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STATE OF CALIFORNIA
AIR RESOURCE BOARD

Policy Recommendations To Increase The Use Of Zero-Emission Vehicles Per Senate Bill 498	)))	**Hearing Date: January 23, 2020**

COMMENTS OF THE TRUCK AND ENGINE MANUFACTURERS ASSOCIATION

January 21, 2020

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Introduction

The Truck and Engine Manufacturers Association ("EMA") hereby submits its comments on the California Air Resources Board's ("CARB") policy recommendations to increase the use of zero-emission vehicles ("ZEVs") pursuant to Senate Bill 498. As discussed below, EMA's principal comment is that CARB should recommend that the State Legislature allocate sufficient and sustained funding for commercial fleet operators to construct, maintain and expand the requisite recharging infrastructure for heavy-duty and medium-duty ZEVs, and to ensure the ready availability of necessary and adequate incentive funds to promote the purchase of heavy-duty and medium-duty ZEVs in the State of California. To that end, EMA endorses the first set of policy recommendations that CARB has proposed, including: (i) that the Legislature provide predictable and expanded funding to incentivize the purchase of heavy-duty and medium-duty ZEV trucks that are best-suited to ZEV-fleet applications; (ii) that the Legislature provide expanded and sustained funding and to construct and maintain a sufficient recharging infrastructure for ZEV trucks; and (iii) that the Legislature adopt other statewide incentives to encourage the purchase of ZEV trucks, including sales tax and registration fee exemptions.

EMA is the trade association that, among other things, represents the interests of the world's leading manufacturers of heavy-duty and medium-duty on-highway vehicles and engines, including heavy-duty and medium-duty ZEVs. Accordingly, EMA has a direct and significant interest in this matter.

Senate Bill 498 requires that CARB "review all State board programs affecting the adoption of light-duty, medium-duty, and heavy-duty zero-emission vehicles, and report to the Legislature with policy recommendations for increasing the use of those vehicles for vehicle fleet use and on a general-use basis in the State." One of the most relevant CARB programs within the scope of SB 498 is the pending Advanced Clean Trucks ("ACT") Regulation, the initial hearing for which took place on December 12, 2019. EMA has specific policy recommendations for enhancing the feasibility, efficacy and cost-effectiveness of that pending regulation.

CARB's pending ACT proposal is not optimized from a policy perspective, and is not currently well-suited to increase the use of ZEV trucks in California in an effective manner. In essence, the pending ACT rulemaking is putting the cart before the horse by mandating that manufacturers sell an increasing percentage of zero-emission heavy-duty and medium-duty vehicles, without first ensuring that sustained and sufficient Legislative funding is in place to

finance the construction of the requisite ZEV recharging infrastructure, and to incentivize the necessary corollary purchasing requirements for ZEV trucks. Until those two critical legs of what should be a three-legged rulemaking are established, the Proposed ACT Regulation is likely to collapse. Simply stated, commercial vehicle manufacturers will not be able to sell, on an economically viable basis, an increasing number of ZEV trucks unless and until a robust ZEV infrastructure is assured and in place, and unless a sufficient number of commercial vehicle fleets in California are required to purchase ZEV trucks on a similarly increasing-percentage basis, with adequate incentive funding in place to do so. Without those two publicly-funded prongs of what needs to be a three-pronged regulatory paradigm for widespread ZEV deployment, commercial vehicle manufacturers will be faced with unacceptable costs and market risks, and may be compelled to reduce their sales into the California market, or abandon that market altogether. That adverse public policy result becomes even more likely when the costs, burdens and market disruptions of CARB's anticipated and contemporaneous Omnibus HDOH Low-NO_x Regulations are factored in.

In light of the policy shortcomings of the pending ACT Rulemaking, the Board should recommend that the Legislature allocate sufficient and sustained funding to cover the increased marginal purchase costs of ZEV trucks, and sufficient and sustained funding to ensure the development, installation, maintenance and expansion of the necessary ZEV recharging infrastructure. CARB also should adopt fleet and application-specific ZEV-purchase mandates to ensure the timely utilization of the sustained incentive funds that the Legislature should provide.

