**BEFORE THE**

**CALIFORNIA AIR RESOURCES BOARD**

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**COMMENTS ON PROPOSED IN-USE LOCOMOTIVE REGULATION**

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**COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS**

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The Association of American Railroads ("AAR"), on behalf of itself and its member railroads, respectfully submits the following comments on the California Air Resources Board's ("CARB") Proposed In-Use Locomotive Regulation ("Proposed Rule").

AAR is a non-profit trade 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 represents passenger railroads that operate intercity passenger trains and provide commuter rail service. AAR's members own (or lease) and operate locomotives within the state of California and are part of the national freight and passenger rail network. AAR and its members therefore have a significant interest in this proceeding.

AAR has filed several comments throughout the rulemaking process and incorporates those comments herein. Those comments are attached to this filing for ease of reference.[1]

## I. Introduction

In this regulatory initiative, CARB has articulated a desire to pursue an undeniably important objective: improving air quality. The railroads support lawful and sensible initiatives to further this goal – a fact which is apparent in the efforts already undertaken and underway by AAR's members to both upgrade locomotive fleets and to explore and test new technologies. However, the mechanisms that CARB has proposed to pursue this objective by singling out railroads for expensive new regulatory burdens and charges are both unlawful—because they are preempted by federal law—and counterproductive. Rail is already the most efficient and environmentally friendly way to move people and freight over land. One train can carry the freight of hundreds of trucks and freight railroads are 3-4 times more fuel efficient on average than trucks. Railroads contribute only 1.9% of the U.S. transportation-related greenhouse gas emissions and can move one ton of freight nearly 500 miles on average on a single gallon of fuel. AAR's member railroads invest $21B annually into their equipment, infrastructure, training, and technology. Freight railroading is one of the most capital-intensive sectors in the U.S. economy, with almost 18% of gross revenues reinvested back into capital improvements.

[1] *See,* Attachment 1, Association Comments on CARB NOP (Feb. 11, 2021); Attachment 2, Association Comments on Draft In-Use Locomotive Regulations (April 23, 2021); Attachment 3a, Transmittal of AAR Response to CARB Request for Information (June 17, 2021); Attachment 3b, AAR Response to CARB Request for Information (June 17, 2021); Attachment 4, AAR Comments on CARB's Strategy for the State Implementation Plan (March 4, 2022); Attachment 5, AAR Comments on CARB Draft EA for SIP (May 13, 2022); Attachment 6, AAR Comments on CARB State SIP Strategy (Sept. 12, 2022); Attachment 7, AAR Response to Ajay Mangat re: Additional Information Requests (Dec. 13, 2021).

Even given the rail industry's inherent efficiency as compared to all other forms of freight and passenger movement, railroads have not rested on their laurels. AAR's members have made significant investments in, and commitments to, reducing greenhouse gas emissions even further. Every North American Class I railroad and several Class III railroads are participating in the Science Based Targets Initiative, an international collaboration focused on limiting global warming to less than two degrees Celsius.[2] In 2021, Union Pacific announced its Climate Action Plan to achieve its greenhouse gas ("GHG") emissions reductions targets and committed to achieve a net zero GHG target by 2050.[3] Union Pacific also announced a science-based target to reduce absolute Scope 1 and 2 greenhouse gas emissions by 26% by 2030 (calculated from a 2018 baseline).[4] BNSF has committed to reducing GHG emissions 30% by 2030.[5] And Amtrak has pledged to achieve net-zero GHG emissions by 2045, with an interim goal of reducing scope 1 and 2 emissions by 40% by 2030 (calculated from a 2010 baseline).[6]

Even before these formal climate-related commitments were made, railroads demonstrated their dedication to partnering with federal and state regulators in improving air quality. For decades, railroads have undertaken initiatives to improve air quality in California — both on their own initiative and through collaborations with CARB and local air districts. Railroads have pursued pioneering technology investments, changed rail yard operations to

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[2] *See* https://sciencebasedtargets.org/companies-taking-action#table (documenting that BNSF Railway, Canadian National Railway Company, Canadian Pacific Railway Company, CSX Corporation, Genesee & Wyoming, Inc., Kansas City Southern, Norfolk Southern Corporation, and Union Pacific Railroad have all made formal commitments under the STBi framework).

[3] *See* https://www.up.com/media/releases/211206-climate-action-plan.htm.

[4] *See* https://www.up.com/customers/track-record/tr021522-impact-of-freight-shipping-on-climate-change.htm#:~:text=In%20February%202021%2C%20Union%20Pacific,have%20on%20the%20world's%20climate.

[5] *See* http://www.bnsf.com/ship-with-bnsf/sustainability-customers/.

[6] *See* https://www.amtrak.com/about-amtrak/sustainability/net-zero.html.

limit emissions and health impacts, and BNSF and Union Pacific voluntarily entered into two enforceable agreements with CARB that have reduced both NOx and particulate emissions. As CARB has verified, the railroads have fully complied with both agreements.

Based on 2017's updated emission inventories for major yards in California, rail yard emissions of criteria pollutants have been reduced more than 70% as compared to 2005.[7] Rail yard emissions have been reduced even further since that time. Union Pacific has coordinated with CARB to partner with two air districts to bring Tier 4 switcher locomotives into operation; and Pacific Harbor Lines operates an entirely Tier 3+ or Tier 4 fleet that was purchased in partnership with the South Coast Air Quality Management District ("SCAQMD") through Carl Moyer Grants.[8]

In addition, the rail industry has a long history of developing, testing, and demonstrating new technology. For example, in 2021, BNSF partnered with Wabtec (a major locomotive manufacturer) and the San Joaquin Valley Air Pollution Control District, in coordination with CARB, to test a battery-powered line-haul locomotive between Barstow and Stockton, CA as

[7] CARB has repeatedly overstated rail emissions in recent years and has used those overstated emissions to create incorrect (and overstated) forecasts of future emissions. Corrected data and an explanation for why CARB's data is incorrect have been provided to CARB staff by AAR on multiple occasions. To date, CARB staff have failed to acknowledge or correct these mistakes. *See, e.g.,* Attachment 7.

[8] Notably, the Carl Moyer Program, which has been one of the primary tools to enable smaller railroads to upgrade their locomotive fleet, will be unavailable if the Proposed Rule is finalized as drafted. *See* Carl Moyer Program Guide, Section 2: General Criteria ("Covered emissions reductions obtained through Moyer Program projects must not be required by any federal, State, or local rule or regulation, memorandum of agreement, memorandum of understanding, settlement agreement, mitigation requirement, or other legal mandate.").

part of the ZANZEFF program. BNSF is also working with Caterpillar and Chevron to pilot a hydrogen-powered locomotive.[9]

Union Pacific has ordered 20 battery-electric switcher locomotives from Progress Rail (another major locomotive manufacturer) and Wabtec, 10 of which will be used in California's railyards.[10] Union Pacific has also partnered with Wabtec to modernize 600 locomotives – an investment of more than $1 billion.[11] This modernization will reduce carbon emissions by approximately 350 tons of carbon per locomotive per year. And very recently, Union Pacific announced a partnership with ZTR to build new hybrid-electric switcher locomotives, known as "mother-slug" sets.[12]

From the passenger rail perspective, Amtrak is replacing its diesel line-haul locomotive fleet with the cleanest available Tier 4 compliant Siemens locomotives. In addition, Amtrak is pursuing battery-switcher pilot projects and will be seeking proposals to test and demonstrate hydrogen-fuel cell switcher locomotives as part of their strategy to achieve net-zero by 2045.

Pacific Harbor Lines is conducting a demonstration project of a 2.4 MWh battery-electric locomotive from Progress Rail, aptly named the "Joule." And Sierra Northern Railway has launched a program to build and test a hydrogen powered switch locomotive.[13] These

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9 *See* https://www.railwayage.com/mechanical/locomotives/bnsf-caterpillar-chevron-to-pilot-hydrogen-powered-locomotive/.

10 *See* https://www.up.com/media/releases/battery-electric-locomotive-nr-220128.htm.

11 *See* https://www.up.com/media/releases/wabtec-locomotive-modernization-nr-220727.htm.

12 *See* https://www.up.com/media/releases/hybrid-electric-locomotives-nr-221006.htm.

13 The federal regulatory definition of a switch locomotive is a locomotive rated at 2300 horsepower or less. There are very few locomotives in this size range in use in California by the Class I railroads. The working definition used by the Class I railroads (and reflected in CARB's inventories) is that a switch locomotive is a locomotive assigned to a specific location (typically a railyard) that is used for in-yard switching activities, without regard to the locomotive's rated size. From a Class III railroad perspective, the majority of the locomotives in operation are less than 2300 horsepower – typically around 2000 horsepower. These locomotives are general purpose and are used to build trains and

initiatives are in addition to investments in automated gates, locomotive fuel efficiency, and other operational changes to reduce truck idling and fuel consumption – all of which reduce emissions and improve air quality.

Nationwide, the broader railroad industry is also exploring the feasibility and commercial viability of low carbon and renewable fuels and non-diesel locomotives. The rail industry has been working with the Department of Energy, locomotive manufacturers, and biofuel producers to test the use of renewable diesel and biodiesel in the existing locomotive fleet and to increase the production and distribution of these fuels throughout North America. Canadian Pacific has launched a Hydrogen Locomotive Program to test a line-haul locomotive powered by hydrogen fuel cells and batteries. Railroads are modernizing older locomotives to improve efficiency and reduce emissions and are collaborating with the Department of Energy's national labs and equipment manufacturers on strategies that will help bridge the gap between diesel locomotives and the fuels of the future. However, even in light of these efforts, zero emission locomotive technology is not commercially viable, nor is it likely to be viable for the foreseeable future.

The proposed regulation is not a practical way to further reduce locomotive emissions in a manner that is consistent with the law. Instead, it proposes arbitrary and capricious targeting

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move trains on regional routes. The Proposed Rule and supporting technical analysis elide this distinction. For example, the rule language uses the federal definition, but the supporting emissions inventory analyses uses the working definition. For the purposes of this Comment, AAR uses the working definition when referring to "switcher locomotives" – i.e., locomotives that are used primarily within yards by Class I railroads. AAR again asks that CARB clarify its use of the term "switcher locomotive" by focusing on either the power of the unit or the use of the unit (but not both) and then revise the regulatory package to use the term consistently and with technical accuracy.

of the railroad industry and attempts to exercise legal authority that CARB simply does not have. AAR offers the following comments on specific elements of the Proposed Rules.

## II. CARB'S DRAFT IN-USE LOCOMOTIVE REGULATORY SCHEME EXCEEDS THE AGENCY'S LEGAL AUTHORITY.

The freight rail industry is not a combination of discrete, unconnected railroads. Rather, it is a single interconnected system of seven Class I railroads and hundreds of short line railroads that own and maintain over 180,000 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 seven 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. As a result, 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 Pacific or Norfolk Southern 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. For example, it is a regular occurrence for trains to leave Chicago, IL, for a destination in California without a single change to the locomotive(s) pulling that train.

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 many laws making clear that railroad regulation must occur at the national level and preempting the regulation of the rail industry by state and local jurisdictions. As discussed below, 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.

Yet, in this rulemaking, CARB is proposing to introduce barriers to this interoperability of the rail network by proposing state-specific regulations that would likely increase criteria, toxic, and climate pollutants.[14] The Proposed Regulation would effectively block locomotives from

[14] The Proposed Rule has the potential to worsen highway congestion by driving freight to transport modes with far worse impacts on air quality. Contrary to the statement in the ISOR 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. Public Hearing to Consider the Proposed In-Use Locomotive Regulation, Staff Report: Initial Statement of Reasons, Sept. 20, 2022, (hereinafter "ISOR") at 31. 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. *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 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

entering California, severely harming the interoperability of the national rail network. Contrary to CARB's assertions that "the Proposed Regulation does not conflict with or duplicate any current federal regulations," CARB's entire proposed regulation is preempted by federal laws and regulations.[15] Indeed, the Ninth Circuit Court of Appeals has held that similar efforts within California to impose state- or district-specific regulations on rail operators are preempted by multiple federal statutory and regulatory programs. CARB's Proposed Rule is unlawful.

*a. Railroad Operations are Comprehensively Regulated by the Federal Government.*

As explained above, rail operations are not a discrete activity that could be confined within the boundaries of a single state. Rather, the nation's rail transportation system is an integrated network in which over 500 railroad companies participate, operating over 180,000 miles of track in 49 states, Canada, and Mexico. Given these characteristics, "the Federal Government has determined that a uniform regulatory scheme is necessary to the operation of the national rail system."[16] 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 the Interstate Commerce Act, as amended by the ICC Termination Act of 1995 ("ICCTA"), the Railroad Revitalization and Regulatory Reform Act of 1976 ("the 4-R Act"), the Locomotive Inspection Act ("LIA"), and section 209(e) of the Clean Air Act ("CAA").[17]

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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). Unfortunately, CARB has failed to heed its own advice in this rulemaking.

15 *Id.* at 6.

16 *United Transp. Union v. Long Island R.R.*, 455 U.S. 678, 688 (1982).

17 49 U.S.C. § 10501(b); 49 U.S.C. § 11501; 49 U.S.C. § 20701.

Pursuant to Article VI of the United States Constitution, Congress can preempt state law so that it is "without effect."[18] The "purpose of Congress is the ultimate touchstone of pre-emption analysis."[19] Congress's purpose can be "explicitly stated in the statute's language or implicitly contained in its structure and purpose."[20]

As explained in more detail below, key elements of CARB'S Proposed Rules are expressly preempted under federal law.

ICCTA "preempts all state laws that may reasonably be said to have the effect of managing or governing rail transportation."[21] ICCTA provides that the Surface Transportation Board ("STB") holds "exclusive" jurisdiction over "transportation by rail carriers." "Transportation" is defined broadly to encompass "a locomotive, car, . . . yard, property, facility, instrumentality, or equipment of any kind related to the movement of . . . property . . . by rail" as well as "services related to that movement."[22] Various courts have stated that the core purpose of this provision is to ensure the free flow of interstate commerce, particularly by preventing a patchwork of differing regulations across states.[23] The Proposed Rules are not

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18 *Maryland v. Louisiana*, 451 U.S. 725, 746 (1981) (citing *McCulloch v. Maryland*, 17 U.S. (4. Wheat.) 316, 427 (1819)).

19 *Cipollone v. Liggett Grp., Inc.*, 505 U.S. 504, 516 (1992) (internal quotation marks and citations omitted).

20 *Jones v. Rath Packing Co.*, 430 U.S. 519, 525 (1977) (citing *City of Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 633 (1973); *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947)).

21 *Assoc. of Am. R.R. v. S. Coast Air Quality Mgmt. Dist.*, 622 F.3d 1094, 1098 (9th Cir. 2010) (internal quotation omitted); *see also BNSF Ry. Co. v. California Dept. of Tax and Fee Admin.*, 904 F.3d, 755, 761 (9th Cir. 2018) (state laws that specifically "target" the railroad industry by definition have "the effect of managing or governing rail transportation").

22 49 U.S.C. § 1012(9).

23 *See, e.g.*, *Elam v. Kan. City S. Ry.*, 635 F.3d 796, 804 (5th Cir. 2011) (a purpose of ICCTA was to create a "[f]ederal scheme of minimal regulation for this intrinsically interstate form of transportation.") (quoting H.R. Rep. No. 104-311, at 93 (1995), reprinted in 1995 U.S.C.C.A.N. 793, 805); *Fla. E. Coast. Ry.*, 266 F.3d at1338-39 (stating that a desire to prevent a "patchwork of regulation . . . motivated the passage of the ICCTA" and that "[i]n reducing the regulation to which railroads are subject at state and

generally applicable laws but rather specifically target the operation of railroads, which subjects them to categorical preemption as efforts to manage or govern rail transportation.[24]

Other statutes also preempt or prohibit state regulation of railroad operations. For example, the Supreme Court has held that the LIA preempts state laws purporting to regulate "the design, the construction, and the material of every part of the locomotive and tender and of all appurtenances."[25] Following *Napier*, lower courts consistently have held that attempts by states, through either common law or enactment of positive law, to impose requirements for equipping locomotives are preempted.[26]

In addition, the CAA prohibits States and their political subdivisions form imposing "any standard or other requirement relating to the control of emissions from … [n]ew locomotives or new engines used in locomotives."[27] As explained below, this provision and the United States Environmental Protection Agency ("EPA") regulations implementing it preclude CARB from dictating the standards for locomotive performance for new or modified engines.

*b. CARB's Proposed Ban on Otherwise Compliant Federally Certified Locomotives (i.e., the "In-Use Operational Requirements") is Preempted by ICCTA and the CAA.*

CARB's Proposed Rule is not a generally applicable air quality rule with only an indirect impact on rail; it *directly* and *expressly* targets rail transportation. Section 2478.5 of CARB's Proposed Rule would ban the operation of federally certified locomotives that comply with all

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federal levels, the ICCTA concerns itself with the efficiency of the industry as a whole across the nation.").

[24] *See, e.g.*, *Delaware v. Surface Transportation Bd.*, 859 F.3d 16, 19 (D.C. Cir. 2017) (describing "categorical" preemption under ICCTA).

[25] *Napier v. Atlantic Coast Line R.R.*, 272 U.S. 605, 611 (1926).

[26] *See, e.g.*, *Ogelsby v. Delaware & Hudson Ry. Co.*, 180 F.3d 458, 461 (2d Cir. 1999) (holding that to allow states to regulate instructional labels on locomotives would "undermine the goal of the BIA, which is to prevent 'the paralyzing effect on railroads from prescription by each state of the safety devices obligatory on locomotives that would pass through many of them.'") (internal citation omitted).

[27] 42 U.S.C. § 7543(e)(1)(B).

federal requirements but that have been in operation for more than 23 years. The proposed ban is preempted by both ICCTA and the CAA.

With respect to ICCTA, the proposed ban targets a core aspect of railroad operation and would interfere with the free flow of interstate commerce by creating a complicated and expensive patchwork of regulation requiring railroads to switch out otherwise compliant locomotives at the California State lines.[28] This is precisely the type of state regulation of railroads that Congress sought to disallow with ICCTA because it would have "the effect of unreasonably burdening or interfering with rail transportation."[29] Because ICCTA "preempts all state laws that may reasonably be said to have the effect of managing or governing rail transportation," ICCTA preempts regulations such as CARB's Proposed Rules.[30]

CARB attempts to justify the proposed ban by claiming that that "[a]fter remanufacture, a locomotive will continue to operate at an emission level equivalent or nearly equivalent to the emission standard that applied to new locomotives at the time when the locomotive was originally manufactured."[31] This statement provides no basis for CARB to interfere with such a fundamental aspect of railroad operations, creating an unworkable patchwork that would block federally authorized locomotives from entering California's borders. It also fails to account for

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[28] Again, notably, CARB's own Exchange Point study, conducted with the University of Illinois, reached this precise conclusion. *See* https://ww2.arb.ca.gov//sites/default/files/classic/railyard/docs/uoi_rpt_06222016.pdf at XX ("For the [South Coast Air Basin] deployment scenario, with potential train delays and mode shifts, the above findings emphasize the importance of examining operational factors when evaluating new locomotive technology to reduce the emissions of line-haul freight rail in California. For several of the technologies, it is not the equipment capital cost and potential fuel savings that control the economic feasibility of the technology, but instead other factors that arise from the difficulty of integrating new locomotive technology in captive service within a highly interoperable rail network.")

[29] *EPA Declaratory Order*, FD 3503, slip op. at 8.

[30] *Assoc. of Am. R.R. v. S. Coast Air Quality Mgmt. Dist.*, 622 F.3d 1094, 1098 (9th Cir. 2010) (internal quotation omitted).

[31] ISOR at 19.

advances in technology: as CARB staff is aware, the remanufacturing process affords railroads and original equipment manufacturers the opportunity to modernize locomotives to improve fuel efficiency, cut 350 tons of carbon per locomotive per year, recycle 70,000 tons of steel (equivalent to 51,000 passenger cars), while improving reliability and haulage ability.[32] At a time when zero-emission locomotives are not commercially viable, efforts to bridge the gap in technology by reducing emissions and improving efficiency from the existing fleet should be universally encouraged by CARB.

CARB's proposed age cap on locomotives operating in the State is not only preempted by ICCTA, but also conflicts with EPA's authority under the CAA. As expressly conceded by CARB, the EPA has already promulgated nationwide regulations regarding the remanufacture of locomotives, and Congress has expressly prohibited states from promulgating their own conflicting regulations.[33] In CAA section 209(e), Congress preempted state and local governments from adopting or enforcing "any standard or other requirement relating to the control of emissions from . . . new locomotives or new engines used in locomotives."[34] EPA's definition of a "new locomotive" includes a "locomotive or locomotive engine which has been remanufactured" that was built after January 1, 1973.[35] Because EPA's regulations address not only newly built, but also remanufactured engines, they establish the national standards with

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32 *See* https://www.up.com/media/releases/wabtec-locomotive-modernization-nr-220727.htm; http://www.nscorp.com/content/nscorp/en/news/wabtec-to-modernize-330-norfolk-southern-locomotives.html.

33 *See* ISOR at 18, 41.

34 42 U.S.C. § 7543(e)(1)(B).

35 40 C.F.R. § 92.2 (emphasis added).

respect to the remanufacture of, and emissions requirements for, all locomotives operating in the United States.[36]

The Proposed Rules directly conflict with these federal regulations and would interfere with rail transportation. By inventing a unique and novel definition of "useful life" and other provisions that differ from EPA regulations, the Proposed Rule would create a separate California certification system for all U.S., Canadian, and Mexican locomotives that happen to cross California's state lines. Such an outcome is unacceptable given the interconnected nature of the U.S. and North American rail network and the federal regulatory framework that exclusively governs it.[37]

In its regulatory package, CARB states that "the Proposed Regulation does not prescribe any emissions standards for new locomotive engines but instead only requires that locomotive operators meet certain operational requirements."[38] This statement cannot be reconciled with the plain text of the proposed regulation, which proposes to prohibit the operation of any non-zero-emission locomotive within the state after a certain date.[39] The Proposed Rule also expressly bans the operation of any locomotive, regardless of its emissions, 23 years after its

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[36] Notably, CARB supported EPA's adoption of these regulations on remanufactured locomotives when those regulations were developed and promulgated. CARB submitted comments on or related to the proposed regulations in 2004, 2006, and 2007. In its 2004 comment, CARB "fully support[ed] the direction that U.S. EPA is taking to control emissions from [locomotives] in the [Advanced Notice of Proposed Rulemaking on the Control of Emissions of Air Pollution from New Locomotive Engines]. A significant portion of that proposed regulation, which was later finalized and promulgated, related to the emissions standards for remanufactured locomotives. Letter from Alan C. Lloyd, Ph.D., Chairman, Air Resources Board, to Margo T. Oge, Director, Office of Transportation, US EPA (Aug. 26, 2004).

[37] *See CSX Transp. Inc. – Pet. For Declaratory Order (CSX Transp. May 2005)*, FD 34662, slip op. at 3 (finding that state and local permitting or preclearance requirements that could be used to deny a railroad the ability to conduct some part of its operations or proceed with activities that the Board has authorized are categorically preempted "regardless of the context or rationale for the action.").

[38] Notice of Public Hearing to Consider Proposed In-Use Locomotive Regulation, Sept. 20, 2022, at 6.

[39] Proposed § 2478.5(b).

manufacture, unless it is zero-emission.[40] These proposed regulatory provisions unquestionably qualify as a "standard or other requirement relating to the control of emissions." Banning the operation of a locomotive without certain characteristics is legally indistinguishable from requiring locomotives to have those characteristics. The STB has held in the past that states are prohibited from attempting to "influence the railroads' choice of equipment and how to configure that equipment."[41] This is a direct attempt to regulate the rail industry and impose emissions standards for new and modified locomotives, in blatant violation of federal law.

Finally, the proposed age cap on locomotives operating in the State also violates the dormant Commerce Clause. This is so for two reasons. First, "the Commerce Clause protects against inconsistent legislation arising from the projection of one state regulatory regime into the jurisdiction of another State."[42] Because the railroad system is interstate by its very nature, and because California is a major hub of the national transportation network, "the practical effect" of banning certain locomotives from use in California "is to control conduct beyond the boundaries of the State" and transform CARB into a *de facto* nationwide locomotive regulator.[43]

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40 Proposed § 2478.5(a).

41 *United States Environmental Protection Agency – Petition for Declaratory Order*, FD 35803 (STB served Dec. 29, 2014) at 9.

42 *Healy v. Beer Inst., Inc.*, 491 U.S. 324, 336–37 (1989).

43 *Id.* at 336 ("[T]he practical effect of the statute must be evaluated not only by considering the consequences of the statute itself, but also by considering how the challenged statute may interact with the legitimate regulatory regimes of other States and what effect would arise if not one, but many or every, State adopted similar legislation.").

Second, "the burden imposed on interstate commerce is clearly excessive in relation to the putative local benefits."[44] The burden is obvious: the rail industry across the country, and the enormous segment of the national economy that depends on it, will be forced to comply with CARB's ban on certain locomotives in California. This will include inefficient rerouting of locomotives and, in all likelihood, delays and backlogs while waiting for California-compliant locomotives to carry the freight. And CARB severely overestimates the purported benefits to air quality from this regulation, as explained below. The result is that CARB's proposed ban cannot satisfy the dormant Commerce Clause's balancing test.

c. *CARB's Proposed Rules Regarding Locomotive Idling are Preempted by ICCTA, the LIA, and Federal Law.*

Similarly, CARB's Proposed Rule to impose upon railroads an obligation to shut off AESS equipped main locomotive engines within 30 minutes of the locomotive becoming stationary (with limited exceptions) is preempted by ICCTA, the LIA, and EPA's regulations under the Clean Air Act.[45] EPA currently mandates all new locomotives (as explained above, the term "new locomotive" is defined to include remanufactured locomotives) "be equipped with automatic engine stop/start devices" that "shut off the main locomotive engine(s) after 30 minutes of idling (or less)."[46]

CARB staff assert that the regulations are "consistent with" EPA's existing regulations and the ISOR concedes that "U.S. EPA enforces the federal rule." Even if the CARB regulations actually did perfectly parallel EPA regulations, the State's attempt to encroach upon federal

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44 *United Haulers Ass'n v. Oneida-Herkimer Solid Waste Mgmt. Auth.*, 550 U.S. 330, 346 (2007) (brackets omitted) (quoting *Pike v. Bruce Church, Inc.*, 397 U.S. 137, 142 (1970)).

45 Proposed § 2478.8.

46 40 C.F.R. 1033.115(g).

enforcement authority in a field reserved for federal law would be preempted.[47] But in fact, there are significant differences between federal law and the Proposed Rule.[48] The ISOR's statement that the Proposed Rule "includes idling requirements to strengthen enforcement and limit unnecessary locomotive idling" belies any suggestion that CARB is simply attempting to adopt regulations that mirror those of EPA.[49] Regardless of CARB staff's opinion that federal regulations "do not provide adequate direction to CARB for enforcement purposes," CARB is preempted from adopting, "modifying," or otherwise tinkering with federal regulations.[50]

CARB's draft regulatory language places onerous burdens on locomotive operators that do not exist in the federal regulations. For example, the existing Federal rule obligates the original equipment manufacturer ("OEM") or remanufacturer of the locomotive to install an anti-idling device on a locomotive.[51] The federal rules prohibit the owner or operator of the locomotive from installing a "defeat device" to circumvent the manufacture's anti-idling technology, with certain exemptions provided.[52] CARB's Proposed Rule ignores the federal regulations and would seek to impose additional affirmative requirements on the locomotive owner or operator.

CARB's Proposed Rule seeks to bypass aspects of the federal idling regulation that it deems undesirable, while purporting to parallel the federal rules and jurisdictional limitations. Circumventing federal laws and jurisdictional limits is not so easily accomplished. As the STB has previously stated with respect to this type of regulation, CARB does not have authority to

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47 *See Arizona v. United States*, 567 U.S. 387, 402 (2012).
48 *See* ISOR at 21, 69.
49 *Id.* at 23.
50 *Id.*
51 40 C.F.R. 1033.115(g).
52 *Id.*

"decide for the railroads what constitutes unnecessary idling."[53] Indeed, a federal district court held, and the Ninth Circuit affirmed, that similar rules proposed by the SCAQMD related to idling were preempted by ICCTA.[54] The Ninth Circuit specifically stated that because the "rules apply exclusively and directly to railroad activity, requiring the railroads to reduce emissions and to provide, under threat of penalties, specific reports on its emissions and inventory," they were preempted.[55] If CARB wishes to see federal regulations modified, it must push that agenda through EPA and the federal administrative process; the agency lacks authority to impose its own parallel set of standards, which would subject railroads to an unacceptable patchwork of different state rules and enforcement authorities.

Further, to the extent that CARB seeks to prohibit the use of a locomotive with a non-functioning AESS device, as proposed in § 2478.8, this rule directly conflicts with EPA's regulations and is prohibited by the LIA.[56] Under the LIA, the federal government has exclusive authority to regulate the design, the construction, and the material the material of every part

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53 *United States Environmental Protection Agency – Petition for Declaratory Order*, FD 35803 (STB served Dec. 29, 2014) at 9.

54 *Ass'n of Am. R.R. v. South Coast Air Quality Mgmt. Dist.*, 2007 WL 2439499 (C.D. Ca., April 30, 2007), *aff'd*622 F.3d 1094 (9th Cir. 2010). In this comment, AAR addresses fundamental prohibitions against CARB's regulation of locomotives and locomotive operations arising under federal law. We note, however, that questions also arise regarding the legality of CARB, acting independently or in conjunction with the Air Quality Management Districts and Air Pollution Control Districts, to promulgate and effectuate the Proposed Regulation under California law and federal court orders. *See Ass'n of Am. R.R. v. South Coast Air Quality Mgmt. Dist.,* 2007 WL 2439449 (C.D. Ca., April 30, 2007), *aff'd* 622 F.3d 1094 (9th Cir. 2010).

55 622 F.3d at 1098.

56 *See* 49 C.F.R. § 1033.815(b); *Springston v. Consolidated Rail Corp.,* 863 F. Supp. 535, 541 (N.D. Ohio 1994), *aff'd*, 130 F.3d 241 (6th Cir. 1997) ("It is clear that Congress intended to provide a nationally uniform standard of regulating locomotive equipment."); *Gen. Motors Corp. v. Kilgore*, 853 So.2d 171, 178 (Ala. 2002) ("Because . . . the [LIA] occupies the entire field, there is no area within which the states may regulate.").

of the locomotive."[57] CARB's efforts to dictate what devices must be installed on a locomotive is thus plainly impermissible. This prohibition applies as well to the imposition of requirements to install additional hardware and/or software to implement CARB's extensive idle reporting requirements.

*d. CARB's Proposed Charges and Fees on Locomotives and their Operators are Also Preempted by ICCTA, the CAA, and the 4-R Act, and Are Wholly Impractical.*

In its Proposed Rules, CARB is proposing both a locomotive charge (referred to by the agency as a "Spending Account"), which imposes charges on federally certified locomotives based on the operation of a locomotive within California and its emissions tier, and a yearly administrative fee that must be paid for by the operator of a locomotive. Both elements of the Proposed Rules are preempted.

Section 2478.4 *et. seq.* of the Proposed Rule lays out CARB's convoluted system of charges based on the tier of the locomotive operated within the state. As an initial matter, regardless of whether they are considered "taxes" or "fees," such charges levied directly and exclusively against the railroads for their rail operations within California are unquestionably preempted under ICCTA as state laws that directly target rail transportation.[58] And the degree of interference is substantial: the proposed rule would require railroads to place billions of dollars into trust accounts to be used only as dictated by CARB to purchase zero emissions locomotives (which are not commercially viable), zero emissions capable locomotives (which are not commercially viable), zero emission rail equipment, or infrastructure.[59]

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[57] *Oglesby v. Delaware & Hudson Ry. Co.*, 180 F.3d 458, 461 (2d Cir. 1999).

[58] *BNSF Ry. Co.*, 904 F.3d. at 760-761, 767-768.

