavy loads and harsh operating conditions associated with commercial vehicles.

- Assumes that battery-electric powertrains will become significantly more efficient over a short period of time.

- Assumes very low fuel efficiency for traditional diesel-fueled vehicles, artificially making battery-electric vehicles compare better,

- Ignores the costs and complications of installing, maintaining, and expanding a charging infrastructure at fleet facilities, which the fleet may rent.

- Assumes significant Low Carbon Fuel Standard (LCFS) benefits to nearly all truck users, when it is completely unproven that operators will receive LCFS credits.

<u>Incorrect TCO Analysis Assumptions for Class 2b-3 Vehicles</u>

For Class 2b-3 vehicles, the original TCO calculator showed that even with assumptions that do not align with industry's and academia's technical understanding, gasoline and diesel

pickup trucks were cheaper to own and operate than their electrified counterparts. The recently revised state-wide cost/benefit calculator has made even more unrealistic assumptions in order to show a positive business case for battery-electric vehicles. The already parsimonious assumptions on battery and electric motor size have been further reduced. Vehicle lifetime or ownership period has been eliminated, which ignores the fact that the original purchaser will bear the burden of higher purchase costs without realizing the longer-term fuel savings. Similarly, the assumed fuel economy of gasoline powered pickup trucks has been decreased by almost 50 percent, which grossly overstates the fuel savings of a battery-electric pickup truck relative to those vehicles.

While the TCO analysis correctly acknowledges that electric vehicles will need battery replacements, Class 2b-3 are the only vehicles for which no battery replacement is assumed throughout a 26-year lifespan. Despite the lower projected lifetime mileage for Class 2b-3 vehicles, a major component of battery degradation is age related, making it likely that one or more midlife battery replacements would be required. Also, given the uniquely varied and diverse use cases for vehicles in this segment, the assumed annual mileage is both inexplicably lower and has an unusually rapid drop-off in mileage as the vehicle ages.

The TCO analysis incorrectly assumes that only 30 percent of Class 2b-3 vehicles will be sold to individuals. In fact, approximately 80 percent of Class 2b-3 vehicles are sold to individuals and small businesses. Those individuals and small businesses will rely non-centralized charging stations and therefore would have absolutely no opportunity to benefit from LCFS credits.

Ongoing changes to the TCO analysis may add up to a favorable cost-benefit analysis for increased numbers of Class 2b-3 battery-electric vehicles, but the underlying assumptions used to get there result in vehicles, especially pickup trucks, that are not commercially viable. A "standard range" battery providing 65 miles of range is unlikely to be suitable for any customers. Similarly, the "long range" battery with a 97-mile range would not be suitable for most customers in this segment. Both individual and commercial users of pickup trucks have variable daily mileage requirements that will not be satisfied with these short ranges. Additionally, with the small battery and motor sizes assumed in the analysis, battery-electric vehicles would be wholly unsuited for towing, which is one of the primary reasons customers purchase class 2b and 3 pickup trucks.

CARB has cited a number of product announcements to support the increase in ZE pickup truck requirements in the proposed amendments to the ACT rule, speculating that at least some of them would be in the Class 2b range. However, even the most capable of those announced pickups only offer payload and towing capability barely equivalent to smallest Class 2b pickup, and would not serve as a substitute for diesel-powered heavy-duty pickup trucks. Customers buy heavy-duty pickup trucks for their capability and will not purchase trucks that do not meet their needs.

CARB Lacks Statutory Authority to Mandate the Certification Warranty, Defect Reporting and Recall Requirements in the Zero-Emission Powertrains Certification Requirements

The proposed ACT rule still includes the following provision to require that ZE trucks meet CARB's zero-emission powertrain (ZEP) certification provisions:

> *Zero-Emission Powertrain Certification for ZEVs*. Beginning with the 2024 model year, on-road ZEVs over 14,000 pounds GVWR and incomplete medium-duty ZEVs from 8,501 through 14,000 pounds GVWR produced and delivered for sale in California must meet the requirements of 13 CCR section 1956.8 and 17 CCR section 95663 as amended by the Zero-Emission Powertrain Certification regulation to receive ZEV credit. (See, proposed § 1963.2(h).)

