BEFORE THE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

CALIFORNIA STATE NONROAD ENGINE POLLUTION CONTROL STANDARDS; IN-USE LOCOMOTIVE REGULATION; REQUESTS FOR AUTHORIZATION; OPPORTUNITY FOR PUBLIC HEARING AND COMMENT

EPA – HQ – 2023 – 0574 / FRL – 11737 – 01 – OAR

COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS

The Association of American Railroads ("AAR"), on behalf of itself and its member railroads, respectfully submits the following comments in response to the U.S. Environmental Protection Agency's February 27, 2024, Opportunity for Public Hearing and Comment on California's In-Use Locomotive Regulation Request for Authorization (EPA-HQ-2023-0574/FRL-11737-01-OAR).[1, 2] The railroad industry is invested in reducing emissions from locomotives as quickly as realistically possible, while protecting the critical efficient functioning of the national freight rail network. CARB's In-Use Locomotive regulation ("the Regulation") will be devastating to the latter and will in fact set back progress towards the former.

I. Overview

AAR is a non-profit industry association whose membership includes freight railroads that operate 83 percent of the line-haul mileage, employ 95 percent of the workers, and account for 97 percent of the freight revenues of all railroads in the United States. AAR also

---

[1] 89 Fed. Reg. 14484 (Feb. 27, 2024).

[2] AAR also incorporates its comments on the Regulation during CARB's rulemaking process (Attachment 1).

represents passenger railroads that operate intercity passenger trains and provide commuter rail service.

Railroads play an outsized role in keeping climate goals on track and our economy moving. They serve as a crucial component of intermodal transportation, seamlessly connecting with trucks and barges to facilitate the movement of goods domestically and internationally. On average, railroads are three to four times more fuel efficient than trucks—a single train can replace several hundred trucks on the nation's congested highways.[3] Rail accounts for roughly 40 percent of U.S. long-distance freight volume as measured by ton-miles.[4] And while rail is essential to national and global supply chains, freight railroads only account for 1.7% of total U.S. transportation-related greenhouse gas emissions.

The rail industry shares the goal of EPA and state regulators to improve air quality and reduce greenhouse gas ("GHG") emissions. For decades, railroads have worked to address emissions – both on their own initiative and through collaborations with state and local regulators. Railroads have pursued pioneering technology investments, changed railyard and mainline operations to reduce emissions impacts, and entered partnerships with regulators to lower emissions from locomotives.

Railroad initiatives to address GHG emissions and air quality concerns continue today as the industry explores the feasibility and commercial viability of higher biofuel blends, renewable fuels, and of low- and zero-emission locomotives. Over the last few years, a

---

[3] Association of American Railroads, *Freight Railroads & Climate Change*, at 2 (June 2023) (https://www.aar.org/wp-content/uploads/2023/06/AAR-Climate-Change-2023-Report.pdf).

[4] Association of American Railroads, *Facts & Figures* (https://www.aar.org/data-center/#data-facts).

considerable focus has been given to reducing GHG emissions with biofuels in locomotive operations. There are several promising developments to deploy incremental volumes of biodiesel and renewable diesel in the immediate future.

Additionally, AAR's members are working with locomotive manufacturers to test battery-powered locomotives and at least one AAR member has begun testing hydrogen fuel cell locomotives. Several AAR members are working with locomotive original equipment manufacturers ("OEMs") to modernize hundreds of locomotives in the existing fleet to improve fuel efficiency and reduce emissions. Notably, however, and as discussed in more detail below, zero-emission and hybrid locomotives are still in the development and testing phases and are not yet commercially viable.

Railroads have also devoted resources to significantly reducing emissions in railyards and intermodal terminals through the introduction of hybrid cranes, zero-emission intermodal cranes, low-emitting natural-gas hostlers, battery-electric hostlers, and particulate filters for diesel switching locomotives to reduce emissions of criteria pollutants, toxic air contaminants, and impacts on the communities in which they operate. Additional actions that reduce emissions include running longer trains (which haul more freight using a comparable number of locomotives), running trains closer together (which reduces idling by decreasing the time a train must wait to enter the main lines), and several other operating optimizations that have resulted in improved fuel efficiencies and, therefore, lowered emissions.

Critically, however, the rate at which new low- or zero-emission technologies are adopted by the Class I railroads will depend on several factors, including the safety of new technologies, operational readiness (which requires extensive testing by OEMs and the

railroads), the supply of the alternative fuel source or electricity required to power the new technologies, preparedness of the national infrastructure required to deliver the alternative fuels or increased energy demands, interoperability within the North American rail network, and production capabilities of the locomotive manufacturers. Each of these factors will take time to resolve and depend on the efforts of numerous industrial sectors besides the rail industry. CARB's Regulation ignores these real-world challenges and effectively proposes to ban internal combustion engines before viable alternative locomotives and the necessary infrastructure is available and scalable.

CARB's authorization request is legally flawed and must be denied under Section 209(e) for several independent reasons. CARB's proposed regulation is not consistent with Section 209(b) of the Clean Air Act because there is plainly inadequate lead time to develop zero-emission technologies at anything like the scale CARB contemplates.[5] In addition, CARB is attempting to regulate engine categories that are permanently preempted under section 209(e)(1) of the Clean Air Act.[6] More broadly, Congress did not provide EPA with the authority to grant an authorization request that would mandate the rapid and technologically infeasible decarbonization of the rail industry. The possibility of effectively banning the use of the internal combustion engine in the rail industry presents a major question that must be decided

[5] 89 Fed. Reg. 14485 ("As stated in the preamble to the 1994 rule, the EPA has historically interpreted the section 209(e)(2)(A)(iii) "consistency" inquiry to require, at minimum, that California standards and enforcement procedures be consistent with section 209(a), section 209(e)(1), and section 209(b)(1)(C) (as the EPA has interpreted that subsection in the context of section 209(b) motor vehicle waivers).").

[6] 42 U.S.C. § 7543(e)(1).

by Congress and is not a permissible use of the narrow authority provided to EPA and California under Section 209(e).

For all of these reasons, EPA should deny CARB's authorization request.