[59] CARB continually attempts to characterize its proposed charge on locomotives as a "spending account." *See* CARB Workshop Slides Day 2 (10/28/2020), *available at*

Put differently, the Proposed Regulation would require railroads to set aside massive quantities of money for the sole purchase of locomotive and other assets which may not be needed, are not commercially viable and have not been proven to be safe, reliable, maintainable, or operable. The sheer costs of these proposed fees and charges would "unreasonably burden interstate commerce," and are therefore prohibited by ICCTA.[60] Based on preliminary calculations, AAR estimates that a railroad operating a Tier 4 locomotive would be forced to deposit tens of thousands of dollars *per year, per locomotive*, for operating the best available technology with the lowest possible emissions available on the commercial market. Indeed, AAR estimates that between just Union Pacific and BNSF, the two Class I railroads that operate in California, an annual deposit into CARB's "spending account" of more than $1.4 billion would be required in the rule's initial year if this regulation is finalized as proposed.

There is no question that such a regulation would unreasonably "burden interstate commerce" by mandating the diversion of resources away from necessary expansion and safety-related maintenance projects and towards the purchase of assets that may not be needed and are not viable. Indeed, the proposed operation tax and "spending account" is exactly the type of local regulation that the STB has ruled is preempted because "allowing states and localities to create a variety of complex regulations governing how an instrument of

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https://ww2.arb.ca.gov/sites/default/files/2020-12/2020.10.28%20841AM%20Workshop%20Slides%20Day%202%20-%20Remediated.pdf. This characterization is wholly inconsistent with the reality of what CARB is proposing – to "require mitigation to be paid for locomotive emissions" and to "convert mitigation funds to cleaner locomotives." *Id.* at 41. CARB's proposal amounts to a discriminatory charge being levied against the locomotive industry.

[60] *New Orleans & Gulf Coast Ry. Co. v. Barrois*, 533 F.3d 321, 332 (5th Cir. 2008) (internal quotations omitted).

interstate commerce is operated, equipped, or kept track of (even if federalized under the CAA) would directly conflict with the goal of uniform national regulation of rail transportation."[61] CARB's proposed locomotive charge structure (requiring funds to be set aside, and then requiring that it be spent only for defined expenses) is a direct economic regulation of the railroads and, as such, it is categorically preempted by ICCTA.[62] Moreover, CARB's Proposed Rule applies to the rail industry, but does not apply to the trucking industry, despite the fact that both industries transport goods in interstate commerce and may impact air quality and emit greenhouse gases. ICCTA preempts laws that "discriminate against rail carriers."[63]

Setting aside the perversity of a regulatory system that would punish a regulated entity by imposing excessive charges for successfully adopting the best available technology, section 209(e)(1) of the CAA expressly preempts CARB's proposed ban on using "Spending Account" funds to purchase new locomotives or engines that do not meet specific emissions criteria.[64] Proposed Section 2478.4(d) restricts the use of "Spending Account" funds to four types of expenditures, all of which must fall within the Proposed Rule's various zero emissions criteria.

Because this proposed section would prohibit the use "Spending Account" funds new locomotives or engines unless they meet specific zero emission criteria, it is plainly a "standard or other requirement relating to the control of emissions" within the meaning of Section

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61 2020 STB Decision at 12; 2014 STB Decision at 10.

62 CSX Transportation, Inc.--Petition for Declaratory Ord., No. FIN 34662, 2005 WL 1024490, at *2 (May 3, 2005) ("there can be no state or local regulation of matters directly regulated by the Board").

63 *Valero Ref. Company—petition for Declaratory Ord.,* No. FD 36036, 2016 WL 5904757, at *4 (Sept. 20, 2016).

64 42 U.S.C. § 7543(e)(1) ("No State or any political subdivision thereof shall adopt or attempt to enforce any standard or other requirement relating to the control of emissions from . . . [n]ew locomotives or new engines used in locomotives.").

209(e).[65] Such a requirement runs headlong into Supreme Court and Ninth Circuit precedent explaining that the CAA expressly preempts restrictions on purchases that do not satisfy "particular emission characteristics."[66] Accordingly, the proposed "Spending Account" restrictions are preempted as applied to "new locomotives or new engines used in locomotives," as those terms are defined by federal regulation.[67]

Finally, CARB's proposed locomotive charges are also prohibited by Section 306 of the 4-R Act.[68] The 4-R Act prohibits states from imposing taxes that "discriminate[] against" rail carriers.[69] In enacting the 4-R Act, Congress sought to "restore the financial stability of the railway system of the United States."[70] After forbidding certain types of property taxes, the 4-R Act broadly prohibits "another tax that discriminates against a rail carrier."[71] The Supreme Court has stated that the phrase "another tax" means "any other tax," and has described subsection (b)(4) as a "catch-all" provision that "encompass[es] any form of a tax a State might

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65 *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 ZEVs has no purpose other than to effect a general reduction in emissions" and is therefore preempted); *Ass'n of Int'l Auto. Mfrs., Inc. v. Comm'r, Mass. Dep't of Envtl. Prot.*, 208 F.3d 1, 6 (1st Cir. 2000) (same).

66 *Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist.*, 541 U.S. 246, 255 (2004) (interpreting analogous preemption provision in Section 209(a)); *Pac. Merch. Shipping Ass'n v. Goldstene*, 517 F.3d 1108, 1114 (9th Cir. 2008) (applying *Engine Mfrs. Ass'n* to Section 209(e) and holding that California prohibitions on emissions from marine vessel diesel engines were a preempted "standard"). Notably, the preemption language of Section 209(e)—"any standard *or other requirement*" (emphasis added)—is broader than that of Section 209(a), which refers only to "any standard."

67 40 C.F.R. §§ 1033.901, 1074.5; *see In re Volkswagen "Clean Diesel" Mktg., Sales Pracs., & Prods. Liab. Litig.*, 959 F.3d 1201, 1218–19 (9th Cir. 2020) (holding that municipal anti-tampering rules were expressly preempted under Section 209(a) "with respect to new motor vehicles" but not "as applied to post-sale vehicles").

68 49 U.S.C. § 11501.

69 *Id.* § 11501(b)(4).

70 45 U.S.C. § 801.

71 49 U.S.C. § 11501(b)(1)-(4).

impose."[72] Under this broad understanding of the prohibitions imposed by the 4-R Act, CARB's proposed locomotive charges and fees are forbidden.

In addition to violating federal law in several different respects, CARB's proposed operating charge and "Spending Account" requirements would be impractical and, indeed, counterproductive. Charging the railroads on an annual basis for operating even the cleanest possible locomotive available on the market –Tier 4 locomotives – does not make sense as a matter of public policy.[73] Moreover, although the Proposed Rule allows railroads, prior to 2030, to "purchase, lease, rent, remanufacture, or repower to a locomotive with emissions levels equivalent to or cleaner than the cleanest standard," it is unclear why CARB believes that railroads should purchase diesel-powered locomotives, with a potential lifespan of many decades (that CARB attempts to arbitrarily limit) and operate them in California at the precise time when CARB is penalizing the use of such locomotives with an exorbitant fee and the railroads are investing in the research and development of zero emissions locomotives.[74] For the same reason, while CARB has asked EPA to establish a new locomotive emission standard, which CARB calls "Tier 5" (a request that EPA has declined to address), such a standard would make little sense given CARB's expressed desire for industry to transition to non-diesel engines in the coming decades.

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[72] *CSX Transp., Inc. v. Ala. Dep't of Revenue*, 562 U.S. 277, 280, 284 n.6, 285 (2011); *see also Burlington N. R.R. v. City of Superior*, 932 F.2d 1185, 1186 (7th Cir. 1991) ("Subsection (b)(4) is a catch-all designed to prevent the state from accomplishing the forbidden end of discriminating against railroads by substituting another type of tax. It could be an income tax, a gross-receipts tax, a use tax, an occupation tax as in this case – whatever.").

[73] *See* 40 C.F.R. 1033.101 (identifying EPA's promulgated emissions standards, by Tier, for locomotives with Tier 4 being the highest tier with the lowest emissions).

[74] ISOR at 50.

In short, the imperatives for short-term compliance that would be established by the Proposed Rule are contrary to CARB's own long-term goals. Driving the railroads towards purchasing the next generation of long-lived diesel locomotives, if or when they are available, as opposed to focusing on developing alternative zero emission technologies, is directly contrary to CARB's stated objective of transitioning to "zero-emission" technologies.

In addition, from a practical perspective, CARB's proposed yearly "administrative fee" of $175 per locomotive, paid by the locomotive operator, demonstrates a fundamental lack of understanding of the rail industry and fails to address how CARB would avoid charging the fee for the same locomotive multiple times. For example, one railroad may own and operate a locomotive for part of the year, but that same locomotive (while still owned by the same railroad) may also be operated in California by different railroads for different portions of the year. Further complicating the issue, the locomotive at issue may be owned by a railroad that has no presence in California. Leaving aside the desirability of any administrative fee, it would be unreasonable to suggest that this administrative fee should be paid multiple times for the same locomotive every year by different railroads. In the example provided this would multiply the total fee, rather than fairly apportioning the single fee between operators.

*e. CARB's Proposed Rules Mandating Extensive Reporting Obligations are Preempted.*

CARB's proposed rules imposing extensive reporting obligations are designed to implement provisions like the operation tax and spending account that are preempted by federal law. Thus, if those provisions are properly rescinded, there is no conceivable basis for subjecting railroad operators to the burdensome reporting obligations contemplated by the Proposed Rule. But even apart from their connection to legally invalid regulatory proposal, the extensive reporting obligations are preempted by ICCTA because they target and impose a burden upon railroad operations.

Indeed, previous rules adopted by the SCAQMD purporting to "only" impose recordkeeping and reporting requirements on locomotives operating in the district were held to be preempted by ICCTA. Upon review of the reporting rules, the STB found that "allowing states and localities to create a variety of complex regulations governing how an instrument of interstate commerce is operated, equipped, or kept track of (even if federalized under the CAA) would directly conflict with the goal of uniform national regulation of rail transportation."[75] In response to claims from SCAQMD that the proposed reporting requirement was "merely a record-keeping requirement and thus does not impede the flow of transportation," the STB found that the requirement "would potentially create a patchwork of localized, operational recordkeeping requirements that would likely affect railroad operations.[76] The STB noted multiple times that because more than 100 CAA nonattainment areas exist in the United States, if the recordkeeping rule were implemented, "other nonattainment districts across the country

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[75] *United States Environmental Protection Agency – Petition for Declaratory Order*, FD 35803 (STB served Dec. 29, 2014) at 10.

[76] *Id.* at 9.

could, and likely would, implement their own, unique recordkeeping requirements," resulting in "an unworkable variety of regulations."[77]

CARB's Proposed Rules are strikingly similar to the reporting provisions adopted by the SCAQMD that the STB found were preempted by federal law. Thus, the same analysis applies to CARB's proposed reporting requirements, in which CARB is proposing to require railroads to record and report, for each locomotive operated in California at any time during a given year, among other things, total megawatt-hours operated or total fuel used throughout the year in California (broken down by air district) and the total engine hours throughout the year in California (again broken down by air district). The administrative effort involved for all railroads to track this information for each of the 35 California air districts the locomotives operate in is immense and would require significant investment in both hardware and software. This effort would involve not only railroads that operate primarily in California, but locomotive owners whose locomotives are sometimes used in California but primarily operate in other areas of North America. This level of reporting is both burdensome and unworkable and would greatly interfere with the operation of the nation's rail network. As such, the Proposed Regulations are preempted by ICCTA. Furthermore, compliance with the proposed reporting requirements would require the addition of new hardware and software to thousands of locomotives, and thus would conflict with the restrictions of the LIA.

[77] *Id.* at 9, 10.

## III. CARB Cannot Require Compliance with a Regulation that has Not Yet Been Lawfully Promulgated.

CARB's regulatory timeline does not anticipate presenting the final In-Use Locomotive regulation to the Board until November 2022, with final adoption of the rule in early 2023. Yet CARB indicates in its Proposed Rule that the recordkeeping requirements it proposes effectively begin in January 2023, with a requirement that an annual report be submitted to CARB on July 1, 2024, for each locomotive that operated in California beginning on January 1, 2023.[78]

The information necessary for these reports is specific to each locomotive's operation and would require real-time collection that railroads do not undertake for all locomotives. For example, the Locomotive Emissions Annual Report must contain particular data for each locomotive that operated in California during that year, including the locomotive's "Total MWh Operated . . . in each California Air District" and "[t]otal engine hours Operated in each California Air District."[79] And the "Idling Annual Report" must include "the following for each Locomotive that is not a ZE Locomotive Operated in California from the previous Calendar Year: (1) Whether the Locomotive has an [Automatic Engine Stop/Start]; (2) The time, date, location, and duration of each instance when a Locomotive idled for longer than 30 minutes in California; and (3) The reason for idling for each instance when a Locomotive idled for longer than 30 minutes in California."[80] Tracking the various data required by the Proposed Regulation would require railroads to install or deploy new technology (both hardware and software). For example, not all locomotives have functioning megawatt hour meters; not all locomotives have functioning GPS units; and not all locomotives have data transmission capability that can

78 *See* Proposed § 2478.10(c), (d).

79 *Id.*

80 Proposed § 2478.10(f).

transmit the required data to the locomotive operator's centralized data acquisition system. This technology would be required on locomotives operated within the state but that may be owned by another railroad based in another part of the United States or North America.

The Proposed Regulation's reporting requirements are phrased in prospective terms, as railroad operators are not required to file reports until July 2024, which would postdate its effective date. But the reporting requirements are nonetheless functionally retroactive to the extent that the reports would contain information that must be collected before the regulation becomes effective, and the collection of such information would require the installation of hardware and/or software on thousands of locomotives at a date prior to the anticipated effective date of the rule, but before the final rule language has been published by CARB.[81]

The imposition of data-collection requirements that would have to begin *before* any new regulation becomes effective would be patently unlawful. California statutes do not "operate retrospectively unless the Legislature plainly intended them to do so."[82] Similarly, "a statutory grant of legislative rulemaking authority will not, as a general matter, be understood to encompass the power to promulgate retroactive rules unless that power is conveyed by [the legislature] in express terms."[83]

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[81] *See, e.g., Union of Am. Physicians & Dentists v. Kizer*, 223 Cal. App. 3d 490, 504-05 (1990) (application of office visit documentation requirements to reports by medical providers regarding past office visits was impermissibly retroactive); *see also Univ. of Iowa Hosps. & Clinics v. Shalala*, 180 F.3d 943, 951-52 (8th Cir. 1999) (rule imposing documentation requirements for period before a new standard was enacted was retroactive and unlawful).

[82] *Western Sec. Bank v. Super. Ct.*, 15 Cal. 4th 232, 243 (Cal. 1997); *see also Myers v. Philip Morris Cos., Inc.*, 28 Cal. 4th 828, 841 (2002) ("unless there is an express retroactivity provision, a statute will *not* be applied retroactively unless it is *very clear* from extrinsic sources that the Legislature . . . must have intended a retroactive application" (citations and quotation marks omitted; emphases in original); Cal. Health & Safety Code 43013(b).

[83] *Bowen v. Georgetown Hosp*., 488 U.S. 204, 208 (1988).

Nowhere in California law has the Legislature bestowed upon CARB the power to adopt recordkeeping regulations requiring *retroactive* maintenance of records from periods before the recordkeeping obligation was created. Section 43013(b) of the Health and Safety Code only provides that CARB "shall, consistent with subdivision (a) [which prohibits CARB regulations preempted by federal law], adopt standards and regulations for . . . off-road or nonvehicle engine categories, including, but not limited to, . . . locomotives." Thus, even for locomotive regulations arguably *not* preempted by federal law, nowhere is CARB expressly granted the power to adopt regulations with retroactive effect.

As authority for its reporting and recordkeeping requirements in Proposed § 2478.10, CARB cites sections 38560, 39600, 39601, 39658, 39659, 39666, 41511, 43013, and 43018 of the California Health and Safety Code. None of those sections—or any other California statute of which AAR is aware—gives CARB the authority to make retroactive its proposed reporting requirements. Thus, there should be no dispute that CARB has no legal authority to compel an entire industry to comply with a draft regulation before it has been lawfully promulgated and finalized, nor to force businesses to undertake actions and incur expenses on the bare *assumption* that a draft regulation will be adopted in its proposed form. This is particularly true in a case such as this, where CARB lacks the legal authority to promulgate such a regulation.

If CARB goes forward with a version of its proposed rule (and it should not), CARB should at a minimum clarify that any data collection obligations associated with the Proposed Rule's reporting requirements do not begin until 12 months <u>after</u> the regulation takes effect in order to allow time for railroads to put in place the necessary equipment and technology in order to comply with the regulation after it is finalized.

## IV. CARB's Cost Estimates Grossly Understate the Cost of the Regulation.

The cost analysis prepared by CARB fails to include all the reasonably expected costs of compliance and, therefore, fails to satisfy the requirements imposed on CARB by California law. In particular, CARB's analysis fails to include (1) the costs imposed on railroads associated with depositing funds into a CARB-restricted "spending account" (which amounts to more than $1.4B per year); and (2) the costs associated with the design and construction of a national infrastructure to support CARB's mandated use of zero emission locomotives nationwide.

CARB has listed the cost elements they included to reach their asserted value of $13.8 billion for the total cost of compliance with the proposed regulation.[84] These cost elements include only the following:

- Equipment Capital Costs
- Equipment Maintenance Costs
- Infrastructure Capital Costs
- Infrastructure Maintenance Costs
- Diesel Fuel Costs
- Electricity Fuel Costs
- Hydrogen Fuel Costs
- Geo-tracking Subscription Costs
- Salvage Revenue
- Reporting Costs
- Admin Costs
- Opportunity Costs

Missing from the list of included elements are <u>any</u> costs associated with CARB-mandated deposits into the spending account. While CARB may assert that these are not costs attributable to the regulation because they remain within the control of the entity making the deposit (i.e., the railroads subject to the rule), this claim is demonstrably false. Although the

[84] ISOR at Table 19.

railroads' names remain on the accounts, the railroads are constrained under the clear terms of the Proposed Rule from using capital funding for anything other than a very limited number of purposes. If a railroad does not have a CARB-approved use for those funds in any particular year, no funds may be withdrawn from the account. Yet the Proposed Rule would mandate that the railroad had to contribute those funds – an expense clearly attributable to the regulation.[85] If a railroad is able to comply with the rule by purchasing locomotives based on CARB's anticipated purchase schedule, but has funds remaining in the spending account, those funds remain restricted in terms of their use – prohibiting their use for necessary expansion projects intended to resolve supply chain congestion and safety-related maintenance projects. This latter scenario is, in fact, precisely what is predicted by CARB in their analysis.

In Appendix H of the ISOR, CARB estimates the avoided health costs associated with adoption and implementation of the proposed rule at $32.0 billion.[86] In Appendix E of the ISOR, CARB indicates that the values used in the Spending Account formula are based on "the cost of negative health outcomes of using the locomotive."[87] And in Table 19 of the ISOR, CARB indicates that the railroads would be required to spend $13.8 billion to achieve compliance with the rule's requirements. By CARB's own calculations, this would leave approximately $19.2 billion unaccounted for in Appendix A in the spending accounts of the railroads subject to the rule. CARB does not address or attempt to defend this inconsistency. The true cost of

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[85] As noted above, CARB has accounted for opportunity costs associated with funds kept in a Spending Account for more than one year: CARB assumes that Class I railroads would lose 3.5% of the deposited values, and Class III railroads would lose 2.5% of the deposited values, based on the difference between CARB's assumed investment rate of return for spending account funds and CARB's assumed Return on Investment (ROI) for Class I and Class III railroads. SRIA, pp. 83-85, Table 3.13. However, this calculation does not account for funds in the Spending Account that are indefinitely stranded if the funds required to be deposited exceed the funds spent on approvable expenditures.

[86] ISOR, Appendix H, Table 15.

[87] ISOR, Appendix E, p. 4.

compliance reflected in CARB's analysis must include the total funds required to be deposited into the spending account - $32.0 billion based on CARB's estimates.

In addition, CARB speculates that the use of hydrogen fuel cell locomotives is the most likely technology that will be used to comply with the rule's requirements for line-haul locomotives.[88] CARB also indicates its expectation that line haul locomotives will continue to be used nationwide and could not feasibly be restricted to use within California.[89] The logical conclusion of these two CARB assumptions is that hydrogen refueling infrastructure will need to be built on a nationwide basis in order for railroads subject to the Proposed Rule to support these locomotives. This infrastructure includes not only refueling stations but also production facilities and pipelines to transport the produced hydrogen and will require immense sums of public funding from the United States and individual states (including California) to be invested. CARB has failed to identify these costs in the analysis of the proposed rule's costs.[90] Notably, the Proposed Rule prohibits the use of spending account funds for refueling infrastructure outside of California, meaning that these costs would be in addition to the costs attributable to CARB's spending account requirements. This is not a minor cost – in 2019, railroads used 3.4 billion gallons of diesel fuel – which would amount to more than 3.8 Gkg of hydrogen to be produced and transported across the United States. The requisite infrastructure would cost hundreds of billions of dollars – a cost which cannot be borne by the rail industry.

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88 ISOR, Appendix F, p. 53 ("For full ZE line haul operation, fuel cell locomotives with hydrogen tenders is the most promising technology to meet the operation range requirement.")

89 ISOR at 77 ("To account for current fleet management practices and the interchangeability of locomotives within each fleet, staff assumes that each operator's entire fleet would comply with the Proposed Regulation, allowing all locomotives to operate as needed in California.").

90 SRIA, p. 78: "Since Class I hydrogen station cost is calculated on a per locomotive basis, the direct costs for infrastructure reflect staff's assumption that California accounts for 10 percent of their national line haul operation, and therefore 10 percent of their hydrogen demand.")

CARB's failure to account for significant costs associated with its Proposed Rule violate California law. This deficiency must be rectified prior to its finalization to provide a true and honest accounting for the costs CARB proposes to impose on the rail industry and the overall U.S. economy.

## V. CARB's Feasibility Analysis is Unsupported and Unrealistic.

CARB's technology feasibility analysis, located in Appendix F of the regulatory package, overstates the current state of zero emissions technologies for locomotives and provides an unrealistic picture of how new technologies develop in the North American rail industry. Notably, CARB has historically underestimated the time needed for development of zero emissions technologies, and its process for evaluating feasibility is disconnected from reality.[91]

Technically possible technology is not the same as "feasibility" and is a poor indicator of overall technological success. CARB's analysis fails to provide any data or evidence of safety, reliability, maintainability, or operability of the locomotives and related technologies currently being evaluated. Simply conducting a "literature search" and interviewing "people with knowledge and expertise in advanced technologies," without speaking to the actual users of the locomotives at issue, is not a true measure of "feasibility" or "technological readiness."[92]

Before any technology can be introduced into the nationwide rail network, that technology needs to pass rigorous testing to ensure it is safe, reliable, and cost effective. Railroads operate 24 hours a day, 365 days a year in all types of weather and geography and

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[91] For example, CARB Agenda item 90-14-1 included a rule requiring the phase-in of fully electric vehicles starting in 1998. The rule was adopted on Sept. 27, 1990. The rule did not even begin phase-in for more than a decade later.

[92] Technology Feasibility Assessment for the Proposed In-Use Locomotive Regulation (hereinafter "Feasibility Study") at 2.

play a critical role in the nation's supply chain; industry cannot rely on technology that is unsafe for our employees or the communities in which we operate or that fails or breaks down frequently. As a result, the railroads have extensive testing periods for new technology to ensure it can handle the rigorous demands imposed on it in a safe and dependable manner. This includes 30-50 locomotive years of testing for new locomotive models and feedback to the original equipment manufacturers to help them develop practical products.[93]

A case study of technology that might have been "feasible" but is not safe, reliable, maintainable, or operable occurred recently Los Angeles when 19 of Metrolink's 57 locomotives (a mix of older locomotives and almost-new Tier 4 locomotives) were out of service, leading to reduced passenger service for the Los Angeles area.[94] The locomotives were out of service as a result, at least in part, of a lack of available replacement parts. Freight railroads cannot operate with only 60 percent of their locomotive fleet in operation. Such a situation would cripple the rail industry and inject chaos into the nation's supply chain.

Another example of "feasible" and "CARB verified" technology that proved to be unreliable and inoperable was the Tier 2 "Green Goat" diesel-battery hybrid and Tier 3 multi-engine "Genset" switchers. Both were emissions-reducing technologies, but the overall locomotive designs proved to be unsafe and difficult to reliably maintain and operate. They

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[93] This is not to say that testing of a new locomotive technology would take 30-50 years, rather that the railroads test new locomotive models for 30-50 *locomotive* years. Put differently, if a railroad is running a demonstration project of 10 units of a new locomotive technology, that testing process will last between 3-5 years in order to ensure that the new model is safe and meets the needs of the railroad.

[94] *See* https://www.trains.com/trn/news-reviews/news-wire/locomotive-issues-lead-to-metrolink-train-cancellations/.

were also plagued by large battery fires. Most of the Green Goats (35 of the 55 built) were retired after only a few years and all were completely out of service after 7 years.

CARB's statement in the Notice of Public Hearing for this rulemaking that "[a]s more [zero emission] and [zero emission] capable locomotives are operated in California . . ., industry acceptance of advanced technologies will improve" misunderstands industry's concerns and requirements.[95] Industry will only accept new technologies that meet the safety and performance requirements demanded by the railroads – the minimization of emissions cannot be pursued myopically without regard to whether the resulting technologies will reliably achieve their intended use.

Finally, CARB's assurance that it will "publish assessments in 2027 and 2032" to reevaluate its estimation of the availability of zero emissions locomotive technologies does little to cure the defects associated with this rulemaking for several reasons.[96] First, the Proposed Regulation would require the transfer of billions of dollars into its "Spending Account" starting in 2024. If finalized as proposed, this would have the effect of stranding billions of dollars of liquid assets in this "Spending Account," preventing the railroads (notably privately owned corporations) from making necessary investments in the national rail network, track maintenance, and other investments that are not "approved" by CARB.

Second, locomotives are not commodities that can be purchased "off the shelf." There is a minimum 18-month to 2-year lead time between the placement of an order for a particular

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95 Notice of Public Hearing to Consider Proposed In-Use Locomotive Regulation at 5.

96 *See* ISOR at 28.

locomotive and its eventual delivery.[97] New battery electric locomotives may involve even longer lead times given the current shortage of metals and other components necessary for battery technology. It simply is not feasible for CARB to revisit its technology assessment mere months before the proposed bans are slated to take place; the locomotive market does not function like that of the automobile market.

*a. Battery-electric locomotive technologies are not commercially viable.*

Even with the railroads' focus on developing and demonstrating lower- and zero-emissions technologies, battery-electric locomotives are still in their development phase and are not expected to reach commercial or operational viability in the foreseeable future for line-haul locomotives.[98]

The challenges with these new locomotive technologies are well established and have been communicated to CARB staff. For example, current battery-electric locomotives are currently being produced with up to approximately 8 MWh of usable energy capacity. Locomotive manufacturers opine that in the coming decade they may have the capability to manufacture batteries with up to 10 MWh of usable energy.[99] While this is sufficient for a car or even a freight truck, a line-haul locomotive would require approximately 100 MWh of usable battery capacity in order to replace a single diesel-powered line-haul locomotive. Put differently, even given the most optimistic manufacturer estimates, over the next decade,

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[97] For example, Union Pacific ordered 20 battery-electric switcher locomotives in January 2022. Those locomotives will not be delivered until the end of 2023 or early 2024 – and delivery of these locomotives has been delayed multiple times since the order was placed.

[98] The industry anticipates battery electric switcher locomotives may be viable years earlier than battery electric line-haul locomotives, which may never prove viable absent significant developments in battery technology.

[99] The largest battery electric locomotive under commitment will have a stated capacity of only 14 MWh total.

battery electric technology will provide approximately 10-15% of the energy required per locomotive to move today's trains. As such, this technology may one day provide a viable option for switcher locomotives, but it is unlikely to provide the power needed to pull a train long distances.

CARB's suggestion that battery tenders can fill the gap between what is possible for an onboard battery and what is needed to pull a line-haul locomotive ignores several significant technical and efficiency limitations.[100] As noted above, a modern-line haul locomotive can have the equivalent of about 100 MWh of "usable (deliverable to the rails)" energy in its 5,000-gallon fuel tank. To match the 100 MWh "operating range" of a diesel locomotive, a battery tender solution would require having 7.1 total sets of propulsion batteries. A battery tender could be as large as a battery-electric locomotive in length (~75 feet) and weight (~430,000 lbs or 215 tons). From a simple physics perspective, this would be a significant trade off in terms of additional weight and length for a typical train in exchange for additional power – thus reducing the overall efficiency of the train. Further, the charging time for 7 14 MWh battery tenders would severely interfere with railroad operations. Even swapping out fully charged tenders for empty tenders would add considerable operational complexity and result in drastic underutilization of a very expensive and operationally-critical asset. In effect, battery tenders make little sense when considered in the overall context of railroad operations.

Even assertions regarding the feasibility of hybrid locomotives may be overstated. For example, in its Feasibility Study, CARB asserts that "several hybrid locomotives are

[100] Feasibility Study at 29.

commercially available and in use[.]"[101] As evidence of the commercial availability of this technology, CARB points to six hybrid locomotives: Toshiba HDB 600, AMPS Traction GSHX 3380, Siemens "Charger" Hybrid, Stadler FLIRT, WINK and GTW, Wabtec FLXdrive, and Rail Propulsion Systems ZE Booster Locomotives.[102, 103, 104, 105, 106, 107] But, as set forth in the preceding footnotes, all six of the hybrid locomotives cited by CARB as being "commercially available and in-use" are largely not "in-use" and none have achieved commercial readiness.

While demonstration projects and proof-of-concept locomotives that are underway in California and elsewhere in the United States and Canada are a part of the overall process of developing new technologies, they do not prove commercial readiness.

*b. Hydrogen locomotive technology is not commercially viable.*

CARB's analysis of hydrogen locomotive technology is completely speculative. As CARB itself has noted, costs and other estimates regarding hydrogen fuel cell locomotives are difficult to evaluate "because there are too few fuel cell locomotives" to do so.[108] Today, there are many unknowns about this technology, such as overall energy efficiency of fuel cell locomotives

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101 Feasibility Study at 16.

102 The Toshiba HDB 800 is a variant of a Japanese locomotive redesigned for operation in Europe. It has only 1000 engine horsepower, less than half of what is required for even switch locomotives in the United States.

103 Only one AMPS Traction GSHX 3380 demonstrator locomotive appears to have been assembled in 2013.

104 The Siemens "Charger" Hybrid is a battery-hybrid variant of a Siemens passenger locomotive (not a freight locomotive). None of this variant have been built at this time, although 73 have been ordered.

105 The Stadler FLIRT, WINK, and GTW are articulated lightweight multiple-unit passenger trainsets, not freight locomotives.

106 Only one experimental engineering test unit of the Wabtec FLXdrive locomotive has been built. While commercial orders have been received for additional battery locomotives of different designs, none have been assembled or delivered.

107 The ZE Booster Locomotive is a concept; none have been assembled or delivered.

108 Feasibility Study at 36.

due to train routes, topography, tonnage, available power, attainable speeds, and the potential for restricted usage to specific routes and trains. Furthermore, as CARB acknowledges, hydrogen fuel technology results in "zero- or -near-zero smog-forming emissions."[109] "Near-zero" hydrogen fuel cell technologies cannot be used to meet CARB's proposed requirements for zero emission locomotives.[110] CARB's technology assessment does not distinguish between "zero" and "near-zero" hydrogen fuel cell technologies. AAR agrees with the comments of the Truck and Engine Manufacturers Association ("EMA") regarding the absurdity of CARB's prohibition of the operation of zero-emission equivalent technology, such as hydrogen-fueled combustion engines. As noted by EMA, CARB's assertion that "it is important" to prohibit the use of such clearly ZE-equivalent options lacks any reasonable justification or rationale and amounts to CARB staff attempting to pick and choose favored technologies without the technical expertise to do so.