Summary of the Proposed ACT Rule

The Proposed ACT Rule is centered around a mandate that medium-duty and heavy-duty vehicle manufacturers — manufacturers of vehicles with a gross vehicle weight rating (GVWR) greater than 8,500 pounds — produce and sell into California an increasing percentage of ZEVs, calculated on the basis of the manufacturers' overall sales of medium-duty and heavy-duty vehicles in California. In essence, "affected manufacturers would incur deficits for each vehicle sold into California starting with the 2024 MY that must be met with credits generated from producing and selling ZEVs or NZEVs into California starting in the 2021 MY." (ISOR, p. III-8.) The ZEV sales mandates would increase annually until the 2030 MY, as follows:

Table III-1: ZEV Sales Percentage Schedule

Model Year (MY)	Class 2b-3 Group*	Class 4-8 Group**	Class 7-8 Tractor Group
2024	3%	7%	3%
2025	5%	9%	5%
2026	7%	11%	7%
2027	9%	13%	9%
2028	11%	24%	11%
2029	13%	37%	13%
2030 and beyond	15%	50%	15%

*Excludes pickups until 2027 MY

**Excludes Class 7-8 Tractors, Includes Yard Tractors

The ZEV credit values that would be used to offset non-ZEV sales would be scaled based on vehicle weight classes to account for the higher emissions associated with larger vehicles, and "to keep credits and deficits approximately equitable from an emissions standpoint." (ISOR, p. III-9.) The specific proposed weight-class credit modifiers are, as follows:

Table III-2: Weight Class Modifiers

Weight Class	Class 2b-3	Class 4-5	Class 6–7*	Class 7 Tractors and All Class 8
Weight Class Modifier	0.6	1	1.5	2

*Excludes Class 7 tractors

Limitations would be placed on the use of ZEV credits. In particular, only Class 7 and 8 credits could be used to satisfy the Class 7 and 8 tractor deficits, and all ZEV credits would have a limited lifetime before they would expire.

The Fundamental Policy Challenges at Issue

In evaluating the policy merits of CARB's pending ACT Regulation, it is important to note, as an initial matter, that commercial trucks and the commercial truck market are not analogous to the passenger car market. The size of the respective markets, the nature of the respective motor vehicle products, and the needs of the respective motor vehicle purchasers are fundamentally different.

The passenger car market in California covers more than 30 million vehicles, with annual sales volumes approaching one million. In sharp contrast, the annual sales of heavy-duty trucks (Classes 4-8) in California total less than 20,000 units. Thus, when the aggregate costs of transforming the medium-duty and heavy-duty truck market into a ZEV-based market are considered, the relatively small size of the relevant commercial vehicle market cannot be overlooked. Unlike the passenger car market, there is a very limited number of trucks to which the very substantial costs of a market-wide ZEV-sales initiative could be allocated. And, compounding that fundamental problem in this instance, those substantial market-wide costs will need to be absorbed and recouped in the same time frame that manufacturers will be forced to absorb and recoup the substantial market-wide costs associated with CARB's anticipated Omnibus Low-NO_x Rule. Thus, the prospects for truck manufacturers to generate any marginal profits on the mandated sale of medium-duty and heavy-duty ZEVs are, at best, remote, especially in the absence of corresponding incentivized ZEV-purchase mandates and adequate sustained public funding to install a robust recharging infrastructure for ZEV trucks, and to cover the increased marginal purchase costs for ZEV trucks.