By requiring ZEP certification to meet the requirements of the ACT rule, the rule would mandate certification, warranty, defect reporting and recall requirements for ZEPs. However, as EMA explained previously, CARB does not have the statutory authority to adopt mandatory ZEP certification requirements, which, as explained below, renders that proposed requirement invalid as a matter of law.

The specific provisions of the proposed ZEP certification requirements would include all of the following regulatory elements:

(i) Certified heavy-duty families of ZEVs would be required to use a ZEP that is certified in accordance with the "ZEPCert powertrain requirements," and would be required to submit a detailed "application package" for certification;

(ii) Manufacturers would be required to attest that the vehicle integration components are designed and developed to accommodate the expected output of the ZEP to be used;

(iii) Covered heavy-duty ZEV manufacturers would be required to include a ZEPCert "compliance statement" on their Phase 2 GHG labels;

(iv) Covered heavy-duty ZEV manufacturers would be required to provide vehicle purchasers with a "prescribed guidance statement identifying considerations that would be made when choosing a [heavy-duty electric vehicle]," including range, top speed, maximum grade, and impacts on performance, and also would be required to provide a detailed description of the manufacturer's diagnosis and repair process;

(v) Covered heavy-duty ZEV manufacturers would be required to make available their diagnostic and repair manuals, as well as any necessary service tools;

(vi) Covered heavy-duty ZEV manufacturers would be required to display or make available various vehicle-related information, including kilowatts used per trip and remaining usable battery-capacity;

(vii) Covered heavy-duty ZEV manufacturers would need to utilize a standardized battery-capacity test (the constant current battery depletion test) to "provide a useful reference point by which different battery-based powertrains could be compared;"

(viii) Covered heavy-duty ZEV manufacturers would be required to describe the monitoring, diagnostics and software strategies that they use;

(ix) Covered heavy-duty ZEV manufacturers would be required to provide ZEP warranties covering all powertrain components against workmanship and component defects for, at a minimum, 3-years or 50,000 miles of operation;

(x) Covered heavy-duty ZEV manufacturers would be required to submit periodic "screened" and unscreened" warranty information reports, and to initiate ZEV recalls when the number of screened failures of warranted ZEP components exceeds 4 percent or 25 failures, whichever is greater; and

(xi) Covered heavy-duty ZEV manufacturers would be required to affix a label on each certified ZEP providing, among other things, the manufacturer's name and a "compliance statement" confirming that the ZEP has been certified to CARB's requirements.

Significantly, none of the foregoing multiple regulatory requirements relate to engine or vehicle emissions standards or to engine vehicle emissions performance in-use. Rather, all of the foregoing requirements relate to consumer awareness or protection, all aimed at spurring consumers' purchases of and satisfaction with ZE trucks. Those types of consumer-protection and market-promotion regulations, however, are beyond the scope of CARB's certification authority under the relevant California statutes.

Health and Safety Code ("HSC") section 39018 defines "certification" to mean "a finding by the state board that *a motor vehicle, motor vehicle engine, or motor vehicle pollution control device* has satisfied the criteria adopted by the state board *for the control of specified air contaminants from vehicular sources*." (Emphasis added.) HSC section 39040 defines "motor vehicle pollution control device" to mean "equipment designed for installation on a motor vehicle *for the purpose of reducing the air contaminants emitted* from the vehicle." HSC sections 43013(a) and 43101(a) provide that "the state board shall adopt motor vehicle emission standards . . . *for the control of air contaminants and sources of air pollution*," and shall "adopt and implement emission standards *for new motor vehicles for the control of emissions from new motor vehicles*." (Emphasis added.) In that regard, HSC section 39027 defines "emission standards" to mean "specified limitations on the discharge of air contaminants into the atmosphere." Finally, HSC section 43102(a) states that,

> No new motor vehicle or new motor vehicle engine shall be certified by the state board, *unless the vehicle or engine,* as the case may be, *meets the emission standards adopted by the state board* pursuant to Section 43101 . . . . (Emphasis added.)