Moreover, CARB fails to evaluate the safety implications of hydrogen technology. Hydrogen is unlike today's diesel fuels. Safety risks associated with hydrogen include fire/explosion and asphyxiation. Hydrogen is characterized by a short quenching distance, wide flammability limits, low ignition energy, and flames that are nearly invisible in daylight. It also is associate with steel embrittlement. Hydrogen is a colorless, tasteless gas yet no odorant is light enough to travel and disperse with hydrogen.

There are zero fuel tenders in service that are capable of transporting compressed or liquified hydrogen, nor any fuel tender refilling stations. All of these technologies will require

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109 Fuel Cell Activities, California Air Resources Board.

110 Proposed Rule at 2478.3: "Zero Emission (ZE) Locomotive" means a Locomotive that never emits any criteria, toxic pollutant, or greenhouse gas from any onboard source of power at any power setting." (emphasis added).

intense development and validation programs that, for the most part, have not yet even begun. As such, predictions regarding the future use, cost, or maintenance of such a locomotive are entirely speculative at this stage.

*c. The infrastructure required for these new technologies does not exist today.*

CARB's Feasibility Study fails to adequately address the energy infrastructure needed for the new technologies it envisions. Refueling today's 5,000-gallon fuel tanks takes approximately 15 minutes. During BNSF's 2021 test of a 2.4 MWh battery-electric locomotive (which held more than 40 times less energy than its diesel counterpart and had to be included as part of a consist with diesel locomotives), battery charging took between 6 and 8 hours. The extensive delays that would result from a large-scale rollout of this technology would cripple the supply chain and cause chaos in ports and railyards across California and the United States. Thus, in addition to addressing the inadequate battery capacity, fast-charging infrastructure would be required on a national basis before battery-electric line-haul locomotives could be deployed *en masse*. This fast-charging infrastructure would need to be built out in areas where traditional fueling infrastructure exists today in order to accommodate a transition from one energy source (diesel) to another (either battery-electric or hydrogen or some other alternative, lower carbon fuel). This additional infrastructure would require the acquisition of additional land near existing yards because the existing diesel infrastructure cannot be removed, nor is the new infrastructure likely to be co-located with diesel fueling infrastructure. This duplicate fueling/charging infrastructure would need to remain in place until a full conversion of the entire North American locomotive fleet is completed.

Moreover, the amount of energy and related infrastructure required to convert the entire rail network to a battery-electric solution cannot be supported by the nation's current electric grid and infrastructure, much less California's. The United States and California must make significant investments in their own infrastructure before industry is able to rely on it as a stable source of electricity to power locomotives and other equipment. The current grid cannot handle even today's load, much less the increased demand of several entire industries electrifying over a short period of time.[111] The nation's rail network cannot rely on battery-electric technologies if forced to depend on an inadequate supply of energy, forced brownouts, and demands to refrain from charging electric vehicles.[112]

CARB's statement that the "expansion of electric charging infrastructure will also increase the amount of electricity supplied by utility providers" defies logic.[113] The ***current*** electricity demand on California's grid surpasses the amount of electricity capable of being supplied by California's utility providers on many occasions – this is well documented and is not open to serious dispute. It is unclear how added demand on an already overtaxed system will do what the existing lack of electricity has not accomplished – "despite adding new powerplants, building huge battery storage systems, and restarting fossil fuel generators, California still relies on energy from other states."[114] Demand on California's grid solely from electric vehicles, not even accounting for freight truck and rail demands should proposed

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111 *See, e.g.* https://www.nytimes.com/2022/09/25/business/energy-environment/california-energy-grid-heat.html; https://www.bloomenergy.com/bloom-energy-outage-map/; https://www.kpbs.org/news/environment/2022/09/19/california-grid-can-handle-electric-vehicle-load-with-updated-infrastructure-and-customer-discipline.

112 *See, e.g.*, https://www.nytimes.com/2022/09/01/us/california-heat-wave-flex-alert-ac-ev-charging.html.

113 Notice of Public Hearing to Consider Proposed In-Use Locomotive Regulation at 5.

114 https://www.nytimes.com/2022/09/25/business/energy-environment/california-energy-grid-heat.html.

regulations be finalized, are expected to increase the demand for electricity by 25% by 2045.[115] CARB's complete lack of consideration in this rulemaking for this well-documented situation is both inexplicable and irresponsible.

For its part, hydrogen technology, also imagined as a near-term solution by CARB, requires a massive, multi-billion-dollar public investment in infrastructure on a national basis to produce and transport hydrogen safely. Again, line-haul locomotives don't just operate in California, nor do trains stop at California's borders – they traverse the continent, often through remote areas. Hydrogen hubs will be needed in areas of existing industrial activity, such as ports and railyards, and in rural locations along the network, raising significant environmental justice concerns. The federal government, through the Department of Energy, is only just now beginning to grapple with what a hydrogen-reliant economy might look like in the coming decades. These plans are in their nascent stages.

These challenges are difficult to address and will take time to overcome in a way that is safe for communities and railroad employees, is economical, and is able to meet the demands inherent when transporting freight as part of a global supply chain. CARB's suggestion in Appendix F that zero emission locomotives will be commercially ready and available by 2024 is unfounded and unrealistic. Indeed, earlier in this same rulemaking, CARB estimated, that "[z]ero-emission (ZE) locomotives will be commercially available starting no later than 2035."[116] Even if this assumption were accurate, which is itself questionable and with which AAR's members strongly disagree, the infrastructure required to use these new technologies will take

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115 https://www.kpbs.org/news/environment/2022/09/19/california-grid-can-handle-electric-vehicle-load-with-updated-infrastructure-and-customer-discipline.

116 *Preliminary Cost Document, Assumption 7.*

years and billions of dollars of public funding and investment to build. CARB simply fails to account for these significant challenges.

**Conclusion**

AAR appreciates this opportunity to comment on CARB's Proposed Regulation. We continue to hope to return to our previous history of meaningful cooperation and communication between CARB Staff and AAR and its members.

Respectfully submitted,

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Attachment 1

BEFORE THE
CALIFORNIA AIR RESOURCES BOARD

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NOTICE OF PREPARATION OF A DRAFT SUBSTITUTE ENVIRONMENTAL DOCUMENT: IN-USE LOCOMOTIVE REGULATION

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COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS, THE AMERICAN SHORT LINE AND REGIONAL RAILROAD ASSOCIATION, AND THE CALIFORNIA SHORT LINE RAILROAD ASSOCIATION

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The Association of American Railroads ("AAR"), the American Short Line and Regional Railroad Association ("ASLRRA"), and the California Short Line Railroad Association ("CSLRA") (jointly, "the Associations"), on behalf of themselves and their member railroads, respectfully submit the following comments on the California Air Resources Board's ("CARB") October 27, 2020 Notice of Preparation of a Draft Substitute Environmental Document ("Locomotive NOP") for its proposed In-Use Locomotive Regulation ("Proposed Rules").[1]

AAR is a non-profit trade 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 represents passenger railroads that operate intercity passenger trains and provide commuter rail service.

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[1] Notwithstanding Governor Newsom's Executive Orders N-54-20 and N-80-20, the Associations have not been able to find any evidence that CARB timely posted the Locomotive NOP on its "public facing website," nor did it conduct outreach to the Associations and their members, which are interested parties under California law. Accordingly, the Associations did not receive timely notice of the NOP and were not able to submit comments before November 26, 2020 deadline set by CARB. The Associations appreciate CARB's willingness to review and consider these comments as timely, as confirmed by Ms. Cari Anderson. *See* email from Cari Anderson, CARB, to Peter Okurowski, CEA, Jan. 14, 2021 11:13 AM .

ASLRRA is a non-profit trade association representing the interests of approximately 500 short line and regional railroad members and railroad supply company members in legislative and regulatory matters. Short lines operate 50,000 miles of track in 49 states, or approximately 30% of the national freight network. CSLRA is a non-profit trade association promoting best business practices and providing legislative and regulatory advocacy and public outreach for 25 California short lines. The Associations' members own (or lease) and operate locomotives within the state of California and are part of the national freight rail network. The Associations and their members therefore have a significant interest in this proceeding.[2]

## I. CARB'S CEQA ANALYSIS MUST CONSIDER EACH ELEMENT OF THE PROPOSED RULES INDEPENDENTLY.

California's Environmental Quality Act ("CEQA") requires the preparation of an environmental impact report ("EIR") in order "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." Cal. Pub. Res. Code ("PRC), § 21002.1; *see also* 14 Cal. Code Regs. ("CEQA Guidelines") §§ 15000-15387. The California Air Resources Board ("CARB") implements this requirement through the preparation of an Environmental Analysis ("EA") under its certified equivalent program. *See* 17 CCR §§ 60000-

[2] The Associations and their members submit these comments without prejudice to their position that CARB lacks legal authority to impose these regulations, which are preempted by federal law. The Associations also renew their objection to this Locomotive NOP on the basis that CARB has not provided the public with the draft language it intends to include in the Proposed Rules. As a result, the Associations (and all other interested parties) lack detail with respect to these Proposed Rules that is necessary to fully provide CARB with informed and specific comments. The Associations reserve the right to supplement these comments when draft regulatory language is made available by CARB.

60008. Nonetheless, the underlying substantive requirements of CEQA must be met by CARB's EA. 17 CCR 60004(b).

CEQA defines a "Project" as "any activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect change in the environment" and a "project-specific effect" as "all the direct or indirect environmental effects of a project other than cumulative and growth-inducing effects." PRC §§ 21065, 21065.3; *see also* 17 CCR 60004(c) (incorporating CEQA definition of "project"). CARB must include in its EA a description of the project, including a "statement of the objectives sought by the proposed project" as well as a "general description of the project's technical, economic, and environmental characteristics[.]" CEQA Guidelines § 15124(b), (c). CARB must reject a proposed project "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." PRC § 21002; *see also* CEQA Guidelines § 15126.6; 17 CCR § 60004.2(a)(5). Further, CARB must consider "qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs[.]" *Id.* § 21001(g); *see also* 17 CCR § 60004.2(a)(3).

Here, CARB has prepared a single NOP for four separate and independent elements that it includes under the umbrella of "In-Use Locomotive Regulation." Each of these four elements would apply to persons or entities operating locomotives in California:

- a locomotive emissions tax (referred to in the public workshops as a "spending account");[3]

[3] CARB continually attempts to characterize its proposed tax on locomotives as a "spending account." *See* CARB Workshop Slides Day 2 (10/28/2020), *available at* https://ww2.arb.ca.gov/sites/default/files/2020-12/2020.10.28%20841AM%20Workshop%20Slides%20Day%202%20-%20Remediated.pdf. This characterization is wholly inconsistent with the reality of what CARB is proposing – to "require mitigation to

- a ban on the operation of federally certified locomotives that have been in operation for more than two useful lives (approximately 23 years);
- the adoption of a new "30-minute limit on unnecessary idling;" and
- extensive new reporting requirements.

Locomotive NOP at 3.

While all are part of CARB's proposed "In-Use Locomotive Regulation" project, each of the four different elements in the Proposed Rules regulates different activities, with different alternatives and different impacts and different technical and economic characteristics. The analysis required by CEQA cannot be effectively accomplished unless CARB considers the impacts of each element of the Proposed Rules independently in the EA. The Associations remain concerned that CARB is proposing a scope of review that risks improperly lumping each distinct element of the Proposed Rules together and assuming their impacts are similar, when the real-world impacts can be disparate and each significant in its own right.

## II. CARB MUST CONSIDER ALL REASONABLY FORESEEABLE IMPACTS OF ITS PROPOSED RULES.

CEQA mandates that an NOP must provide responsible, trustee and other public agencies "with sufficient information describing the project and the potential environmental effects to enable the responsible agencies to make a meaningful response," including a description of the project and its probable environmental effects. CEQA Guidelines 15082(a)(1). CEQA further requires that CARB include in its ultimate environmental analysis any significant environmental benefits, irreversible environmental changes, and growth-

be paid for locomotive emissions" and to "convert mitigation funds to cleaner locomotives." *Id.* at 41. CARB's proposal amounts to a discriminatory tax being levied against the locomotive industry.

inducing impacts of the project. 17 CCR § 60004.2(a)(4); *see also* CEQA Guidelines § 15126. Here, the NOP's project description is so general and conclusory that reviewing agencies and the public have insufficient information to allow a meaningful analysis of all potential impacts of the project.

### A. The Locomotive NOP's Descriptions of the Four Elements are Sufficiently Vague so as to Prevent Meaningful Analysis of the Impacts.

CEQA requires that a project description include enough information so that the impact analysis contains a meaningful assessment of the project's impacts. Specifically, Section 15124 of California's CEQA Guidelines defines the types of information that must be included in a project description, including "a statement of objectives sought by the proposed project" that will allow CARB to "develop a reasonable range of alternatives to evaluate the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations." CEQA Guidelines § 15124. The statement of objectives must include the underlying purpose of the project. Moreover, the project description must reflect the specifics of the proposed project, conveying "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." *Id.* § 15378(a) (definition of "project").

Here, CARB has simply stated that it is:

> proposing a regulatory strategy to reduce in-use emissions of all locomotives – Class 1, Class 3, Military and Industrial, and Passenger – and to encourage the adoption of Tier 4 or higher emission standard technology to meet air quality, climate, and public health protection goals.

Locomotive NOP at 3. The NOP then provides only a cursory overview of several proposed regulatory concepts, leaving reviewing agencies unable to discern how each concept is to be

implemented in proposed regulatory language. Locomotive operators would be required to "annually report and mitigate their locomotive emissions," which CARB proposes will occur through taxing regulated entities and then "placing funds into a spending account." Regulated entities would be required to use this "spending account" to purchase new locomotives meeting "the current cleanest emissions standard" or, alternatively, "cleaner near-zero or zero emission technologies in the demonstration/pilot phases of development." Which entities would be required to buy new locomotives, and what the full costs of that purchase might be under an ever-changing "current cleanest emissions standard" target, are examples of important pieces of information not provided in the NOP, but needed by reviewing agencies and the public. CARB proposes to ban certain remanufactured locomotives from California but provides no explanation of how this ban could be structured to avoid preemption under applicable federal locomotive regulations. CARB plans to "adopt the federal requirements" on locomotive idling with certain exceptions "based on the exceptions in the federal idling limit rule," but does not explain which federal exceptions would and would not be adopted, leaving the reader unable to tell what significant impacts may flow from the adoption of some of the federal exceptions but not others. Further, CARB's description of this proposed regulation changes on a regular basis – from adopting EPA's existing regulation to going beyond the scope of EPA's regulations (and beyond CARB's authority under federal law).

This is insufficient information upon which to base the selection of alternatives, gauge potential impacts, or otherwise understand each disparate element of the Proposed Rules. For example, selected alternatives for passenger locomotives are unlikely to be applicable in the military or freight context. Similarly, simply providing a high-level description of the regulatory

concepts is insufficient to evaluate costs and impacts without specific requirements. Draft regulatory language is required for this type of analysis. But as it stands, CARB's Locomotive NOP is so vague that it does not allow stakeholders to determine the appropriate scope of CARB's CEQA analysis.

### B. CARB Must Ensure that a Robust Analysis of All Impacts Associated with Each Element of the Proposed Rules is Conducted.

CARB must consider the impacts associated with each of the four individual elements of the proposed regulation: the locomotive emissions tax, a ban on the operation of federally certified locomotives that comply with all federal requirements and that have been in operation for more than approximately 23 years, the adoption of a new California-only "idling limit," and extensive new reporting requirements. These impacts must include transparent calculations, with supporting documentation, showing the assumptions used by CARB to estimate the anticipated emission benefits for each rule element. For example, CARB must demonstrate the expected emissions benefits for the locomotive tax given that CARB has not proposed, and cannot legally require, that an interstate railroad simply purchase new locomotives because CARB commands them to (or even that, if such locomotives are purchased, that they must be operated within California). As such, even if such a locomotive tax were legal, it would not lead to any foreseeable emissions reductions but would simply impose a significant cost on the rail industry.

CARB must also include an assessment of the environmental impacts of a modal shift from rail to truck in response to this increased cost of freight transportation by rail. The Associations are unaware of a similarly comprehensive CARB strategy to regulate the trucking industry through a bundle of taxes, reporting requirements, and new idling limits distinct from

those imposed at a federal level. As such, costs to the railroad industry will increase significantly while no parallel costs are imposed on the trucking industry. This may result in a modal shift by shippers from rail to truck and may cause increased congestion on California highways and roads, increased wear and tear to highway infrastructure, increased traffic accidents, and other reasonably foreseeable costs that must be considered as part of CARB's impacts analysis.

In this assessment, CARB must include an accounting of all emissions associated with truck traffic that may reasonably be expected to increase due to modal shifts attributable to the costs of complying with each individual element of the Proposed Rules and to the aggregate cost increases resulting from compliance. Therefore, the assessment must include emissions of greenhouse gases and all sources of on-road vehicle emissions (including particulate emissions attributable to brake and tire wear). In conducting this assessment, CARB should update its previously published analysis regarding the relative emissions between freight rail and truck to reflect the obvious omission of particulate emissions from brake and tire wear on trucks and the startling omission of greenhouse gases from the "Truck versus Train" analysis posted on CARB's website and presented during the public workshops.[4] AAR has previously provided comments on these omissions and suggested corrections to this analysis.[5]

Finally, CARB's project description in the NOP does not fairly convey to the public the likely effect in neighboring states (and corresponding impacts in California) because of an

[4] DRAFT Truck vs. Train Emissions Analysis | California Air Resources Board, *available at* https://ww2.arb.ca.gov/resources/fact-sheets/draft-truck-vs-train-emissions-analysis, last accessed Jan. 25,2021.

[5] See email from Peter Okurowski, CEA to Cari Anderson, CARB, Sep. 23, 2020 11:08 AM.

interruption of the free flow of interstate rail traffic as a result of its proposed ban on operating certain federally certified locomotives in California. These locomotives will not be retired – rather, if the ban is successfully implemented, it will interfere with interstate rail traffic because it will require locomotive switching at or near the California border. Locomotives banned from operating in California will increasingly operate in other areas of the United States, Canada, and Mexico. These impacts are clearly foreseeable and should be quantified in the EA.

As CARB forecasts the expected impacts of its Proposed Rules, the Associations recommend that it utilize at least three different freight growth rates for each of its impact scenarios. For example, CARB should include a low, moderate, and high growth rate to provide a more accurate understanding of the potential impacts of its Proposed Rules. Including only a single forecasted growth rate may result in gross under- or overestimation of impacts and will lessen the usefulness of the document. The Railroads have previously provided CARB with comments regarding alternative growth forecasts for locomotive freight traffic. To date, these comments have been largely ignored. However, the Associations continue to recommend that CARB look at sources such as the U.S. Department of Energy's 2020 Annual Energy Outlook. The Associations and their members renew their offer to work with CARB on setting realistic growth rates for CARB's CEQA analysis.

## III. CARB MUST CONSIDER A RANGE OF REASONABLE AND FEASIBLE ALTERNATIVES.

Under CEQA, CARB must provide sufficient information in the NOP about the project and its potential environmental effects to allow responsible and other reviewing agencies "to make a meaningful response." CEQA Guidelines § 15082(a)(1). Among other things, reviewing

agencies must be provided enough information in the NOP to allow them to identify "significant environmental issues and reasonable alternatives and mitigation measures" for the proposed project. *Id.*; *see also id.* § 15082(b)(1). CEQA further requires that CARB include in its ultimate environmental analysis "a range of reasonable alternatives" to the proposed project. CEQA Guidelines § 15126.6. Alternatives "shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects." *Id.* § 15126.6(g). This analysis must include the "no project" alternative. *Id.* Here, the NOP improperly suggests to the reader that CARB will consider certain alternatives that are not legal or feasible and exclude from its review other potentially feasible alternatives.

### A. In Considering the Feasibility of Alternatives, CARB Must Address Technological and Legal Infeasibility.

The U.S. Environmental Protection Agency ["EPA"] is the federal agency responsible for establishing emissions standards for new locomotives and new engines. 42 U.S.C. § 7547(a)(5). EPA has codified the definition of "new" locomotives to include both those newly manufactured *and* those existing locomotives that are remanufactured or rebuilt. CARB's NOP suggests that it will attempt to ban the use of locomotives that comply with all EPA regulations and standards. *See* 40 C.F.R. Parts 85, 89, and 92. The Clean Air Act does not delegate this authority to CARB and, indeed, EPA has already occupied the field in this area with no room for CARB to pass its own rules and standards on a national rail network. Should CARB opt to proceed with its attempts to impose a new definition of a locomotive's "useful life" at odds with the federal definition, it must first seek a waiver from EPA.

CARB's certified CEQA program requires it to include in its ultimate EIR or EA an analysis of "feasible" alternatives to the proposed project. *See* 17 CCR § 60004.2(a)(5). CEQA defines

"feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." *See* PRC § 21061.1; CEQA Guidelines § 15364. Here, CARB's CEQA analysis must consider the feasibility of a waiver being granted and, if granted, whether the waiver would be granted within the timeframes outlined by CARB for its Proposed Rules.[6]

In addition, CARB has failed to provide any basis for its conclusion that it is technologically feasible to remanufacture all locomotives (both line haul and low-horsepower locomotives) to a Tier 4 standard or higher. In cases such as this, where the technology does not exist to accomplish CARB's proposal to ban locomotives after the end of CARB's own definition of "useful life," CARB must evaluate the full extent of costs to be incurred by the entire rail network (including Canadian and Mexican rail lines, which own locomotives sometimes operating in California) associated with terminating the ability to use a locomotive decades before appropriate.

### B. CARB Must Consider A Variety of Feasible Alternatives, Including Incentive Programs.

CARB's assessment of project alternatives must include an assessment of the potential use of incentive programs designed to encourage the early retirement and/or replacement of older locomotives in California's nonattainment areas. California has a long history of using incentive programs to reduce emissions from mobile sources, and EPA has accepted these programs with appropriate backstop measures to provide emission reductions in California's

[6] CARB petitioned EPA to implement revised standards for locomotives in April 2017, yet EPA has chosen not to act on this petition. Accordingly, it seems unlikely that CARB could successfully obtain the EPA waiver required for application of its Proposed Rules in a timely manner, and this uncertainty must be considered when determining whether the elements of the Proposed Rules are feasible.

State Implementation Plan. *See*, *e.g.*, Guidelines for Locomotive Project Funding Under Carl Moyer Program Cal. Health & Safety Code 44275-44299.2)[7]; Proposition 1B Goods Movement Emission Reduction Program.[8] This type of program has been successful in the past and would save both CARB and locomotive operators in California compliance and administrative costs. Further, because demand for new locomotives in the United States is extremely low, an incentive program may be more effective at modernizing the locomotive fleet than taxes and labor-intensive reporting requirements.

With respect to the element of the Proposed Rule seeking to impose additional burdensome reporting requirements, the rail industry currently provides CARB with a wealth of data on its operations, and CARB may be able to utilize this data in new or different ways to accomplish its goals without imposing significant new costs on the rail industry. Thus, CARB must include in its analysis a description of information currently received by CARB from railroads pursuant to existing MOUs and informal agreements, and an explanation as to why this information cannot be used in lieu of the proposed additional reporting requirements to meet specific CARB regulatory needs. In considering the "No Action" alternative, CARB should take into account the current effectiveness of such requirements under existing law and regulations.

[7] *See* Carl Moyer Program Guidelines for Locomotive Incentives, located at https://ww3.arb.ca.gov/msprog/moyer/guidelines/2011gl/2011cmp_ch11_07_11_14.pdf?_ga=2.155898171.1613319591.1612219105-926251368.1601062431.

[8] *See* https://ww2.arb.ca.gov/sites/default/files/classic//bonds/gmbond/docs/prop_1b_goods_movement_2015_program_guidelines_for_implementation.pdf?_ga=2.248033415.1613319591.1612219105-926251368.1601062431.

## IV. THE PROPOSED RULES' ECONOMIC IMPACT ASSESSMENT MUST BE COMPLETE.

Although CEQA's main goal is the protection of the environment and of California's resources, it requires agencies "to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs." § 21001(g). As such, CARB must consider the costs to the rail industry of each portion of its Proposed Regulations. As discussed above, these costs result in environmental impacts associated with increased truck traffic in regions current served by freight railroads. This economic analysis must include, at a minimum, the following:

- Actual costs incurred as part of complying with new proposed reporting requirements. The new proposed reporting requirements are substantively and significantly different from those contained in existing MOUs; as a result, the extrapolation of estimated costs for compliance with existing MOUs is not defensible.
- The full extent of costs associated with terminating the operational life of a locomotive decades before appropriate for the entire rail industry with locomotives operating in California.

## V. CONCLUSION

The Associations appreciate this opportunity to comment on CARB's Notice of Preparation and look forward to continued cooperation and communication between CARB Staff, the Associations, and their members.

Sincerely,

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February 11, 2021

Attachment 2

**BEFORE THE**
**CALIFORNIA AIR RESOURCES BOARD**

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**COMMENTS ON DRAFT TEXT AND PRELIMINARY COST DOCUMENT FOR PROPOSED IN-USE LOCOMOTIVE REGULATION**

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**COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS, THE AMERICAN SHORT LINE AND REGIONAL RAILROAD ASSOCIATION, AND THE CALIFORNIA SHORT LINE RAILROAD ASSOCIATION**

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The Association of American Railroads ("AAR"), the American Short Line and Regional Railroad Association ("ASLRRA"), and the California Short Line Railroad Association ("CSLRA") (jointly, "the Associations"), on behalf of themselves and their member railroads, respectfully submit the following comments on the California Air Resources Board's ("CARB") Draft Regulatory Language and Preliminary Cost Document for its proposed In-Use Locomotive Regulation ("Proposed Rules").

AAR is a non-profit trade 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 represents passenger railroads that operate intercity passenger trains and provide commuter rail service. ASLRRA is a non-profit trade association representing the interests of approximately 500 short line and regional railroad members and 500 railroad supply company members in legislative and regulatory matters. Short lines operate 50,000 miles of track in 49 states, or approximately 30% of the national freight network. CSLRA is a non-profit trade association promoting best

business practices and providing legislative and regulatory advocacy and public outreach for 25 California short lines. The Associations' members own (or lease) and operate locomotives within the state of California and are part of the national freight rail network. The Associations and their members therefore have a significant interest in this proceeding.

These comments are preliminary and based on the information about the Proposed Rules disclosed to date, and the Associations reserve the right to supplement them as more information on CARB's intent, analysis, and data with respect to the Proposed Rules, as well as draft regulatory language, is provided to the Associations and the public.

## I. INTRODUCTION

In this regulatory initiative, CARB has articulated a desire to pursue an undeniably important objective: improving air quality. But the mechanisms that CARB has proposed to pursue this objective by singling out railroads for expensive new regulatory burdens and charges are both unlawful—because they would be preempted by federal law—and counterproductive. Rail is already the most environmentally efficient and safe way to move people and freight over land. One train can carry the freight of hundreds of trucks, making freight railroads 3-4 times more fuel efficient on average than trucks. Further, although railroads account for 40% of U.S. freight transportation, they contribute only 2.1% of the U.S. transportation-related greenhouse gas emissions.

Railroads have demonstrated their commitment to partnering with federal and state regulators in improving air quality. For decades, railroads have undertaken initiatives to address air quality in California—both on their own initiative and through collaborations with CARB and local air districts. Railroads have pursued pioneering technology investments,

changed rail yard operations to limit emissions impacts, and voluntarily entered into two enforceable agreements with CARB. As CARB has verified, the railroads have fully complied with both agreements.

Railroad initiatives to address air quality continue today. For example, this year, BNSF is partnering with Wabtec (a major locomotive manufacturer) and the San Joaquin Valley Air Pollution Control District, in coordination with CARB, to test a battery-powered line-haul locomotive between Barstow and Stockton, CA. In addition, Pacific Harbor Lines and Progress Rail are demonstrating a battery-powered switch locomotive at the Ports of Los Angeles and Long Beach.

Elsewhere, the railroad industry is exploring the possible future feasibility and commercial viability of hydrogen fuel cell locomotives. Canadian Pacific has launched a Hydrogen Locomotive Program to test a line-haul locomotive powered by hydrogen fuel cells and batteries. Similarly, Sierra Northern Railway has launched a program to build and test a hydrogen-powered switcher locomotive. Earlier this month, Genesee & Wyoming, Wabtec, and Carnegie Mellon University proposed the Freight Rail Innovation Institute, a public-private partnership, to research hydrogen-powered and battery-powered locomotives and to develop that technology.

Railroads have also devoted resources to significantly reducing emissions in rail yards. Based on recently updated emission inventories for major yards in California, rail yard emissions of criteria pollutants have been reduced more than 70% compared to 2005. Union Pacific has coordinated with CARB to partner with two air districts to bring Tier 4 switcher locomotives into operation and Pacific Harbor Lines operates an entirely Tier 3 or 4 fleet that

was purchased in partnership with the South Coast Air Quality Management District ("SCAQMD") through Carl Moyer Grants.

With these initiatives that can and truly have made a difference in air quality as background, the Associations and their member railroads are disappointed at the regulatory proposals unilaterally unveiled by CARB. Discarding the cooperative relationship of the past, CARB has proposed a rulemaking in an area where it clearly lacks legal authority and is unequivocally preempted from rulemaking by federal law. Furthermore, the Proposed Rules will not result in any creditable emissions reductions in California's State Implementation Plan ("SIP"), meaning they cannot be relied on to achieve attainment as required by the Clean Air Act ("CAA"). The proposals are impractical, would significantly burden both intrastate and interstate railroad operations, and would impose tremendous costs on California railroads and their customers with little or no measurable improvements in air quality or reductions in greenhouse gas emissions.

In that regard, CARB is proposing to arbitrarily impose stringent requirements on one mode of goods movement (rail) that it does not impose on other more emissive and less efficient modes (e.g., trucking). We are unaware of a similarly comprehensive CARB strategy to regulate the trucking industry—a much larger source of criteria pollutants and greenhouse gases compared to railroads. Yet CARB unfairly singles out locomotives for such drastic restrictions. As a result, the Proposed Rules will significantly increase costs to the railroads and cost burdens to railroad customers, without parallel costs on the trucking industry or other

modes of goods movement—potentially increasing criteria, toxic, and climate pollutants by driving freight to transport modes with far worse impacts on air quality.[1]

To those knowledgeable about the law, the industry, and the science, the Proposed Rules are not a practical way to further reduce locomotive emissions in a manner that is consistent with the law. Instead, it proposes arbitrary and capricious targeting of the railroad industry.

The Associations respectfully offer the following comments on specific elements of the Proposed Rules.

## II. CARB'S DRAFT IN-USE LOCOMOTIVE REGULATORY SCHEME EXCEEDS THE AGENCY'S LEGAL AUTHORITY.

As AAR (and others) have briefed CARB repeatedly in the past, CARB does not have the legal authority to regulate locomotive emissions. Indeed, based on the Ninth Circuit Court of Appeals decision in the SCAQMD case, CARB's efforts to impose state-specific regulations on rail operators are preempted by multiple federal regulatory programs. CARB's Proposed Rules are unlawful.

[1] Indeed, in its Transitioning to a Zero or Near-Zero Emission Line-Haul Freight Rail System in California: Operational and Economic Considerations, also known as the "Exchange Point study," with the University of Illinois, CARB has reached the same conclusion. *See* https://ww2.arb.ca.gov//sites/default/files/classic/railyard/docs/uoi_rpt_06222016.pdf ("Exchange Point Study") at xii ("The North American Class 1 railroads have continually worked to remove barriers that prevent 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.").