Similarly, the nature and utilization of commercial trucks are markedly different from passenger cars. Commercial trucks are built to highly detailed specifications for a very broad range of unique applications, including, to name a few, contractor trucks, parcel delivery vans, pickup and delivery trucks, buses, concrete mixers, dump trucks, bucket trucks, garbage trucks, fire trucks, ambulances, regional freight tractors, and long-haul tractors. Commercial vehicle manufacturers need to be able to meet all of those varying customer needs and produce all of those highly specialized vehicles, while still generating a profit. The product planning, manufacturing process,

array of vehicle platforms, production schedules, and product distribution and services functions, again, are nothing like the passenger car industry where the volumes are orders-of-magnitude higher and the range of customer needs and vehicle applications is far narrower. Consequently, while the passenger car market potentially can spread vehicle development costs over literally millions of cars, thereby more readily preserving per-product profit margins, the commercial truck market presents no opportunity to do so. The low product volumes and the high number of different commercial vehicle applications make a unilateral, broad-based and naked ZEV sales mandate inherently impractical.

The needs of commercial vehicle purchasers also are fundamentally different from car-buyers. Commercial trucks are capital assets acquired for specific commercial purposes to help derive profits from specific commercial enterprises. They are amortized over longer time periods than cars, and they are assessed, not with regard to the subjective criteria of style and comfort, but solely on the objective basis of performance capability and cost-efficiency. Thus, truck purchasers' decisions turn on detailed up-front assessments of a truck's utility for the job at hand, and its purchase price, durability, operating costs, and resale value. To the extent that new vehicle technologies or regulatory controls impact those criteria — as in the case of a broad-based regulatory mandate for the sale of ZEV trucks — truck purchasers will alter their purchase patterns and choices, especially in the absence of substantial incentives to cover the increases in the purchase price and recharging infrastructure costs of ZEV trucks.

Putting all of this together, it becomes clear that CARB's pending ACT Proposal, with its market-wide unilateral mandate for the sale of ZEV trucks, will create very significant adverse market disruptions, unless the Proposal is modified in substantial ways. Without those necessary changes to the Proposal, truck manufacturers will be forced to incur very significant per-vehicle costs to design, test, and manufacture a broad array or ZEV trucks, with no assurance that truck-buyers would elect to assume those significantly increased costs through ZEV purchases, and with insufficient volumes to recoup any meaningful return on their overall investments in the development of ZEV technologies.

There is a better policy approach to help promote the deployment and use of heavy-duty and medium-duty ZEVs in California, and the Board should make the necessary recommendations to the Legislature to implement that policy. First, with due regard to the production volumes that inherently constrain what can be done, specific commercial-truck fleet types and applications should be identified and prioritized for a more focused and optimized introduction of ZEV trucks. Second, the more targeted ZEV-sales mandates directed at those prioritized fleet applications ("the beachhead" markets) should be coupled with corresponding ZEV-purchase mandates applicable to the operators of the target fleets of commercial trucks. And third, the Legislature should earmark significant sustained incentive funds to construct the necessary ZEV recharging infrastructure for the covered fleets of ZEV trucks, and to reimburse fleet operators for the increased marginal costs of purchasing and operating ZEV trucks in the targeted beachhead markets.

The Proposed ACT Regulation Is Not Optimized From a Policy Perspective to Increase the Use of Heavy-Duty and Medium-Duty ZEVs

All stakeholders recognize that there are three core elements to a viable ZEV program for commercial trucks: (i) a publicly-funded and assured infrastructure for the prompt and efficient recharging and service of heavy-duty and medium-duty ZEVs; (ii) fleet-and-application-specific purchase mandates (which should be incentivized) to ensure that a sufficiently large market exists for ZEV trucks (which will have significantly higher purchase prices, and so might not be acquired by fleet operators in the absence of mandates); and (iii) correspondingly-scaled production mandates to ensure that commercial vehicle manufacturers have ZEVs available in sufficient varieties and numbers to meet the specific beachhead market segments and applications covered by the ZEV purchase mandates.

As noted, the Proposed ACT Regulation includes only one of those three core elements, and so amounts to a flawed policy proposal. Any assembly that requires three integrated pieces cannot be built with just one piece. In this instance, vehicle manufacturers will find it difficult if not impossible to incur the very significant costs of developing, testing and manufacturing commercial ZEVs in the absence of an assured and incentivized ZEV infrastructure, and an assured and incentivized ZEV market. Again, a three-legged stool with only one leg is difficult to sit on. Consequently, to optimize the policy of increasing the use of ZEV trucks, CARB should strongly recommend that the Legislature provide sufficient funding to help ensure the effective and timely implementation of two of the core elements of a viable ZEV truck program: (i) sufficient funding for fleets to construct, maintain and expand a recharging infrastructure for ZEV trucks; and (ii) sufficient incentive funding for truck-fleet operators to cover the incremental increased purchase costs of ZEV trucks.