II. The In-Use Locomotive Regulation's Operational Restrictions are Infeasible and Unworkable.

CARB's Regulation, if authorized, would effectively ban the operation in California of locomotives more than 23 years old (based on the original manufacture date) and mandate that all newly purchased locomotives that are operated in California be zero-emission starting in 2030 for switch and passenger locomotives and 2035 for line-haul locomotives.[7] Compliance with these time frames is simply not feasible given the current stage of development for zero-emission locomotive technologies. Zero-emission locomotives are not commercially available and are still in the early testing phases of development. The forced and premature retirement of older locomotives, without availability of zero-emission replacements, is not only impractical; it will bring the national rail network to a grinding halt. The proposed regulation is therefore not consistent with Section 209(b)(1)(C) of the Clean Air Act, as laid out in the EPA's notice requesting comment on CARB's request.[8]

CARB's own "technology feasibility analysis" does not suggest otherwise. It shows only that zero-emission technology *may* be technically *possible* at some point, and in some contexts – not that it is actually safe, reliable, maintainable, or operable on the North American rail network or that it will plausibly be so for the foreseeable future. Tellingly, CARB chose not to consult with the railroads when conducting its feasibility analysis. Instead, it relied on a literature search and

---

7 In-Use Locomotive Regulation at § 2478.5.

8 89 Fed. Reg. 14485.

interviews with non-railroad personnel.[9] Even the Department of Energy recognizes the challenges with decarbonizing the rail industry: in its 2025 budget, DOE requested money to "[d]emonstrate a 50 percent reduction in GHG emissions in a locomotive engine by 2030."[10] This is a goal that AAR's members can support. In contrast, CARB's zero-emission mandate is not feasible for the foreseeable future.

And CARB's attempt to circumvent the issues associated with feasibility and lead-time by incorporating a 2027 and 2032 "progress assessment" is equally flawed. The Regulation states that CARB staff will evaluate the state of technology for switch locomotives by December 1, 2027, and for line-haul locomotives by December 1, 2032, and promises that if "staff finds that the compliance deadlines under [the Regulation] need to be adjusted forward or backward in time," staff will make such a recommendation to the Board.[11] From a practical perspective, this is wholly unworkable. First, the lead times for prototype zero-emission locomotives are measured in years. Providing less than two years for a reevaluation of regulatory deadlines in such a context is insufficient and creates additional regulatory uncertainty. Second, CARB's assessment of commercial viability of zero-emission locomotives lacks credibility, as is evidenced by its Technology Feasibility Assessment. And from a legal perspective, CARB cannot satisfy the lead-time/technological feasibility requirement under the Clean Air Act by adopting a mandate that is obviously unworkable by promising to consider adjustments sometime down

---

[9] CARB, Appendix F, Technology Feasibility Assessment for the Proposed In-Use Locomotive Regulation (*available at* https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/locomotive22/appf.pdf).

[10] *See,* Department of Energy, FY 2025 Congressional Justification, Vehicle Technologies, Decarbonization of Off-Road, Rail, Marine, and Aviation Technologies (March 2024) (available at https://www.energy.gov/sites/default/files/2024-03/doe-fy-2025-budget-vol-4-v2.pdf).

[11] In-Use Authorization Regulation, §§ 2478.5(b)(1), (c)(1).

the road. Under that approach, EPA would impermissibly delegate its responsibility to ensure compliance with 209(b) to CARB based on CARB's unenforceable promises to conduct future reviews.

Finally, the Regulation's Alternative Compliance Plan and Alternative Fleet Milestone Option are unworkable for freight railroads.[12] CARB itself recognized that these options are not viable for freight railroads.[13]

a. Retrofitting existing locomotives to convert them to zero-emission is not currently feasible.

CARB's Authorization Support Document asserts that because "[l]ocomotives have long run on zero-emission electric engines, albeit powered by diesel generators . . . operators [have] a variety of options to retrofit or reconfigure their locomotives to zero-emission operation."[14] CARB further asserts that "any locomotive can be operated in a ZE configuration in California." CARB provides absolutely no support of any kind for this statement. The Authorization Support Document further suggests that the current fleet of locomotives can be converted to zero-emission by "connecting the existing electric engine of a diesel-electric locomotive to a secondary ZE slug, battery tender-car or fuel cell tender-car."[15] This is speculative, technically inaccurate, and impractical.

First, zero-emissions slugs and battery or fuel cell tenders are not commercially available today. These fuel sources would need to be tested and evaluated by not only the railroads, but

---

12 *Id.* at §§ 2478.7, 2478.8.

13 CARB, Summary of 15-day Changes at 7 (available at https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/locomotive22/15dayappb.pdf).

14 Authorization Support Document at 4.

15 *Id.*

standards for safety of some fuels and equipment may need to be developed by the Federal Railroad Administration before they could be placed in to service at scale.[16] And the same infrastructure issues that limit the short-term implementation of battery electric or hydrogen fuel cell locomotives, discussed in more detail below, plague tender cars that run on the same energy sources.

Second, CARB's assertion demonstrates a fundamental misunderstanding of how locomotives work. Locomotives use electric powered motors to turn their wheels. The electricity that powers the motors comes from the combustion of fuel in a large diesel engine coupled with a generator plus associated controls, cooling systems, lubricating systems, etc. To convert the engine and associated equipment on an existing locomotive to produce zero-emissions electricity would require replacing greater than 75% of the previously used parts – a wholesale remanufacture that is neither technologically feasible nor economically viable.[17]

As the primary OEM of freight locomotives has stated on multiple occasions, it is not currently feasible to convert the existing fleet of locomotives from diesel to zero-emission fuel sources on any significant scale – and certainly not on the type of scale and timeline CARB's rule would require. No such process is commercially available today and, even if it was, a retrofit from a diesel locomotive to a zero-emission locomotive would require the complete removal of

---

[16] U.S. Department of Transportation, Federal Railroad Administration, Study of Hydrogen Fuel Cell Technology for Rail Propulsion and Review of Relevant Industry Standards, June 2021 (DOT/FRA/ORD-21/20) at 2.

[17] Under 40 C.F.R. 1033.640(e), such a locomotive would become "freshly manufactured" and the date of original manufacture is the date of that assembly. Thus, as further explained below, CARB's assertion that its rule does not seek to enforce a standard or requirement relating to new locomotives or new engines used in locomotives is wrong; among other problems, the EPA has long recognized that a remanufactured locomotive is "new."

the existing diesel engine and replacement with a new engine that runs on a different fuel source. Only the original locomotive chassis would remain as part of the newly constructed locomotive, making the effort the equivalent of a new engine, not a retrofit or reconfiguration. Such an effort is neither straight-forward nor scalable on a fleet-wide basis.

b. The effective ban on locomotives more than 23 years old would hobble interstate rail traffic.

As discussed in more detail below, a key feature of the North American rail network is its interoperability, which underlies its efficiency. Locomotives regularly move across the country pulling trains from Chicago to Los Angeles and from Canada to Mexico. Railroads do not have dedicated fleets for each state – the fleets move seamlessly throughout the network, crossing state and national borders.

CARB's In-Use Locomotive regulation would effectively ban the operation in California of locomotives more than 23 years old. There are approximately 23,000 locomotives in the U.S. Class I railroad locomotive fleet.[18] Of those more than 15,000 locomotives were originally built before 2007.[19] If CARB's regulation is authorized, more than 2/3 of the locomotive fleet could not enter California, home to the two largest intermodal ports in the United States, creating a severe impediment to interstate commerce.