### A. Railroad Operations are Exclusively Regulated by the Federal Government.

Rail operations are not a discrete activity which may be confined within the boundaries of a single state. Rather, the nation's rail transportation system is an integrated network in which over 500 railroad companies participate, operating nearly 140,000 miles of track in 49 states.[2] Given these characteristics, "the Federal Government has determined that a uniform regulatory scheme is necessary to the operation of the national rail system." *United Transp. Union v. Long Island R.R. Co.*, 455 U.S. 678, 688 (1982). In recognition of this need for uniformity, Congress has enacted multiple statutes that preclude CARB from promulgating its Proposed Rules, including the Interstate Commerce Act, 49 U.S.C. § 10501(b), as amended by the ICC Termination Act of 1995 ("ICCTA"), the Railroad Revitalization and Regulatory Reform Act of 1976 ("the 4-R Act"), 49 U.S.C. § 11501, and the Locomotive Inspection Act ("LIA"), 49 U.S.C. § 20701.

Pursuant to Article VI of the United States Constitution, Congress can preempt state law so that it is "without effect." *Maryland v. Louisiana*, 451 U.S. 725, 746 (1981) (citing *McCulloch v. Maryland*, 17 U.S. 316, 427 (1819)). The "purpose of Congress is the ultimate touchstone of pre-emption analysis." *Cipollone v. Liggett Grp., Inc.*, 505 U.S. 504, 516 (1992) (internal quotation marks and citations omitted). Congress's purpose can be "explicitly stated in the statute's language or implicitly contained in its structure and purpose." *Jones v. Rath Packing Co.*, 430 U.S. 519, 525 (1977) (citing *City of Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 633 (1973); *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947)).

[2] In addition to covering all lower 48 states, the U.S. rail systems links up with the major railroads of Canada and Mexico.

As explained in more detail below, several key elements of CARB'S Proposed Rules are expressly preempted under federal law.

ICCTA "preempts all state laws that may reasonably be said to have the effect of managing or governing rail transportation." *Assoc. of Am. R.R. v. S. Coast Air Quality Mgmt. Dist.*, 622 F.3d 1094, 1098 (9th Cir. 2010) (internal quotation omitted); *see also BNSF Ry. Co. v. California Dept. of Tax and Fee Admin*., 904 F.3d. 755, 760 (9th Cir. 2018) (state laws that specifically "target" the railroad industry by definition have "the effect of managing or governing rail transportation"). ICCTA provides that the Surface Transportation Board ("STB") holds "exclusive" jurisdiction over "transportation by rail carriers." "Transportation" is defined broadly to encompass "a locomotive, car,...yard, property, facility, instrumentality, or equipment of any kind related to the movement of...property...by rail" as well as "services related to that movement." 49 U.S.C. § 10102(9)(A-B). Various courts have stated that the core purpose of this provision is to ensure the free flow of interstate commerce, particularly by preventing a patchwork of differing regulations across states. *See, e.g.*, *Elam v. Kan. City S. Ry.*, 635 F.3d 796, 804 (5th Cir. 2011) (a purpose of ICCTA was to create a "[f]ederal scheme of minimal regulation for this intrinsically interstate form of transportation.") (quoting H.R. Rep. No. 104-311, at 93 (1995), reprinted in 1995 U.S.C.C.A.N. 793, 805); *Fla. E. Coast. Ry. v City of West Palm Beach*, 266 F.3d 1324, 1338 (11th Cir. 2001) (stating that a desire to prevent a "patchwork of regulation...motivated the passage of the ICCTA" and that "[i]n reducing the regulation to which railroads are subject at state and federal levels, the ICCTA concerns itself with the efficiency of the industry as a whole across the nation."). State laws and regulations that specifically target the operation of railroads, like the Proposed Rules here, are subject to

categorical preemption without any need to evaluate the extent of their burdens because state or local efforts to manage or govern rail transportation are *per se* improper. *See, e.g.*, *Delaware v. Surface Transp. Bd.*, 859 F.3d 16, 19 (D.C. Cir. 2017) (describing "categorical" preemption under ICCTA).

Other statutes also preempt or prohibit state regulation of railroad operations. For example, the Supreme Court has held that the LIA preempts state laws purporting to regulate "the design, the construction, and the material of every part of the locomotive and tender and of all appurtenances." *Napier v. Atlantic C. L. R. Co.*, 272 U.S. 605, 611 (1926). Following *Napier*, lower courts consistently have held that attempts by states, through either common law or enactment of positive law, to impose requirements for equipping locomotives are preempted. *See, e.g.*, *Ogelsby v. Delaware & Hudson Ry. Co.*, 180 F.3d 458, 461 (2d Cir. 1999) (holding that to allow states to regulate instructional labels on locomotives would "undermine the goal of the [Locomotive Boiler and Inspection Act], which is to prevent 'the paralyzing effect on railroads from prescription by each state of the safety devices obligatory on locomotives that would pass through many of them.'") (internal citation omitted).

A law can also be expressly preempted when Congress directs that state laws are preempted unless a federal agency issues an appropriate waiver. In this case, the CAA and regulations promulgated under it expressly preempt state regulation of locomotives and locomotive engines, with few exceptions not directly relevant here.

### B. CARB's Proposed Ban on Otherwise Compliant Federally Certified Locomotives is Preempted by ICCTA and the CAA.

There is no question that CARB's Proposed Rule is not a generally applicable air quality rule with only an indirect impact on rail; it *directly* and *expressly* targets rail transportation.

Section 2478.5 of CARB's Proposed Rule would ban the operation of federally certified locomotives that comply with all federal requirements but that have been in operation for more than 23 years. The proposed ban is preempted by both ICCTA and the CAA. With respect to ICCTA, the proposed ban would improperly attempt to govern rail transportation and interfere with the free flow of interstate commerce by creating a complicated and expensive patchwork of regulation requiring railroads to switch out otherwise compliant locomotives at the California State lines.[3] This is precisely the type of state regulation of railroads that Congress sought to disallow in ICCTA because it would have "the effect of unreasonably burdening or interfering with rail transportation." *EPA Declaratory Order*, FD 35803, slip op. at 8 ("2014 STB Report"). Because ICCTA "preempts all state laws that may reasonably be said to have the effect of managing or governing rail transportation," ICCTA preempts regulations such as CARB's Proposed Rules. 622 F.3d at 1098 (internal quotation omitted).

Further, the United States Environmental Protection Agency ("EPA") has already promulgated nationwide regulations governing the lifespan and remanufacture of locomotives and has expressly prohibited states from promulgating their own conflicting regulations. In CAA section 209(e), Congress preempted state and local governments from adopting or enforcing "any standard or other requirement relating to the control of emissions from...new locomotives

[3] Again, notably, CARB's own Exchange Point study, conducted with the University of Illinois, reached this conclusion. *See* Exchange Point Study at xx ("For the [South Coast Air Basin] deployment scenario, with potential train delays and mode shifts, the above findings emphasize the importance of examining operational factors when evaluating new locomotive technology to reduce the emissions of line-haul freight rail in California. For several of the technologies, it is not the equipment capital cost and potential fuel savings that control the economic feasibility of the technology, but instead other factors that arise from the difficulty of integrating new locomotive technology in captive service within a highly interoperable rail network.")

or new engines used in locomotives." 42 U.S.C. § 7543(e)(1)(B). EPA defines "new locomotive" as a "locomotive or locomotive engine which has been remanufactured" built after January 1, 1973. 40 C.F.R. § 92.2 (emphasis added). Because EPA's regulations address not only newly built, but also remanufactured engines, they establish the national standards with respect to the lifecycle and emissions requirements for locomotives operating in the United States. CARB may not promulgate regulations that directly conflict with these federal rules, as is the case with the Proposed Rules.

By inventing a its own definition of "useful life" and other provisions that differ from EPA regulations, the Proposed Rule would create a separate California certification system for all U.S., Canadian, and Mexican locomotives that happen to cross California's state lines. Such an outcome is unacceptable – and undermines the objectives of Congress to create a uniform system of railroad regulation – given the interconnected nature of the U.S. and North American rail network and the federal regulatory framework that exclusively governs it. *See CSX Transp. Inc.—Pet. For Declaratory Order (CSX Transp. May 2005)*, FD 34662, slip op. at 3 (finding that state and local permitting or preclearance requirements that could be used to deny a railroad the ability to conduct some part of its operations or proceed with activities that the Board has authorized are categorically preempted "regardless of the context or rationale for the action.").

### C. CARB's Proposed Rules Regarding Locomotive Idling are Preempted by ICCTA, the LIA, and Federal Law.

Similarly, CARB's Proposed Rule to impose upon railroads an obligation to shut off an Automatic Engine Stop/Start ("AESS") equipped main locomotive engine within 30 minutes of the locomotive becoming stationary (Draft Regulatory Language, § 2478.6) is preempted by ICCTA, the LIA, and EPA's regulations under the Clean Air Act. EPA currently mandates all new

locomotives (as explained above, the term "new locomotive" is defined to include locomotives with remanufactured engines) "be equipped with automatic engine stop/start" devices that "shut off the main locomotive engine(s) after 30 minutes of idling (or less)." 40 C.F.R. 1033.115(g).

Although CARB staff continually assert that they are simply "adopting" EPA's existing regulations, there are significant differences between what federal law requires and what CARB has proposed. CARB's Proposed Rule places onerous burdens on locomotive operators. For example, the existing Federal rule obligates the original equipment manufacturer ("OEM") or remanufacturer of the locomotive to install an anti-idling device on a locomotive. The federal rules prohibit the owner or operator of the locomotive from installing a "defeat device" to circumvent the manufacture's anti-idling technology, with certain exemptions provided. 40 C.F.R. 1033.115(f). In contrast, CARB's Proposed Rule ignores the federal regulations and would seek to impose additional requirements on the locomotive owner or operator, disregarding the exceptions to the general idling prohibition that are provided under the federal rules.

CARB's Proposed Rule seeks to simply bypass portions of the federal idling regulation that it deems undesirable, while purporting to simply parallel the federal rules and jurisdictional limitations. Circumventing federal laws and jurisdictional limits is not so easily accomplished. As the STB has previously stated with respect to this type of regulation, CARB does not have authority to "decide for the railroads what constitutes unnecessary idling." 2014 STB Decision at 9. Indeed, a federal district court held, and the Ninth Circuit affirmed, that similar rules proposed by the SCAQMD related to idling were preempted by ICCTA. *Ass'n of Am. R.R. v. South Coast Air Quality Mgmt. Dist.*, 2007 WL 2439499 (C.D. Ca., April 30, 2007), *aff'd* 622 F.3d

1094 (9th Cir. 2010). The Ninth Circuit specifically stated that because the "rules apply exclusively and directly to railroad activity, requiring the railroads to reduce emissions and to provide, under threat of penalties, specific reports on its emissions and inventory," they were preempted. 622 F.3d at 1098. The D.C. Circuit reached the same conclusion when considering an anti-idling rule proposed in Delaware. *Delaware,* 859 F.3d at 21 (holding that the proposed anti-idling law "directly regulates rail transportation by prohibiting locomotives from idling in certain places at certain times, in essence requiring that at night, in residential neighborhoods, they either shut down or keep moving[]. This is a regulation of rail transportation under the ICCTA [and] is categorically preempted[.]")

Further, to the extent that CARB seeks to prohibit the use of a locomotive with a non-functioning AESS device, *see* Draft Regulatory Language, § 2478.6(c), this rule directly conflicts with EPA's regulations and is prohibited by the LIA. *See* 40 C.F.R. § 1033.815(b) (providing rail operators with a minimum period in which to conduct unscheduled maintenance and repairs); *Springston v. Consolidated Rail Corp.,* 863 F. Supp. 535, 541 (N.D. Ohio 1994), *aff'd*, 130 F.3d 241 (6th Cir. 1997) ("It is clear that Congress intended to provide a nationally uniform standard of regulating locomotive equipment."); *Gen. Motors Corp. v. Kilgore*, 853 So.2d 171, 178 (Ala. 2002) ("Because...the [LIA] occupies the entire field, there is no area within which the states may regulate.").

CARB has offered no rationale or justification for attempting to promulgate idling regulations that are materially indistinguishable from regulations that federal courts held were preempted by federal law just a few years ago. Under binding legal precedent, the idling

requirements contained in the Proposed Rules continue to be preempted by ICCTA, the LIA, and EPA's rulemaking in this field. As a result, CARB's Proposed Rule is unlawful.

### D. CARB's Proposed Charges and Fees on Locomotives and their Operators are Also Preempted by ICCTA, the Proposed Charges are Likely Prohibited by the 4-R Act, and Are Wholly Impractical.

In its Proposed Rules, CARB is proposing both a locomotive charge (referred to by the agency as a "Spending Account"), which imposes charges on federally certified locomotives based on the operation of a locomotive within California and its emissions tier, and a yearly administrative fee that must be paid by the operator of a locomotive. Both elements of the Proposed Rules are preempted.

Section 2478.4 of the Draft Regulatory Language lays out CARB's convoluted system of charges based on the tier of the locomotive operated within the state. As an initial matter, regardless of whether they are considered "taxes" or "fees," such charges levied directly and exclusively against the railroads for their rail operations within California are unquestionably preempted under ICCTA as state laws that directly target rail transportation. *BNSF Ry. Co.*, 904 F.3d. at 760-761, 767-768.

Moreover, charging the railroads for operating even the cleanest possible locomotive available on the market—Tier 4 locomotives—does not make sense as a matter of public policy. *See* 40 C.F.R. 1033.101 (identifying EPA's promulgated emissions standards, by Tier, for locomotives with Tier 4 being the highest tier with the lowest emissions). Although CARB has asked EPA to establish a new locomotive emission standard, which CARB calls "Tier 5" (a request that EPA has declined to address), such a standard arguably makes limited sense given CARB's expressed desire for industry to transition to non-diesel engines in the coming decades.

Driving the railroads towards purchasing the next generation of long-lived diesel locomotives, if or when they are available, as opposed to focusing on developing alternative zero-emission technologies, is directly contrary to CARB's stated objective of transitioning to "zero-emission" technologies and would result in significant stranded diesel assets. These resources could better be applied to development of zero-emission technologies.

Based on preliminary calculations, the Associations estimate that a railroad operating a Tier 4 locomotive would be forced to deposit tens of thousands of dollars *per year, per locomotive*, for operating the best available technology with the lowest possible emissions available on the commercial market. Setting aside the perversity of a regulatory system that would punish a regulated entity by imposing excessive charges for successfully adopting the best available technology, this is precisely the type of local regulation that the STB has ruled is preempted because "allowing states and localities to create a variety of complex regulations governing how an instrument of interstate commerce is operated, equipped, or kept track of (even if federalized under the CAA) would directly conflict with the goal of uniform national regulation of rail transportation." 2014 STB Decision at 10.

From a legal perspective, CARB's proposed locomotive charge structure (requiring funds to be set aside and then requiring that it be spent only for defined expenses) is a direct economic regulation of the railroads and, as such, it is categorically preempted by ICCTA. CSX Transportation, Inc.—Petition for Declaratory Ord., No. FD 34662, 2005 WL 1024490, at *2 (May 3, 2005) ("there can be no state or local regulation of matters directly regulated by the Board").

Moreover, CARB's Proposed Rule applies to the rail industry but does not apply to the trucking industry even though both industries transport goods in interstate commerce and may impact air quality and emit greenhouse gases. ICCTA categorically preempts laws that "discriminate against rail carriers." *Valero Ref. Company—Petition for Declaratory Ord.,* No. FD 36036, 2016 WL 5904757, at *4 (Sept. 20, 2016); *see Adrian & Blissfield R. Co. v. Village of Blissfield*, 550 F.3d 533 (6th Cir. 2008) (upholding requirement that railroad pay for pedestrian crossings installed across the railroad's tracks and sidewalks near the railroad's property, but only because the court found the requirement was not discriminatory). Other federal laws also prohibit discriminating against rail carriers including Section 306 of the 4-R Act. 49 U.S.C. § 11501. The 4-R Act prohibits states from imposing taxes, defined broadly to include any tax, that "discriminate[] against" rail carriers. *Id.* § 11501(b)(4).

Further, the sheer costs of these proposed fees and charges would "unreasonably burden []interstate commerce," and are therefore prohibited by ICCTA. *New Orleans & Gulf Coast Ry. Co. v. Barrois*, 533 F.3d 321, 332 (5th Cir. 2008) (internal quotations omitted). Indeed, when CARB completes its small business impact analysis prior to obtaining any of the necessary waivers from EPA, it will be clear that CARB's proposed locomotive charge also places an unacceptable burden on the smallest rail carriers. The average California short line locomotive fleet is 8 units and, based on information provided by CARB in the Proposed Rules, the expected annual payment into that short line's locomotive charge account would be amount to as much as $1.6M each year, while many smaller short lines in California make less than $1.6M in annual profit. This is an extreme financial demand on a small business and would likely prevent smaller short lines from operating in California at all.

Finally, from a practical perspective, CARB's proposed yearly "administrative fee" of $220 per locomotive, paid by the locomotive operator, fails to address how CARB would avoid charging the same locomotive multiple times. For example, one railroad may own and operate a locomotive for part of the year, but that same locomotive (while still owned by the same railroad) may also be operated in California by several different railroads for different portions of the year. It would be unreasonable to suggest that the administrative fee should be paid multiple times for the same locomotive every year by different railroads. In the example provided this would multiply the total fee, likely providing revenue to CARB but failing to fairly apportion the fee between operators.

Similarly, CARB's locomotive charge (a.k.a. "Spending Account") would require railroads to place hundreds of millions of dollars into a trust account to be used only as dictated by CARB to purchase the cleanest available locomotive.[4] There is no market for new locomotives at this time and thousands of locomotives are in storage due to increased productivity and reduced demand for specific commodities. Indeed, new locomotive sales peaked in 2014, at about 1,450 units, and dropped off to near zero by 2020. Moreover, as discussed above, even if a railroad purchased the cleanest available locomotive (a Tier 4), it would still be subjected to CARB's locomotive charge on that new locomotive on a yearly basis. Thus, in addition to being

[4] CARB continually attempts to characterize its proposed charge on locomotives as a "spending account." *See* CARB Workshop Slides Day 2 (10/30/2020), *available at* https://ww2.arb.ca.gov/sites/default/files/2020-12/2020.10.28%20841AM%20Workshop%20Slides%20Day%202%20-%20Remediated.pdf. This characterization is wholly inconsistent with the reality of what CARB is proposing—to "[r]equire mitigation to be paid for locomotive emissions" and to "convert mitigation funds to cleaner locomotives." *Id.* at 41. CARB's proposal amounts to a discriminatory charge being levied against the locomotive industry.

preempted by federal law, CARB's locomotive charge is both counterproductive and unreasonable.

### E. CARB's Proposed Rules Mandating Extensive Reporting Obligations are Preempted.

Previous rules adopted by the SCAQMD purporting to impose recordkeeping and reporting requirements on locomotives operating in the district were held to be preempted by ICCTA. Upon review of those reporting rules, the STB found that "allowing states and localities to create a variety of complex regulations governing how an instrument of interstate commerce is operated, equipped, or kept track of (even if federalized under the CAA) would directly conflict with the goal of uniform national regulation of rail transportation." 2014 STB Decision at 10 (emphasis added). In response to claims from SCAQMD that the proposed reporting requirement was "merely a record-keeping requirement and thus does not impede the flow of transportation," the STB found that the requirement "would potentially create a patchwork of localized, operational recordkeeping requirements that would likely affect railroad operations." 2014 STB Decision at 9. The STB noted multiple times that because more than 100 CAA nonattainment districts exist in the United States, if the recordkeeping rule were implemented, "other nonattainment districts across the country could, and likely would, implement their own, unique recordkeeping requirements," resulting in "an unworkable variety of regulations." 2014 STB Decision at 9, 10.

CARB's Proposed Rules are strikingly similar to the reporting provisions adopted by the SCAQMD that the STB found were preempted by federal law. The same preemption analysis will thus apply to CARB's proposed reporting requirements, in which CARB is proposing to require railroads to record and report, among other things, total megawatt-hours operated or

total fuel used throughout the year in California (broken down by air district) and the total engine hours throughout the year in California (again broken down by air district). The administrative effort involved for all railroads to track this information based on which of the 35 California air districts the locomotives operate in is immense and would require significant investment in geofencing and other technologies. This level of reporting is both burdensome and unworkable and would greatly interfere with the operation of the nation's rail network. As such, the Proposed Regulations are preempted by ICCTA.

## III. CARB CANNOT REQUIRE COMPLIANCE WITH A REGULATION THAT HAS NOT YET BEEN LAWFULLY PROMULGATED.

CARB's regulatory timeline does not anticipate presenting the final In-Use Locomotive regulation to the Board until mid-2022, with final adoption of the rule unlikely until 2023. Yet CARB indicates in its Draft Regulatory Language that the proposed recordkeeping requirements will be effective starting in January 2022 with reporting obligations and calculations of the locomotive charges based on that data beginning in 2023. *See* Proposed 13 C.C.R. § 2478.4(a).

California statutes do not "operate retrospectively unless the Legislature plainly intended them to do so." *Western Sec. Bank v. Super. Ct.*, 15 Cal. 4th 232, 243 (Cal. 1997); *see also Myers v. Philip Morris Cos., Inc.*, 28 Cal. 4th 828, 841 (2002) ("unless there is an express retroactivity provision, a statute will *not* be applied retroactively unless it is *very clear* from extrinsic sources that the Legislature...must have intended a retroactive application") (citations and quotation marks omitted; emphases in original); Cal. Health & Safety Code 43013(b). Similarly, "a statutory grant of legislative rulemaking authority will not, as a general matter, be understood to encompass the power to promulgate retroactive rules unless that power is

conveyed by [the legislature] in express terms." *Bowen v. Georgetown Hosp*., 488 U.S. 204, 208 (1988).

Nowhere in California law has the Legislature bestowed upon CARB the power to adopt recordkeeping regulations requiring *retroactive* maintenance of records from periods before the recordkeeping obligation was created. Section 43013(b) of the Health and Safety Code only provides that CARB "shall, consistent with subdivision (a) [which prohibits CARB regulations preempted by federal law], adopt standards and regulations for...off-road or nonvehicle engine categories, including, but not limited to,...locomotives." Thus, even for locomotive regulations arguably *not* preempted by federal law, nowhere is CARB expressly granted the power to adopt regulations with retroactive effect.

There should be no dispute that CARB has no legal authority to compel an entire industry to comply with a draft regulation before it has been lawfully promulgated and finalized, or to force businesses to undertake actions on the bare *assumption* that a draft regulation will be adopted in its proposed form. CARB cannot require the rail industry to invest in the development and implementation of the extensive technological framework required for compliance with CARB's proposed regime prior to the enactment of the final rule.[5]

## IV. THE GOALS OF CARB'S PROPOSED RULES ARE PRESENTLY INFEASIBLE.

CARB has stated that the "goal of the [Proposed Rulemaking] is to accelerate immediate adoption of advanced cleaner technologies for all locomotive operations."[6] Yet CARB concedes

[5] *See* https://oal.ca.gov/underground_regulations/ (describing the prohibition of 'underground regulations' under California law).

[6] https://ww2.arb.ca.gov/our-work/programs/reducing-rail-emissions-california/concepts-reduce-emissions-locomotives-and.

in its Preliminary Cost Document that zero-emission locomotives are not commercially available. Railroads may be unlikely to invest capital funds in a multi-million-dollar state-of-the-art ultra-low emission diesel locomotive when diesel engines themselves may be replaced in the future with newer technology. It is impossible for CARB (or any other state agency) to predict which technology (either in development today or yet to be developed) will be adopted by the national transportation sector generally and the rail industry specifically.

Moreover, the infrastructure to support zero-emission line-haul locomotives must be constructed across the North American continent due to the interconnected nature of the rail network. For example, the current rail network cannot support the use of hydrogen-fuel cell locomotives or battery-electric locomotives. In its attempt to force a transition to an as-yet unidentified new technology, CARB has failed to acknowledge that it is not feasible to have one rail network used in California and another used in the rest of North America.[7]

Finally, CARB fails to account for several other factors regarding its Proposed Rules (all previously communicated to staff):

- CARB has not proposed, and has no legal authority to require, a railroad participating in interstate commerce to purchase new locomotives simply because CARB commands the operator to do so;
- There is no demand for new locomotives at this time and AAR does not anticipate demand to grow significantly in the coming years;[8]
- Even if a locomotive owner were to purchase a new locomotive with funds from the locomotive charge account, CARB cannot require that that the higher tier locomotive be operated within California; and
- Under CARB's paradigm, lower-tier locomotives would not be retired—instead, locomotives banned from operating in California would increasingly operate in

[7] *See* CARB's Exchange Point Study, which reaches this conclusion.
[8] Today there are approximately 7500 locomotives in storage throughout the United States. AAR does not anticipate demand for new locomotives to change for the foreseeable future.

other areas of the United States, Canada, and Mexico; as such significant greenhouse gas emissions reductions would not result from CARB's Proposed Rules.

Even if such a locomotive charge were legal, it is not technologically feasible or commercially viable for railroads to transition to zero-emission locomotives, either at present or by calendar year 2035. CARB's Proposed Rules will simply impose a significant cost on the rail industry and its customers, for little or no measurable benefit to the environment. CARB does not appear to have adequately evaluated whether its Proposed Rules would lead to a modal shift from rail to truck, resulting in increased toxic, greenhouse gas, and criteria pollutant emissions from truck exhaust and brake and tire wear; increased congestion on California highways and roads; increased wear and tear to highway infrastructure; and increased traffic-related accidents.[9] As part of its CEQA analysis, CARB must include an accounting of all emissions associated with truck traffic (including emissions of greenhouse gases and all sources of on-road vehicle emissions such as particulate emissions attributable to brake and tire wear) that may reasonably be expected to increase due to modal shifts attributable to the costs of complying with the Proposed Rules, including the cost to the state and federal taxpayers to maintain its highway infrastructure.[10]

[9] According to the U.S. EPA, while freight rail accounts for 40% of long-distance freight ton-miles, it only accounts for 2.1% of U.S. transportation emissions. In fact, moving freight by rail instead of truck lowers greenhouse gas (GHG) emissions by up to 75%, on average.

[10] In contrast to taxpayer-supported highways, private freight railroads—not taxpayers—pay for the nation's 140,000-mile freight network, pumping billions of dollars annually into their infrastructure to directly benefit businesses, consumers, and the passenger rail systems that use freight rail tracks.

## V. CARB'S PRELIMINARY COST DOCUMENT IS VAGUE BUT APPEARS TO RELY ON FLAWED ASSUMPTIONS AND INCOMPLETE INFORMATION.

Several aspects of CARB's Preliminary Cost Document for its Proposed Rules are vague, incorrect, or rely on a flawed understanding of the rail industry. The following observations are made with the hope that CARB can clarify and revise these assumptions prior to the more formal rulemaking process.

### A. The Cost Assumptions are Ambiguous in Important Respects.

Numerous ambiguities in the cost assumption document make it difficult for the Associations to comment on the document in a meaningful way. For example, CARB assumes that "[l]ocomotive operators will use [locomotive charge] funds to purchase the cleanest available locomotives at any point where funds are sufficient for purchase" and that "funds will not be held unnecessarily." *Preliminary Cost Document, Assumption 1*. But CARB fails to explain what it means by "held unnecessarily." For example, if there are sufficient funds in the account, but there is no business need to purchase a new locomotive, are those funds being "unnecessarily held?" Moreover, at this point, the "cleanest available locomotive" is a Tier 4 locomotive. However, even with the purchase of a Tier 4 locomotive, CARB intends to charge the operator for using that technology. Would CARB consider holding funds in anticipation of newer technology in the form of a non-diesel engine "unnecessary?"

### B. Several of CARB's Assumptions are Inaccurate and Unsupported.

CARB's Preliminary Cost Document incorporates several assumptions that are either inaccurate, unsupported, or both. Specifically, CARB asserts that "[t]o comply with the reporting requirements, applicable entities will not be required to install new hardware on the locomotive, but may need to establish or redesign reporting protocols and software." *Id.* at

Assumption 2. This assumption is incorrect. Many, if not most, locomotive owners will be required to install new hardware on many, if not most, locomotives to comply with the proposed reporting requirements. Moreover, the effort involved in updating software and geofence technology is neither insignificant nor inexpensive and may be outside of the current capabilities of some railroads.

### C. Several Assumptions Rely on Information that Cannot Be Provided by the Railroads.

CARB has crafted assumptions based on information that cannot be provided by the Associations or their members. For example, CARB claims without supporting evidence that "[z]ero-emission (ZE) locomotives will be commercially available starting by no later than 2035. ZE locomotive costs within this document reflect estimates of commercial pricing." *Id.* at Assumption 7. CARB offers no support for this assumption. Proven zero-emission locomotive technologies do not yet exist and, due to the interrelated nature of the North American rail network, it is likely not possible to support multiple zero-emission locomotive technologies because the infrastructure required for each technology differs so widely. Similarly, the estimated commercial pricing of zero-emission locomotives does not appear to be supported by public OEM input. The Associations believe that CARB's estimated costs significantly underestimate what the overall costs will prove to be for these new technologies and find no support in the available real-world evidence in the market.

The Associations also submit that assumptions regarding zero-emission locomotive infrastructure capacities must be explored further by multiple interested parties. Specifically, CARB must consider the infrastructure requirements and resiliency needed (both supply and transmission) for the electric grid to support additional demands associated with some forms of

potential zero-emission locomotives, particularly when combined with rising demand from other sectors of the economy and increasing demands resulting from climate change. Moreover, if CARB anticipates entire railyards will convert to battery/electric locomotive technology, it must consider whether a particular charging station is sufficient to ensure uninterrupted supply to those yards and whether California's electric grid will be capable of meeting this demand during brownouts or blackouts. At present, it is not uncommon for a railyard to refuel 5-10 locomotives at one time within a period of one hour or less. CARB's cost assumptions need to reflect current practices, and if CARB cannot point to evidence that those practices cannot be duplicated with zero-emission infrastructure, CARB's economic and environmental analyses must reflect the impacts of additional locomotive downtime for extended refueling periods.

Finally, the Associations ask CARB to consider whether it is prematurely anticipating the ideal zero-emission locomotive technology—i.e., whether CARB is attempting an uninformed selection of "winning" and "losing" technologies. For their parts, the Associations are not aware of any consensus among industry or researchers regarding how best to reduce emissions from freight shipping.

## VI. CONCLUSION

The Associations appreciate this opportunity to comment on CARB's Draft In-Use Locomotive Regulations and Preliminary Cost Document and hope to return to our previous history of meaningful cooperation and communication between CARB Staff, the Associations, and their members.

Sincerely,

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

Sarah Yurasko, General Counsel
American Short Line and Regional Railroad Association
50 F Street NW, Suite 500
Washington, DC 20001

Donald G. Norton
Executive Director
California Short Line Railroad Association
PO Box 551
Mt. Shasta, CA 96067

April 23, 2021

Attachment 3

| | |
|---|---|
| **From:** | Romanosky, Theresa |
| **To:** | Gonzalez, Layla@ARB |
| **Cc:** | Kirmayer, Kathy; Sarah Yurasko; "Donald Norton"; Anderson, Cari@ARB; Mangat, Ajay@ARB; ARB (Freight) Sustainable Initiative; richard.corey@arb.ca.gov |
| **Subject:** | RE: Association Comments on CARB"s In-Use Locomotive Draft Regulatory Language and Preliminary Cost Document |
| **Date:** | Friday, June 4, 2021 7:57:50 AM |
| **Attachments:** | image001.png<br>image002.png<br>06042021 - AAR Response to CARB Request.pdf |

Good morning Ms. Gonzalez:

Attached please find AAR's responses to your questions. Feel free to contact me with any additional questions.

Sincerely,
Theresa

**Theresa L. Romanosky**
Assistant General Counsel
Association of American Railroads
425 Third St., SW, Suite 1000 | Washington, DC 20024
(202) 639-2509 | tromanosky@aar.org

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**From:** Gonzalez, Layla@ARB <Layla.Gonzalez@arb.ca.gov>
**Sent:** Tuesday, May 25, 2021 12:16 PM
**To:** Romanosky, Theresa <tromanosky@aar.org>
**Cc:** Kirmayer, Kathy <kkirmayer@aar.org>; Sarah Yurasko <syurasko@aslrra.org>; 'Donald Norton' <dgnconsulting1@gmail.com>; Anderson, Cari@ARB <Cari.Anderson@arb.ca.gov>; Mangat, Ajay@ARB <Ajay.Mangat@arb.ca.gov>; ARB (Freight) Sustainable Initiative <FreightSustainableInitiative@arb.ca.gov>
**Subject:** RE: Association Comments on CARB's In-Use Locomotive Draft Regulatory Language and Preliminary Cost Document

Hi Theresa,

Thank you for the comments you provided on the draft regulatory language and preliminary cost document for the proposed In-Use Locomotive Regulation.