From all of the foregoing, it is evident that CARB's certification authority under the applicable statutes is limited to issuing findings that a new motor vehicle, new motor vehicle engine, or new motor vehicle pollution control device has satisfied CARB's prescribed limitations on the discharge of specified air contaminants into the atmosphere. As a result, it is equally clear that CARB does not have the authority to certify specific powertrain components that have no capability to discharge any air contaminants into the atmosphere. CARB's certification authority is inherently tied to the assessment and verification that new motor vehicles and engines — not

specific zero-emission powertrain components — are compliant with specified limitations on the discharge of air contaminants. Mandating that manufacturers provide "consistent and reliable information about zero-emission technology" simply does not fit within the scope of CARB's delegated certification authority as delineated by the relevant HSC statutes. Where a system for vehicle tractive effort is comprised of powertrain components that cannot and do not produce any emissions, those components, by definition and by law, are outside the ambit of CARB's certification authority for the control of specified air contaminants from motor vehicles and engines.

All of the foregoing statutory provisions support the conclusion that CARB does not have the authority to certify specific heavy-duty powertrains and powertrain components that have no capability to generate or discharge emissions of any air contaminants. Consequently, CARB's proposal to adopt detailed ZEP-related certification requirements pertaining to battery capacity, labeling, purchasing guidance, on-board information, diagnostics and repairs, are simply beyond the scope of CARB's legislatively delegated authority, and so are invalid.

The same holds true for CARB's specific warranty and recall requirements relating to ZEP components. Again, the plain reading of the relevant provisions of the HSC bears this out.

Those relevant statutory provisions are as follows:

> **HSC §43205.5. Manufacturer's warranty on vehicles or engines**
> Commencing with the 1990 model-year, the manufacturer of each motor vehicle and motor vehicle engine . . . shall warrant to the ultimate purchaser and each subsequent purchaser *that the motor vehicle or motor vehicle engine* meets all of the following requirements:
>
> (a) Is designed, built, and equipped *so as to conform with the applicable emission standards* specified in this part for a period of use determined by the state board.
>
> (b) Is free from defects in materials and workmanship which cause *the motor vehicle or motor vehicle engine* to fail to conform with the applicable requirements specified in this part.
>
> (Emphasis added.)
>
> * * *
>
> **HSC §43105. Manufacturer's violation and failure to correct; recall**
> No *new motor vehicle, new motor vehicle engine,* or motor vehicle with a new motor vehicle engine required pursuant to this part to meet *the emission standards established pursuant to Section 43101* shall be sold to the ultimate purchaser . . . or registered in this state *if the manufacturer has violated emission standards and test procedures*

> and has failed to take corrective action, which may include recall of vehicles or engines . . .
>
> (Emphasis added.)

The foregoing statutes make it clear that CARB's warranty authority under the HSC is limited to ensuring that manufacturers comply with the tailpipe emission standards and other emissions-related requirements that apply to motor vehicles and motor vehicle engines. CARB's statutorily-limited warranty authority does not extend to enhancing the "market transparency, consistency and stability" for the various components of ZEPs, or to promoting the "broad market adoption of zero-emission technology in the heavy-duty sector." The relevant provisions of HSC section 43205.5 do not by any stretch authorize regulations geared to provide "policy support to accelerate" the maturation of the heavy-duty ZEV/ZEP market. Nor do they cover powertrain components at all. Rather, the governing statutory provisions constrain and restrict CARB's warranty authority to regulations that help to ensure that new motor vehicles and new motor vehicle engines remain in compliance with quantitative emissions standards and related requirements for the period of use that the state board determines. CARB's proposal for ZEP warranties — which again is aimed at enhancing customers' acceptance of and satisfaction with the componentry of heavy-duty ZEPs, not at ensuring robust tailpipe emissions compliance — exceeds the bounds of CARB's statutory authority.