Locomotives are very expensive and long-lived assets with long lead times between order placement and delivery. Over the past decade, Class I railroads have purchased approximately 2,000 new locomotives.[20] In recent years, that number has been about 100-200

---

18 *See,* AAR, Railroad Facts 2023 Edition at 50.

19 *Id.* at 51.

20 *Id.*at 52.

locomotives per year.[21] There is no evidence the two freight locomotive OEMs in the U.S. could even produce the number of locomotives required, leaving aside whether those locomotives were zero-emission, should EPA authorize the Regulation.

Even assuming sufficient numbers of new, compliant locomotives were available for use in California, the 23-year limitation would introduce staggering inefficiencies into the interstate rail network, establishing that there is not adequate lead time for CARB's proposal to be workable when giving appropriate consideration to cost and other collateral consequences.[22] Locomotives would likely need to be switched at the California border – assuming that a compliant locomotive were available. If no compliant locomotive were available, freight coming into the state may need to be transferred from train to freight trucks to be brought to ports for export. Such an outcome would run counter to federal goals to move more freight via rail to improve efficiency and reduce traffic congestion and greenhouse gas emissions.

c. Battery capacity today (and for at least the near-term future) is insufficient to power a locomotive.

CARB's analysis depends primarily on, and indeed is intended entirely to promote, the expedited development of battery-electric and hydrogen powered locomotives. However, CARB's Regulation entirely ignores the physical energy storage limitations of battery technology. The largest batteries being built for use in North America today store less than 15 MWh of energy. Experts suggest that perhaps in the coming decade, current battery technology could be pushed to produce a 20 MWh battery. To replace a single diesel locomotive with a 5,000-gallon fuel tank, a battery would need to store approximately ***80-100 MWh*** of energy (or 70

---

21 *Id.*

22 89 Fed. Reg. 14486.

MWh of useable energy). Clearly, there is a significant differential between the energy required by locomotives and the energy that currently available batteries can store. To operate a line-haul locomotive with today's battery technology would require the use of 5-6 battery tenders. The sheer weight of those batteries and the time required to charge them, not to mention the lack of national charging infrastructure (discussed in greater detail below), are several hard facts, among others, making CARB's Regulation infeasible.

Research to increase battery capacity and develop new battery technologies, such as solid-state batteries, is ongoing. But there is no prospect in the foreseeable future of a battery that can replace a locomotive diesel engine. Leaving that issue aside, once developed, all new technologies must undergo field testing and approvals for safety, efficiency, and operability, under different operating conditions.[23] In the past, battery-electric locomotives introduced to the national rail fleet were prone to fires and explosions—an unacceptable risk given the commodities that railroads transport and the communities through which they travel.[24]

It is also worth noting that supply issues have resulted in long lead-times for 2.4-2.7 MWh battery-electric locomotives. Specifically, the production speed and capacity of battery-electric locomotives has been greatly impacted by the supply of critical minerals impacting the

---

[23] The need for significant testing in a variety of conditions was highlighted recently when electric car owners in Chicago experienced problems with charging and battery storage during cold weather events. *See* https://www.nytimes.com/2024/01/17/business/tesla-charging-chicago-cold-weather.html. These battery issues are just the latest manifestation of this well-known phenomenon. Locomotive testing must confirm adequate performance of both batteries and charging infrastructure in extreme cold and hot temperatures with varying levels of humidity.

[24] *See, e.g.* https://www.reuters.com/article/idUSN01443206/.

broader EV market, among other supply chain constraints.[25] Class I railroads are facing significant delays for orders of battery-powered locomotives to test placed in 2021 and 2023, with delivery not anticipated until 2026 or later. Obviously, demonstration projects cannot begin on these prototype locomotives until delivery. This delay demonstrates the complexities and constraints railroads face in the transition to alternative propulsion technologies. The testing and eventual deployment of battery-electric locomotives and all other alternative propulsion technologies, such as hybrid battery-combustion engines and hydrogen fuel cells, can only proceed at the pace that the manufacturers can produce the needed technology.

Finally, social, and national security concerns further underscore the unrealistic premise of CARB's In-Use Locomotive Rule. The production of enormous lithium-ion batteries requires significant quantities of cobalt, graphite, lithium, and nickel. As the federal government has previously noted, the United States "has very little capacity in mining and refining any of the key raw materials" for electric vehicles.[26] Most of the raw materials for batteries and electric motors are controlled by geopolitical rivals or unstable foreign powers, in particular China and Russia. Mining for these minerals is extremely water intensive[27] and child and other exploitive labor practices are common in many of the countries that produce these minerals.[28]

---

[25] *See, e.g.,* Wabtec Corporation, Comment on CARB's Proposed In-Use Locomotive Regulation (*available at* https://www.arb.ca.gov/lists/com-attach/29-locomotive22-UjFRNgR3UmMCW1U8.pdf).

[26] 86 Fed. Reg. 49,602 (Sept. 3, 2021).

[27] In some operations, one million gallons of water are used to produce a single pound of lithium.

[28] *See, e.g.* https://www.amnesty.org/en/latest/news/2016/01/Child-labour-behind-smart-phone-and-electric-car-batteries/.

d. Hydrogen locomotive technology is still in its nascent stage.

Several of AAR's members are currently preparing demonstration test projects of hydrogen fuel cell line-haul freight locomotives. The goal of these demonstration projects is to evaluate the feasibility and performance of hydrogen fuel for use as a viable alternative to traditional fuels for line-haul rail. However, there are significant areas of additional research that need to be explored before hydrogen could potentially be used as a propulsion fuel for the rail industry at scale.

As the Federal Railroad Administration has recognized, hydrogen fuel cell locomotives "would require an entirely new design of locomotive."[29] Further, "if hydrogen is to be used and stored onboard a locomotive, new standards or requirements will need to be written" to safely incorporate hydrogen tanks into rail operations.[30] Consideration should also be made for the overall lifecycle emissions associated with the production of hydrogen for fuel.

The pathway for hydrogen is less clear than other alternative fuels and will require extensive testing before full scale incorporation into railyard operations. It is not a feasible zero-emission technology in anything approaching the timeframes contemplated by the Regulation.

e. Significant nationwide infrastructure build-out will be required for any zero-emission transition.

As zero-emission locomotive technologies are fully tested and standards are developed, the required supporting infrastructure must likewise be developed and installed across the country to support these new technologies.

---

[29] U.S. Department of Transportation, Federal Railroad Administration, Study of Hydrogen Fuel Cell Technology for Rail Propulsion and Review of Relevant Industry Standards, June 2021 (DOT/FRA/ORD-21/20) at 2.