There were several unsubstantiated statements you would like us to consider. To examine these statements further, we need supporting data such as: methodology, data inputs, citations, references, etc. Please submit supporting data for the excerpts listed in Attachment A as soon as possible in order for us to be able to consider the statements as we draft the regulation proposal for the official comment period.

Thank you,

Layla Gonzalez
Air Pollution Specialist
Transportation and Toxics Division
Layla.Gonzalez@arb.ca.gov

**From:** Romanosky, Theresa <tromanosky@aar.org>
**Sent:** Thursday, April 29, 2021 7:07 AM
**To:** Anderson, Cari@ARB <Cari.Anderson@arb.ca.gov>; Gonzalez, Layla@ARB <Layla.Gonzalez@arb.ca.gov>; Kozumplik, Jennifer@ARB <jen.kozumplik@arb.ca.gov>; Mangat, Ajay@ARB <Ajay.Mangat@arb.ca.gov>; Arias, Heather@ARB <Heather.Arias@arb.ca.gov>
**Cc:** Kirmayer, Kathy <kkirmayer@aar.org>; Sarah Yurasko <syurasko@aslrra.org>; 'Donald Norton' <dgnconsulting1@gmail.com>
**Subject:** RE: Association Comments on CARB's In-Use Locomotive Draft Regulatory Language and Preliminary Cost Document



Good morning –

I am following up to ensure that CARB has received the Association comments. I would appreciate a receipt confirmation for our records. A copy is attached to this email for your convenience.

Thank you in advance,
Theresa

**Theresa L. Romanosky**
Assistant General Counsel
Association of American Railroads
425 Third St., SW, Suite 1000 | Washington, DC 20024
(202) 639-2509 | tromanosky@aar.org

**From:** Romanosky, Theresa
**Sent:** Friday, April 23, 2021 2:03 PM
**To:** Anderson, Cari@ARB <Cari.Anderson@arb.ca.gov>; layla.gonzalez@arb.ca.gov; jen.kozumplik@arb.ca.gov; ajay.mangat@arb.ca.gov; heather.arias@arb.ca.gov
**Cc:** Kirmayer, Kathy <kkirmayer@aar.org>; Sarah Yurasko <syurasko@aslrra.org>; 'Donald Norton' <dgnconsulting1@gmail.com>
**Subject:** Association Comments on CARB's In-Use Locomotive Draft Regulatory Language and Preliminary Cost Document
**Importance:** High

Good afternoon,

Attached please find comments from the Association of American Railroads, the American Short Line and Regional Railroad Association, and the California Short Line Railroad Association on CARB's Draft In-Use Locomotive Regulatory Language and Preliminary Cost Document. We appreciate the extension of the comment deadline granted by Ms. Anderson.

I would appreciate a confirmation from CARB that these comments have been received.

Regards,
Theresa

**Theresa L. Romanosky**
Assistant General Counsel
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ASSOCIATION OF AMERICAN RAILROADS

Theresa L. Romanosky
Assistant General Counsel
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June 4, 2021

Dear Ms. Layla Gonzalez:

I write on behalf of the Association of American Railroads ("AAR") and its member railroads to provide additional information to the California Air Resources Board ("CARB"), as per your request, regarding our comments on the In-Use Locomotive draft regulatory language and preliminary cost analysis dated April 29, 2021 ("the Comment").

We respectfully disagree with your suggestion that the statements you identified were "unsubstantiated." To the contrary, several of the statements identified by CARB were addressed, with supporting citations, in the Comment. Other data was obtained directly from your agency. And still other statements relate to identified deficiencies in CARB's own analysis and thus do not lend themselves to external support from AAR – they request further support and analysis from CARB. Moreover, subsequent conversations during which CARB has suggested that AAR is obligated to provide CARB with data, statistics, and analysis for use while preparing its Proposed Rules are an improper attempt to shift CARB's regulatory burden from itself to AAR and is contrary to California law.

Nonetheless, we have endeavored to respond to your request, and we hope that this supplemental information aids CARB in achieving its regulatory objectives in the most efficient and cost-effective way possible within its legal authority.

CARB's questions to AAR are provided in italics for ease of reference with our respective responses provided in bold immediately below.

Sincerely,

Theresa Romanosky
Assistant General Counsel
Association of American Railroads
tromanosky@aar.org
202-639-2509

**AAR Response to CARB Staff Request for Substantiation**

*1. Page 2, "Rail is already the most environmentally efficient and safe way to move people and freight over land. One train can carry the freight of hundreds of trucks, making freight railroads 3-4 times more fuel efficient on average than trucks. Further, although railroads account for 40% of U.S. freight transportation, they contribute only 2.1% of the U.S. transportation-related greenhouse gas emissions."*

**The data used in these calculations comes directly from public sources. Specifically, the average Class I freight train carried 3,817 tons of freight in 2020, based on an AAR analysis of data submitted by the railroads in their annual "R-1" reports to the Surface Transportation Board. Many trains carry much more freight than that. A typical large truck carries 18-20 tons of freight. As such, "one train can carry the freight of hundreds of trucks." Notably, CARB's own Trucks vs. Rail analysis is based on the assumption that one train can carry the same number of cargo containers as 260 trucks. *See* https://ww2.arb.ca.gov/resources/fact-sheets/draft-truck-vs-train-emissions-analysis.**

**The statement that "railroads [are] 3-4 times more fuel efficient than trucks" is based on a 2020 analysis by AAR staff of data from the Federal Highway Administration and other publicly available sources.**

**Data from the Federal Highway Administration's Freight Analysis Framework database demonstrates that railroads account for more than 40% of ton-miles for shipments that move at least 500 miles. This analysis too is based on publicly available sources.**

**Finally, the fact that railroads contribute only 2.1% of the U.S. transportation-related greenhouse gas emissions is technically outdated as of April 2021. Indeed, the most recent number is 1.9%, based on U.S. EPA's Inventory of U.S Greenhouse Gas Emissions and Sinks: 1990-2019 (April 2021), Tables ES-6, A-106, and A-107.**

**Additional information regarding the efficiency of rail can be obtained from various publicly available sources. For example, please see:**

- ***Decarbonizing intraregional freight systems with a focus on modal shift*, Kaack, 2018, https://iopscience.iop.org/article/10.1088/1748-9326/aad56c;**
- ***Overview of U.S. Freight Railroads*, National Atlas of the United States, November 2009, http://nationalatlas.gov/articles/transportation/a_freightrr.html;**
- ***The Good Haul, Innovations that Improve Fright Transportation and Protect the Environment*, Environmental Defense Fund, https://www.edf.org/sites/default/files/10881_EDF_report_TheGoodHaul.pdf ("Rail freight is three times more fuel efficient than trucking and is a flexible and efficient way to move bulk commodities long distances since containers can easily move from ship to rail to truck.");**

- ***Comparative Evaluation of Rail and Truck Fuel Efficiency on Competitive Corridors*, Federal Railroad Administration, Nov. 19, 2009 (https://railroads.dot.gov/elibrary/comparative-evaluation-rail-and-truck-fuel-efficiency-competitive-corridors); and**
- ***The Future of Rail: Opportunities for energy and the environment,* Technology Report - January 2019, https://www.iea.org/reports/the-future-of-rail (From a global perspective, the International Energy Association, or IEA, has also reported that "[r]ail is among the most energy efficient modes of transport for freight and passengers – while the rail sector carries 8% of the world's passengers and 7% of global freight transport, it represents only 2% of total transport energy demand.").**

2. *Page 2, "Railroads have pursued pioneering technology investments…"*

**Please see the email dated March 9, 2018, from Peter Okurowski to Cynthia Marvin and Cari Anderson listing the following technology investments made by the Railroads to reduce emissions in California as of that date:**

- **Fewer locomotives are being load tested at maintenance facilities, and load test durations have been reduced;**
- **Automated gates have reduced truck wait times, yard dwell times, and truck idling;**
- **Zero-emission hostlers are being tested;**
- **New diesel electric hybrid RTGs are being developed and tested; and**
- **New switcher technologies (Tiers 3 and 4) are being developed, tested, and implemented throughout the state.**

**Further, as explained in the Comment (at pp. 2-4), railroads have invested in technology and infrastructure to lessen our impact on the environment, both in California and throughout North America. Several of these initiatives have resulted from collaborations between CARB and our member railroads. We trust that CARB is aware of these collaborations and does not require further substantiation of joint initiatives.**

**In addition to the efforts specifically described in the Comment, the rail industry has improved fuel efficiency through the purchase of fuel-efficient locomotives, operational improvements, fuel management systems, zero-emission cranes, advances in aerodynamics and lubrication, anti-idling technologies, the expanded use of distributed power, and improved training programs to increase awareness of best practices for fuel-efficient operations. More information about these initiatives is available at www.aar.org. Outside of California, Class I railroads are also researching zero-emissions technology and prototype testing is underway. *See, e.g.* https://www.cpr.ca/en/media/cp-announces-hydrogen-powered-locomotive-pilot-project; https://www.post-gazette.com/news/politics-nation/2021/03/17/Wabtec-CEO-**

Rafael-Santana-Congress-lawmakers-rail-technology-research-Carnegie-Mellon/stories/202103170010.

*3. Page 3, "Based on recently updated emission inventories for major yards in California, rail yard emissions of criteria pollutants have been reduced more than 70% compared to 2005."*

**This data has previously been provided to CARB staff on multiple occasions and has been the subject of numerous discussions and meetings between AAR consultants and CARB technical staff. Please refer to the email dated October 30, 2019, from Gary Rubenstein to Cory Parmer confirming the submission to CARB of updated railyard emission inventories, including a description of all data sources and calculation methodologies.[1] The 70% value was presented to CARB in an email dated October 27, 2020, from Gary Rubenstein to Heather Arias and Cari Anderson; that email included a graphic and information describing how the value was determined. In addition, please refer to the email dated April 29, 2021, from Jo Strang at ASLRRA to Dillon Miner explaining that "this average is based on the emissions reductions shown between 2005 and 2017 in the railyard emission inventories developed by UPRR and BNSF and sent to CARB and/or California Air Districts in 2019-2020."[2]**

**Because this data has been in the possession of CARB for more than 18 months and is directly relevant to this rulemaking, we trust that CARB has fully analyzed it and will incorporate it into its final version of Proposed Rules and accompanying reports that are presented to the Board.**

*4. Page 4, "Proposed Rules will not result in any creditable emissions reductions in California's State Implementation Plan ("SIP"), meaning they cannot be relied on to achieve attainment as required by the Clean Air Act ("CAA")."*

**As explained in the Comment and below, zero-emission locomotives are not commercially available at this time. Further, approximately 30% of the U.S. locomotive fleet is in storage and, as such, demand for new locomotives has fallen to near-zero levels. OEMs do not anticipate demand for new locomotives to increase for several years. Railroads will only purchase new, multi-million-dollar diesel-powered locomotives when a business demand warrants, particularly when CARB proposes to ban the use of those same locomotives decades before the end of the asset's useful life.**

**Given these market conditions, CARB's Proposed Rules cannot achieve the expected emissions benefits. CARB has not proposed ordering interstate railroads to design and purchase new locomotives, nor would it have the legal authority to do so. Nor does CARB**

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[1] Cory Parmer confirmed receipt in an email to Gary Rubenstein dated November 5, 2019.

[2] As explained in the email, the analysis reflects the following railyards: Commerce/East LA, ICTF/Dolores, West Colton, Roseville, Oakland (requested by and sent to BAAQMD), Hobart, Commerce Eastern, Sheila Mechanical, San Bernardino, and Richmond (requested by and sent to BAAQMD).

**have authority to order the use of any such newly designed and purchased locomotives in California. As such, even if the proposed regime were otherwise legal, it would not lead to any foreseeable emissions reductions but would simply impose a significant cost on the rail industry by, for example, depriving them of access to funds by forcing railroads to set aside capital for exclusive use in a tepid market. Thus, the Proposed Rules will not result in any creditable emissions reductions under the Clean Air Act.**

*5. Page 4, "Proposed Rules will significantly increase costs to the railroads and cost burdens to railroad customers, without parallel costs on the trucking industry or other modes of goods movement."*

**AAR does not understand what CARB finds unclear or unsubstantiated in this statement. The Proposed Rules directly impose significant costs on the rail industry. See, e.g., proposed Rule 2478.4(c) (presenting the formula for calculating annual deposits required for the Spending Account) and CARB's March 16, 2021 "Preliminary Cost Document for the In-Use Locomotive Regulation." The Proposed Rules do not impose costs on other modes of freight movement. Increase in rail costs relative to trucking will drive freight from lower-emission rail to higher-emission trucking, increasing net emissions.**

*6. Page 8, "Other statutes also preempt or prohibit state regulation of railroad operations."*

**The Comment explains in detail that the Proposed Rules are subject to preemption under, at a minimum, the ICC Termination Act of 1995, the Railroad Revitalization and Regulatory Reform Act of 1976, the Locomotive Inspection Act, the Clean Air Act, and EPA regulations. We do not believe a legal debate at this procedural juncture is appropriate.**

*7. Page 10, "By inventing a [sic] its own definition of "useful life" and other provisions that differ from EPA regulations, the Proposed Rule would create a separate California certification system for all U.S., Canadian, and Mexican locomotives that happen to cross California's state lines. Such an outcome is unacceptable – and undermines the objectives of Congress to create a uniform system of railroad regulation – given the interconnected nature of the U.S. and North American rail network and the federal regulatory framework that exclusively governs it."*

**The Comment explains that the provision of the Proposed Rules purporting to limit the useful life of a federally certified locomotive is contrary to existing federal regulations lawfully promulgated by U.S. EPA. *See* 40 C.F.R. § 92.2. We do not believe a legal debate at this procedural juncture is appropriate.**

*8. Page 11, "CARB's Proposed Rule ignores the federal regulations and would seek to impose additional requirements on the locomotive owner or operator, disregarding the exceptions to the general idling prohibition that are provided under the federal rules."*

**The Comment thoroughly explains (at pp. 11-12) why the provision of CARB's rule regarding locomotive idling conflicts with both federal law and binding legal precedent. We do not believe a legal debate at this procedural juncture is appropriate.**

*9. Page 14, "Based on preliminary calculations, the Associations estimate that a railroad operating a Tier 4 locomotive would be forced to deposit tens of thousands of dollars per year, per locomotive, for operating the best available technology with the lowest possible emissions available on the commercial market."*

**While AAR does not understand what CARB finds unclear or unsubstantiated in this statement since it derives from materials produced by CARB, we offer the following response: For information on the best available locomotive technology available on the commercial market, please refer to CARB's Petition to U.S. EPA, dated April 13, 2017; the applicable federal regulations; and CARB's own Technology Assessment of Freight Locomotives (https://ww2.arb.ca.gov/sites/default/files/classic//msprog/tech/techreport/final_rail_tech_assessment_11282016.pdf). With respect to the charges associated with CARB's "Spending Account," please refer to CARB's preliminary cost analysis; CARB's "Concepts for In-Use Locomotive Regulation Workshop Day 2" slides from October 30, 2020; and CARB's "Draft In-Use Locomotive Regulation Workshop" slides from March 30, 2021.**

*10. Page 15, "The average California short line locomotive fleet is 8 units and, based on information provided by CARB in the Proposed Rules, the expected annual payment into that short line's locomotive charge account would be amount to as much as $1.6M each year, while many smaller short lines in California make less than $1.6M in annual profit."*

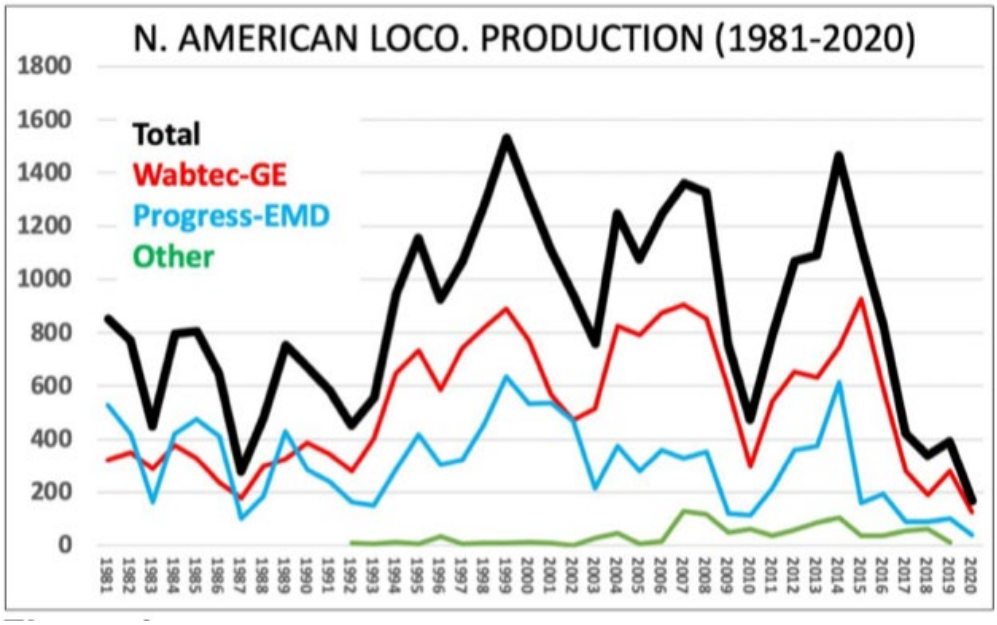
**The American Short Line and Railroad Association ("ASLRRA") and the California Short Line Railroad Association ("CSLRA") base this statement on their detailed understanding of their members' operations and public industry data. According to aggregated industry data, the average annual Class III railroad revenue is $4.75 million. *See* American Short Line and Regional Railroad Association, *Short Line and Regional Railroad Facts and Figures*, 2017, Washington, D.C, pg. 12. There are 28 short line railroads in California, without any evidence to suggest that the railroad population in California is significantly different from the national population of railroads. Applying a general principle commonly used in short line acquisition calculations, a well-run short line railroad expends 80% of its revenue annually on routine expenses, including labor, fuel, equipment, and infrastructure. *See* Blanchard, Roy, "Keeping Short Lines Out of the Woods," *Trains*, June 2006. This estimate does not include capital improvement projects or unusual circumstances, such as recovery from a natural disaster. For an average Class**

**III railroad, $4.75 million in revenue - $3.8 million in expenses results in approximately $950,000 in annual profit.**

**Further, aggregated industry data shows that the median railroad operates six (6) locomotives. *Facts and Figures*, pg. 12. Based on available information, the average fee that CARB proposes be paid into the "spending account" under the proposed regulation to continue operating a locomotive is $200,000 per year. For the median shot line locomotive fleet, a payment of $1.2M per year into the spending account would be required. An average Class III railroad with $950,000 in profit would be unable to pay $1.2 million annually into a spending account as required by CARB. This proposal would immediately bankrupt the average Class III railroad in California.**

*11. Page 16, "There is no market for new locomotives at this time and thousands of locomotives are in storage due to increased productivity and reduced demand for specific commodities. Indeed, new locomotive sales peaked in 2014, at about 1,450 units, and dropped off to near zero by 2020."*

**Thousands of locomotives are in storage. The five largest U.S. and two Canadian railroads (the seven "Class I" carriers operating in the U.S.) have been restructuring operations since 2018, and they are currently operating with about 30% of locomotives "stored" (no longer operating), even while traffic levels have been recovering to pre-pandemic levels. The locomotive supply industry is undergoing a severe lack of demand for new locomotives; the graph below shows total locomotive sales in North America between 1981-2020 (including all North American (US, Canada, and Mexico) production of freight, switch, and passenger/commuter locomotives) and was compiled based on industry data. This data demonstrates that sales have dropped to zero or near-zero new units per year. Both major U.S. locomotive manufacturers have publicly stated that they anticipate zero or few new unit sales for several years.**




**Low demand for locomotives has also been a topic of public conversation. Please *see* "Wabtec Struggling with Weak Freight Demand and Poor Operating Leverage," https://seekingalpha.com/article/4411784-wabtec-struggling-weak-freight-demand-and-poor-operating-leverage; "Union Pacific Sees Battery-Electric Locomotives as the Future," https://www.trains.com/trn/union-pacific-sees-battery-electric-locomotives-as-the-future/ (quoting Union Pacific's CEO Lance Fritz as stating "[w]e do not plan on buying any new locomotives – unless it's battery-electric locomotives for testing out that concept.").**

**This message has been communicated to CARB staff consistently for several years. More specifically, in response to questions from CARB, the number and type of locomotives parked as of March 2020 was provided to CARB in confidential submissions by BNSF and Union Pacific in emails from Gary Rubenstein to Cory Parmer on March 12, 2020. Indeed, CARB's February 2021 Locomotive Inventory projects no growth in Tier 4 locomotives. *See* February 2021 Locomotive Inventory at p. 4 ("[a]ccording to the most recent data, Tier 4 locomotive engine penetration rates sit at under 1 percent per year on average because the railroads have been purchasing fewer than expected Tier 4 units for the past few years[.]"); *id.* at p. 7 ("Tier 4 locomotive purchases have been steadily decreasing since Tier 4 standards went into effect in 2015, with no 2019 Tier 4 locomotive purchases as of May 31, 2019, which is again indicating the low adoption of Tier 4 locomotive by railyards."); *id.* ("…the railroads have not purchased any new Tier 4 units for the last two years in California."); *id.* at 19, Figure 13; *id.* at 20 ("There has been no purchase of Tier 4 recently based on CARB communication with RRs and a review of draft 2019 MWhrs submittals" ); *id.* at 20 ("RRs have parked numerous locomotives that could be pulled back into service later.").**

*12. Page 20, "There is no demand for new locomotives at this time and AAR does not anticipate demand to grow significantly in the coming years."*

**Please see above response regarding demand for new locomotives.**

*13. Page 21, "…it is not technologically feasible or commercially viable for railroads to transition to zero-emission locomotives, either at present or by calendar year 2035."*

**As is noted repeatedly in the Comment, zero-emission locomotives are not commercially available in North America. As such, it is not possible for any railroad to transition to a zero-emission fleet of locomotives at present. Further, given that the lifespan of a locomotive is several decades, complete conversion to a new, zero-emission fleet within the span of 14 years is highly unlikely.**

*14. Page 21, "CARB does not appear to have adequately evaluated whether its Proposed Rules would lead to a modal shift from rail to truck, resulting in increased toxic, greenhouse gas, and criteria pollutant emissions from truck exhaust and brake and tire wear; increased congestion on California highways and roads; increased wear and tear to highway infrastructure; and increased traffic-related accidents."*

**This statement speaks for itself and concerns a gap in CARB's own publicly disclosed analysis, which should require no corroboration from AAR. The Proposed Regulation does not appear to have taken the modal shift related to the regulation-driven increase in rail costs described above into account. This is concerning because, as described above, the desired modal shift should be from truck to rail to reduce greenhouse gas emissions and achieve the United States' climate goals. CARB has previously reached this same conclusion.[3] In addition, U.S. EPA, Biden Administration officials and peer-reviewed academic articles have identified modal shift as an important consideration when considering the regulation of freight transport.[4]**

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[3] *See*, "Transitioning to a Zero or Near-Zero Emission Line-Haul Freight Rail System in California: Operational and Economic Considerations," 2016 ("The shift of freight from rail to truck reduces the emissions benefits of the alternative locomotive technologies relative to Tier 2 (Figure S-3) and Tier 4 baseline levels (Figure S-4). Technologies that showed emissions reductions before mode shift may show increases in emissions (negative reductions) when the induced truck emissions are included in the calculations.").

[4] *See* 62 Fed. Reg. 6368 (Feb. 11, 1997) ("Another important point requiring consideration in the regulation of locomotives is the potential for modal shift. A modal shift is a change from one form of transportation, such as trains, to another form, such as trucks. Modal shift can have negative or positive effects on national and local emissions inventories. Negative modal shift occurs when there is a shift to a more polluting form of transportation."); *Decarbonizing intraregional freight systems with a focus on modal shift*, Kaack, 2018.

*15. Page 22, "Numerous ambiguities in the cost assumption document make it difficult for the Associations to comment on the document in a meaningful way."*

**This statement speaks for itself as it regards a failure in CARB's own analysis, and the Comment identifies a lack of substantiating evidence in the Proposed Regulation. It is CARB's burden to clarify its cost assumptions and provide substantiating evidence.**

*16. Page 23, "Many, if not most, locomotive owners will be required to install new hardware on many, if not most, locomotives to comply with the proposed reporting requirements. Moreover, the effort involved in updating software and geofence technology is neither insignificant nor inexpensive and may be outside of the current capabilities of some railroads."*

**This statement speaks for itself and follows directly from the mandates contemplated by the Proposed Rules. AAR's members have previously informed CARB that existing hardware and software on locomotives and in use by railroads to produce locomotive data are not capable of satisfying the proposed reporting requirements. CARB has failed to account for the true costs of its Proposed Rules. It is CARB's burden to accurately estimate the costs of its proposal in order to justify its approach.**

*17. Page 23, "The Associations believe that CARB's estimated costs significantly underestimate what the overall costs will prove to be for these new technologies and find no support in the available real-world evidence in the market."*

**Please see above.**

*18. Page 24, "At present, it is not uncommon for a railyard to refuel 5-10 locomotives at one time within a period of one hour or less."*

**AAR bases this statement on the experience of its members and the nature of railroad operations. Similar information has been presented to and used by CARB in the past. For example, CARB's Health Risk Assessments for California railyards prepared in 2008 reflected the following assumptions for various railyards:**

- **BNSF Barstow – 10 locomotives refueled simultaneously.[5]**
- **BNSF Sheila Mechanical – 8 locomotives refueled simultaneously.[6]**

[5] *Air Dispersion Modeling Assessment of Air Toxic Emissions from BNSF Barstow Rail Yard.* Environ International. December 2007. Table 3-1a.

[6] *Air Dispersion Modeling Assessment of Air Toxic Emissions from BNSF Commerce/Mechanical Rail Yard.* Environ International. November 2006. Table 3-1a.

Attachment 4

**BEFORE THE**
**CALIFORNIA AIR RESOURCES BOARD**

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**COMMENTS ON CALIFORNIA'S DRAFT 2022 STATE STRATEGY FOR THE STATE IMPLEMENTATION PLAN**

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**COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS**

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The Association of American Railroads ("AAR"), on behalf of itself and its member railroads, respectfully submits the following comments on California's Draft 2022 State Strategy for the State Implementation Plan ("Draft Plan"). AAR also incorporates by reference its previous comments on the In-Use Locomotive regulation submitted to CARB on September 10, 2020; February 11, 2021; April 23, 2021; and June 4, 2021.

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 represents passenger railroads that operate intercity passenger trains and provide commuter rail service. AAR's members own (or lease) and operate locomotives within the state of California and are part of the national freight rail network. AAR and its members therefore have a significant interest in this proceeding.

These comments are preliminary and based on the information about the Draft Plan disclosed to date, and AAR reserves the right to supplement them as more information on CARB's intent, analysis, and data with respect to the Draft Plan are provided to AAR and the public.

## I. INTRODUCTION

Rail is already the most efficient way to move people and freight over land. One train can carry the freight of hundreds of trucks, making freight railroads 3-4 times more fuel efficient on average than trucks. Further, freight railroads contribute only 1.9% of the U.S. transportation-related greenhouse gas emissions.

Railroads have demonstrated their commitment to partnering with federal and state regulators, including CARB, to improve air quality. For decades, railroads have undertaken initiatives to address air quality in California - both on their own initiative and through collaborations with CARB and local air districts. Railroads have pursued pioneering technology investments, changed rail yard operations to limit emissions impacts, and voluntarily entered into two enforceable agreements with CARB to reduce emissions from locomotives in the South Coast Air Basin and to reduce particulate emissions from California railyards. [1,2] As CARB has verified, the railroads have fully complied with both agreements resulting in a dramatic decrease in particulate emissions, NOx emissions, and health risks since 2005.

Railroad initiatives to address air quality continue today. For example, BNSF partnered with Wabtec (a major locomotive manufacturer) and the San Joaquin Valley Air Pollution Control District, in coordination with CARB, to test a battery-powered line-haul locomotive between Barstow and Stockton, CA.[3] Union Pacific has placed an order for 20 battery-electric

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[1] *Memorandum of Mutual Understandings and Agreements: South Coast Locomotive Fleet Average Emissions Program.* July 2, 1998. ("1998 MOU" or "Fleet Average Agreement")

[2] *ARB/Railroad Statewide Agreement: Particulate Emissions Reduction Program at California Rail Yards.* June 2005. ("2005 MOU" or "Railyard MOU")

[3] https://www.railwayage.com/news/bnsf-wabtec-bel-pilot-the-results-are-in/.

locomotives, 10 of which will be performing switching duties in California, at a cost of more than $100 million.[4] Similarly, Sierra Northern Railway has launched a program to build and test a hydrogen-powered switcher locomotive.[5] In addition, Pacific Harbor Lines and Progress Rail have undertaken demonstration projects for battery-powered switch locomotives at the Ports of Los Angeles and Long Beach.[6]

Elsewhere, the rail industry is exploring the possible future feasibility and commercial viability of hydrogen fuel cell locomotives. For example, BNSF is partnering with Chevron and Progress rail to test a hydrogen-fuel cell line-haul locomotive between Richmond and Barstow, and Canadian Pacific has launched a Hydrogen Locomotive Program to test a line-haul locomotive powered by hydrogen fuel cells and batteries.[7] Notably, however, technologies like battery or hydrogen fuel cell locomotives are still in development and will not reach commercial viability in the near term.

Railroads have also devoted resources to significantly reducing emissions in rail yards. Based on recently updated emission inventories for major yards in California provided to CARB by Union Pacific and BNSF, railyard emissions of criteria pollutants have been reduced more than 70% and toxic pollutants and corresponding health risks (mostly for environmental justice communities) have been reduced by at least that much compared to 2005. Union Pacific has

[4] https://www.up.com/media/releases/battery-electric-locomotive-nr-220128.htm.

[5] http://sierranorthern.com/news/articles/california-energy-commission-awards-sierra-northern-railway-team-nearly-4-000-000-to-build-and-test-hydrogen-switcher-locomotive/.

[6] https://www.progressrail.com/en/Company/News/PressReleases/ProgressRailAndPacificHarborLineSignAgreementForBatteryLocomotive.html.

[7] https://www.cpr.ca/en/media/canadian-pacific-expands-hydrogen-locomotive-program-to-include-additional-locomotives-fueling-stations-with-emissions-red.

coordinated with CARB to partner with two air districts to bring Tier 4 switcher locomotives into operation and Pacific Harbor Lines operates an entirely Tier 3 or Tier 4 fleet that was purchased in partnership with the South Coast Air Quality Management District ("SCAQMD") through Carl Moyer grants. BNSF has introduced hybrid cranes in California, with an 84% reduction in NOx, compared to a diesel-only crane. AAR's members have also started introducing zero-emission intermodal cranes; low-emitting, natural-gas hostlers; battery electric hostlers; and diesel switch locomotive filters to reduce emissions of criteria pollutants and toxic air contaminants at railyards and impacts on the communities in which we operate. Additional efforts to reduce emissions include running longer trains (i.e., hauling more freight using the same number of locomotives), running trains closer together (which reduces idling by reducing the time a train must wait to enter the main lines), and several other operating efficiencies that have resulted in lowering emissions.

