



June 4, 2021

California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

RE: HD Omnibus Regulation

Dear CARB Staff,

The Volvo Group submitted comments on the California Air Resources Board's Omnibus Low NOx Regulations on August 25, 2020. The following comments are offered in response to ARB's Proposed 30-Day Modifications to the Diesel Test Procedures issued on May 5, 2021.

**I. Exemption for engines rated at 525HP and above (Appendix B1, pg.22)**

The proposed exemption for model year 2024 through 2026 engines rated at 525 HP and above would create a competitive disadvantage between OEMs, including a specific disadvantage to the Volvo Group. Based on Volvo's understanding from CARB staff, the 525 HP and up exemption is proposed in order to provide a solution for heavy-haul applications that are of limited volumes and would not justify the investment in a compliant engine. But the Volvo Group offers proprietary powertrains for these heavy-haul applications with lower HP rated engines and 2L less displacement.

For example, the Volvo Group offers a 500 HP – 1,850 lbf\*ft 13L engine in low volumes and in the same applications as other engine manufacturers offering 525 HP – 1,850 lbf\*ft and higher rated engines. These engines are typically offered in heavy-construction vehicles, heavy-haul tractors, and demanding long-haul tractors, the latter of which typically run higher horsepower to traverse steep grades and high mountain passes.

Beyond this, the fact is that 525 HP engines are not limited to heavy-haul application vehicles at 120,000lbs GCVW, but are also frequently used in 80,000 lb GCVW trucks. That means this exemption, based solely on horsepower rating, would allow many more exempt engines to operate in the state than intended to meet specific heavy-haul demanding applications. Without a volume cap based on the average annual percentage of heavy-haul vehicle purchases in the state (vehicles at 120,000 GCVW) rather than historic volumes of higher horsepower engines, this exemption would enable the use of these exempt engines in other applications

and undermine CARB's stated goal of limiting the volume of exempt engines into heavy-haul applications.

The Volvo Group strongly believes that the exemption must be further refined to avoid a competitive disadvantage among engine manufacturers. This can be done most efficiently and fairly by changing the exemption to one defined by application (heavy-haul) which can be easily tracked by the vehicle's GHG subfamily certification. If instead CARB chooses to define the exemption by horsepower rating, it should reduce the level to 500 HP – 1,850 lbf\*ft to maintain a level playing field and prevent discrimination against Volvo Group and other OEMs who can meet the needs of this application through cleaner, more efficient engine technology.

## **II. Zero-emission powertrain NOx credit expiration (Appendix B1, pg. 40)**

The Volvo Group does not believe that it is appropriate to sunset the provision for generation of NOx credits from zero-emission powertrains, nor that those credits should expire immediately after model year 2026 since this does not align with CARB's desire to incentivize heavy-duty zero-emission vehicle sales. The Volvo Group also believes that the continued generation of ZEP NOx credits is warranted from the standpoint of actual localized NOx reductions, especially in disadvantaged communities in congested areas near ports, warehouse districts, and highways where zero-emission vehicles are primarily targeted to operate.

NOx reductions gained from ZEVs introduced in 2027 are no less valuable than those generated in 2026, and ZEVs reduce NOx emissions even more than a compliant low-NOx engine? Given this, we request that, at a minimum, zero-emission powertrain NOx credits be allowed to be generated until 2030 as previously proposed and that they only expire after five years from the model year in which they were earned.

## **III. Amendments to Greenhouse Gas Test Procedures**

As part of the proposed 30-day modifications to the Heavy-duty Omnibus rule posted May 5, 2021, CARB also proposed 30-day modifications to the California Phase II GHG provisions. The CA Phase II provisions are found in the *California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles*, the *California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles*, and the *California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles* ("Greenhouse Gas Test Procedures", "Diesel Test Procedures", and the "Otto-cycle Test Procedures" respectively, or "Test Procedures" all inclusive).

The modifications to the Test Procedures are closely aligned with the EPA's recently signed (awaiting publication in the Federal Register) Technical Amendment package (EPA Pre-publication version from March 10, 2021, or "Pre-publication version"). Though closely aligned, there are several key provisions that CARB did not adopt, which appear arbitrary and capricious. The Volvo Group requests that CARB fully align the amendments to the Test

Procedures with the EPA's March 10, 2021 pre-publication version to avoid creating reduced flexibilities, increased stringencies, and additional cost and complexity resulting in undue burden for manufacturers without added greenhouse gas reductions.

Specific non-aligned items of concern to the Volvo Group are listed below, with detail following.

A. Diesel Test Procedures and Otto-cycle Test Procedures – 40 CFR Part 1036

i. Vocational Engine and Emission Credits

In EPA's NPRM for the Phase II Greenhouse Gas Technical Amendment<sup>1</sup> (NPRM) they requested comment on additional flexibilities for vocational engines<sup>2</sup>.

1036.150(p): CARB did not adopt the alternative 2024-2026 vocational engine standards for manufacturers who participated in the 2020 pull-ahead of the 2021 engine standards.