[30] *Id.*

For example, the electrical grid and related infrastructure requires substantial upgrades to provide sufficient and reliable charging locations – not just in California, but throughout North America. As the Biden Administration has observed, "the current electric grid was not developed with today's electrification needs in mind."[31] Local utilities will need to upgrade their production and electric distribution capabilities, which includes replacing dated infrastructure. Recently in Colorado power was shut off to more than 150,000 customers due to high winds and concerns regarding wildfires.[32] The rail industry cannot operate with that sort of variability. Blackouts and brown outs due to insufficient energy supplies would have devastating impacts on the global supply chain.[33]

Recent analysis estimates the overall cost of electric infrastructure upgrades to be close to $370 billion just to meet the demands of medium- and heavy-duty battery electric vehicles.[34] Adding freight locomotives to the mix will only increase demand and cost.

Specifically, analysis from the Brattle Group found that between 2035 and 2050, costs for grid investment in California alone would total more than $2 billion, not including charging

---

[31] U.S. Department of Energy, *Biden Administration Launches $2.5 Billion Fund to Modernize and Expand Capacity America's Power*, (May 10, 2022) https://www.energy.gov/articles/biden-administration-launches-25-billion-fund-modernize-and-expand-capacity-americas-power.

[32] *See* https://www.denverpost.com/2024/04/07/xcel-power-outages-150000-customers-lost-service/.

[33] In 2022, California asked EV owners to limit charging due to peak demand during a heat wave. *See, e.g.,* https://www.nytimes.com/2022/09/01/us/california-heat-wave-flex-alert-ac-ev-charging.html.

[34] Forecasting a Realistic Electricity Infrastructure Buildout for Medium- & Heavy-Duty Battery Electric Vehicles, Clean Freight Coalition (March 2024); available at https://www.cleanfreightcoalition.org/sites/default/files/2024-03/RB%20Study%20Report_final%5B111225%5D.pdf.

infrastructure and the costs of the battery electric locomotives themselves.[35] Depending on the eventual uptake of battery-electric locomotives, this same analysis suggests that 8,456 GWh of electrical energy and 965 MWh of charging capacity would be needed in California alone by 2050 – far exceeding the total amount of electricity consumed by all of the residents of San Diego County in 2022.[36] In addition to sheer energy demand, the practical implications of a major electrical project, including planning for interconnections and grid reliability, permitting, and construction, would be considerable.[37] And due to the interconnected nature of the rail network, these cost and logistical considerations would be duplicated across the country – at a staggering cost to the public. CARB did not adequately account for these costs and complications when developing its compliance timeline.

Significant infrastructure would also be required to support a transition to hydrogen technology, including production of low-carbon hydrogen, distribution, liquefaction, transportation, storage, and fueling facilities. The supply chain for hydrogen fuel can be energy intensive and raises complicated issues regarding the location and siting of the necessary infrastructure for industrial uses.

All of the requisite infrastructure will require permits and environmental reviews, which EPA well appreciates take years in a best-case scenario. One environmental organization estimates that "it currently takes over a decade to build new transmission projects in

---

35 Brattle Group Memorandum to AAR, Review of CARB's Proposed Regulation, April 22, 2024 (Attachment 2).

36 *Id.* at 10.

37 *Id.* at 18.

California."[38] At that pace, it would be impossible to meet either the 2030 or 2035 timelines established in the regulation, even if an adequate number of theoretical zero-emission line-haul locomotives actually existed.

Finally, research must be completed on the safety and environmental impact of these alternative fuel sources to fully understand the potential impact of any new technologies on rail operations. For example, hydrogen infrastructure will be required for any significant transition to a fuel cell locomotive. This includes production of low carbon hydrogen and storage capabilities.

f. Catenary electrification of the national rail network is not feasible.

While full catenary electrification of freight railroads in North America is theoretically possible, the cost and time associated with development of such a system makes CARB's assumption unavailable for purposes of Section 209(b)(1)(C). In 2016, the Rail Transportation and Engineering Center at the University of Illinois at Urbana-Champaign examined electrification of the rail network in California through catenary technology and concluded that electrification was likely to be far more costly than other potential alternatives to achieve desired emission-reduction goals.[39] California's own experience building high speed rail offers additional evidence that electrification of the rail network promises to be extremely costly for

---

[38] *See, e.g., https://www.catf.us/2023/05/californias-transmission-permitting-slowest-in-the-west/.*

[39] *See Transitioning to a Zero or Near-Zero Emission Line-Haul Freight Rail System in California: Operational and Economic Considerations*, RAILTEC, University of Illinois at Urbana-Champaign, 2016.

geographically large projects.[40] This conclusion is neither new nor surprising. In 1992, the Southern California Regional Rail Authority concluded that electrifying only 806 route miles of track in Southern California would have cost $3.26 billion in 1992, the equivalent of $6.97 billion in today's dollars.[41] Moreover, it was estimated at that time that electrification of even small portions of the freight rail network being studied in the report would take a decade or more to complete.[42] Therefore, any large-scale catenary electrification of the rail network is wholly impractical.

Moreover, catenary electrification requires overhead, electrified lines over railyards where cranes, trucks, and personnel operate. This includes railcars carrying loads at varying heights, from cars carrying stacked intermodal containers to car transporters whose height depends on their load. Creating captive fleets of locomotives that cannot move between railyards using their own power would also interfere with interoperability and the efficiency of railroad operations.

Outside of railyards, attempting to electrify a portion of the 140,000-route mile freight rail network would create substantial operational difficulties. There are technical challenges associated with building infrastructure adjacent to rail tracks, including in tunnels, on bridges,

---

40 *See, e.g.* Biden's $3.1 Billion Train Ticket to Nowhere, WSJ Opinion, Jan. 1, 2024 (*available at* https://www.wsj.com/articles/bidens-3-1-billion-train-ticket-to-nowhere-california-high-speed-rail-project-6e7045a1) (noting that the California high speed rail project between San Francisco and Los Angeles was originally budgeted at $33B, but the cost has risen above $100B).

41 *Southern California Accelerated Rail Electrification Program*, Southern California Regional Rail Authority (Feb. 1992).

42 *Id. See also* Controlling Locomotive Emissions in California, *Engine, Fuel, and Emissions Engineering, Inc.* at 123 (March 1995) ("SCRRA (Southern California Regional Rail Authority) and its researchers have estimated that 18 years would be needed to complete its 800-mile electrified rail system covering the South Coast region.").

and in areas where there is limited space on a right-of-way. These challenges are greatest in areas that present the most difficult engineering and construction challenges, such as high-grade, mountainous territories that use more locomotive horsepower (with higher attendant GHG emissions intensity than flat territories).

Further, as discussed below, the North American rail network operates efficiently due to its interoperability. Attempting to incorporate locomotives that can use catenary electric lines into the national fleet could introduce major costs, delays, and inefficiencies because of interchanging freight to and from diesel locomotives at the edges of electrified territory.

Finally, power outages, blackouts, and brownouts would cause significant disruption in catenary electric rail operations and could upset the national supply chain. Several of the regions with the busiest intermodal ports and largest railyards also have the least reliable electric distribution systems and regularly impose blackouts and brownouts to address surges in demand that exceed grid capabilities or to mitigate the risks of wildfires.