Similarly, CARB's proposal to establish defect reporting and recall requirements centered around the number of failures of ZEP components also is beyond the scope of CARB's delegated regulatory authority. Under HSC section 43105, CARB-mandated corrective actions, including recalls, are limited to circumstances where it can be demonstrated, through reported failure rates or otherwise, that a manufacturer's motor vehicles or motor vehicle engines are in violation of "emission standards" or related "test procedures." Accordingly, the corrective actions, along with the monitoring that might lead to corrective actions, that are permitted under HSC section 43103 do not encompass actions intended to promote the market for "zero-emission" powertrain component parts, such as generators, on-board chargers or battery management systems. Those types of non-emissions-related consumer-satisfaction issues are simply outside the boundaries of CARB's emissions-related mission and legislative grants of authority, especially as it pertains to warranties, defect reporting, and recall requirements.

CARB's response to EMA's detailed explanation why CARB lacks the statutory authority to adopt certification, warranty, defect reporting and recall requirements for zero-emission powertrain (ZEP) components is really no response at all. CARB simply claims that it has broad authority to adopt emission standards and "ancillary requirements" for new motor vehicles and engines. (See Response to Comments, p. 26.) EMA does not dispute that. Rather, what EMA has demonstrated is that CARB has no authority to establish performance and reliability criteria or other ancillary requirements — including warranty, reporting, and recall requirements — for the specific components of zero-emission powertrains, such as batteries, generators, and electrical systems, that have no capacity whatsoever to generate any air contaminants in any amount from any new vehicle or engine. CARB's response does nothing to rebut that clear-cut conclusion.

CARB also concedes in its response that it is, in fact, venturing well beyond its jurisdiction over air contaminants into the realm of consumer protection, a regulatory area that the Legislature has never delegated to CARB. CARB acknowledges that the real object of its attempted ZEP

performance criteria is to "encourage higher utilization of battery-electric and full-cell vehicles," and to "raise consumer awareness of ZEP technologies." (Response to Comments, pp. 26-27.) Nothing in the Health and Safety code authorizes CARB to vest itself with such an expansive mandate to act as a consumer advocate for the development of the ZEV/ZEP market.

Consequently, CARB's ultra vires ZEP regulation remains invalid and unlawful.

CARB Should Restructure the ACT Rule to Maximize the Chances of Success

The proposed ACT rule can and should be restructured into a workable and implementable program that is more likely to establish a self-sustaining market for ZE commercial vehicles in California. To maximize the chances of success, the Board should direct staff to modify the rule to address the following:

- **Prioritize the most suitable market segments.** ZE trucks are more suitable for certain commercial vehicle market segments than others and therefore the beachhead approach presents a much greater chance of success.

- **Link any sales mandates to purchase requirements.** To be effective, the two policies must be issued simultaneously, be balanced, and apply to same segment populations in the same time frame.

- **Focus on what fleets need to successfully convert to ZE trucks.** Before fleets will purchase ZE trucks, they must also be ready to incorporate into their operations the maintenance and operational needs of the new technologies.

- **Recognize the critical charging infrastructure needs.** Commercial trucking fleets must first invest in and build out adequate charging infrastructure at their facilities to be able to operate ZE trucks. Developing the charging infrastructure is the longest leadtime aspect of converting to ZE trucks, and fleets must have it in place before purchasing ZE trucks.

Additionally, the ZE commercial vehicle market will require significant incentives until ZE trucks provide a positive return on a fleet's investment. Incentives must be sufficient to address all ZE truck life-cycle costs that exceed traditional vehicles, including (i) higher purchase prices, (ii) operational inefficiencies, (iii) lower residual values, (iv) new maintenance facility and equipment investments, and (v) significant new infrastructure investments. Additionally, incentives must be available for an extended period of time so fleets can rely on them in their long-term business plans to convert to ZE trucks. Without sufficient certainty that adequate incentives will be available years in the future, fleets will not begin the long and complicated process of converting to ZE trucks due to the associated business risks.

To make the ACT rule successful and establish a self-sustaining a ZE commercial vehicle market, CARB must address the four issues listed above and ensure that the California government will provide sufficient and sustain incentive funding. The incentives must adequately ensure that the small and large businesses that operate commercial vehicles in the state will not be harmed by the rule.