In the Phase 2 final rule<sup>3</sup> EPA provided an option for manufacturers to certify 100% of their 2020 model year engines to the 2021 Phase 2 requirements (see 1036.150(p)). The optional pull-ahead provided manufacturers with the flexibility of extended tractor engine credit life and an alternate model year 2024-2026 standard. CARB accepted the provision without change in its Final Phase 2 Greenhouse Gas Amendments to "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles" effective April 1, 2019. In the pre-publication version EPA has extended this same flexibility to vocational engines. However, CARB is not proposing to adopt the EPA provision<sup>4</sup>, even though their comments to the NPRM were in support and reiterated the EPA's justification:

"CARB staff agrees with U.S. EPA's proposed alternative standards for vocational engines. These alternative standards are only about 0.7 to 0.8 percent less stringent than the corresponding primary standards. In addition, as U.S. EPA stated, vehicles installed with engines certified to a less stringent standard would still be required to meet the applicable Phase 2 vehicle standards. Hence, this provision would provide vocational engine manufacturers more flexibility without reducing the overall GHG emission benefits."<sup>5</sup>

Furthermore, according to the EPA's Pre-publication version preamble (II.B.2):

"Instead of certifying engines to the final year of the Phase 1 engine standards, manufacturers electing the alternative instead certified to the MY 2021 Phase 2 engine standards. ***Because these engine manufacturers reduced emissions of engines that would otherwise have been subject to the more lenient MY 2020 Phase 1 engine standards, there can be a net benefit to the environment*** [emphasis added]."

Accordingly, the Volvo Group supports the EPA's pre-publication version allowance and its justification and urges CARB to re-evaluate their omission and adopt the pre-publication version allowance.

1036.701(j)(2): CARB does not allow for carry-over of Phase I MHD and HHD vocational engine credits when recalculated against the Phase II vocational engine baselines.

As noted, the EPA requested comment in their Phase 2 Technical Amendment NPRM on whether it should allow manufacturers to carry-over Phase I vocational engine credits if they were recalculated against the revised Phase 2 baseline. EPA finalized this provision in its Pre-publication version. Again, CARB did not adopt the provision, even though it commented in support and, once again, restated EPA's main justification in their argument for the proposal:

“CARB staff agrees with U.S. EPA's proposal. It would be reasonable to allow manufacturers to generate Phase 1 credits with respect to the Phase 2 baseline and use those for the Phase 2 program as it would reflect their actual Phase 1 certified emission level and Phase 2 baseline. In addition, regardless of whether the engines would need to use credits to meet the Phase 2 engine standards, vehicle manufacturers who use those engines will still be required to meet the applicable Phase 2 vehicle standards; hence the use of Phase 1 credits would not result in an emissions dis-benefit to the Phase 2 program overall.”<sup>6</sup>

Again, the Volvo Group supports the EPA's pre-publication version allowance and its justification and urges CARB to re-evaluate their omission and adopt the pre-publication version allowance.

ii. Engine Fuel Map Confirmatory Testing Variability Allowance

1036.150(q): CARB did not adopt the engine fuel map confirmatory testing measurement variability allowance of 2% based on EPA and EMA sponsored testing at SwRI.

We urge CARB to reconsider its position with respect to the engine fuel map confirmatory testing measurement variability allowance. The Volvo Group believes that CARB's insistence in its comments to EPA<sup>7</sup> that the allowance reduces engine stringency by 40% is misguided and has absolutely **no impact to engine stringency**.

CARB asserts in their comments that the engine fuel map measurement allowance “would effectively give away 2 percent of a 5 percent CO<sub>2</sub> benefit from the Phase 2 engine standards” and that “this clearly represents a significant erosion of stringency”; however, this allowance only applies to confirmatory testing of engine fuel

maps (which do not impact the engine standards of 40 CFR 1036) and defines the procedure for determining when the agency would replace a manufacturer's fuel maps.

In their comments to the EPA's Phase 2 Technical Amendment NPRM CARB requested EPA provide an end-date for the provision. In lieu of a fixed end-date the EPA's pre-publication version response noted that the allowance is an interim provision that the agency will re-evaluate as they "learn more about the impact of measurement variability during fuel mapping, including the full impact of the proposed test procedure improvements that are intended to reduce measurement variability."

In order to accomplish this EPA intends "to enter into a round robin study of criteria and GHG pollutant engine testing variability with interested engine manufacturers, with the involvement of the Truck and Engine Manufacturer's Emission Measurement and Testing Committee. This data will add to the existing knowledge regarding the variability of the FTP, SET and fuel mapping test procedures and may help inform if future action is needed to further improve the test procedures."

The Volvo Group strongly urges CARB to finalize the EPA provision and suggests that CARB join the multi-stakeholder cooperative effort to find a fair solution for all parties.

1036.235: CARB's modification currently aligns with May 12, 2020 EPA update, but will need to align with the EPA March 10, 2021 prepublication version in order to provide for updated test procedure and 2% allowance determination of 1036.150(q).

#### B. Greenhouse Gas Test Procedures – 40 CFR Part 1037

The Volvo Group requests that CARB also adopt the following EPA pre-publication version provisions:


1037.501(i): CARB did not adopt language from the EPA meant to assuage suppliers' concerns over non-conformance penalties, thereby giving them confidence not to apply error margins to all component certification data they provide to OEMs. EPA envisions that the OEM would apply a single margin to the FEL on most supplier components that would account for the maximum possible error from any single component under audit or confirmatory test.

1037.660: CARB did not adopt any of the changes of this section which specify how to claim partial credit for neutral-at-idle technology that does not fully disengage the torque converter, as well as updated safety over-ride conditions for Automatic Engine Shutdown systems, Engine Stop-Start, and Neutral-at-idle.

The Volvo Group believes that the issues raised here conflict with CARB's historical concern for a level playing field among OEMs and its stated goal of accelerating heavy-duty ZEVs in the

marketplace and unless corrected, warrant another hearing before the Board as noted on page 3 of the 30 Day Notice.

Respectfully Submitted,

A handwritten signature in cursive script that reads "Dawn Fenton". The signature is written in black ink and is positioned below the text "Respectfully Submitted,".

Dawn Fenton  
Vice President, Government Relations & Public Affairs  
Volvo Group North America