III. CARB's Proposed Regulation is Effectively a National Regulation, not a Local One.

In addition to the technological unfeasibility of CARB's Regulation even if theoretically limited to California, the problems are greatly compounded because CARB's rule directly and unavoidably overreaches beyond the state and into national environmental policy and regulation. The freight rail industry is not a combination of discrete, unconnected railroads. Rather, it is a single interconnected system of six Class I railroads and hundreds of short line railroads that own and maintain over 140,000 route-miles of track throughout North America. In most areas of the United States, passenger railroads also operate on track owned by the freight railroads.

It is not just the track that is connected – at any given moment, approximately 5 to 10% of the line-haul locomotives being operated by the Class I railroads are actually owned or leased by another railroad, a practice known as "locomotive run-through interoperability." This allows the railroads to maximize the efficiency of locomotive use in moving freight trains and reduces transportation time by eliminating the need to exchange locomotives when moving from one railroad's line to another's. It is common to see line-haul locomotives from railroads in the United States, Canada, and Mexico operating far from the owning railroad's tracks. For example, it would not be uncommon to see a Canadian or Eastern railroad's locomotive operating on track in California owned by BNSF or Union Pacific. The Class I freight railroads manage their operations with a focus on efficiency by pulling a single train across long distances and through many states, thereby reducing the idling and switching of locomotives. As a result, it is a regular occurrence, for example, for trains to leave Chicago, IL, for a destination in California without a single change to the locomotive(s) pulling that train.

Therefore, CARB's proposed regulation of emissions from locomotives "that operate in California" is tantamount to the nationwide regulation of locomotive emissions. A key factor in maximizing locomotive interoperability is the minimization of technical differences between locomotives in each railroads' fleet. Increasingly, railroads not only operate each other's locomotives but also perform basic maintenance tasks on other carriers' locomotives to minimize non-productive time involved in returning a locomotive to its owning railroad for maintenance.

It is for this precise reason – the overall interoperability of the North American rail network – that Congress has passed laws, including provisions in the Clean Air Act, making clear

that railroad regulation must occur at the national level and preempting the regulation of the rail industry by state and local jurisdictions. Congress recognized that if the rail network is going to function safely and efficiently while meeting the needs of the nation's supply chain, railroads cannot be subject to a patchwork of different state and local regulations across the country.[43]

CARB's Regulation and authorization request introduces barriers to this interoperability of the rail network by proposing state-specific regulations that would likely increase criteria, toxic, and climate pollutants and worsen highway congestion by driving freight to transport modes with far worse impacts on air quality. Contrary to the statement in the Regulation's Initial Statement Of Reasons that CARB staff "did not find empirical research that focused on the impact of regulatory costs on freight diversion or mode shifts from rail to trucks," CARB previously conducted its own study on this topic.[44] Indeed, in its Exchange Point study with the University of Illinois, CARB concluded that the net result of introducing barriers into the seamless movement of rail freight will likely be a decrease in freight rail market share and an increase in freight moving by truck. The study further noted that it is critical to examine operational factors, not just emissions factors, when evaluating new locomotive technology to reduce the emissions of line-haul freight rail in California.[45] Unfortunately, CARB failed to heed

---

[43] Given the interconnected nature of the U.S. rail system, "the Federal Government has determined that a uniform regulatory scheme is necessary to the operation of the national rail system." *United Transp. V. Long Island R.R.,* 455 U.S. 678, 688 (1982); *see also City of Auburn v. U.S. Gov't*, 154 F.3d 1025, 1029 (9th Cir. 1998) ("Congress and the courts have long recognized a need to regulate railroad operations at the federal level."); *see also* 42 U.S.C. § 7543(e)(1)(B).

[44] Public Hearing to Consider the Proposed In-Use Locomotive Regulation, Staff Report: Initial Statement of Reasons, Sept. 20, 2022, (hereinafter "ISOR") at 31.

[45] *See* https://ww2.arb.ca.gov//sites/default/files/classic/railyard/docs/uoi_rpt_06222016.pdf at xii ("The North American Class 1 railroads have continually worked to remove barriers that prevent

its own advice when promulgating this rule. The Regulation would effectively block locomotives from entering California, severely harming the interoperability of the national rail network and the overall national supply chain.

Moreover, if authorized, other states would have the option of adopting the Regulation, setting up a scenario where the regulations governing rail operations vary from state to state and creating a situation in which railroads would need to stop and change trains at state borders – creating bottlenecks and delays in the national supply chain.[46] The Regulation also has the potential to impact critical U.S. military operations, creating significant national security concerns.[47]

---

the seamless movement of freight. Operation with exchange points and a captive fleet in the South Coast reintroduces those barriers. Based on experience with captive fleets and lack of interoperability in Europe, operation with exchange points in the South Coast is likely to result in: increased operating costs, delays and network disruption due to locomotive exchange; decreased locomotive utilization, increased locomotive fleet size and the capital cost of establishing extra regional alternative-technology locomotive maintenance, servicing and fueling facilities. According to the European experience, the net result of these outcomes will likely be a decrease in freight rail market share.") (emphasis provided).

[46] 42 U.S.C. § 7543(e)(2)(B).

[47] *See, e.g.,* Testimony of General Van Ovost of US Transcom before the Senate Armed Services Committee, April 11, 2024 (The military "rel[ies] every day on this nation's transportation network, whether it's seaports, its rail, or its roads. So, when I think about the – reduction in capacity across California, I think about I have 15 nodes in California that we use, from two different railroad lines. And we have five ports, one of which is our only West Coast ammunition port for containerized ammunition, which is which is critical to our operational plans. And of course, we have close relationships with the railroad industry, and so we are working with them as this is emerging and they're understanding what the implications are. Initially, I believe that any increased costs will be passed directly on to the customer, but I am concerned about the technology and their ability to recapitalize between now, the readiness of now, and the readiness of future if they have to transition.") (*available at* https://www.armed-services.senate.gov/hearings/to-receive-testimony-on-the-posture-of-united-states-european-command-and-united-states-transportation-command-in-review-of-the-defense-authorization-request-for-fiscal-year-2025-and-the-future-years-defense-program).

CARB has conceded that its regulatory proposal will have substantial impacts on railroad operations not only within California, but on a national level. Recognizing the interoperability of locomotives in interstate rail networks, CARB "assume[d]" that operators would need to transform their "entire fleet" nationwide to comply with the Regulation.[48] CARB also assumed that Class I operators like BNSF and Union Pacific "will be able to pass on costs of the [Regulation] across the nation."[49] California is not entitled to make these policy decisions for the rest of the nation.

