November 7, 2022

Honorable Chair Randolph & Board Members
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Submitted to online docket

Re: Adopt a Strong In-Use Locomotive Regulation.

Dear Chair Randolph and Board Members:

The undersigned environmental, environmental justice, health, and labor organizations write in strong support of the California Air Resources Board's (CARB) proposal to adopt an In-Use Locomotive Regulation (Locomotive Rule). For decades, communities across California have been suffering from the deadly impacts of rail pollution. As is evident from Staff's careful analysis, adopting this Locomotive Rule—even without the modifications we recommend—will result in some of the greatest emission reductions for any of CARB's current rulemakings.

This rule will result in close to 400,000 *tons* of NOx reductions from 2024 to 2050, over 3,200 fewer premature deaths, and almost $32 *billion* in health benefits. To put this in perspective, CARB adopting the Locomotive Rule would be the equivalent of the Board

adopting the Advanced Clean Fleets rule, the Off-road rule, the Transportation Refrigeration Unit Phase II rule, and the zero-emission truck useful life program. *Each* of these other rules are critical control measures in CARB's current and upcoming docket. There is no question that this Locomotive Rule is one of the most important, life-saving rules in CARB's docket.

We appreciate Staff's careful, concerted work in developing this rulemaking and ask the Board to swiftly adopt the Locomotive Rule in early 2023.

I. Rail pollution is dangerous to our health.

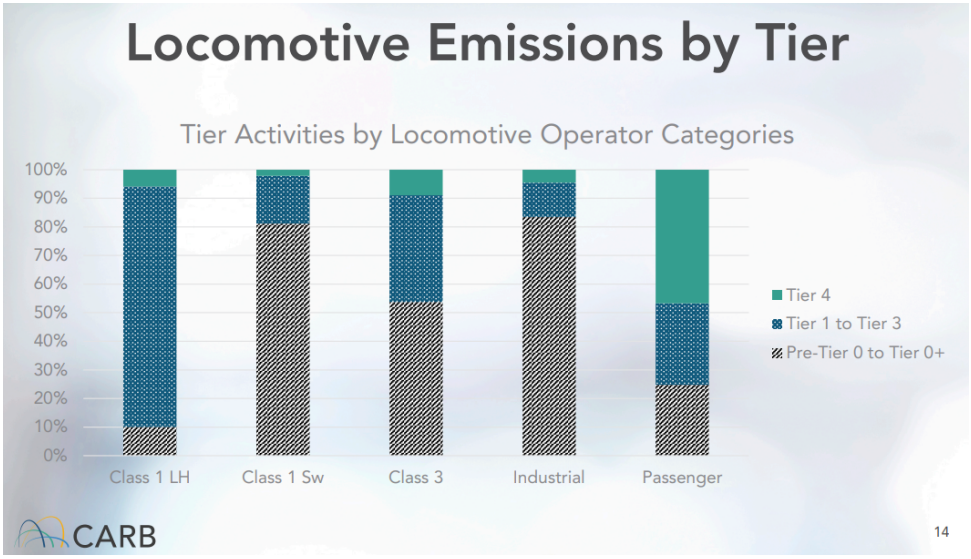
Diesel locomotives, which are the most widely used locomotives in the United States, are responsible for dumping tons of pollution into surrounding communities every day. Rail pollution has significant and long-lasting negative impacts on public health, including increased rates of childhood asthma, lung disease, and premature death. Locomotive emissions are concentrated near ports and railyards and therefore pose significant health effects to neighboring communities. Because of this, as well as decades of racist zoning policies, low-income communities and communities of color often suffer the most from the locomotive industry's life-threatening pollution because railyards and ports are typically located in or near these communities.

Yet, there have been no rail regulations adopted in over a decade at the federal, state, or local levels. The most recent regulation was an updated emission standard for locomotives that the U.S. Environmental Protection Agency (EPA) issued 14 years ago. But the technology has changed dramatically since then, and we are in dire need of updated standards that reflect this. We know from experience that voluntary measures rarely go far enough to clean up pollution. A regulatory framework is needed. The voluntary measures promised over the last 25 years in California show that these do not go far enough to clean up pollution. Indeed, the CARB 1998 MOU with the two Class I railroads that operate in California—Union Pacific (UP) and Burlington Northern Santa Fe railroad (BNSF)—promised Tier 2-average NOx emissions through the South Coast Air Basin by 2010. Likewise, a 2005 Statewide Railyard Agreement promoted early use of low-sulfur diesel in locomotives and established a statewide idle-reduction program. These voluntary agreements have not been sufficient to meet the clean air needs of California and have allowed a slew of polluting trains to continue operating across our state.