With these initiatives that can, and truly have, made a difference in air quality as background, AAR is disappointed that CARB continues to discard the productive and cooperative relationship of the past by proposing locomotive regulations that will not result in any creditable emissions reductions in California, and therefore cannot be relied on to help achieve attainment as required by the Clean Air Act ("CAA"). The components of the In-Use Locomotive Regulation included in the Draft Plan ("Locomotive Plan") are impractical, would significantly burden both intrastate and interstate railroad operations, and would impose tremendous costs on California railroads and their customers with little or no measurable improvements in air quality or reductions in greenhouse gas emissions.

In addition, CARB is proposing to arbitrarily impose stringent requirements on one mode of goods movement (rail) that it does not impose on other more-emissive and less-efficient modes (e.g., trucking). CARB's own Advanced Clean Fleets regulation allows diesel-powered trucks – assets with a far shorter life cycle and far lower capital cost – to operate in California through 2041. The Locomotive Plan will significantly increase costs to the railroads and impose burdens to railroad customers and communities where change-outs would occur, without parallel costs on the trucking industry or other modes of goods movement – potentially increasing criteria, toxic, and climate pollutants by driving freight to transport modes with significant negative impacts on air quality.[8]

Whether evaluated from a perspective of the law, the industry, or the science, the Locomotive Plan is not a practical way to further reduce locomotive emissions. Instead, it is an arbitrary and capricious targeting of the railroad industry.

## II. CARB'S LOCOMOTIVE PLAN EXCEEDS THE AGENCY'S LEGAL AUTHORITY.

As AAR (and others) have briefed CARB in the past, CARB does not have the legal authority to regulate interstate locomotive emissions. Indeed, the Ninth Circuit Court of Appeals has held that an air district's efforts to impose district-specific regulations on rail

[8] In its Exchange Point study with the University of Illinois, CARB has reached the same conclusion. *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 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.").

operators are preempted by multiple federal regulatory programs. CARB's Locomotive Plan is an unlawful state program. Only EPA, through full notice and comment rulemaking, could implement the changes to the existing regulatory framework envisioned by CARB.

a. *Railroad Operations are Exclusively Regulated by the Federal Government.*

Rail operations are not a discrete activity which may be confined within the boundaries of a single state. Rather, the nation's rail transportation system is an integrated network in which over 500 railroad companies participate, operating nearly 140,000 miles of track in 49 states.[9] Given these characteristics, "the Federal Government has determined that a uniform regulatory scheme is necessary to the operation of the national rail system." *United Transp. Union v. Long Island R.R.*, 455 U.S. 678, 688 (1982). In recognition of this need for uniformity, Congress has enacted multiple statutes that preclude CARB from promulgating its Locomotive Plan, including the Interstate Commerce Act, 49 U.S.C. § 10501(b), as amended by the ICC Termination Act of 1995 ("ICCTA"); the Railroad Revitalization and Regulatory Reform Act of 1976 ("the 4-R Act"), 49 U.S.C. § 11501; the Locomotive Inspection Act ("LIA"), 49 U.S.C. § 20701; and the Clean Air Act ("CAA"), 42 U.S.C. § 7401 *et seq*.

Pursuant to Article VI of the United States Constitution, Congress can preempt state law so that it is "without effect." *Maryland v. Louisiana*, 451 U.S. 725, 746 (1981) (citing *McCulloch v. Maryland*, 17 U.S. (4. Wheat.) 316, 427 (1819)). The "purpose of Congress is the ultimate touchstone of pre-emption analysis." *Cipollone v. Liggett Grp., Inc.*, 505 U.S. 504, 516 (1992)

[9] In addition to covering all lower 48 states, U.S. rail systems link up with the major railroads of Canada and Mexico.

(internal quotation marks and citations omitted). Congress's purpose can be "explicitly stated in the statute's language or implicitly contained in its structure and purpose." *Jones v. Rath Packing Co.*, 430 U.S. 519, 525 (1977) (citing *City of Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 633 (1973); *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947)).

ICCTA "preempts all state laws that may reasonably be said to have the effect of managing or governing rail transportation." *Assoc. of Am. R.R. v. S. Coast Air Quality Mgmt. Dist.*, 622 F.3d 1094, 1098 (9th Cir. 2010) (internal quotation omitted); *see also BNSF Ry. Co. v. California Dept. of Tax and Fee Admin*., 904 F.3d, 755, 761 (9th Cir. 2018) (state laws that specifically "target" the railroad industry by definition have "the effect of managing or governing rail transportation"). ICCTA provides that the Surface Transportation Board ("STB") holds "exclusive" jurisdiction over "transportation by rail carriers." "Transportation" is defined broadly to encompass "a locomotive, car, . . . yard, property, facility, instrumentality, or equipment of any kind related to the movement of . . . property . . . by rail" as well as "services related to that movement." 49 U.S.C. § 10102(9). Various courts have stated that the core purpose of this provision is to ensure the free flow of interstate commerce, particularly by preventing a patchwork of differing regulations across states. *See, e.g.*, *Elam v. Kan. City S. Ry.*, 635 F.3d 796, 804 (5th Cir. 2011) (a purpose of ICCTA was to create a "[f]ederal scheme of minimal regulation for this intrinsically interstate form of transportation.") (quoting H.R. Rep. No. 104-311, at 93 (1995), reprinted in 1995 U.S.C.C.A.N. 793, 805); *Fla. E. Coast. Ry.*, 266 F.3d at 1338-39 (stating that a desire to prevent a "patchwork of regulation . . . motivated the passage of the ICCTA" and that "[i]n reducing the regulation to which railroads are subject at state and federal levels, the ICCTA concerns itself with the efficiency of the industry as a whole

across the nation."). The Locomotive Plan specifically targets the operation of railroads, which subjects them to categorical preemption as efforts to manage or govern rail transportation. *See, e.g.*, *Delaware v. Surface Transportation Bd.*, 859 F.3d 16, 19 (D.C. Cir. 2017) (describing "categorical" preemption under ICCTA).

Other statutes also preempt or prohibit state regulation of railroad operations. For example, the Supreme Court has held that the LIA preempts state laws purporting to regulate "the design, the construction, and the material of every part of the locomotive and tender and of all appurtenances." *Napier v. Atlantic Coast Line R.R.*, 272 U.S. 605, 611 (1926). Following *Napier*, lower courts consistently have held that attempts by states, through either common law or enactment of positive law, to impose requirements for equipping locomotives are preempted. *See, e.g.*, *Ogelsby v. Delaware & Hudson Ry. Co.*, 180 F.3d 458, 461 (2d Cir. 1999) (holding that to allow states to regulate instructional labels on locomotives would "undermine the goal of the [Locomotive Boiler and Inspection Act] which is to prevent 'the paralyzing effect on railroads from prescription by each state of the safety devices obligatory on locomotives that would pass through many of them.'") (internal citation omitted).

A law can also be expressly preempted when Congress expressly directs that state-laws are preempted subject to a narrow carve-out for state-specific waivers. In this case, the CAA and regulations promulgated under it expressly preempt state regulation of railroad emissions, with few exceptions not relevant here.

*b. CARB's Proposed Ban on Otherwise Compliant Federally Certified Locomotives is Preempted by ICCTA.*

There is no question that CARB's Locomotive Rule is not a generally applicable air quality rule with only an indirect impact on rail; it *directly* and *expressly* targets *only* rail transportation. Section 2478.5 of CARB's proposed In-Use Locomotive Rule would ban the operation in California of federally certified locomotives that comply with all federal requirements but that have been in operation for more than 23 years and, starting in 2030, would require that "all new Passenger, Switch, and Industrial locomotives brought into California operations [] be zero-emission." [10] This proposed state ban is preempted by, and could not be harmonized with, ICCTA, as it would interfere with the free flow of interstate commerce by creating a complicated and expensive patchwork of regulation requiring railroads to switch out otherwise compliant locomotives at the California State lines.[11] This is precisely the type of state regulation of railroads that Congress sought to disallow with ICCTA because it would have "the effect of unreasonably burdening or interfering with rail transportation." *Delaware v. Surface Transp. Bd.*, 859 F.3d 16, 19 (D.C. Cir. 2017). Because ICCTA "preempts all state laws that may reasonably be said to have the effect of managing or governing rail transportation," ICCTA preempts regulations such as CARB's Proposed Rules. 622 F.3d at 1098 (internal quotation omitted).

c. *CARB's Proposed Rules Regarding Locomotive Idling are Preempted by ICCTA, the LIA, and Federal Law.*

Similarly, CARB's Proposed Rule to require railroads to shut off any AESS-equipped main locomotive engine within 30 minutes of the locomotive becoming stationary (with specified exceptions) (Draft Regulatory Language, § 2478.6) is preempted by ICCTA, the LIA, and EPA's regulations under the Clean Air Act. EPA currently mandates all new locomotives (as explained in more detail below, the term "new locomotive" is defined to include remanufactured locomotives) "be equipped with automatic engine stop/start" devices that "shut off the main locomotive engine(s) after 30 minutes of idling (or less)." 40 C.F.R. 1033.115(g).

Although CARB staff members continually assert that they are simply "adopting" EPA's existing regulations, there are significant differences between those regulations and CARB's proposal, and CARB's draft regulatory language places onerous burdens on locomotive operators. For example, the existing Federal rule obligates the original equipment manufacturer ("OEM") or remanufacturer of the locomotive to install an anti-idling device on a locomotive. The federal rules prohibit the owner or operator of the locomotive from installing a "defeat device" to circumvent the manufacturer's anti-idling technology, with certain

[10] *Draft for Informal Public Comment and Discussion – 3/16/2021.* This is the most recent draft regulatory language published by CARB.

[11] CARB's own Exchange Point study, conducted with the University of Illinois, reached this precise conclusion. *See* https://ww2.arb.ca.gov//sites/default/files/classic/railyard/docs/uoi_rpt_06222016.pdf at xx ("For the [South Coast Air Basin] deployment scenario, with potential train delays and mode shifts, the above findings emphasize the importance of examining operational factors when evaluating new locomotive technology to reduce the emissions of line-haul freight rail in California. For several of the technologies, it is not the equipment capital cost and potential fuel savings that control the economic feasibility of the technology, but instead other factors that arise from the difficulty of integrating new locomotive technology in captive service within a highly interoperable rail network.")

exemptions provided. 40 C.F.R. 1033.115(f). In contrast, CARB's Proposed Rule ignores the federal regulations and would seek to impose additional requirements on the locomotive owner or operator, and modifies or disregards exceptions to the general idling prohibition that are provided under the federal rules.[12]

CARB's Proposed Rule seeks to simply bypass portions of the federal idling regulation that it deems undesirable, while purporting to simply parallel the federal rules and jurisdictional limitations. Circumventing federal laws and jurisdictional limits is not so easily accomplished. As the STB has previously stated with respect to this type of regulation, CARB does not have authority to "decide for the railroads what constitutes unnecessary idling." 2014 STB Decision at 9. The Ninth Circuit specifically stated that because the "rules apply exclusively and directly to railroad activity, requiring the railroads to reduce emissions and to provide, under threat of penalties, specific reports on its emissions and inventory," they were preempted. 622 F.3d at 1098. The D.C. Circuit likewise upheld an STB order holding that a state rule seeking to restrict supposed nonessential idling of locomotives was preempted by ICCTA. *See Delaware*, 859 F.3d at 18.

Further, to the extent that CARB seeks to prohibit the use of a locomotive with a non-functioning AESS device, *see* Draft Regulatory Language, § 2478.6(c), this rule directly conflicts with EPA's regulations and is also prohibited by the LIA. *See* 49 C.F.R. § 1033.815(b); *Springston v. Consolidated Rail Corp.,* 863 F. Supp. 535, 541 (N.D. Ohio 1994), *aff'd*, 130 F.3d

[12] For example, the federal regulation allows "a locomotive to idle to heat or cool the cab, provided such heating or cooling is necessary." 40 C.F.R. 1033.115(g)(5). CARB's Proposed Rules make no such allowance.

241 (6th Cir. 1997) ("It is clear that Congress intended to provide a nationally uniform standard of regulating locomotive equipment."); *Gen. Motors Corp. v. Kilgore*, 853 So.2d 171, 178 (Ala. 2002) ("Because . . . the [LIA] occupies the entire field, there is no area within which the states may regulate.").

CARB has offered no rationale or justification for attempting to promulgate idling regulations that are substantially similar to those rejected by federal courts and the STB just a few years ago. The types of idling requirements contained in the In-Use Locomotive regulation and included in the Locomotive Plan continue to be preempted by ICCTA, the LIA, EPA's rulemaking in this field, and binding legal precedent. As a result, CARB's proposed rulemaking is unlawful and should not be incorporated into the Draft Plan.

*d. CARB's Proposed Charges and Fees on Locomotives and their Operators are Preempted by ICCTA and the 4-R Act, Violate the Takings Clause of the U.S. Constitution, and Are Wholly Impractical.*

In its proposed In-Use Locomotive Rules, CARB is proposing both a locomotive charge (referred to by the agency as a "Spending Account"), which imposes charges on federally certified locomotives based on the operation of the locomotive within California and its emissions tier, and a yearly administrative fee that must be paid by the operator of a locomotive. Both elements of the Proposed Rules are preempted.

Section 2478.4 of the Draft Regulatory Language lays out CARB's system of charges based on the tier of the locomotive operated within the state. As an initial matter, regardless of whether they are considered "taxes" or "fees," such charges levied directly and exclusively against the railroads for their rail operations within California are unquestionably preempted

under ICCTA as state laws that directly target rail transportation. *BNSF Ry. Co.*, 904 F.3d at 760-761, 767-768.

Moreover, imposing fines on the railroads for operating even the cleanest possible locomotive available on the market –Tier 4 locomotives – does not make sense as a matter of public policy. *See* 40 C.F.R. 1033.101 (identifying EPA's promulgated emissions standards, by Tier, for locomotives with Tier 4 being the highest tier with the lowest emissions). Although CARB has asked EPA to establish a new locomotive emission standard, which CARB calls "Tier 5" (a request that EPA has not addressed), such a standard makes limited sense given CARB's expressed desire for industry to transition to non-diesel engines in the coming decades. Driving the railroads towards purchasing the next generation of long-lived diesel locomotives, if or when they are available, as opposed to focusing on developing alternative zero-emission technologies, is directly contrary to CARB's stated objective of transitioning to "zero-emission" technologies and would result in significant stranded diesel assets. These resources could better be applied to development of zero-emission technologies. As noted above, AAR's members have demonstrated a consistent commitment to testing new emissions-reducing technologies.

Based on preliminary calculations, AAR estimates that a railroad operating a Tier 4 locomotive in full compliance with federal standards would be forced to deposit tens of thousands of dollars *per year, per locomotive*, for operating the best available technology with the lowest possible emissions available on the commercial market. Setting aside the perversity of a regulatory system that would punish a regulated entity by imposing excessive charges for successfully adopting the best available technology, this is precisely the type of local regulation

that the STB has ruled is preempted because "allowing states and localities to create a variety of complex regulations governing how an instrument of interstate commerce is operated, equipped, or kept track of (even if federalized under the CAA) would directly conflict with the goal of uniform national regulation of rail transportation." 2020 STB Decision at 12; 2014 STB Decision at 10.

From a legal perspective, CARB's proposed locomotive charge structure (requiring funds to be set aside, and then requiring that they be spent only for defined purposes) is a direct economic regulation of the railroads and, as such, it is categorically preempted by ICCTA. As explained above, the "jurisdiction of the [STB] over . . . transportation by rail carriers"—which includes "locomotives"—"is exclusive." 49 U.S.C. §§ 10102(9); 10501(b) & (1). Moreover, "the remedies provided under [ICCTA] with respect to regulation of rail transportation"—which, again, includes "locomotives"—"are exclusive and preempt the remedies provided under Federal or State law." *Id.*; *see also* CSX Transportation, Inc. Petition for Declaratory Ord., No. FD 34662, 2005 WL 1024490, at *2 (May 3, 2005) ("there can be no state or local regulation of matters directly regulated by the Board"). In short, ICCTA preempts a state system of regulations and remedies that tell a railroad how it may and may not spend its funds on transportation assets.

Moreover, CARB's Proposed Rule applies to the rail industry, but does not apply to the trucking industry, despite the fact that both industries transport goods in interstate commerce and impact air quality and emit greenhouse gases. ICCTA prohibits laws that "discriminate against rail carriers or unreasonably burden interstate commerce." *Valero Ref. Company—Petition for Declaratory Ord.,* No. FD 36036, 2016 WL 5904757, at *4 (Sept. 20, 2016). *See also*

*BNSF Ry. v. Cal. Dep't of Tax & Fee Admin.*, 904 F.3d 755, 761 (9th Cir. 2018) ("[The challenged law] is neither a law of 'general applicability,' nor a law with only a 'remote or incidental effect on rail transportation.' [The law] … 'targets' the railroad industry." (citation omitted)); *N.Y. Susquehanna & W. Ry. v. Jackson*, 500 F.3d 238, 253 (3d Cir. 2007) ("[E]ven pedestrian regulations like building codes must be applied in a manner that does not discriminate against railroad operations to avoid preemption."); *Norfolk S. Ry. v. City of Alexandria*, 608 F.3d 150, 160 (4th Cir. 2010) (holding that localities may not "discriminate against rail carriers"); *Green Mountain R.R. v. Vermont*, 404 F.3d 638, 643 (2d Cir. 2005) (explaining, in context of traditional police powers, that "*non-discriminatory* regulations … would seem to withstand preemption" (emphasis added)).

Further, the sheer costs of these proposed fees and charges would "unreasonably burden [] interstate commerce," and are therefore prohibited by ICCTA. *New Orleans & Gulf Coast Ry. Co. v. Barrois*, 533 F.3d 321, 332 (5th Cir. 2008) (internal quotations omitted).

CARB's proposed locomotive charges are also prohibited by Section 306 of the 4-R Act. 49 U.S.C. § 11501. Notwithstanding that the funds are nominally held by the railroads, the charges can properly be understood as a tax because eventually, "the assessment is expended for general public purposes," rather than being "used for the regulation or benefit of the [railroads themselves]," *Bidart Bros. v. California Apple Comm'n*, 73 F.3d 925, 931 (9th Cir. 1996). The 4-R Act prohibits states from imposing taxes that "discriminate[] against" rail carriers. *Id.* § 11501(b)(4). In enacting the 4-R Act, Congress sought to "restore the financial stability of the railway system of the United States." 45 U.S.C. § 801. After forbidding certain types of property taxes, 49 U.S.C. § 11501(b)(1)-(3), the 4-R Act broadly prohibits "another tax

that discriminates against a rail carrier." *Id.* § 11501(b)(4). The Supreme Court has stated that the phrase "another tax" means "any other tax," and has described subsection (b)(4) as a "catch-all" provision that "encompass[es] any form of tax a State might impose." *CSX Transp., Inc. v. Ala. Dep't of Revenue*, 562 U.S. 277, 280, 284 n.6, 285 (2011); *see also Burlington N. R.R. v. City of Superior*, 932 F.2d 1185, 1186 (7th Cir. 1991) ("Subsection (b)(4) is a catch-all designed to prevent the state from accomplishing the forbidden end of discriminating against railroads by substituting another type of tax. It could be an income tax, a gross-receipts tax, a use tax, an occupation tax as in this case – whatever."). Under this broad understanding of the prohibitions imposed by the 4-R Act, CARB's proposed locomotive charges and fees are forbidden.

The proposed Spending Account provision in § 2478.4 also runs afoul of the Takings Clause. *See* U.S. Const. amend. V. This provision requires Locomotive Operators to contribute funds annually to a Spending Account, the contents of which shall be used only to acquire or repair the Cleanest Available Locomotives or for a small number of related zero-emissions projects. §§ 2478.4(b)(1), (c). It also mandates that any interest or capital gains on the funds be used for the same purposes. *Id.* § 2478.4(b)(2). Those funds are property of the railroad in question, not the government, and the Takings Clause does not tolerate a system in which the government, rather than the property owner decides how the property may be possessed and disposed of. That is because "property is more than economic value; it also consists of 'the group of rights which the so-called owner exercises in his dominion of the physical thing,' such 'as the right to possess, use and dispose of it." *Phillips v. Washington Legal Found.*, 524 U.S. 156, 169–70 (1998) (citing *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 435

(1982), and quoting *United States v. Gen. Motors Corp*., 323 U.S. 373, 378 (1945)). Those rights would vanish—for vast amounts of railroad property—under the proposal.

Moreover, the Spending Account provision permits no variances for Locomotive Operators who (either now or in the future) are no longer legally required to spend their capital on the short list of allowed expenditures and who will receive no economic benefit from doing so. The proposed formula for determining the mandatory annual contribution to the Spending Account also ignores these realities. *See* § 2478.4(c)(1). As a result, the proposed Spending Account provision will force some Locomotive Operators to set aside funds every year for purposes from which they will derive no economic benefit. And courts have repeatedly recognized that when a law requires a property owner to "to sacrifice all economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking." *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1019 (1992). For a number of Locomotive Operators whose funds will be stranded in this way, the proposed Spending Account provision will result in just such a taking.

Finally, from a practical perspective, CARB's proposed yearly "administrative fee" of $220 per locomotive, paid by the locomotive operator, demonstrates a fundamental lack of understanding of the rail industry on the part of staff and fails to address how CARB would avoid charging the same locomotive multiple times. For example, one railroad may own and operate a locomotive for part of the year, but that same locomotive (while still owned by the same railroad) may also be operated in California by different railroads for different portions of the year. It would be unreasonable to suggest that the administrative fee should be paid multiple times for the same locomotive every year by different railroads. In the example

provided this would multiply the total fee, likely providing revenue to CARB but failing to fairly apportion the fee between operators.

Similarly, CARB's Spending Account would require railroads to place hundreds of millions of dollars into a trust account to be used only as dictated by CARB to purchase the cleanest available locomotive.[13] There is a very limited market, primarily focused on new technologies, for new locomotives at this time and thousands of locomotives are in storage due to increased productivity (with associated reductions in emissions) and reduced demand for specific commodities.[14] Indeed, new locomotive sales peaked nationwide in 2014, at about 1,450 units, and dropped off to just over 100 by 2020. Forcing railroads to place hundreds of millions of their own dollars in trusts will not suddenly cause a market for new locomotives to materialize—it will simply deprive railroads of useable capital. Moreover, as discussed above, even if a railroad purchased the cleanest available locomotive (a Tier 4), it would still be subjected to CARB's locomotive charge of up to many tens of thousands of dollars on that new locomotive on a yearly basis. Thus, in addition to being preempted by federal law, CARB's locomotive charge is both counterproductive and unreasonable.

[13] CARB attempts to characterize its proposed charge on locomotives as a "spending account." *See* CARB Workshop Slides Day 2 (10/28/2020), *available at* https://ww2.arb.ca.gov/sites/default/files/2020-12/2020.10.28%20841AM%20Workshop%20Slides%20Day%202%20-%20Remediated.pdf. This characterization is wholly inconsistent with the reality of what CARB is proposing – to "require mitigation to be paid for locomotive emissions" and to "convert mitigation funds to cleaner locomotives." *Id.* at 41. CARB's proposal amounts to a discriminatory charge being levied against the locomotive industry.

[14] *See, e.g.*, https://www.progressiverailroading.com/union_pacific/.

*e. CARB's Proposed Rules Mandating Extensive Reporting Obligations are Preempted by, and Cannot Be Reconciled with, ICCTA.*

Previous rules adopted by the SCAQMD purporting to impose recordkeeping and reporting requirements on locomotives operating in the district were held to be preempted by ICCTA. Upon review of the reporting rules, the STB found that "allowing states and localities to create a variety of complex regulations governing how an instrument of interstate commerce is operated, equipped, or kept track of (even if federalized under the CAA) would directly conflict with the goal of uniform national regulation of rail transportation." 2020 STB Decision at 12 (emphasis added); 2014 STB Decision at 10. In response to claims from SCAQMD that the proposed reporting requirement was "merely a record-keeping requirement and thus does not impede the flow of transportation," the STB found that the requirement "would potentially create a patchwork of localized, operational recordkeeping requirements that would likely affect railroad operations." 2014 STB Decision at 9. The STB noted multiple times that because more than 100 CAA nonattainment districts exist in the United States, if the recordkeeping rule were implemented, "other nonattainment districts across the country could, and likely would, implement their own, unique recordkeeping requirements," resulting in "an unworkable variety of regulations." 2014 STB Decision at 9, 10.

CARB's Proposed Rules are strikingly similar to the reporting provisions adopted by the SCAQMD that the STB found were preempted by federal law. The same analysis will apply to CARB's proposed reporting requirements, in which CARB is proposing to require railroads to record and report for each locomotive, among other things, total megawatt-hours operated or total fuel used throughout the year in California (broken down by air district) and the total engine hours throughout the year in California (again broken down by air district). The

administrative effort involved for all railroads to track this information within each of the 35 California air districts the locomotives operate in is immense and would require significant investment in geofencing and other technologies. This level of reporting is burdensome and would greatly interfere with the operation of the nation's rail network. As such, the Proposed Regulations are preempted by ICCTA. As AAR has shown in previous comments submitted to CARB, California's two Class I railroads already submit to CARB information sufficient to enable CARB to estimate locomotive emissions, by air district, throughout the state. In fact, such a detailed breakdown can be easily obtained from CARB's website: CEPAM2019v1.03 - Standard Emission Tool | California Air Resources Board. For example, using CARB's CEPAM website tool one can find that oxides of nitrogen emissions from switch engine locomotives operating within the South Coast Air Basin were 2.485 tons per day in calendar year 2020. CARB has demonstrated no regulatory need nor environmental benefit associated with the onerous additional reporting requirements contained in the Proposed Rules.

## III. CARB'S CHARACTERIZATION OF FEDERAL REGULATIONS AS A "LOOPHOLE" IS BOTH INACCURATE AND MISLEADING.

EPA has promulgated nationwide regulations governing the useful life of locomotives and, as a result, states are expressly prohibited from promulgating their own conflicting regulations. In CAA section 209(e), Congress preempted state and local governments from adopting or enforcing "any standard or other requirement relating to the control of emissions from . . . new locomotives or new engines used in locomotives." 42 U.S.C. § 7543(e)(1)(B). EPA defines "new locomotive" as a "locomotive or locomotive engine which has been remanufactured" that was built after January 1, 1973. 40 C.F.R. § 92.2 (emphasis added). Because EPA's regulations address not only newly built, but also remanufactured engines, they

establish the national standards with respect to the lifecycle and emissions requirements for locomotives operating in the United States.

CARB, acknowledging its lack of legal authority to impose different standards on its own, characterizes these lawfully promulgated federal regulations as a "loophole." In its Draft Plan, CARB incorrectly states that "[t]he result [of the federal regulations] is continued remanufacturing of old and polluting locomotives to the same pollution tier standards, and persistent pollution from these sources."[15] CARB contemplates a petition to EPA to close this "loophole" by inventing a novel definition of "useful life" and other provisions that differ from current EPA regulations, thus altering the certification system for all U.S., Canadian, and Mexican locomotives.

CARB's proposal is an overly broad request, given the interconnected nature of the U.S. and North American rail network and the federal regulatory framework that exclusively governs it. But describing these regulations as a "loophole" is also inaccurate and misleading. The regulations governing the remanufacture of locomotive engines were promulgated in 1998 and were updated in 2008. 73 Fed. Reg. 37096. As with all lawfully promulgated regulations, EPA published its proposed rule for public comment prior to finalization. In the notice, EPA states that "[t]he near-term program [] includes new emission limits for existing locomotives and marine diesel engines that apply when they are remanufactured, and take effect as soon as certified remanufacture systems are available, as early as 2008." *Id.* Put differently, the

[15] This is plainly incorrect. In fact, EPA regulations require that when a locomotive is first remanufactured it must be upgraded to meet lower emission rates. For example, a Tier 0 locomotive must be remanufactured to meet Tier 0+ standards, which achieve a 16% reduction in NOx emissions and a 63% reduction in PM emissions.

regulations governing emissions standards for remanufactured locomotive engines are a central feature of EPA's regulatory regime, not a "loophole."

EPA's approach to remanufactured locomotives makes sense – locomotives have lifecycles that can span many decades. EPA's regulations ensure that remanufactured locomotives meet emissions limits. Contrary to CARB's blanket assertion that the regulations allow older locomotives to be remanufactured to the "same pollution tier standard," EPA has required certain locomotives to be remanufactured to standards with lower emissions than when first manufactured. For example, remanufacturing a Tier 0 locomotive engine to a Tier 0+ reduces particulate and NOx emissions by 16 percent and particulate emissions by as much as 63 percent. By regulating the remanufacturing of locomotives, EPA regulates locomotives for much or all of their operational lives, not just the ten years or less for the initial manufacturing event. This provides nationwide benefits.

Notably, CARB supported EPA's adoption of these regulations on remanufactured locomotives when those regulations were developed and promulgated. CARB submitted comments on or related to the proposed regulations in 2004, 2006, and 2007. In its 2004 comment, CARB "fully support[ed] the direction that U.S. EPA is taking to control emissions from [locomotives] in the [Advanced Notice of Proposed Rulemaking on the Control of Emissions of Air Pollution from New Locomotive Engines].[16] A significant portion of that proposed regulation, which was later finalized and promulgated, related to the emissions

[16] Letter from Alan C. Lloyd, Ph.D., Chairman, Air Resources Board, to Margo T. Oge, Director, Office of Transportation, US EPA (Aug. 26, 2004).

standards for remanufactured locomotives. At no point during that rulemaking did CARB assert that the regulation created a "loophole" or that a limit should be imposed on the number of times a particular locomotive can be remanufactured.

## IV. CARB CONTINUES TO RELY ON INACCURATE AND INFLATED EMISSIONS DATA.

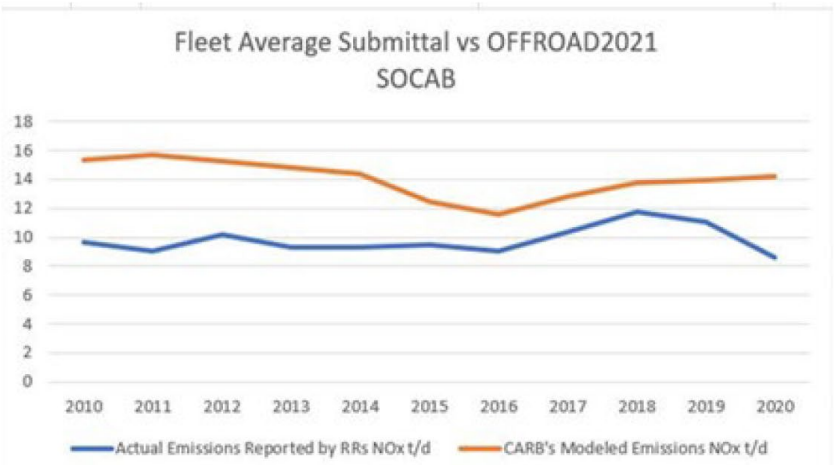
In its January 31, 2022, presentation of its Draft Plan, CARB includes estimates for NOx reductions anticipated from its locomotive plan. However, CARB continues to rely on inflated and inaccurate emissions data in reaching these estimates. As a result, actual emissions reductions resulting from the Locomotive Plan would be significantly lower than expected.

On October 19, 2021, CARB released the latest version of its emission inventory model for offroad equipment (OFFROAD2021). The model can be accessed here: EMFAC (ca.gov). This model is ultimately used for SIP and regulatory development.

OFFROAD2021 reflects the results of CARB's updated switch locomotive and line-haul locomotive models that we have been following for the last two years. As best we can determine, in these models CARB has failed to address any of AAR's concerns regarding the line-haul forecasting methodology in this latest version of the OFFROAD model.[17]

The graphic below compares the NOx emissions predicted in the South Coast Air Basin by OFFROAD2021 for Union Pacific Railroad and BNSF Railway activities compared with the actual data submitted by the railroads, and accepted by CARB, from 2010 to 2020 pursuant to the Fleet Average Agreement ("FAA"):

[17] AAR did not have significant concerns regarding the switch locomotive model.