IV. CARB's request for authorization is impermissible under CAA 209(e)(1).

Congress granted the U.S. EPA exclusive authority to regulate emissions from new locomotives under the Clean Air Act. Specifically, the Clean Air Act requires EPA to "promulgate regulations containing standards applicable to emissions from new locomotives and new engines used in locomotives."[50] EPA has promulgated comprehensive standards and other regulations governing locomotive emissions.[51] These regulations employ a tier system for locomotives ranging from Tier 0 to Tier 4, with emissions requirements tied to the year of original manufacture of a locomotive.[52]

EPA's federal emissions standards and requirements apply to "new" locomotives during their "useful life," which is a period generally specified by the manufacturer in both years (a

---

48 CARB, Standardized Regulatory Impact Assessment at 35 ("To account for operators' current fleet management patterns and the interchangeability of locomotives within each fleet, staff assumed that each operator's entire fleet would comply with the Proposed Regulation, allowing all locomotives to operate as needed in California.").

49 *Id.* at 143.

50 40 U.S.C. § 7547(a)(5).

51 *See* 40 C.F.R. pt. 1033, subpart B.

52 *See id.* § 1033.101.

minimum of 10 years) and megawatt-hours. The useful life period ends when either of the two specified values (the years or megawatt-hours) is exceeded or the locomotive is remanufactured.[53] EPA has interpreted the term "new" with respect to locomotives and locomotive engines to include "remanufactured or refurbished" units.[54] Thus, a locomotive that has been remanufactured (or has a remanufactured engine) is subject to EPA's emissions regulations during an additional useful life period.[55]

Consistent with granting this exclusive regulatory authority to EPA, Section 209(e)(1) of the Clean Air Act prohibits all states and local governments from adopting or attempting to enforce any standard or other requirement related to "[n]ew locomotives or new engines used in locomotives."[56] As interpreted by both EPA and courts, this provision extends to preempt rules that "would pressure manufacturers to change the design of new engines even when not enforced through manufacturer-directed regulation."[57]

Under section 209(e)(2), EPA can only authorize California to adopt and enforce standards and other requirements related to the control of emissions from non-new locomotives and engines. Even under this provision, if EPA determines that (1) California's determination that its standards are at least as protective as federal standards was arbitrary and capricious, (2) California does not need such standards to meet "compelling and extraordinary

---

53 *Id.* § 1033.101.(g).

54 *Id.* 1033.901.

55 *Id.* 1033.101(g)(3)-(4).

56 42 U.S.C. § 7543(e)(1)(B).

57 *EMA v. S. Coast Air Quality Mgmt. Dist.*, 541 U.S. 246, 254 (2004); *see also* EPA, Locomotives and Locomotive Engines; Preemption of State and Local Regulations, 88 Fed. Reg. 77004, 77006 & n.18 (Nov. 8, 2023) (discussing this principle from *Allway Taxi* and collecting supportive case law).

conditions," or (3) the California standards and enforcement procedures are inconsistent with other provisions in Section 209, EPA must deny the authorization request.[58] As previously interpreted by the agency, EPA must ensure compliance with Section 209(e)(1) and to deny authorization if there is inadequate lead time to permit development of the necessary technology while giving appropriate consideration to the cost of compliance.[59] As explained above, applying this standard, the Regulation and the authorization request must be denied.

CARB attempts to circumvent the clear preemption of its regulation by suggesting that preemption under § 209(e)(1) extends only to regulations covering locomotives that have "never been transferred" or "placed into service."[60] But courts and EPA have long rejected that reading of the statute, which would turn "new" vehicle/locomotive preemption into "a dead letter if a state or local government could impose a different emission standard the moment after title is transferred to a purchaser."[61] And, as explained above, CARB's suggestion that today's diesel locomotives can just use a different, zero-emission energy source is unrealistic. Moreover, the Regulation runs afoul of even CARB's narrow view by imposing standards and requirements related to the purchase of locomotives via the Regulation's Spending Account requirements.

---

58 42 U.S.C. § 7543(e)(2).

59 89 Fed. Reg. 14486.

60 Clean Air Act § 209(e)(2) Authorization Support Document Submitted by the California Air Resources Board, Nov. 7, 2023, at 19.

61 *In re Volkswagen "Clean Diesel" Mktg., Sales Pracs., & Prods. Liab. Litig*., 959 F.3d 1201, 1218-19 (9th Cir. 2020). *See also Engine Mfrs. Ass'n v. U.S. E.P.A.,* 88 F.3d 1075, 1082-83, 1086 (D.C. Cir. 1996) (applying this reasoning to engines subject to preemption under § 209(e)(1)); EPA, Locomotives and Locomotive Engines; Preemption of State and Local Regulations, 88 Fed. Reg. 77004, 77006 & n.18 (Nov. 8, 2023) (applying this rule to locomotives).

For the reasons detailed below, the Regulation seeks to control emissions from new locomotives and new locomotive engines. As such, the Clean Air Act does not grant EPA the authority to authorize the Regulation.

a. The Spending Account provision is preempted by CAA 209(e)(1).

The ordinary meaning of "standard" as used in § 209(e) means "the emission characteristics of a [locomotive] or engine."[62] There is a strong argument that the Spending Account provisions set an emissions standard: zero emissions (or, until 2030, "Cleaner Locomotive(s)," i.e., Tier 4). [63] Both the Spending Account Funding Requirement and the associated purchase restrictions are a "means of enforcing [those] standards."[64,65]

Beginning with the Purchase Restrictions, CARB's rule dictates the locomotives and equipment that operators may purchase with the Spending Account funds. Initially, operators must purchase locomotives that satisfy the State's emissions-based definition of "Cleaner Locomotives," and ultimately, they may purchase only "ZE" or "ZE Capable" locomotives or rail equipment,[66] which is far more restrictive than any federal emissions standard.[67] These Purchase Restrictions are backed by penalties for non-compliance,[68] and are designed to control emissions from locomotives purchased by railroads operating in California. These

---

62 *EMA v. S. Coast Air Quality Mgmt. Dist.*, 541 U.S. 246, 253 (2004).

63 *See* In-Use Locomotive Regulation § 2478(4)(d).

64 *EMA*, 541 U.S. at 253; *see id.* at 255 (explaining that "purchase restrictions" are a means of enforcing a standard relating to emissions control).

65 Even if EPA were to find that the Spending Account requirement is not related to controlling locomotive emissions, it is still preempted by ICCTA because the requirement would direct railroads' investments.

66 *See* In-Use Locomotive Regulation at § 2478.3(a).

67 *See* 40 C.F.R. § 1033.101.

68 *See* In-Use Locomotive Regulation at § 2478.16.

mandated purchase "criteria" plainly "relate to the emission characteristics" of a locomotive.[69] Indeed, CARB has expressly stated that "[t]he goal" of the Spending Account "is to increase the use of zero-emission (ZE) technology."[70] It further clarified that "[l]ocomotive operators could only use funds set aside in the Spending Account for Tier 4 and cleaner locomotives and infrastructure, which would decrease future emissions by encouraging the transition to cleaner technology."[71] This is precisely the type of purchase restriction that the Supreme Court has held is a means of enforcing emissions standards.