CARB Must Address Several Specific Issues with the Proposed Amendments

Should CARB keep the ACT rule structured as only a naked sales mandate, at a minimum, the Board should direct staff to address the following specific issues with the proposal:

Recognize the Need for a Fleet Rule

At a February 12, 2020, public workshop, CARB staff outlined a plan to bring fleet rules to the Board in 2021 or 2022. Staff predicted that the fleet rules would be effective in 2024 and drive the purchase of more ZE trucks than the sales mandate would require manufacturers to sell. At that workshop staff proposed seven unique concepts from which they would pick the most promising and then begin developing a regulation. While that ambitious approach for the fleet rules may sound promising, it is inherently misaligned with the current sales mandate proposal because they are not addressing the same truck populations in the same time frame. Since robust and effective fleet rules will be critical to establishing a ZE truck market in California, the Board should direct staff to, at the very least, incorporate their intent to establish future fleet rules into the proposed ACT rule. Staff should add to the regulation an exemption for manufacturers from the sales requirements in the event that the fleet rules are not established in time or are not sufficient to mandate the purchase of more ZE trucks than the sales requirements.

Recognize the Need for a Charging Infrastructure

The proposed ACT rule assumes that fleets and utilities will establish the requisite charging stations needed to support the ZE trucks deployed. However, the charging stations for ZE commercial vehicles must be located at fleet terminals and other depots where trucks are typically parked, and developing that charging infrastructure will be complicated, expensive, and time-consuming. Moreover, the charging infrastructure development must consider expanding the number of charging stations in anticipation of the fleet deploying more ZE trucks over time. Additionally, since 80 percent of the Class 2b-3 vehicles are sold to individuals or small businesses, the chargers for those vehicles must be broadly available to retail consumers. Considering that 24 to 48 months may be needed between concept and a fully functional charging station, the ACT rule should include an exemption for manufacturers from the sales requirements in the event that a sufficient charging infrastructure is not in place.

Provide Additional Compliance Provisions for Other States

Section 177 of Clean Air Act allows other states to adopt CARB's standards. (See, 42 U.S.C. § 7507.) To enhance the chances of the ACT rule to be successful outside of California, the rule should provide truck manufacturers additional compliance flexibilities for those Section 177 states. For example, the Advanced Clean Cars (ACC) rule initially provided a credit travel provision that was later extended through the 2017 model year. The travel provision allowed all zero-emission vehicle (ZEV) types, except transitional ZEVs (TZEVs), that were sold in other states to be counted toward compliance with CARB's ACC requirements, as if they were sold in California. Similarly, a vehicle sold in California would count toward compliance in a Section 177 state. Under the travel provision, the number of ZEVs that a vehicle manufacturer must sell nationwide will not exceed the number of ZEVs required by CARB's regulation alone, regardless of how many states adopt CARB's rule. A travel provision would enhance the chances that other

states could successfully adopt CARB's ACT rule, and therefore should be included in the rule.

Additionally, the ACC rule currently provides an optional compliance path whereby vehicle manufacturers may elect to pool credits within two large regions outside of California. Unlike the credit travel provision, credit pooling would not alter either the total number of ZE trucks sold inside or outside of California. However, credit pooling would allow more efficient allocation of ZE trucks in states that adopt CARB's ACT rule and therefore should be included in the rule.

Both the credit travel and pooling provisions are important considerations for the success of the ACT rule in Section 177 states because those states will trail California in the development and implementation of supporting heavy-duty ZE truck policies such as purchase incentives, the development of the charging infrastructure, and the implementation of fleet purchase rules.