Conclusion

Medium-duty and heavy-duty commercial trucks are not simply big cars. They are capital investments used by business entities to help generate profits from specific business operations. Thus, detailed calculations of upfront purchase costs and ongoing operating and fueling costs, including any fuel-infrastructure costs (and the certainty and predictability of those costs), will dictate whether a given commercial vehicle is purchased or not. Commercial vehicle and fleet operators need highly-specified trucks to perform the specific work at issue, and require predictable costs and long-term reliability assurances before converting to a new vehicle technology platform.

In addition, commercial trucks, unlike passenger cars, are highly varied and customized to perform myriad functions in myriad applications, all in an efficient, durable and cost-effective manner. Those multi-various trucks will operate over different types and lengths of routes, under different conditions, carrying different payloads, towing different cargo, and engaging in different patterns of stop-and-go behavior. While some of those highly variable vehicle applications could allow for the targeted introduction of ZEVs (assuming suitable corresponding purchase mandates, infrastructure assurances, and incentives), many applications would not.

The net result is that commercial vehicle fleet operators are unlikely to acquire and operate ZEVs in any appreciable numbers until they are proven to be profitable over their useful lives in the particular application(s) of concern to the fleet operator. That includes providing fleet operators with sufficient up-front assurances of ZEVs' suitability, reliability, durability and cost-effectiveness, as well as the certainty of a readily available and affordable ZEV recharging/refueling infrastructure. Unilateral across-the-board ZEV sales mandates imposed broadly on commercial vehicle manufacturers will not provide the requisite assurances of profitability to vehicle fleet operators, and will not drive a viable ZEV market for commercial trucks in California.

At the same time, across-the-board ZEV sales mandates, especially when coupled with the additional burdens of CARB's anticipated Omnibus Low-NO_x Regulations, could compel some number of commercial vehicle and engine manufacturers to exit the California market. Under the current ACT Proposal, manufacturers would be forced to incur the massive costs of designing, testing and producing some relatively small number of ZEV trucks for a wide range of potential applications without any assurance whatsoever that their ZEV vehicles would be purchased in sufficient numbers to generate any profit, and without any assurance whatsoever that the requisite ZEV infrastructure would be in place. Some manufacturers may elect not assume those costs and risks.

Given the foregoing, one potential outcome of the Proposed ACT Regulations is that commercial vehicle and engine manufacturers may be forced to abandon the California market, and fleet operators will "pre-buy" larger numbers of current-technology, while they retain their older vehicles longer than they otherwise would have. The ultimate impact of that reasonably foreseeable scenario in California would be to deter the acquisition of an increasing number of ZEV trucks, which would be in direct conflict with the objective of Senate Bill 498.

To avoid those unintended adverse public policy outcomes, the Board should refashion the ACT Proposal so that it includes the three necessary components (the three legs) of a viable ZEV program. Specifically, the Board should: (i) work to identify a reasonable number of targeted commercial fleet applications that are best suited to the profitable operation of ZEV trucks; (ii) adopt corresponding sales and purchase mandates for the ZEV trucks used in those targeted commercial fleet applications; and (iii) strongly recommend to the Legislature that it allocate sufficient and sustained funding to assure the development and installation of the ZEV infrastructure needed to support the targeted fleet applications, and to cover (with ZEV-purchase incentives) the increased marginal purchase prices of ZEV trucks. That type of refashioned and incentivized commercial-fleet ZEV program could work, and would be optimized to increase the use of ZEV trucks in California, as envisioned under Senate Bill 498.

Respectfully submitted,

TRUCK & ENGINE
MANUFACTURERS ASSOCIATION

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