The Purchase Restrictions also unquestionably impose standards and requirements related to *new* locomotives or engines—after all, the point of the provision is to dictate the standards for new equipment that locomotive operators may purchase with the dedicated Spending Account funds, as CARB is directly seeking to influence the market for newly manufactured ZE locomotive technology (based on the false assumption that regulation-induced demand could will the technology into existence). It makes no difference that the Purchase Restrictions only govern purchases made with the money conscripted by CARB into the Spending Account. As the Supreme Court has held, purchase restrictions qualify as efforts to enforce an emissions standard even when they are limited to "certain purchasers" and "certain … vehicles."[72]

---

69 *EMA*, 541 U.S. at 253.

70 CARB Fact Sheet: Class I Locomotive Operators (*available at* https://ww2.arb.ca.gov/resources/fact-sheets/carb-fact-sheet-class-i-locomotive-operators).

71 CARB, Proposed-In Use Locomotive Regulation, Standardized Regulatory Impact Assessment (SRIA), May 26, 2022 (*available at* https://dof.ca.gov/wp-content/uploads/sites/352/Forecasting/Economics/Documents/SRIA-Locomotive.pdf*).*

72 *EMA*, 541 U.S. at 255; *see also Am. Auto. Mfrs. Ass'n v. Cahill*, 152 F.3d 196, 200 (2d Cir. 1998) (holding that "a requirement that a particular percentage of vehicle sales be [zero-emission vehicles] has no purpose other than to effect a general reduction in emissions" and is

In addition, the Spending Account Funding Requirement is inconsistent with Section 209(e)(1). The command to locomotive operators that they "shall deposit the Spending Account Funding Requirement" funds each year,[73] is a legally imposed mandate—that is, a requirement.[74] Tellingly, the Regulation describes these mandates using the noun and verb forms of "requirement."[75] The Funding Requirement also "relat[es] to the control of emissions" from locomotives."[76] The Regulation charges locomotives operating in the State based on their emissions levels, as "[t]he amount deposited in the [Spending] account is calculated by using the locomotive's annual usage in megawatt."[77] As CARB puts it, "[t]he more emissions a locomotive operator emits due to operations in California, the higher their [Spending Account] charge."[78] The Funding Requirement thus attaches "liability" for past emissions, which is "a potent method of governing conduct and controlling policy."[79] Indeed, the Funding Requirement has this express purpose, as CARB explained that tying the Funding Requirement to past emissions would "provide[] a financial incentive for operators to pursue Tier 4 or cleaner technology" to avoid a "higher … charge."[80] And by subjecting locomotives operating within their useful life in California to this effective tax on emissions, the Funding Requirement

---

therefore preempted); *Ass'n of Int'l Auto. Mfrs., Inc. v. Comm'r, Mass. Dep't of Env't Prot.*, 208 F.3d 1, 6 (1st Cir. 2000) (same).

73 In-Use Locomotive Regulation at § 2478.4(b).

74 42 U.S.C. § 7543(e)(1)-(2).

75 *See, e.g.*, § 2478.4(c) (providing that the "Spending Account Funding *Requirement* … is the total amount an Operator is *required* to deposit into their Spending Account for a given Calendar Year" (emphases added)).

76 42 U.S.C. § 7543(e)(1)-(2).

77 ISOR at 20.

78 FSOR at 108.

79 *Riegel v. Medtronic, Inc.*, 552 U.S. 312, 324 (2008).

80 FSOR at 108-109.

inevitably dictates emissions standards for locomotive manufacturers.[81] Indeed, under California's rule, locomotive operators would be taxed on emissions by locomotives from the moment those locomotives or engines are purchased or remanufactured.[82]

Considered together, this is not a close call – CARB has stated precisely what it intended in its In-Use Locomotive Regulation. And its intent – purchase requirements for new locomotives and engines based on emissions limits and funding requirements calculated based on emission levels – are a means of enforcing standards. Because this is prohibited under Section 209(e)(1), EPA must deny this provision of the authorization request.

b. In-Use Operational Requirements are preempted by CAA 209(e)(1).

The In-Use Operational requirements bar the in-state operation of certain categories of locomotives that CARB believes produce unacceptable levels of emissions. Specifically, these requirements bar the in-state operation (beginning in 2030) of any locomotive older than 23 years, based on its Original Engine Build Date, unless it satisfies specified emissions-related criteria.[83] The regulation also bars the in-state operation of *all locomotives not operating in ZE configuration – i.e.* locomotives that produce any emissions – that are built no earlier than 2030 (for switch, industrial, and passenger locomotives) or 2035 (for freight line haul locomotives).[84]

These provisions clearly seek to enforce a standard or other requirement relating to locomotive emissions controls from new locomotives and new engines within the meaning of

---

81 *See Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1086 (D.C. Cir. 1996).

82 *See* 88 Fed. Reg. 7704, 77006 & n.18 (Nov. 8, 2023) (acknowledging precedent recognizing it "would be an obvious circumvention of the Clean Air Act" for states or political subdivisions to impose emission control standards immediately after an engine is purchased).

83 In-Use Locomotive Regulation § 2478.5(a).

84 *Id.* at §§ 2478.5(b),(c).

CAA § 209(e)(1). These in-use operational requirements apply to locomotives that are "new" for two reasons. First, the provision specifically dictates the emission standards for newly built locomotives and engines as of 2030 (for passenger and switcher) and 2035 (for freight line-haul). Second, the provision also imposes standards for engines that are new by virtue of remanufacture because CARB counts from the original engine's assembly *without regard to any subsequent remanufacture*.[85] Federal law, by contrast, expressly provides that "[a] locomotive or engine also becomes new if it is remanufactured or refurbished (as defined in this section)."[86] Thus, under CARB's rule a locomotive that is remanufactured and complies with emission standards set by EPA would be *immediately* barred from operating in California unless it satisfies CARB's distinct zero-emission requirement for locomotives in the State. As discussed above, it is not possible to operate a diesel locomotive in "zero-emission configuration" just in California because the idea of changing the power source without rebuilding the engine is not workable in practice.

Given that CARB has publicly admitted that its goal is to "achieve emission reductions from Locomotives Operating in California," EPA cannot reach any conclusions other than that the Regulation is preempted under 209(e)(1).[87]

---

85 *See id.* § 2478.3(a).

86 40 C.F.R. § 1033.901.

87 CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and Information, Proposed In-Use Locomotive Regulation (*available at* https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/locomotive22/15daynotice.pdf).

c. Even under Section 209(e)(2), CARB's request must be denied.

Even setting aside Section 209(e)(1)'s clear prohibition of the Regulation and its inconsistency with the standards required under the Clean Air Act,[88] CARB's authorization request must be denied based on Section 209(e)(2)'s conditions because CARB's determination that the Regulation will be at least as protective of public health and welfare as the federal standards was arbitrary and capricious.[89] Specifically, CARB failed to account for the potential collateral effects of the Regulation.