Modify the Description of Vehicles Sold in California

The proposed amendments would modify the regulatory language for the population of vehicles from which a manufacturer's sales mandate percentage is applied to include any vehicle that ends up being put into service in California. However, the proposed amendment would be impossible to implement considering the nature of the multi-stage manufacturing that occurs with all single-unit commercial trucks (*i.e.,* everything but tractors). A single-unit truck is built as an incomplete vehicle by the truck manufacturer (*e.g.*, a chassis-cab), and then another entity installs a body on the truck chassis and completes the vehicle manufacturing. The original truck manufacturer may not even know which of its chassis-cabs will end up in California, and the vehicle may not be put into service until many months after the chassis-cab was built. It would be impracticable for a truck manufacturer to track all of its chassis-cabs through their subsequent sales and manufacturing operations to identify those that may eventually be sold to a user in California. Following is one example of where the language proposed new is used:

> *Deficit Generation.* Starting with the 2024 model year, a manufacturer shall annually incur deficits based on the manufacturer's annual sales volume of on-road vehicles produced and delivered for sales in California. ***Deficits are incurred when the on-road vehicle is sold to the ultimate purchaser in California.*** (See, proposed § 1963.1(a). Emphasis added.)

To resolve the impracticability of the proposed description of vehicles sold into California, CARB could do one of two things. CARB could clarify that they plan to regulate the bodybuilders who sell completed commercial vehicles to California customers, thus ensuring that the original truck manufacturer may not later be held liable for those vehicles. Alternatively, CARB could remove the second part of the description that reads: "Deficits are incurred when the on-road vehicle is sold to the ultimate purchaser in California." Doing so would leave the definition the same as what is in the Advanced Clean Cars and Greenhouse Gas Standards for Medium- and Heavy-Duty Engine and Vehicles (Heavy-Duty GHG) regulations. That simple change would align the ACT rule with other rules and would capture nearly all of a truck manufacturer's vehicle that are put into service in California. To achieve that end in an implementable manner, CARB should eliminate the impracticable second part of the description and keep the first part. To be

clear, the § 1963.1(a) language should be as follows:

> *Deficit Generation.* Starting with the 2024 model year, a manufacturer shall annually incur deficits based on the manufacturer's annual sales volume of on-road vehicles produced and delivered for sale in California.

Modify Near Zero Emission Vehicle Requirements

The proposed amendments include the following new requirement for the minimum all-electric range (AER) of a near-zero-emission vehicle (NZEV):

> *Minimum All-Electric Range*. To earn credit, NZEVs must have an all-electric range that equals or exceeds the criteria specified in 17 CCR section 95663(d) until the end of the 2029 model year and ***an all-electric range that equals or exceeds 75 miles or greater starting with the 2030 model year.*** (See, proposed § 1963.2(b)(2). Emphasis added.)

The proposed 75-mile or greater AER for an NZEV after 2029 is unnecessary. A NZEV couples an electric drivetrain with an internal combustion engine that may be used to generate power to recharge the batteries or propel the vehicle to avoid completely draining the power from the batteries and stranding the vehicle. NZEVs are particularly useful for commercial customers who have occasional uses of a vehicle that may exceed range of its battery capacity. It would be unnecessary to require a 75-mile AER for an NZEV that typically operates over much shorter distances because the customer would be required to pay for and carry extra battery capacity.

Instead of establishing a 75-mile AER, CARB reduce the credits that a manufacturer may generate with an NZEV after 2029. That is, in lieu of requiring a 75-mile AER, CARB should modify § 1963.2(b)(1) to replace the 0.75 not-to exceed value with 0.65 beginning with model year 2030. The 0.65 not-to-exceed factor would reduce the NZEV credits by thirteen percent and thus make them much less valuable. Specifically, § 1963.2(b)(2) should be eliminated and § 1963.2(b)(1) should be revised to read as follows:

> *NZEV Factor Value*. The NZEV factor used to calculate NZEV credits shall be calculated as 0.01 multiplied by the all-electric range, and is not to exceed 0.75 until the end of the 2029 model year and 0.65 starting with the 2030 model year.

Should CARB increase the AER requirement for NZEVs built after 2029, the range should be significantly reduced to allow manufacturers the flexibility to design a product that best suits their customers' needs. In that case, a 45-mile AER would be more appropriate. Additionally, CARB should clarify the requirements for measuring AER in 17 CCR § 95663(d). We know of no instance where a manufacturer has utilized those complex requirements, and in the interest of regulatory certainty CARB must provide detailed guidance on how to apply them.