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Actual NOx Emissions Reported by Railroads (t/d) | 9.67 | 9.07 | 10.20 | 9.29 | 9.34 | 9.52 | 9.08 | 10.36 | 11.77 | 11.06 | 8.58 |
| CARB's Modeled NOx Emissions (t/d) | 15.36 | 15.73 | 15.25 | 14.80 | 14.41 | 12.49 | 11.55 | 12.80 | 13.76 | 13.97 | 14.20 |
| Discrepancy (CARB vs FAA Submissions) | 59% | 73% | 49% | 59% | 54% | 31% | 27% | 24% | 17% | 26% | 65% |

Based on the data above, CARB has consistently, and continues, to overestimate NOx emissions from Class I locomotives in the South Coast Air Basin by approximately 40 percent. CARB's current locomotive inventory methodology extrapolates its forecast of South Coast Air Basin emissions to the rest of the state (ignoring the detailed, localized data supplied by each railroad in most years); consequently, this overestimate occurs in CARB's statewide locomotive inventory as well.

AAR has communicated to CARB its concerns regarding the locomotive inventory and has had several detailed technical discussions to convey these concerns. Specifically, AAR's comments were submitted in writing to CARB on July 22, 2020. That submission was followed by several calls, culminating in a presentation on September 10, 2020, where AAR presented to CARB a more accurate line-haul locomotive forecast.

In addition to the September 10, 2020, presentation, AAR's consultants (CEA) sent several emails and had several calls with CARB explaining AAR's concerns with the inventory. CARB's formal release of OFFROAD2021 and continued reliance on this inaccurate data in its Draft Plan has resulted in CARB presenting a misleading and inaccurate view of current and past locomotive line-haul emissions.

## V. THE GOALS OF CARB'S LOCOMOTIVE PLAN ARE PRESENTLY INFEASIBLE.

CARB has stated that the "goal of the [In-Use Locomotive regulation] is to accelerate immediate adoption of advanced cleaner technologies for all locomotive operations."[18] Yet CARB concedes in its regulatory documents associated with the In-Use Locomotive Regulation that zero-emission locomotives are not commercially available.[19] It is not possible for CARB (or any other state agency) to predict which technology in development today or yet to be developed will be adopted by the national transportation sector generally and the rail industry specifically. Railroads are unlikely to invest capital funds in a multi-million-dollar state-of-the-art ultra-low-emission diesel locomotive when diesel engines themselves may be replaced in the future with newer technology.

Moreover, the infrastructure to support zero-emission line-haul locomotives must be constructed across the North American continent due to the interconnected nature of the rail network. For example, the current rail network cannot currently support the use of hydrogen-

[18] https://ww2.arb.ca.gov/our-work/programs/reducing-rail-emissions-california/concepts-reduce-emissions-locomotives-and.

[19] *Preliminary Cost Document for the In-Use Locomotive Regulation*, March 16, 2021 ("Zero-emission (ZE) locomotives will be commercially available starting by (*sic*) no later than 2035.").

fuel cell locomotives or battery-electric locomotives. The infrastructure to accomplish the delivery of the necessary hydrogen, electricity, or other fuel required for zero-emission locomotives must be put in place across the continent. CARB fails to address or acknowledge the additional energy that will be required within California to accomplish some of its goals to transition to a battery-electric economy even though it will likely require significant additional electricity generation per year. Similarly, the charging infrastructure or hydrogen fueling infrastructure that would be required to power even a California-only fleet of locomotives simply does not exist and is unlikely to exist prior to CARB's stated effective date for its Locomotive Plan. Finally, in its attempt to force a transition to an as-yet unidentified new technology, CARB has failed to acknowledge that it is not feasible to have one rail network used in California and another used in the rest of North America.

## VI. CONCLUSION

AAR appreciates this opportunity to comment on CARB's Draft Plan. We continue to hope to return to our previous history of meaningful cooperation and communication between CARB Staff and AAR and its members.

Respectfully submitted,

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March 4, 2022

Attachment 5

**BEFORE THE**
**CALIFORNIA AIR RESOURCES BOARD**

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**COMMENTS ON CALIFORNIA'S DRAFT ENVIRONMENTAL ANALYSIS FOR ITS PROPOSED 2022 STATE STRATEGY FOR THE STATE IMPLEMENTATION PLAN**

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**COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS**

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The Association of American Railroads ("AAR"), on behalf of itself and its member railroads, respectfully submits the following comments on California's Draft Environmental Analysis for its Proposed 2022 State Strategy for the State Implementation Plan ("Draft EA"). AAR also incorporates by reference its previous comments on the In-Use Locomotive regulation submitted to CARB on September 10, 2020; February 11, 2021; April 23, 2021; and June 4, 2021, and its Comments on Draft State Strategy for the State Implementation Plan submitted to CARB on March 4, 2022.

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 represents passenger railroads that operate intercity passenger trains and provide commuter rail service. AAR's members own (or lease) and operate locomotives within the state of California and are part of the national freight rail network. AAR and its members therefore have a significant interest in this proceeding.

These comments are preliminary and based on the information released to date related to the In-Use Locomotive regulation, the Draft SIP, and the Draft EA. AAR reserves the right to supplement its comments as more information on CARB's intent, analysis, and data with respect to its State Implementation Plan are provided to AAR and the public.

## I. INTRODUCTION

Rail is already the most efficient way to move people and freight over land. One train can carry the freight of hundreds of trucks, making freight railroads 3–4 times more fuel efficient on average than trucks. Further, although railroads account for 40% of U.S. freight transportation, they contribute only 1.9% of the U.S. transportation-related greenhouse gas emissions.

Railroads have demonstrated their commitment to partnering with federal and state regulators, including CARB, to improve air quality. For decades, railroads have undertaken initiatives to address air quality in California—both on their own initiative and through collaborations with CARB and local air districts. Railroads have pursued pioneering technology investments, changed railyard operations to limit emissions impacts, and voluntarily entered into two enforceable agreements with CARB to reduce emissions from locomotives in the South Coast Air Basin and to reduce particulate emissions from California railyards.[1] As CARB has verified, the railroads have fully complied with both agreements resulting in a dramatic decrease in particulate emissions, $NO_x$ emissions, and health risks since 2005.

[1] *Memorandum of Mutual Understandings and Agreements: South Coast Locomotive Fleet Average Emissions Program*, July 2, 1998 ("1998 MOU" or "Fleet Average Agreement"); *ARB/Railroad Statewide Agreement: Particulate Emissions Reduction Program at California Rail Yards*, June 2005 ("2005 MOU" or "Railyard MOU").

Railroad initiatives to address air quality continue today. For example, BNSF partnered with Wabtec (a major locomotive manufacturer) and the San Joaquin Valley Air Pollution Control District, in coordination with CARB, to test a battery-powered line-haul locomotive between Barstow and Stockton, CA and is currently partnering with Chevron and Progress Rail to test a hydrogen fuel cell line-haul locomotive between Richmond and Barstow.[2] Union Pacific has placed an order for 20 battery-electric locomotives, 10 of which will be performing switching duties in California, at a cost of more than $100 million.[3] In addition, Pacific Harbor Lines and Progress Rail have undertaken demonstration projects for battery-powered switch locomotives at the Ports of Los Angeles and Long Beach.[4]

On a broader scale, the rail industry is exploring the feasibility and commercial viability of low- and zero-emission locomotives. Canadian Pacific has launched a Hydrogen Locomotive Program to test a line-haul locomotive powered by hydrogen fuel cells and batteries.[5] Similarly, Sierra Northern Railway has launched a program to build and test a hydrogen-powered switcher locomotive.[6] On the East Coast, Norfolk Southern is working with Wabtec (one of two locomotive original equipment manufacturers) to modernize 330 locomotives in order to

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[2] https://www.railwayage.com/news/bnsf-wabtec-bel-pilot-the-results-are-in/.

[3] https://www.up.com/media/releases/battery-electric-locomotive-nr-220128.htm.

[4] https://www.progressrail.com/en/Company/News/PressReleases/ProgressRailAndPacificHarborLineSignAgreementForBatteryLocomotive.html.

[5] https://www.cpr.ca/en/media/canadian-pacific-expands-hydrogen-locomotive-program-to-include-additional-locomotives-fueling-stations-with-emissions-red.

[6] http://sierranorthern.com/news/articles/california-energy-commission-awards-sierra-northern-railway-team-nearly-4-000-000-to-build-and-test-hydrogen-switcher-locomotive/.

improve fuel efficiency and reduce emissions.[7] Notably, however, technologies like battery or hydrogen fuel cell locomotives are still in development and will not reach commercial readiness in the near term.

Railroads have also devoted resources to significantly reducing emissions in railyards. Based on recently updated emission inventories for major yards in California that were provided to CARB, since 2005 railyard emissions of criteria pollutants have been reduced more than 70% and toxic pollutants and corresponding health risks (mostly for environmental justice communities) have been reduced by at least that much. Union Pacific has coordinated with CARB to partner with two air districts to bring Tier 4 switcher locomotives into operation in California. And Pacific Harbor Lines operates an entirely Tier 3 or Tier 4 fleet that was purchased in partnership with the South Coast Air Quality Management District ("SCAQMD") through Carl Moyer Grants. BNSF has introduced hybrid cranes in California, with an 84% reduction in $NO_x$, compared to a diesel-only crane. AAR's members have also started introducing zero-emission intermodal cranes, low-emitting, natural-gas hostlers, battery-electric hostlers, and diesel switch locomotive filters to reduce emissions of criteria pollutants and toxic air contaminants at railyards and impacts on the communities in which we operate. Additional actions that reduce emissions include running longer trains, which haul more freight using the same number of locomotives, running trains closer together, which reduces idling by reducing the time a train must wait to enter the main lines, and several other operating efficiencies that have resulted in improved fuel efficiencies and, therefore, lowered emissions.

[7] https://www.wabteccorp.com/newsroom/press-releases/wabtec-to-modernize-330-norfolk-southern-locomotives.

In light of these initiatives that truly have made a difference in air quality, AAR remains disappointed that CARB continues to discard the cooperative relationship of the past by proposing regulations that will not result in any creditable emissions reductions in California, and therefore cannot be relied on to achieve attainment as required by the Clean Air Act ("CAA"). The components of the In-Use Locomotive Regulation referenced in the Draft EA are impractical, would significantly burden both intrastate and interstate railroad operations, and would impose tremendous costs on railroads operating in California and their customers with little or no measurable improvements in air quality or reductions in greenhouse gas emissions.

Ironically, CARB is proposing to arbitrarily impose stringent requirements on one mode of goods movement (rail) that it does not impose on other more emissive and less efficient modes (e.g., trucking). CARB's own Advanced Clean Fleets regulation allows diesel-powered trucks—assets with a far shorter life cycle and far lower capital cost—to operate in California through 2041. The In-Use Locomotive Rule will significantly increase costs to the railroads and impose burdens on railroad customers and communities where change-outs would occur, without imposing parallel costs on the trucking industry or other modes of goods movement—potentially increasing criteria, toxic, and climate pollutants by driving freight to transport modes with far more significant negative impacts on air quality. Indeed, in its Exchange Point study with the University of Illinois, CARB has reached the same conclusion.[8]

[8] *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 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

To those knowledgeable about the law, the industry, and the science, CARB's planned rail regulatory initiatives are neither a lawful nor practical way to further reduce locomotive emissions. Instead, they are an arbitrary and capricious targeting of the railroad industry. As CARB continues down this flawed regulatory path and incorporates the proposed In-Use Locomotive regulation into its SIP and associated EA while also proposing federal actions further regulating locomotives, it is also failing to meet its obligations under CEQA by failing to fully disclose critical facts to the public.

## II. CARB'S DRAFT EA FAILS TO MEET THE STANDARDS REQUIRED BY CEQA.

The California Environmental Quality Act ("CEQA") requires the preparation of an environmental impact report ("EIR") in order "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." Cal. Pub. Res. Code ("PRC"), § 21002.1; *see also* 14 Cal. Code Regs. ("CEQA Guidelines") §§ 15000-15387. CARB implements this requirement through the preparation of an Environmental Analysis ("EA") under its certified equivalent program. *See* 17 CCR §§ 60000-60008. Nonetheless, the underlying substantive requirements of CEQA must be met by CARB's EA 17 CCR 60004(b). The primary purpose of CEQA is to require state agencies to consider and disclose to the public the environmental implications of their actions in order to foster an informed and transparent public decision-making process.

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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.").

For the reasons explained below, CARB's Draft EA fails to adequately disclose the implications of its proposed In-Use Locomotive Regulation and requested federal actions and, as a result, CARB's Draft EA fails to satisfy its obligations under CEQA.

### A. CARB's Draft SIP and EA Fail to Accurately Quantify the Emissions Reductions Expected from both its In-Use Locomotive Regulations and its Proposed Federal Actions to Regulate Locomotives.

Under the Clean Air Act, states are required to establish plans to meet EPA's standards for atmospheric pollutants, including ozone and particulate matter. 42 U.S.C. §§ 7407(a), 7408(a), 7409(a), 7410(a). When an area does not meet a standard, it is designated a "nonattainment" area. *See id.* §§ 7407(d)(1)(A), 7501(2). There are several degrees of nonattainment, ranging from marginal to extreme, *id.* § 7511(a)(1), and each classification imposes increasingly stringent requirements to reduce emissions and promote progress toward attainment. *Id.* § 7511a(b)(1)(A), (c)(2)(B), (d), (e). California has dozens of nonattainment areas ranging in severity from moderate to extreme.[9]

Notably, a state plan must "include enforceable emission limitations" to attain the relevant air quality standard. 42 U.S.C. § 7502(c)(2). For extreme ozone nonattainment areas, the plan must provide for reasonable further progress of "at least 3 percent of baseline emissions each year." 42 U.S.C. § 7511a(c)(2)(B)(i), (d), (e). As explained below, CARB has failed to satisfy this criterion with respect to both its proposed In-Use Locomotive Regulations and its request for federal action with respect to the regulation of locomotives.

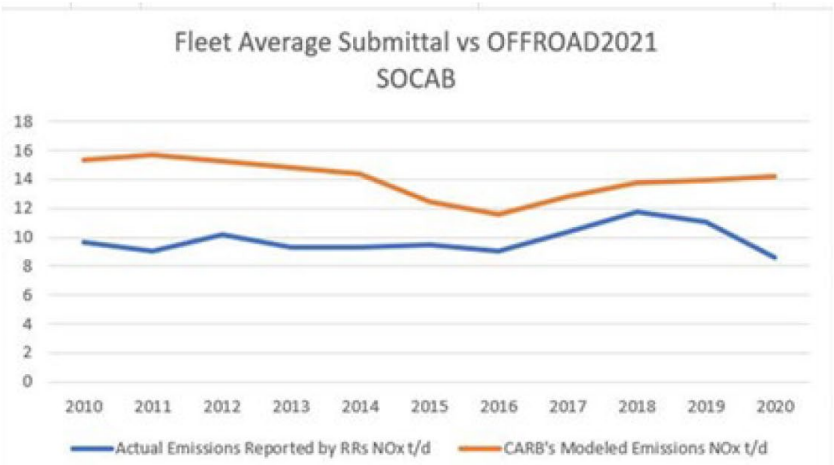
[9] *See* https://www3.epa.gov/airquality/greenbook/ancl.html.

1. CARB Overestimates the Estimated $NO_x$ Reductions Resulting from its Proposed In-Use Locomotive Regulations.

On October 19, 2021, CARB released the latest version of its emission inventory model for offroad equipment (OFFROAD2021). The model can be accessed here: EMFAC (ca.gov). This model is ultimately used for SIP and regulatory development. OFFROAD2021 incorporates CARB's switch locomotive and line-haul locomotive models. AAR and the rail industry have been pointing out flaws in the line-haul forecasting methodology for the last two years, and as best as AAR can determine, this latest version of the OFFROAD model CARB has failed to address any of AAR's concerns.[10] CARB continues to rely on inflated and inaccurate emissions data in reaching its baseline estimates. As a result, actual emissions reductions resulting from its proposed In-Use Locomotive rule will be significantly lower than projected.

The graphic below compares the $NO_x$ emissions in the South Coast Air Basin that are *predicted* by OFFROAD2021 for Union Pacific Railroad and BNSF Railway activities, compared with the *actual data* submitted by the railroads and accepted by CARB from 2010 to 2020 pursuant to the Fleet Average Agreement ("FAA"):

[10] AAR did not have significant concerns regarding the switch locomotive model.

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Actual NOx Emissions Reported by Railroads (t/d) | 9.67 | 9.07 | 10.20 | 9.29 | 9.34 | 9.52 | 9.08 | 10.36 | 11.77 | 11.06 | 8.58 |
| CARB's Modeled NOx Emissions (t/d) | 15.36 | 15.73 | 15.25 | 14.80 | 14.41 | 12.49 | 11.55 | 12.80 | 13.76 | 13.97 | 14.20 |
| Discrepancy (CARB vs FAA Submissions) | 59% | 73% | 49% | 59% | 54% | 31% | 27% | 24% | 17% | 26% | 65% |

As the data above demonstrate, CARB has consistently overestimated $NO_x$ emissions from Class I locomotives in the South Coast Air Basin by approximately 40 percent. CARB's current locomotive inventory methodology extrapolates the forecast of South Coast Air Basin emissions to the rest of the state (ignoring the detailed, localized data supplied by each railroad in most years); consequently, this overestimate occurs in CARB's statewide locomotive inventory as well.

As noted above, over the last two years AAR has repeatedly communicated to CARB its concerns regarding the locomotive inventory and has had several detailed technical discussions with CARB to convey these concerns. Specifically, AAR's comments were submitted in writing to CARB on July 22, 2020. That submission was followed by several calls, culminating in a presentation on September 10, 2020, in which AAR presented to CARB a more accurate line-haul locomotive forecast. In addition to the September 10, 2020, presentation, AAR's consultants (CEA) sent several emails and had several calls with CARB explaining rail industry concerns with the inventory.

CARB's Draft SIP and Draft EA fail to accurately portray the baseline of emissions from locomotives and consequently overestimate the reductions (i.e. benefits) that would result from the passage of the proposed In-Use Locomotive Regulation. CARB has failed to fulfill its obligations under CEQA to properly inform the public as to the consequences of its proposed action.

2. CARB Fails to Quantify its Expected Emissions Reductions Resulting from its Request for Increased Federal Regulation of the Rail Industry.

In its Draft SIP, CARB fails to quantify the anticipated emissions reductions associated with more stringent national emissions standards, zero-emission standards for switch locomotives, and changing the regulations governing the remanufacturing of locomotives. Instead, CARB simply lists "NYQ," or "not yet quantified," in its tables of anticipated emissions reductions. This error has not been corrected in its Draft EA, and thus the expected benefits and costs associated with the proposal cannot be accurately quantified.

This lack of quantification is notable and important, particularly because the zero-emission locomotives envisioned by CARB are not commercially ready. While first generation zero-emissions locomotives are now being offered for sale, the technology has not yet been proven to be safe and sufficiently reliable to justify purchase of such an expensive and long-lived asset. The industry is still working to ensure this new technology (both the locomotive and associated charging) functions both commercially and operationally. Several years of field testing are still required before this technology is commercially ready. In any event, the zero-emissions locomotives currently offered are only suitable for yard (switching) use. They are not sufficiently powerful to pull line-haul trains unless they are part of a consist with diesel locomotives. Such a hybrid

approach to line-haul power provides only marginal emissions reductions. Additional research and development is needed before zero-emission line-haul locomotives are commercially available. Moreover, the necessary infrastructure to power zero emissions line-haul locomotives does not exist today—charging and refueling stations will be required across the nation before the rail industry can rely on battery-electric or hydrogen powered line-haul locomotives.

Moreover, approximately 16% and 30% of BNSF's and Union Pacific's (respectively) locomotive fleet is currently in storage or otherwise out of service. Accordingly, demand for new diesel locomotives has fallen to near-zero levels and is not expected to increase for several years. This is particularly true in light of CARB's proposal to ban the use of diesel locomotives decades before the end of these multi-million-dollar assets' useful life. Given these market conditions, CARB's proposal to change federal locomotive regulations is unlikely to lead to foreseeable or creditable emissions reductions.

Further, as explained above, in extreme nonattainment areas for some criteria pollutants, CARB's SIP must provide for reasonable further progress of "at least 3 percent of baseline emissions each year." 42 U.S.C. § 7511a(c)(2)(B)(i), (d), (e). CARB's proposed federal actions, the emissions reductions of which have not been quantified, cannot contribute to the reduction in baseline emissions because the federal actions may not impact railroad operations in California at all. For example, as noted above, zero-emission locomotives (including switchers) are not yet commercially ready. While there are several pilot projects ongoing, commercial viability of zero emissions locomotives is still several years away.

In addition, even if EPA were to eventually promulgate new regulations governing locomotive emissions and remanufacturing of locomotives, the North American rail industry does not operate within a single state's borders. Locomotives move between states and even countries. As such, even if new rules were promulgated, CARB could not attribute any resulting emissions reductions solely to California for the purposes of its SIP. Instead, these reductions would be spread across the United States as the locomotive fleet gradually turned over based on revised regulations. These reductions cannot be credited to California as part of its SIP because there is no way to isolate reductions within the state.

3. CARB fails to quantify the increase in emissions associated with the shift of interstate transportation from rail to truck associated with its proposed In-Use Locomotive rule and proposed changes to Federal locomotive regulations.

In its Draft EA, CARB fails to acknowledge the likelihood (or even the possibility) that its proposed In-Use Locomotive Rule or CARB's proposed changes to federal locomotive regulations will result in increased freight transportation (and especially interstate transportation) by trucks. This mode shift would result from the imposition of increased costs on rail freight transportation associated with CARB's proposals to limit the useful life of locomotives operated in California and CARB's proposed changes to federal locomotive remanufacturing requirements. These two elements of CARB's proposals would impose significant costs on rail freight transportation due to an arbitrary limitation on the effective life of locomotives, while there are no such cost burdens imposed on trucks carrying interstate freight.[11] Even if interstate freight trucks have zero emissions from their engines (setting aside

[11] This outcome is predicted in CARB's Exchange Point study cited above where the costs evaluated were related to increased freight delays and the capital costs of unique California locomotive

the lifecycle emissions associated with the energy required to produce and charge batteries), those trucks will have particulate emissions from brake and tire wear—emissions that are not associated with locomotive operations.

The potential for mode shift is real and is certainly no more speculative than the emission reductions CARB asserts will be associated with the proposed In-Use Locomotive rule and Federal rule changes. At its core, CEQA requires disclosure of potential environmental impacts associated with proposed regulatory actions, and not assertions of potential benefits and dismissal of potential disadvantages as "speculative." CARB's Draft EA fails to satisfy CEQA's requirements by failing to address the potential mode shift associated with the locomotive provisions of the 2022 State Strategy for the California SIP.

### B. CARB's Locomotive Plan Exceeds the Agency's Legal Authority and Thus Cannot Be Lawfully Promulgated.

The Draft EA states that the proposed In-Use Locomotive Regulation "would use mechanisms available under CARB's regulatory authority to accelerate the adoption of advanced, cleaner technologies, and include zero emission technologies, for locomotive operations." Draft EA at 27. However, as AAR (and others) have briefed CARB in the past, the Proposed Rules are subject to preemption under at least the ICC Termination Act of 1995, the Railroad Revitalization and Regulatory Reform Act of 1976, the Locomotive Inspection Act, the Clean Air Act, and EPA regulations. *See* AAR Comments on Draft State Strategy for the State

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maintenance, service, and refueling facilities. The source of the increased costs imposed solely on locomotives—unique California infrastructure requirements or reduced useful life for locomotives—is not relevant to the conclusion that these increased costs will result in a shift of interstate freight transportation from rail to truck.

Implementation Plan submitted to CARB on March 4, 2022. CARB's proposed In-Use Locomotive Regulation is an unlawful state program. As such, CARB should disclose in its EA the risks associated with the challenges to its legal authority and likelihood of the vacatur of these rules by a federal court.

## III. CARB'S CHARACTERIZATION OF FEDERAL REGULATIONS AS A "LOOPHOLE" IS BOTH INACCURATE AND MISLEADING.

In multiple documents and presentations, CARB has referred to the need for EPA to "[a]ddress [the] locomotive remanufacturing loophole." Draft EA at 33. This characterization is both inaccurate and misleading and, by implying that this feature of EPA's lawfully promulgated regulatory scheme was a mistake, misinforms the public regarding the existing regulatory scheme.

Notably, CARB supported EPA's adoption of these regulations, including the provisions it now characterizes as a "loophole." CARB submitted comments on or related to the proposed regulations in 1997, 2004, 2006, and 2007. In its 2004 comment, CARB "fully support[ed] the direction that U.S. EPA is taking to control emissions from [locomotives []] in the [Advanced Notice of Proposed Rulemaking on the Control of Emissions of Air Pollution from New Locomotive Engines].[12] A significant portion of that proposed regulation, which was later finalized and promulgated, related to the emissions standards for remanufactured locomotives. At no point during that rulemaking did CARB assert that a limit should be imposed on the

[12] Letter from Alan C. Lloyd, Ph.D., Chairman, Air Resources Board, to Margo T. Oge, Director, Office of Transportation, US EPA (Aug. 26, 2004).

number of times a particular locomotive can be remanufactured. For CARB to now refer to this federal program as a "loophole" is disingenuous at best.

EPA has promulgated nationwide regulations governing the lifespan of locomotives and has expressly prohibited states from promulgating their own conflicting regulations. In CAA section 209(e), Congress preempted state and local governments from adopting or enforcing "any standard or other requirement relating to the control of emissions from . . . new locomotives or new engines used in locomotives." 42 U.S.C. § 7543(e)(1)(B). EPA defines "new locomotive" as a "locomotive or locomotive engine which has been remanufactured" that was built after January 1, 1973. 40 C.F.R. § 92.2 (emphasis added). Because EPA's regulations address not only newly built, but also remanufactured engines, they establish the national standards with respect to the lifecycle and emissions requirements for locomotives operating in the United States.

CARB, acknowledging its lack of legal authority to impose different standards on its own, characterizes these lawfully promulgated federal regulations as a "loophole." In its Draft EA, CARB incorrectly states that "[t]he result [of the federal regulations] is continued remanufacturing of old and polluting locomotives to the same pollution tier standards, and persistent pollution from these sources."[13] This is plainly incorrect. In fact, EPA regulations require that when a tier 0, 1, or 2 locomotive is first remanufactured it must be upgraded to meet lower emission rates. For example, a Tier 0 locomotive must be remanufactured to meet

[13] This is plainly incorrect. In fact, EPA regulations require that when a locomotive is first remanufactured it must be upgraded to meet lower emission rates. For example, a Tier 0 locomotive must be remanufactured to meet Tier 0+ standards, which achieve a 16% reduction in $NO_x$ emissions and a 63% reduction in PM emissions.

Tier 0+ standards, which achieve a 16% reduction in $NO_x$ emissions and a 63% reduction in PM emissions.

CARB contemplates a petition to EPA to close this "loophole" by inventing a novel definition of "useful life" and other provisions that differ from current EPA regulations, thus altering the certification system for all U.S. and Canadian locomotives.

CARB's proposal is a breathtakingly broad request, given the interconnected nature of the U.S. and North American rail network and the federal regulatory framework that exclusively governs it. But describing these regulations as a "loophole" is also inaccurate and misleading. The regulations governing the remanufacture of locomotive engines were originally promulgated in 1998 and revised 2008. 73 Fed. Reg. 37096. As with all lawfully promulgated regulations, EPA published its proposed rule for public comment prior to finalization. In the notice, EPA stated that "[t]he near-term program [] includes new emission limits for existing locomotives and marine diesel engines that apply when they are remanufactured and take effect as soon as certified remanufacture systems are available, as early as 2008." *Id.* Put differently, the regulations governing emissions standards for remanufactured locomotive engines are a central feature of EPA's regulatory regime, not a "loophole."

EPA's approach to remanufactured locomotives makes sense: locomotives have lifecycles that can span many decades. EPA's regulations ensure that remanufactured locomotives meet emissions limits. Contrary to CARB's assertion that the regulations allow older locomotives to be remanufactured and to the "same pollution tier standard," the regulations allow tier 0, 1, and 2 locomotives to be remanufactured to be more efficient with

lower emissions than when first manufactured. For example, remanufacturing a Tier 0 locomotive engine to a Tier 0+ reduces particulate and $NO_x$ emissions by as much as 33 percent. Similar reductions are achieved by remanufacturing many engines.

## IV. CONCLUSION

AAR appreciates this opportunity to comment on CARB's Draft EA. We continue to hope for a return to our fruitful history of meaningful cooperation and communication between CARB Staff, AAR, and its members.

Respectfully submitted,

Theresa L. Romanosky
Assistant General Counsel
Association of American Railroads
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May 13, 2022

Attachment 6

**ASSOCIATION OF AMERICAN RAILROADS**
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**Theresa L. Romanosky**
Assistant General Counsel

Phone: (202) 639-2509
Fax: (202) 639-2868
E-Mail: tromanosky@aar.org

Dear Chair Randolph and Members of the Board:

The Association of American Railroads ("AAR"), on behalf of itself and its member railroads, respectfully writes to renew its concerns regarding CARB's 2022 State SIP Strategy. For ease of reference, these comments are attached.

It is AAR's hope that CARB will amend its State SIP Strategy to correct the issues highlighted in our prior comments.

Respectfully,

Theresa Romanosky

Theresa Romanosky
Assistant General Counsel
Association of American Railroads
tromanosky@aar.org
202-639-2509

**BEFORE THE**
**CALIFORNIA AIR RESOURCES BOARD**

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**COMMENTS ON CALIFORNIA'S DRAFT ENVIRONMENTAL ANALYSIS FOR ITS PROPOSED 2022 STATE STRATEGY FOR THE STATE IMPLEMENTATION PLAN**

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**COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS**

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The Association of American Railroads ("AAR"), on behalf of itself and its member railroads, respectfully submits the following comments on California's Draft Environmental Analysis for its Proposed 2022 State Strategy for the State Implementation Plan ("Draft EA"). AAR also incorporates by reference its previous comments on the In-Use Locomotive regulation submitted to CARB on September 10, 2020; February 11, 2021; April 23, 2021; and June 4, 2021, and its Comments on Draft State Strategy for the State Implementation Plan submitted to CARB on March 4, 2022.

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 represents passenger railroads that operate intercity passenger trains and provide commuter rail service. AAR's members own (or lease) and operate locomotives within the state of California and are part of the national freight rail network. AAR and its members therefore have a significant interest in this proceeding.

These comments are preliminary and based on the information released to date related to the In-Use Locomotive regulation, the Draft SIP, and the Draft EA. AAR reserves the right to supplement its comments as more information on CARB's intent, analysis, and data with respect to its State Implementation Plan are provided to AAR and the public.

## I. INTRODUCTION

Rail is already the most efficient way to move people and freight over land. One train can carry the freight of hundreds of trucks, making freight railroads 3–4 times more fuel efficient on average than trucks. Further, although railroads account for 40% of U.S. freight transportation, they contribute only 1.9% of the U.S. transportation-related greenhouse gas emissions.

Railroads have demonstrated their commitment to partnering with federal and state regulators, including CARB, to improve air quality. For decades, railroads have undertaken initiatives to address air quality in California—both on their own initiative and through collaborations with CARB and local air districts. Railroads have pursued pioneering technology investments, changed railyard operations to limit emissions impacts, and voluntarily entered into two enforceable agreements with CARB to reduce emissions from locomotives in the South Coast Air Basin and to reduce particulate emissions from California railyards.[1] As CARB has verified, the railroads have fully complied with both agreements resulting in a dramatic decrease in particulate emissions, $NO_x$ emissions, and health risks since 2005.

[1] *Memorandum of Mutual Understandings and Agreements: South Coast Locomotive Fleet Average Emissions Program*, July 2, 1998 ("1998 MOU" or "Fleet Average Agreement"); *ARB/Railroad Statewide Agreement: Particulate Emissions Reduction Program at California Rail Yards*, June 2005 ("2005 MOU" or "Railyard MOU").

