

**STATE OF CALIFORNIA
AIR RESOURCES BOARD**

Proposed In-Use Locomotive)	Public Hearing Date:
Regulations; Notice of Proposed)	November 17, 2022
Rulemaking)	

**COMMENTS OF THE
TRUCK AND ENGINE MANUFACTURERS ASSOCIATION**

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Introduction

The Truck and Engine Manufacturers Association (EMA) hereby submits its comments regarding the proposed “In-Use Locomotive Regulations” that will be considered for adoption by the California Air Resources Board (CARB) on November 17, 2022. EMA represents several of the world’s leading manufacturers of locomotives and locomotive engines, and so has a direct and significant interest in this matter.

As explained more fully below, EMA has two primary concerns related to the scope and effect of the proposed regulations. More specifically, the proposed regulations: (i) appear to establish emissions-related ZE-locomotive purchase mandates that amount to federally preempted emission standards for new locomotives; and (ii) unreasonably restrict the definitions of zero-emission (ZE) and ZE-capable locomotives in a way that will exclude technologies that can, in fact, achieve ZE-equivalent emissions levels. EMA’s comments will expand on each of the foregoing points.

The Proposed Regulations Constitute Preempted Standards or Requirements

The net effect of the proposed regulations is that, starting on January 1, 2030, any new switch, passenger, or industrial locomotive operating in California will need to be a ZE or ZE-capable locomotive. To comply with that mandate, the operators of switch, passenger or industrial locomotives in California will have to buy or lease ZE-capable locomotives by January 1, 2030. Similarly, any new switch, passenger or industrial locomotives that are sold or leased for operation in California as of January 1, 2030, will need to be ZE or ZE-capable locomotives.

The same holds true for line-haul locomotives. The net effect of the proposed regulations is that starting on January 1, 2035, all new line-haul locomotives operating in California will need to be ZE locomotives or ZE-capable locomotives. To comply with that mandate, as a practical matter, all line-haul locomotive operators in California will need to purchase or lease new ZE or ZE-capable line-haul locomotives from and after January 1, 2035, and OEMs will only be able to sell those types of new ZE line-haul locomotives into California after that date.

Mobile source emissions-related purchase mandates—mandates that allow for the purchase of only certain types of new mobile sources based on emissions-related design or operational criteria—amount to standards or other requirements relating to the control of emissions that may be preempted under the federal Clean Air Act (CAA). In this case, since the emissions-related purchase mandates established under the proposed regulations apply to new locomotives from and after 2030 or 2035, they are absolutely preempted. In that regard, CARB’s designation of the

regulations as “in-use” requirements ultimately amounts to an exercise in semantics, since the scope and effect of the proposed regulations allow for the purchase and deployment of only new ZE locomotives after the regulations’ specified effective dates.

CAA section 209(e)(1) prohibits states, without any exceptions, including for California, from adopting or attempting to enforce “any standard or other requirement relating to the control of emissions from... [n]ew locomotives or new engines used in locomotives.” 42 U.S.C. §7543 (e)(i). The proposed regulations amount to such emissions-related standards or other requirements, and, in effect, apply those ZE mandates to the purchase and sale of new locomotives after the regulations’ specified dates. As a result, the proposed regulations are fully preempted.

It is no defense that the proposed regulations, on their face, apply to the owner/operators of locomotives, as opposed to OEMs. As a practical matter, the only way for owner/operators to comply with the proposed regulations as they apply to new locomotives is to acquire only ZE or ZE-capable switch, passenger, and industrial locomotives from and after January 1, 2030, and only ZE or ZE-capable line-haul locomotives from and after January 1, 2035. Similarly, the only way that locomotive OEMs will be able to sell any new locomotives into the California market from and after the operative dates of the proposed regulations will be to ensure that those new locomotives are designed and built as ZE or ZE-capable locomotives. Thus, it is clear that the intended operation and effect of the proposed regulations are preempted, notwithstanding their camouflage as “in-use” regulations directed at the owners and operators of locomotives.

Significantly, the U.S. Supreme Court has directly ruled on a similar set of emissions-related purchase mandates, and has confirmed that those types of mandates are preempted under the CAA. More specifically, in EMA v. SCAQMD, 541 U.S. 246 (2004), the Court was asked to consider whether regulations that allowed only for the purchase of natural-gas fueled trucks after certain dates amounted to preempted standards relating to the control of emissions. The Court ruled that such purchase mandates are, in sum and substance, preempted standards. In reaching its decision, the Court broadly defined the scope of the types of standards preempted under the CAA, as follows:

The criteria referred to in §209(a) [“standards relating to the control of emissions”] relate to the emissions characteristics of a vehicle or engine. To meet them, the vehicle must not emit more than a certain amount of a given pollutant, must be equipped with a certain type of pollution-control device, or must have some other design feature related to the control of emissions. This interpretation is consistent with the use of “standard” throughout Title II of the CAA (which governs emissions from moving sources) to denote requirements such as numerical emission limits with which vehicles or engines must comply, or emission-control technology with which they must be equipped. 541 U.S. at 253.