CARB has stated that one of the purposes of the ACT rule is to reduce emissions from criteria pollutants and greenhouse gases from on-road medium- and heavy-duty vehicles. Given

their potential to achieve significant near- and long-term emission reductions, EMA recommends that the rule include NZEV credits for vehicles with engines certified to the optional low-NO_X standard of 0.02g/hp-hr and that use renewable fuel. Such vehicles not only already achieve near-zero NO_X emissions but can also be carbon neutral/negative depending on the fuel source. The definition of NZEV in the proposed rule focuses on certain technologies instead of actual emissions performance or capability. EMA recommends modifying the NZEV definition to include additional technologies that can achieve the optional certification to 0.02g/hp-hr NO_X standard and use renewable fuel. CARB should also clarify that the new definition of NZEV used in the ACT rule does not affect the definition of "near-zero" as it is used in other CARB regulations or funding programs.

Modify the Requirement to Make Up a Deficit

The proposed amendments would modify the time period within which manufacturers may make up a deficit as follows:

> *Requirement to Make Up a Deficit.* A manufacturer that retires fewer ZEV or NZEV credits than required to meet its credit obligation in a given model year must make up the deficit ***by the end of the next model year*** by submitting a commensurate number of ZEV credits to satisfy the deficiency. Deficits carried over to the following model year cannot be made up with NZEV credits. (See, proposed § 1963.3(b). Emphasis added.)

The proposed requirement for a manufacturer to make up a deficit by the end of the next model year is unreasonable restrictive. Because commercial vehicles are highly customized to complete unique functions and are sold to entities whose cash flow will vary greatly with changing economic and business conditions, a truck manufacturer's sales volumes and product mix will very greatly year-over-year. Accordingly, it may be unreasonably challenging for a manufacturer to make up a deficit in one year. That issue was recognized in the Heavy-Duty GHG regulations that provide three model years to remedy a deficit. (See, 40 C.F.R. § 1037.745(e).) To provide manufacturers the flexibility needed in the commercial vehicle marketplace, CARB should modify the requirement to require a manufacturer to make up a deficit within three model years, in alignment with the Heavy-Duty GHG rule.

Modify the Low Tractor Volume Flexibility

The proposed amendments would establish a very limited availability for a manufacturer to use truck credits to make up for a deficit in the tractor category. We understand that CARB is restricting the use of truck credits to make up for tractor deficits to force manufacturers to sell ZE tractors, regardless of what types of vehicles customers are willing to purchase. Such forcing of sales into a particularly unsuitable market is further evidence, on top of our discussion above about the proposed higher tractor sales percentages, that the amendments to the ACT rule represent the antithesis of a beachhead strategy that CARB previously followed and that the Board has recommended. Following is the provision in the proposed amendments that limits a manufacturers ability to transfer credits into the tractor category:

> *Low Tractor Volume Flexibility*. A manufacturer who generates 25 or fewer Class 7-8 tractor deficits in a model year and has tractor deficits remaining after retiring credits per the credit retirement order in sections 1963.3(c)(1) and 1963.3(c)(2) ***can use a maximum of 25 Class 2b-3 or Class 4-8 group ZEV credits***, starting with the earliest expiring credits, to satisfy their Class 7-8 tractor group deficits. (See, proposed § 1963.3(c)(3). Emphasis added.)

Allowing only 25 truck credits to be used to make up tractor deficits is unreasonably restrictive, particularly since the Weight Class Modifiers in § 1963.1(b) would require a manufacturer to sell more than one ZE truck to make up for the lack of a ZE tractor. The restriction would be especially harmful to a manufacturer who sells a limited number of tractors in California, and likely could not justify the investment in developing a ZE tractor model. To address those concerns, and to provide all manufacturers the ability to balance credits more effectively in response to shifting marketplace conditions, CARB should revise the provision to be as follows:

> *Low Tractor Volume Flexibility*. A manufacturer who has tractor deficits remaining after retiring credits per the credit retirement order in sections 1963.3(c)(1) and 1963.3(c)(2) can use Class 2b-3 or Class 4-8 group ZEV credits, starting with the earliest expiring credits, to satisfy up to 50 of their Class 7-8 tractor group deficits.