First, CARB failed to properly account for the potential modal shift of freight from trains to more emissive forms of transportation, such as trucks. CARB also failed to consider its own analysis on the introduction of barriers between geographic areas, or exchange points, during its regulatory proceeding.[90] And given the national impact of the Regulation, the modal shift implications are not limited solely to California but must be considered across the North American rail network.

Second, CARB fails to analyze how the Regulation, given the state of technology and the investment decisions railroads will need to make, will influence the shape of the North American locomotive fleet. Some railroads may rationally decide to use older, diesel technology longer than they otherwise would due to the unknown nature of the long-term safety, reliability, and maintainability of new, unproven zero-emission technologies. In effect, the Regulation may end up delaying the incorporation of zero-emission locomotives into the overall fleet.

---

88 42 U.S.C. § 7543(e)(2)(A)(3).

89 *Id.* at § 7543(e)(2); 89 Fed. Reg. 14485.

90 Exchange Point Study, *supra* FN 40 and associated text.

V. Forced Decarbonization of the Rail Industry is a "Major Question."

The Supreme Court has held that when an agency asserts authority to decide a "major question," a "merely plausible textual basis" for that authority will not do; only "clear congressional authorization" will suffice.[91]

Here, CARB is seeking to regulate new locomotives and new locomotive engines – not just in California, but on a national and international basis. And rather than a clear authorization, Congress has issued a clear prohibition. Under the clear text of the Clean Air Act, California is prohibited from "adopt[ing] or attempt[ing] to enforce any standard or other requirement relating to the control of emissions from . . . new locomotives or new engines used in locomotives."[92] Congress' objective is clear: while EPA has the authority to regulate emissions from new locomotives and new locomotive engines, states cannot be authorized to do so. Congress recognized the need for federal regulation of the rail network to avoid a patchwork of regulations that would negatively impact interstate commerce and the global supply chain. In recognition of this need for uniformity, Congress has enacted multiple statutes that preempt attempts by state and local authorities to regulate railroad operations, including, among others, the Interstate Commerce Act, as amended by the ICC Termination Act of 1995 ("ICCTA"), the Locomotive Inspection Act, and section 209(e) of the Clean Air Act.[93]

---

91 *West Virgia v. EPA*, 142 S.Ct. 2587, 2609-10 (2022) (quoting *Utility Air Regul. Grp. v EPA*, 573 U.S. 302, 324 (2014)).

92 42 U.S.C. § 7543(e)(1).

93 49 U.S.C. § 10501(b); 49 U.S.C. § 20701; 42 U.S.C. § 7543(e). The ICCTA grants the STB exclusive jurisdiction over "transportation by rail carriers, and the remedies provided . . . with respect to rates, classifications, rules . . . practices, routes, services, and facilities of such carriers." 49 U.S.C. § 10501(b). This provision expressly "preempt[s] the remedies provided under Federal or State law."[93] Under ICCTA, "transportation" refers to "a locomotive, car, vehicle, vessel, warehouse, wharf, pier, dock, yard, property, facility, instrumentality, or

As explained above, the Regulation will impact the design and manufacture of new locomotives and new locomotive engines. It is also not feasible to convert the existing fleet of locomotives to operate with zero emissions. As such, there is little doubt that EPA lacks the authority to grant authorization.

Even leaving aside the conflict with Section 209(e)(1) and other statutes ensuring regulation of the rail network at the federal level, Section 209(e)(2) should not be interpreted to allow EPA to authorize a California program requiring zero-emission locomotives, thus effectively forcing the phase-out of the internal combustion engine for a major national industry. Section 209(e)(2) addresses California's limited authority, if certain conditions are satisfied, to avoid Clean Air Act preemption and adopt and enforce standards and other requirements "relating to the control of emissions."[94] That ability to adopt standards and requirements relating to the "control" of emissions should not be read to authorize California or other states *to prohibit any* emissions from locomotives operating in the state or to require locomotive operators to set aside billions of dollars to purchase (theoretical) zero-emission technology. The regulatory shift from emissions control to emissions prohibition, backed by the conscription of billions in railroad funds, is more than a matter of degree—it contemplates a

---

equipment of any kind related to the movement of passengers or property, or both, by rail" and "services related to that movement." 49 U.S.C. 10102(9)(A), (B). Courts have clearly held that ICCTA "plainly" preempts local environmental regulations targeting railroads, such as rules imposing reporting requirements related to emissions and restricting the idling time allowed for locomotives. *Ass'n of Am. R.R. v. S. Coast Air Quality Mgmt. Distr.*, 622 F.3d 1094, 1098 (9th Circ. 2010). Indeed, CARB itself has acknowledged that attempts to regulate the rail industry were preempted by federal law. *See* CARB, June 2005 ARB/Railroad Statewide Agreement on Particular Emissions from Rail Yards, Public Comments Raising Legal Issues and Agency Responses (Attachment 3).

[94] 42 U.S.C. § 7543(e)(2).

major industry transformation of "vast economic and political significance."[95] The Regulation would "entail billions of dollars in compliance costs" and "substantially restructure" the North American rail industry.[96] CARB estimated the "direct costs," not including mandatory payments into the Spending Account, to the Regulation to be $15.9B (2019$).[97] Notably, this cost underestimates the true cost of, among other things, the stranded assets from recently purchased locomotives that do not satisfy California's zero-emission mandate, the purchase costs of not yet commercially available zero-emission locomotives, and national infrastructure improvements and upgrades required to transition to alternative fuels.

By any measure, the cost of the regulation and the compelled transition away from internal combustion is economically and politically significant. Furthermore, the regulation would fundamentally change and restructure the North American rail network. As such, EPA would require clear congressional authorization to approve CARB's Regulation requiring use of zero-emission locomotives. The Clean Air Act does not permit EPA to abrogate its responsibility to establish national locomotive emissions standards and defer to California. EPA must deny CARB's request.

VI. Conclusion

CARB's authorization for its In-Use Locomotive regulation is an unlawful attempt to regulate emissions from new locomotives and new locomotive engines and EPA authorization is not permitted under the Clean Air Act. Moreover, it is unfeasible and unworkable and will negatively impact the rail network and the global supply chain.

---

95 *West Virginia*, 142 S.Ct. at 2605.

96 *Id.* at 2604.

97 CARB, Standardized Regulatory Impact Analysis at 59.

Regulation of the rail industry must be handled at the federal level. AAR and its members are committed to the reduction of emissions from railroad operations and look forward to collaborating with EPA on workable solutions to achieve the goals of the rail industry, EPA, and the communities in which we operate.

Respectfully submitted,

Kathryn D. Kirmayer
Theresa L. Romanosky
Association of American Railroads
425 Third Street, SW
Washington, DC 20024
(202)639-2100