Railroad initiatives to address air quality continue today. For example, BNSF partnered with Wabtec (a major locomotive manufacturer) and the San Joaquin Valley Air Pollution Control District, in coordination with CARB, to test a battery-powered line-haul locomotive between Barstow and Stockton, CA and is currently partnering with Chevron and Progress Rail to test a hydrogen fuel cell line-haul locomotive between Richmond and Barstow.[2] Union Pacific has placed an order for 20 battery-electric locomotives, 10 of which will be performing switching duties in California, at a cost of more than $100 million.[3] In addition, Pacific Harbor Lines and Progress Rail have undertaken demonstration projects for battery-powered switch locomotives at the Ports of Los Angeles and Long Beach.[4]

On a broader scale, the rail industry is exploring the feasibility and commercial viability of low- and zero-emission locomotives. Canadian Pacific has launched a Hydrogen Locomotive Program to test a line-haul locomotive powered by hydrogen fuel cells and batteries.[5] Similarly, Sierra Northern Railway has launched a program to build and test a hydrogen-powered switcher locomotive.[6] On the East Coast, Norfolk Southern is working with Wabtec (one of two locomotive original equipment manufacturers) to modernize 330 locomotives in order to

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[2] https://www.railwayage.com/news/bnsf-wabtec-bel-pilot-the-results-are-in/.

[3] https://www.up.com/media/releases/battery-electric-locomotive-nr-220128.htm.

[4] https://www.progressrail.com/en/Company/News/PressReleases/ProgressRailAndPacificHarborLineSignAgreementForBatteryLocomotive.html.

[5] https://www.cpr.ca/en/media/canadian-pacific-expands-hydrogen-locomotive-program-to-include-additional-locomotives-fueling-stations-with-emissions-red.

[6] http://sierranorthern.com/news/articles/california-energy-commission-awards-sierra-northern-railway-team-nearly-4-000-000-to-build-and-test-hydrogen-switcher-locomotive/.

improve fuel efficiency and reduce emissions.[7] Notably, however, technologies like battery or hydrogen fuel cell locomotives are still in development and will not reach commercial readiness in the near term.

Railroads have also devoted resources to significantly reducing emissions in railyards. Based on recently updated emission inventories for major yards in California that were provided to CARB, since 2005 railyard emissions of criteria pollutants have been reduced more than 70% and toxic pollutants and corresponding health risks (mostly for environmental justice communities) have been reduced by at least that much. Union Pacific has coordinated with CARB to partner with two air districts to bring Tier 4 switcher locomotives into operation in California. And Pacific Harbor Lines operates an entirely Tier 3 or Tier 4 fleet that was purchased in partnership with the South Coast Air Quality Management District ("SCAQMD") through Carl Moyer Grants. BNSF has introduced hybrid cranes in California, with an 84% reduction in $NO_x$, compared to a diesel-only crane. AAR's members have also started introducing zero-emission intermodal cranes, low-emitting, natural-gas hostlers, battery-electric hostlers, and diesel switch locomotive filters to reduce emissions of criteria pollutants and toxic air contaminants at railyards and impacts on the communities in which we operate. Additional actions that reduce emissions include running longer trains, which haul more freight using the same number of locomotives, running trains closer together, which reduces idling by reducing the time a train must wait to enter the main lines, and several other operating efficiencies that have resulted in improved fuel efficiencies and, therefore, lowered emissions.

[7] https://www.wabteccorp.com/newsroom/press-releases/wabtec-to-modernize-330-norfolk-southern-locomotives.

In light of these initiatives that truly have made a difference in air quality, AAR remains disappointed that CARB continues to discard the cooperative relationship of the past by proposing regulations that will not result in any creditable emissions reductions in California, and therefore cannot be relied on to achieve attainment as required by the Clean Air Act ("CAA"). The components of the In-Use Locomotive Regulation referenced in the Draft EA are impractical, would significantly burden both intrastate and interstate railroad operations, and would impose tremendous costs on railroads operating in California and their customers with little or no measurable improvements in air quality or reductions in greenhouse gas emissions.

Ironically, CARB is proposing to arbitrarily impose stringent requirements on one mode of goods movement (rail) that it does not impose on other more emissive and less efficient modes (e.g., trucking). CARB's own Advanced Clean Fleets regulation allows diesel-powered trucks—assets with a far shorter life cycle and far lower capital cost—to operate in California through 2041. The In-Use Locomotive Rule will significantly increase costs to the railroads and impose burdens on railroad customers and communities where change-outs would occur, without imposing parallel costs on the trucking industry or other modes of goods movement—potentially increasing criteria, toxic, and climate pollutants by driving freight to transport modes with far more significant negative impacts on air quality. Indeed, in its Exchange Point study with the University of Illinois, CARB has reached the same conclusion.[8]

[8] *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 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

To those knowledgeable about the law, the industry, and the science, CARB's planned rail regulatory initiatives are neither a lawful nor practical way to further reduce locomotive emissions. Instead, they are an arbitrary and capricious targeting of the railroad industry. As CARB continues down this flawed regulatory path and incorporates the proposed In-Use Locomotive regulation into its SIP and associated EA while also proposing federal actions further regulating locomotives, it is also failing to meet its obligations under CEQA by failing to fully disclose critical facts to the public.

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The California Environmental Quality Act ("CEQA") requires the preparation of an environmental impact report ("EIR") in order "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." Cal. Pub. Res. Code ("PRC"), § 21002.1; *see also* 14 Cal. Code Regs. ("CEQA Guidelines") §§ 15000-15387. CARB implements this requirement through the preparation of an Environmental Analysis ("EA") under its certified equivalent program. *See* 17 CCR §§ 60000-60008. Nonetheless, the underlying substantive requirements of CEQA must be met by CARB's EA 17 CCR 60004(b). The primary purpose of CEQA is to require state agencies to consider and disclose to the public the environmental implications of their actions in order to foster an informed and transparent public decision-making process.

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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.").

For the reasons explained below, CARB's Draft EA fails to adequately disclose the implications of its proposed In-Use Locomotive Regulation and requested federal actions and, as a result, CARB's Draft EA fails to satisfy its obligations under CEQA.

### A. CARB's Draft SIP and EA Fail to Accurately Quantify the Emissions Reductions Expected from both its In-Use Locomotive Regulations and its Proposed Federal Actions to Regulate Locomotives.

Under the Clean Air Act, states are required to establish plans to meet EPA's standards for atmospheric pollutants, including ozone and particulate matter. 42 U.S.C. §§ 7407(a), 7408(a), 7409(a), 7410(a). When an area does not meet a standard, it is designated a "nonattainment" area. *See id.* §§ 7407(d)(1)(A), 7501(2). There are several degrees of nonattainment, ranging from marginal to extreme, *id.* § 7511(a)(1), and each classification imposes increasingly stringent requirements to reduce emissions and promote progress toward attainment. *Id.* § 7511a(b)(1)(A), (c)(2)(B), (d), (e). California has dozens of nonattainment areas ranging in severity from moderate to extreme.[9]

Notably, a state plan must "include enforceable emission limitations" to attain the relevant air quality standard. 42 U.S.C. § 7502(c)(2). For extreme ozone nonattainment areas, the plan must provide for reasonable further progress of "at least 3 percent of baseline emissions each year." 42 U.S.C. § 7511a(c)(2)(B)(i), (d), (e). As explained below, CARB has failed to satisfy this criterion with respect to both its proposed In-Use Locomotive Regulations and its request for federal action with respect to the regulation of locomotives.

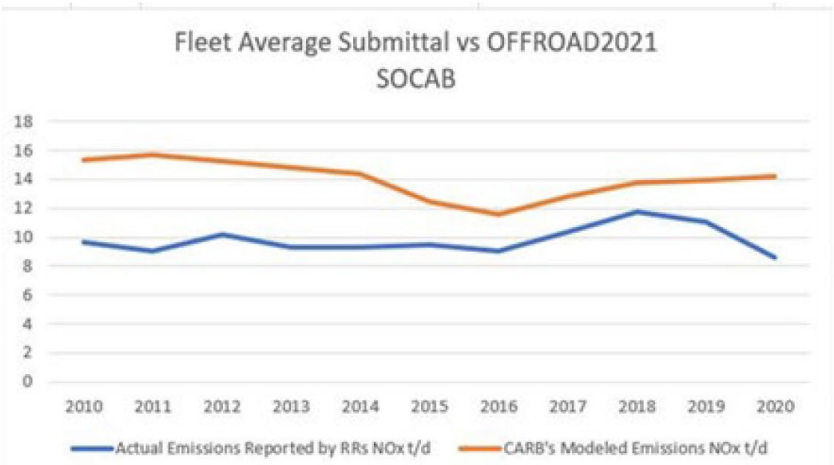
[9] *See* https://www3.epa.gov/airquality/greenbook/ancl.html.

1. CARB Overestimates the Estimated $NO_x$ Reductions Resulting from its Proposed In-Use Locomotive Regulations.

On October 19, 2021, CARB released the latest version of its emission inventory model for offroad equipment (OFFROAD2021). The model can be accessed here: EMFAC (ca.gov). This model is ultimately used for SIP and regulatory development. OFFROAD2021 incorporates CARB's switch locomotive and line-haul locomotive models. AAR and the rail industry have been pointing out flaws in the line-haul forecasting methodology for the last two years, and as best as AAR can determine, this latest version of the OFFROAD model CARB has failed to address any of AAR's concerns.[10] CARB continues to rely on inflated and inaccurate emissions data in reaching its baseline estimates. As a result, actual emissions reductions resulting from its proposed In-Use Locomotive rule will be significantly lower than projected.

The graphic below compares the $NO_x$ emissions in the South Coast Air Basin that are *predicted* by OFFROAD2021 for Union Pacific Railroad and BNSF Railway activities, compared with the *actual data* submitted by the railroads and accepted by CARB from 2010 to 2020 pursuant to the Fleet Average Agreement ("FAA"):

[10] AAR did not have significant concerns regarding the switch locomotive model.

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Actual NOx Emissions Reported by Railroads (t/d) | 9.67 | 9.07 | 10.20 | 9.29 | 9.34 | 9.52 | 9.08 | 10.36 | 11.77 | 11.06 | 8.58 |
| CARB's Modeled NOx Emissions (t/d) | 15.36 | 15.73 | 15.25 | 14.80 | 14.41 | 12.49 | 11.55 | 12.80 | 13.76 | 13.97 | 14.20 |
| Discrepancy (CARB vs FAA Submissions) | 59% | 73% | 49% | 59% | 54% | 31% | 27% | 24% | 17% | 26% | 65% |

As the data above demonstrate, CARB has consistently overestimated $NO_x$ emissions from Class I locomotives in the South Coast Air Basin by approximately 40 percent. CARB's current locomotive inventory methodology extrapolates the forecast of South Coast Air Basin emissions to the rest of the state (ignoring the detailed, localized data supplied by each railroad in most years); consequently, this overestimate occurs in CARB's statewide locomotive inventory as well.

As noted above, over the last two years AAR has repeatedly communicated to CARB its concerns regarding the locomotive inventory and has had several detailed technical discussions with CARB to convey these concerns. Specifically, AAR's comments were submitted in writing to CARB on July 22, 2020. That submission was followed by several calls, culminating in a presentation on September 10, 2020, in which AAR presented to CARB a more accurate line-haul locomotive forecast. In addition to the September 10, 2020, presentation, AAR's consultants (CEA) sent several emails and had several calls with CARB explaining rail industry concerns with the inventory.

CARB's Draft SIP and Draft EA fail to accurately portray the baseline of emissions from locomotives and consequently overestimate the reductions (i.e. benefits) that would result from the passage of the proposed In-Use Locomotive Regulation. CARB has failed to fulfill its obligations under CEQA to properly inform the public as to the consequences of its proposed action.

2. CARB Fails to Quantify its Expected Emissions Reductions Resulting from its Request for Increased Federal Regulation of the Rail Industry.

In its Draft SIP, CARB fails to quantify the anticipated emissions reductions associated with more stringent national emissions standards, zero-emission standards for switch locomotives, and changing the regulations governing the remanufacturing of locomotives. Instead, CARB simply lists "NYQ," or "not yet quantified," in its tables of anticipated emissions reductions. This error has not been corrected in its Draft EA, and thus the expected benefits and costs associated with the proposal cannot be accurately quantified.

This lack of quantification is notable and important, particularly because the zero-emission locomotives envisioned by CARB are not commercially ready. While first generation zero-emissions locomotives are now being offered for sale, the technology has not yet been proven to be safe and sufficiently reliable to justify purchase of such an expensive and long-lived asset. The industry is still working to ensure this new technology (both the locomotive and associated charging) functions both commercially and operationally. Several years of field testing are still required before this technology is commercially ready. In any event, the zero-emissions locomotives currently offered are only suitable for yard (switching) use. They are not sufficiently powerful to pull line-haul trains unless they are part of a consist with diesel locomotives. Such a hybrid

approach to line-haul power provides only marginal emissions reductions. Additional research and development is needed before zero-emission line-haul locomotives are commercially available. Moreover, the necessary infrastructure to power zero emissions line-haul locomotives does not exist today—charging and refueling stations will be required across the nation before the rail industry can rely on battery-electric or hydrogen powered line-haul locomotives.

Moreover, approximately 16% and 30% of BNSF's and Union Pacific's (respectively) locomotive fleet is currently in storage or otherwise out of service. Accordingly, demand for new diesel locomotives has fallen to near-zero levels and is not expected to increase for several years. This is particularly true in light of CARB's proposal to ban the use of diesel locomotives decades before the end of these multi-million-dollar assets' useful life. Given these market conditions, CARB's proposal to change federal locomotive regulations is unlikely to lead to foreseeable or creditable emissions reductions.

Further, as explained above, in extreme nonattainment areas for some criteria pollutants, CARB's SIP must provide for reasonable further progress of "at least 3 percent of baseline emissions each year." 42 U.S.C. § 7511a(c)(2)(B)(i), (d), (e). CARB's proposed federal actions, the emissions reductions of which have not been quantified, cannot contribute to the reduction in baseline emissions because the federal actions may not impact railroad operations in California at all. For example, as noted above, zero-emission locomotives (including switchers) are not yet commercially ready. While there are several pilot projects ongoing, commercial viability of zero emissions locomotives is still several years away.

In addition, even if EPA were to eventually promulgate new regulations governing locomotive emissions and remanufacturing of locomotives, the North American rail industry does not operate within a single state's borders. Locomotives move between states and even countries. As such, even if new rules were promulgated, CARB could not attribute any resulting emissions reductions solely to California for the purposes of its SIP. Instead, these reductions would be spread across the United States as the locomotive fleet gradually turned over based on revised regulations. These reductions cannot be credited to California as part of its SIP because there is no way to isolate reductions within the state.

3. CARB fails to quantify the increase in emissions associated with the shift of interstate transportation from rail to truck associated with its proposed In-Use Locomotive rule and proposed changes to Federal locomotive regulations.

In its Draft EA, CARB fails to acknowledge the likelihood (or even the possibility) that its proposed In-Use Locomotive Rule or CARB's proposed changes to federal locomotive regulations will result in increased freight transportation (and especially interstate transportation) by trucks. This mode shift would result from the imposition of increased costs on rail freight transportation associated with CARB's proposals to limit the useful life of locomotives operated in California and CARB's proposed changes to federal locomotive remanufacturing requirements. These two elements of CARB's proposals would impose significant costs on rail freight transportation due to an arbitrary limitation on the effective life of locomotives, while there are no such cost burdens imposed on trucks carrying interstate freight.[11] Even if interstate freight trucks have zero emissions from their engines (setting aside

[11] This outcome is predicted in CARB's Exchange Point study cited above where the costs evaluated were related to increased freight delays and the capital costs of unique California locomotive

the lifecycle emissions associated with the energy required to produce and charge batteries), those trucks will have particulate emissions from brake and tire wear—emissions that are not associated with locomotive operations.

The potential for mode shift is real and is certainly no more speculative than the emission reductions CARB asserts will be associated with the proposed In-Use Locomotive rule and Federal rule changes. At its core, CEQA requires disclosure of potential environmental impacts associated with proposed regulatory actions, and not assertions of potential benefits and dismissal of potential disadvantages as "speculative." CARB's Draft EA fails to satisfy CEQA's requirements by failing to address the potential mode shift associated with the locomotive provisions of the 2022 State Strategy for the California SIP.

### B. CARB's Locomotive Plan Exceeds the Agency's Legal Authority and Thus Cannot Be Lawfully Promulgated.

The Draft EA states that the proposed In-Use Locomotive Regulation "would use mechanisms available under CARB's regulatory authority to accelerate the adoption of advanced, cleaner technologies, and include zero emission technologies, for locomotive operations." Draft EA at 27. However, as AAR (and others) have briefed CARB in the past, the Proposed Rules are subject to preemption under at least the ICC Termination Act of 1995, the Railroad Revitalization and Regulatory Reform Act of 1976, the Locomotive Inspection Act, the Clean Air Act, and EPA regulations. *See* AAR Comments on Draft State Strategy for the State

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maintenance, service, and refueling facilities. The source of the increased costs imposed solely on locomotives—unique California infrastructure requirements or reduced useful life for locomotives—is not relevant to the conclusion that these increased costs will result in a shift of interstate freight transportation from rail to truck.

Implementation Plan submitted to CARB on March 4, 2022. CARB's proposed In-Use Locomotive Regulation is an unlawful state program. As such, CARB should disclose in its EA the risks associated with the challenges to its legal authority and likelihood of the vacatur of these rules by a federal court.

## III. CARB'S CHARACTERIZATION OF FEDERAL REGULATIONS AS A "LOOPHOLE" IS BOTH INACCURATE AND MISLEADING.

In multiple documents and presentations, CARB has referred to the need for EPA to "[a]ddress [the] locomotive remanufacturing loophole." Draft EA at 33. This characterization is both inaccurate and misleading and, by implying that this feature of EPA's lawfully promulgated regulatory scheme was a mistake, misinforms the public regarding the existing regulatory scheme.

Notably, CARB supported EPA's adoption of these regulations, including the provisions it now characterizes as a "loophole." CARB submitted comments on or related to the proposed regulations in 1997, 2004, 2006, and 2007. In its 2004 comment, CARB "fully support[ed] the direction that U.S. EPA is taking to control emissions from [locomotives []] in the [Advanced Notice of Proposed Rulemaking on the Control of Emissions of Air Pollution from New Locomotive Engines].[12] A significant portion of that proposed regulation, which was later finalized and promulgated, related to the emissions standards for remanufactured locomotives. At no point during that rulemaking did CARB assert that a limit should be imposed on the

[12] Letter from Alan C. Lloyd, Ph.D., Chairman, Air Resources Board, to Margo T. Oge, Director, Office of Transportation, US EPA (Aug. 26, 2004).

number of times a particular locomotive can be remanufactured. For CARB to now refer to this federal program as a "loophole" is disingenuous at best.

EPA has promulgated nationwide regulations governing the lifespan of locomotives and has expressly prohibited states from promulgating their own conflicting regulations. In CAA section 209(e), Congress preempted state and local governments from adopting or enforcing "any standard or other requirement relating to the control of emissions from . . . new locomotives or new engines used in locomotives." 42 U.S.C. § 7543(e)(1)(B). EPA defines "new locomotive" as a "locomotive or locomotive engine which has been remanufactured" that was built after January 1, 1973. 40 C.F.R. § 92.2 (emphasis added). Because EPA's regulations address not only newly built, but also remanufactured engines, they establish the national standards with respect to the lifecycle and emissions requirements for locomotives operating in the United States.

CARB, acknowledging its lack of legal authority to impose different standards on its own, characterizes these lawfully promulgated federal regulations as a "loophole." In its Draft EA, CARB incorrectly states that "[t]he result [of the federal regulations] is continued remanufacturing of old and polluting locomotives to the same pollution tier standards, and persistent pollution from these sources."[13] This is plainly incorrect. In fact, EPA regulations require that when a tier 0, 1, or 2 locomotive is first remanufactured it must be upgraded to meet lower emission rates. For example, a Tier 0 locomotive must be remanufactured to meet

[13] This is plainly incorrect. In fact, EPA regulations require that when a locomotive is first remanufactured it must be upgraded to meet lower emission rates. For example, a Tier 0 locomotive must be remanufactured to meet Tier 0+ standards, which achieve a 16% reduction in $NO_x$ emissions and a 63% reduction in PM emissions.

Tier 0+ standards, which achieve a 16% reduction in $NO_x$ emissions and a 63% reduction in PM emissions.

CARB contemplates a petition to EPA to close this "loophole" by inventing a novel definition of "useful life" and other provisions that differ from current EPA regulations, thus altering the certification system for all U.S. and Canadian locomotives.

CARB's proposal is a breathtakingly broad request, given the interconnected nature of the U.S. and North American rail network and the federal regulatory framework that exclusively governs it. But describing these regulations as a "loophole" is also inaccurate and misleading. The regulations governing the remanufacture of locomotive engines were originally promulgated in 1998 and revised 2008. 73 Fed. Reg. 37096. As with all lawfully promulgated regulations, EPA published its proposed rule for public comment prior to finalization. In the notice, EPA stated that "[t]he near-term program [] includes new emission limits for existing locomotives and marine diesel engines that apply when they are remanufactured and take effect as soon as certified remanufacture systems are available, as early as 2008." *Id.* Put differently, the regulations governing emissions standards for remanufactured locomotive engines are a central feature of EPA's regulatory regime, not a "loophole."

EPA's approach to remanufactured locomotives makes sense: locomotives have lifecycles that can span many decades. EPA's regulations ensure that remanufactured locomotives meet emissions limits. Contrary to CARB's assertion that the regulations allow older locomotives to be remanufactured and to the "same pollution tier standard," the regulations allow tier 0, 1, and 2 locomotives to be remanufactured to be more efficient with

lower emissions than when first manufactured. For example, remanufacturing a Tier 0 locomotive engine to a Tier 0+ reduces particulate and $NO_x$ emissions by as much as 33 percent. Similar reductions are achieved by remanufacturing many engines.

## IV. CONCLUSION

AAR appreciates this opportunity to comment on CARB's Draft EA. We continue to hope for a return to our fruitful history of meaningful cooperation and communication between CARB Staff, AAR, and its members.

Respectfully submitted,

Theresa L. Romanosky
Assistant General Counsel
Association of American Railroads
tromanosky@aar.org

May 13, 2022

Attachment 7

ASSOCIATION OF AMERICAN RAILROADS

Theresa L. Romanosky
Assistant General Counsel
tromanosky@aar.org
(202) 639-2509

December 13, 2021

Mr. Ajay Mangat
California Air Resources Board
1001 I Street
Sacramento, CA 95814

**Via Electronic Mail**

Dear Mr. Mangat:

I write on behalf of the Association of American Railroads ("AAR") and its member railroads to provide additional information to the California Air Resources Board ("CARB"), as per your email request to Peter Okurowski, AAR's consultant from CEA, dated November 24, 2021.

**Additional Information Requests**

*CARB Request 1: We understand from information previously submitted to CARB that the tier breakdown and number of locomotives BNSF/UP have parked changes regularly. However, is there a mechanism to characterize the number and tier distribution of locomotives that UP and BNSF had parked on average in 2021?*

> AAR Response: Because the number and tier distribution of parked locomotives changes regularly, an average would not be reflective of the number and tier distribution of parked locomotives at any given point in time, nor in the future, and would therefore not be useful.

*CARB Request 1(a): Help us understand how UP/BNSF decide what locomotives operate vs. park.*

> Response: The parked locomotive fleet is mobilized to cover short term demands. Both BNSF and UP prioritize running cleaner, more reliable, and more fuel-efficient units first. However, determining how and when to utilize parked locomotives depends on a number of factors. Considerations include business demands; where the locomotives are needed; and the state of available locomotives in terms of performance, reliability, and maintenance; among others.

*CARB Request 2(a): If we assume "yard jobs" are jobs that take place entirely within the railyard. Are "yard jobs" done by a dedicated set of switchers?*

> Response: No, yard jobs are not done by a dedicated group of switchers.

In general, a dedicated fleet of low- and medium-horsepower locomotives is assigned to each railyard, and those locomotives are used interchangeably for both yard and local jobs depending on which locomotives are available and what is needed.

*CARB Request 2(b): If so, please list all the switchers that operate in CA by railyard that do "yard jobs."*

Response: On November 13, 2019, Gary Rubenstein sent you and Corey Parmer two separate emails (one for UP and one for BNSF) that identified the number of locomotives (expressed as Full Time Equivalent) assigned to individual railyards and used for yard and/or local jobs. The list of specific locomotives used changes regularly (as does the number of locomotives assigned to a given yard). For example, if a locomotive is scheduled for mandatory maintenance, the locomotive is sent out to the maintenance facility and may be replaced with a different locomotive rather than returning to the same yard.

*CARB Request 3(a): If we assume "local jobs" are short hauls to nearby locations, such as ports or other freight facilities. Are "local jobs" done by another set of locomotives, or are they assigned to whatever locomotive is available?*

Response: Please see our answer to 2(a) above.

*Request 3(b): Please list all the switcher or locomotives that operate in CA as dedicated "local job".*

Response: Please see our answer to 2(b) above.

*CARB Request 4: Do UP and BNSF locomotives directly track NOx and PM engine emissions? If emissions are tracked, would UP and BNSF be willing to provide the data to simplify the reporting concept in the Draft In-Use Locomotive Regulation?*

Response: No, $NO_x$ and PM engine emissions from individual locomotives are not tracked.

*CARB Request 5: Please provide UP/BNSF's future plans for pilot or demonstration of ZE locomotives. For each, please describe the technology types and timing.*

Response: Both BNSF and UP are in the developmental and demonstration phase with respect to the use of battery-electric locomotives.

BNSF and UP gave a presentation to the South Coast Air Quality Management District on September 30, 2021. That presentation is available here. During that presentation, both railroads discussed their commitment to testing and, when commercially viable, incorporating, zero emission equipment including:

- Battery Electric Locomotives;

- Battery Electric Hostlers;
- Hybrid Rubber Tired Gantry Cranes (RTG); and
- Battery Electric Top Picks and Side Loaders.

But, notably, beyond simply being lower emission technology, the railroads explained the need for new technology to be safe, reliable, and cost-effective in a 24/7/365 environment and a preference for working with established domestic OEMs to ensure that the manufacturer can meet customer service requirements and quickly furnish needed parts.

These efforts will continue well into the future. As indicated during the above referenced public presentation, the move to zero emission technology "is a journey, not a sprint" and railroads must ensure that any new technology will be dependable to meet the demands of the global supply chain, of which California and its ports play a central role. Incentive funding is critical in the railroads' ability to continue to test and iterate this technology.

*CARB Request 6: Other locomotive operators such as passenger rail agencies have expressed concern regarding use of ZE locomotives on shared lines. How would UP/BNSF respond to other locomotives operators using ZE locomotives on a shared line?*

Response: AAR needs more information to respond to this question; we are not privy to the expressed concerns you reference.

To be clear, though, although sometimes referred to as "shared lines," in the United States railroad track is privately owned and maintained by private railroads. Other locomotive operators, including other freight railroads and passenger rail agencies, may be granted access to these tracks via commercial contracts and agreements with the owning railroad. All locomotive operators must observe all safety and operational regulations promulgated by the Federal Railroad Administration.

**Additional Request:**

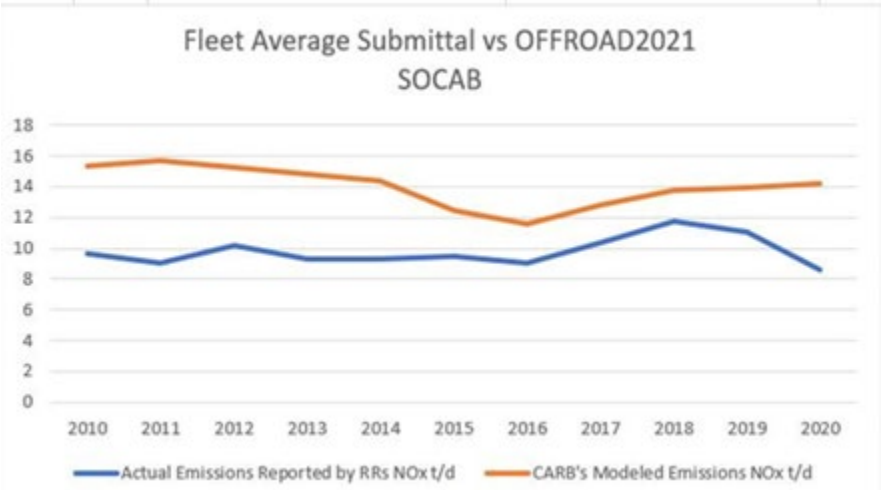
In addition to the above requests, your email also mentioned our analysis of emissions from recent fleet numbers and you asked if we would share it with you. I have summarized below the information we have provided, and the context.

On October 19, 2021, CARB released the latest version of their emission inventory model for offroad equipment (OFFROAD2021). The model can be accessed here: EMFAC (ca.gov). This model is ultimately used for SIP and regulatory development.

OFFROAD2021 reflects the results of CARB's updated switch locomotive and line-haul locomotive models that we have been following for the last two years. As best we can determine, in these models CARB has failed to address any of our concerns regarding

the line-haul forecasting methodology in this latest version of the OFFROAD model. (We did not have significant concerns regarding the switch locomotive model.)

The graphic below compares the NOx emissions predicted in the South Coast Air Basin by OFFROAD2021 for UP and BNSF (Class 1) activities compared with the actual data submitted by the railroads, and accepted by CARB, from 2010 to 2020 pursuant to the Fleet Average Agreement (FAA):

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|---|---|---|---|---|---|---|---|---|---|---|---|
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| **CARB's Modeled NOx Emissions (t/d)** | 15.36 | 15.73 | 15.25 | 14.80 | 14.41 | 12.49 | 11.55 | 12.80 | 13.76 | 13.97 | 14.20 |
| **Discrepancy (CARB vs FAA Submissions)** | 59% | 73% | 49% | 59% | 54% | 31% | 27% | 24% | 17% | 26% | 65% |

As you can see from the data above, CARB has consistently, and continues, to overestimate $NO_x$ emissions from Class I locomotives in the SoCAB. CARB's current locomotive inventory methodology extrapolates their forecast of SoCAB emissions to the rest of the state (ignoring the detailed, localized GTM data supplied by each railroad in most years); consequently, this overestimate occurs in CARB's statewide locomotive inventory as well.

We have relayed to CARB our concerns regarding the locomotive inventory and have had several detailed technical discussions to convey our concerns. Our most recent comments were submitted in writing to CARB on July 22, 2020. That submission was followed by several calls, culminating in a presentation on September 10, 2020 where we presented to CARB what we believe to be a more accurate line-haul locomotive forecast.

In addition to the September 10, 2020, presentation, Gary Rubenstein sent several emails and had several calls with CARB explaining our concerns with the inventory. Principal emails included:

- 10/27/2020 – email comments: Cory Parmer, Ajay Mangat, Sam Pournazeri, Michael Benjamin, Kurt Karperos;
- 9/10/2020 – transmittal of our recommended approach for line-haul locomotives: Cory Parmer, Ajay Mangat;
- 9/10/2020 – video call with CARB staff re locomotive inventory methodology: invited participants from CARB included Cory Parmer, Jun Park, Julie Schiffman, Ajay Mangat, Justin Hwang. I believe most participated;
- 8/24/2020 – email comments: Cory Parmer, Ajay Mangat, Sam Pournazeri, Michael Benjamin, Kurt Karperos; and

- 7/22/2020 – written comments on CARB locomotive inventory methodology: Cory Parmer, Ajay Mangat.

CARB's formal release of OFFROAD2021 appears to have closed this issue from CARB's perspective and in the railroads' opinion, has committed CARB to presenting a misleading and inaccurate view of current and past locomotive line-haul emissions.

* * *

I have endeavored to respond to your information requests, and I hope that this supplemental information aids CARB in achieving its regulatory objectives in the most efficient and cost-effective way possible within its legal authority. Please feel free to contact me directly with questions or concerns.

Sincerely,

Theresa Romanosky
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Association of American Railroads
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202-639-2509