Here, the proposed regulations mandate that locomotive owners and operators can only put ZE-capable locomotives into service in California—*i.e.*, locomotives that “never emit any criteria, toxic or GHG pollutant from any onboard source of power at any power setting,” and that do not utilize “combustion engines”—after certain specified dates. Thus, the proposed regulations clearly seek to establish standards and other requirements relating to the control of emissions, which are preempted under the CAA. Further, the only practical means for compliance with the mandated

standards and requirements is for locomotive owner/operators in California to buy or lease, and for OEMs to build and sell, ZE or ZE-capable locomotives. Thus, as a practical matter, the mandated emissions-related standards and requirements inherently apply to the purchase and sale of new locomotives after the specified dates. As such, the ZE locomotive mandates that would be established under the proposed regulations are absolutely preempted under CAA section 209(e)(1).

The Proposed Regulations Unreasonably Restrict The Definitions Of “Zero Emission (ZE) Locomotive” And “Zero Emission (ZE) Capable Locomotive”

The proposed regulations would restrict the definitions of ZE locomotives and ZE-capable locomotives to those “that never emit any criteria, toxic, or GHG pollutant from any onboard source of power at any power setting.” That overly restrictive definition will unreasonably exclude ZE-equivalent technologies – such as hydrogen-fueled combustion engines – from operating in California for no good reason.

Hydrogen-fueled combustion engines, including those being developed for use in locomotives are ZE-equivalent. In that regard, any trace of amounts of NO_x that may be emitted from hydrogen-fueled engines are derived solely from the nitrogen contained in ambient air. Similarly, any trace amounts of PM that may be emitted are solely derived from whatsoever small amounts of lubricating oil may, infrequently, enter a cylinder. In both cases, the actual emissions are miniscule and can be, if deemed necessary, addressed through simplified aftertreatment systems. The net result is that hydrogen-fueled combustion engines emit criteria pollutants at ZE-equivalent levels.

Notwithstanding that well-understood fact, the proposed regulations seemingly go out of their way to prohibit the deployment of that promising ZE-equivalent technology in any locomotives operating in California. The following excerpt from CARB’s ISOR makes that clear:

[S]ome types of locomotives are called ZE locomotives outside of the [definitions of the] Proposed Regulations even though they are onboard power systems that use combustion engines. It is possible for some combustion engine technologies to achieve 0.00 g/bhp-hr for NO_x and 0.000 g/bhp-hr for PM after rounding. However, even if the rounded result shows zero, PM and NO_x emission rates may not be truly zero. It is important to establish that these forms of power are not considered ZE in the Proposed Regulation.

(ISOR, p. 97.)

CARB’s position that locomotive engines having emission profiles that round to zero (all the way to 2 or 3 decimal places) nonetheless cannot be considered equivalent to ZE locomotives is inherently unreasonable. Indeed, if emissions measurement systems and protocols cannot detect any emissions, then neither will the relevant emissions inventories or receptors. Thus, CARB’s assertion that “it is important” to prohibit the use of such clearly ZE-equivalent options has no reasonable justification or rationale behind it. Moreover, CARB should not adopt rulemakings that authorize only certain technology options (battery-electric locomotives) while effectively banning others (internal-combustion locomotives) where the emissions profiles of those technology options is the same and equivalent to zero. Rulemakings should set standards that are technology-neutral; they should not be the forum for picking technology “winners” and “losers.” Accordingly, CARB

needs to revise the relevant definitions to allow for the use of combustion engines that have emission profiles that round to 0.00 g/bhp-hr.

Conclusion

The proposed in-use locomotive regulations should not be approved as drafted because they (i) establish preempted standards or requirements relating to the control of emissions from new locomotives, and (ii) unreasonably restrict the definitions of ZE and ZE-capable locomotives to exclude all combustion-engine technologies, including hydrogen-fuel technologies, that can achieve emission levels that are equivalent to zero. Accordingly, EMA requests that the Board direct staff to revise the proposed regulations to address these two issues of primary concern.

Respectfully Submitted,

TRUCK AND ENGINE
MANUFACTURERS ASSOCIATION