Conclusion

EMA member companies are investing heavily in ZE truck technologies and fully support expanding the California market for ZE trucks. However, the proposed ACT rule is built on a flawed regulatory structure and thus it risks poisoning the market. As proposed, the rule would require that manufacturers sell a product that may not further their customers' business and thus they will not buy. Instead, those trucking fleets may simply purchase other technologies or maintain their existing trucks longer. Hoping that staff will complete fleet rules in record time and successfully implement them with very little leadtime does not justify finalizing a fundamentally flawed rule now. Additionally, hoping that the electricity providers will install an adequate charging infrastructure in time at the fleet facilities where it will be needed does not make up for ignoring that critical aspect in the ACT rulemaking. Avoiding those urgently important aspects of establishing a ZE commercial vehicle marketplace will doom the ACT rule to failure. To avoid that outcome and increase the chances that the ACT will achieve its intended results, the Board must reject the proposed amendments and again direct staff to amend the proposal so that it addresses all three necessary components of a viable ZE truck program: (i) ZE truck products, (ii) robust fleet rules, and (iii) the requisite charging infrastructure.

Following soon after the ACT rule, CARB is anticipated to finalize the Omnibus Low-NO_X rule, and the two rules will have significant and overlapping impacts on commercial vehicles sold in California. The rules simultaneously apply to the same group of truck and engine manufacturers, affect the same commercial vehicle products in California, and will significantly impact all those who use trucks and who benefit from them. The enormous technology development costs of the Omnibus Low-NO_X rule must be spread over the limited number of medium- and heavy-duty trucks sold in California. At the same time, the ACT rule will impose

enormous research and development costs and require manufacturers to convert up to 75 percent of those trucks to ZE. Thus, among other things, the requirements of the ACT rule will reduce the number of traditional diesel products for which manufacturers can spread, and recoup, the costs of the Omnibus Low-NO_X rule. The concurrent nature of the two rules will require manufacturers to complete two major product development programs for the California market in the same time frame and under the unprecedented constraints imposed by the coronavirus pandemic. Those costs ultimately will be borne by commercial truck buyers and will significantly impact the cost of goods movement in California. Further, as a practical matter, the coronavirus crisis also will reduce the leadtime manufactures need to comply with the rules. The crisis will reduce the needed capital and financial assistance commercial truck customers need to fund the higher truck purchase prices and operational costs associated with the ACT rule. Additionally, the crisis will reduce the time and capital available to develop the necessary charging infrastructure, and considering California's budget situation it will be much harder for the state to fund incentive programs needed to offset the higher purchase and operational costs of ZE trucks.

The enormous economic cost and hardships caused by the coronavirus pandemic, and the diminished ability of truck and engine manufacturers to devote resources needed for future product development, significantly reduces manufacturers' ability to meet the stringent demands of the Omnibus Low-NO_X and ACT rules in the time frames contemplated. Indeed, the crisis even makes it impractical to participate in and to provide data in response to the rulemakings.

It should come as no surprise that truck and engine manufacturers may decide to simply exit the California market due to the costs and feasibility of producing a commercially-viable product under the Omnibus Low-NO_X rule. In fact, we have heard from CARB staff that at least one major heavy-duty manufacturer has so informed them. Of course, if one or more manufacturers are compelled to exit the California marketplace, the ACT rule's ZEV mandate will have no effect on them. Since the sales mandate is calculated as a percentage of diesel sales, their mandate will be X percent of zero.

We look forward to continuing to work with the Board, staff, and other stakeholders to reduce the unintended negative consequences of the proposed ACT rule and develop a program that will successfully expand the ZE commercial vehicle market in California. If you have any questions, or if there is any additional information we could provide, please do not hesitate to contact Timothy Blubaugh at (312) 929-1972 or tblubaugh@emamail.org.

Respectfully submitted,

TRUCK & ENGINE MANUFACTURERS ASSOCIATION

118774_6