The development of Tier 4 locomotives—which can control 90 percent of NOx and 95 percent of PM compared to pre-Tier 0 trains—brought the hope that rail pollution would be on a downward trajectory. Yet, Tier 4 penetration levels remain abysmal. Today, less than 10% of freight and industrial locomotives in California are Tier 4. On top of this, as the chart below confirms, Class 1 switchers, which operate in railyards located in communities, consist almost entirely of the *most* polluting trains available. A shocking 80 percent of switchers are pre-Tier 0 and Tier 0 locomotives.

It is clear from this history that waiting for the railroad industry to regulate itself will not bring about the clean-up communities have so desperately needed for decades. We need regulations that will hold operators accountable. This is why our organizations are so pleased

that CARB is taking this leadership in developing a robust Locomotive Rule that will actually clean our air.



II. It is critical that the Board adopt this Locomotive Rule without delay in 2023.

Railyard and locomotive pollution continue to create dire health concerns for communities across the State. Advocates have been demanding that this agency and the federal government clean up this rail pollution for decades. Now that staff have developed a strong Locomotive Rule that balances the need to improve public health swiftly while leaving flexibility for zero-emission locomotive technology to continue to develop, we cannot afford to delay any longer. We urge the Board to adopt the Locomotive Rule expeditiously in 2023.

III. Overall, we strongly support this Locomotive Rule and ask the Board to adopt it.

We strongly support staff's proposal to address emissions from locomotives operating in California. The rule's focus on getting to zero-emissions and in prioritizing cleaning up the most impacted communities first responds directly to what communities have been demanding for so long. Staff's leadership in developing a rule that meets these concerns should be applauded. We recommend three modifications to the proposal in the next section. Other than this, we think the Rule is a very strong one and urge the Board to adopt it swiftly in 2023.

The benefits that will flow from this rule speak for themselves. Staff's proposed Locomotive Rule would result in a huge 63.2 tons per day in Statewide NOx emissions reductions. These are staggering emission levels. Other benefits from the rule include 3,233 fewer premature deaths and 1,486 fewer emergency room visits, almost 600 fewer hospital admissions for respiratory illness and 500 fewer hospital admissions for cardiovascular illness from 2024 to 2050. In total, this rule will result in $32 *billion* in statewide health benefits, and 389,630 tons of NOx reductions, 7,455 tons of PM2.5 reductions, and about 22 million metric tons of GHG reductions.

We support the combination of elements proposed in the regulation, as explained below.

A. In-Use Operational Requirements.

The In-Use Operational Requirements (IUOR) provides that beginning on January 1, 2030, locomotives that are 23 years or older may no longer operate in California, unless the locomotive is ZE or ZE capable, or the primary engine has not exceeded the specified MWh threshold. Likewise, beginning in 2030, all new switcher, passenger, and industrial locomotives built in 2030 or beyond would be required to operate in a ZE configuration when in California. All new line-haul locomotives built in 2035 or beyond would be required to operate in ZE configuration when in California beginning January 1, 2035.

One of the greatest challenges with locomotive pollution remains that there are no requirements for the oldest locomotives to be retired when new technology develops. Instead, locomotive operators remanufacture locomotives for decades—sometimes up to 60 years. This means that some of the oldest, dirtiest locomotives are still operating and do not need to upgrade to cleaner technology. The IUOR component of the rule addresses this critical concern.

We are very supportive of this element. There is one specific modification we would like to see in the IUOR and Spending Account segments of the rule (and wherever else it may apply). Specifically, we ask that all zero-emission requirements for switchers be shifted earlier to begin in 2027, three years earlier than staff's draft proposal. As the Board knows, switcher locomotives move trains in and around railyards. These are consistently the dirtiest locomotives, and they pollute in communities. Unlike line-hauls, switchers do not travel long distances. Therefore, switchers are incredibly well-suited for battery-electric models or to be powered by overhead power lines. Given all these factors, as well as the state of battery-electric and overhead catenary powered switcher technology, the rule should shift up the timeline so that all new switcher locomotive purchases be zero-emissions beginning in 2027. We provide more detail on the many reasons that support this change in the next section. With this modification, we are strongly supportive of the IUOR segment of the rule.

B. Spending Account.

The Spending Account ensures that locomotive operators are preparing for the transition to Tier 4 and zero-emission locomotives and charging infrastructure now. These requirements would begin on or before July 1, 2024.

For each locomotive operated in California, operators would be required to deposit funds into a spending account annually, depending on the locomotive's annual usage in megawatt hours (MWh) and the locomotive's emission factors. Until January 1, 2030, these funds may only be used to rent, purchase, or upgrade to a Tier 4 or zero-emission locomotive. After that date, the funds may only be put toward ZE locomotives, ZE rail equipment, ZE-capable locomotive, or ZE infrastructure. Use of any ZE locomotives, ZE-capable locomotives, ZE rail equipment, or wayside power in California before 2030 would generate a credit that may be used to reduce Spending Account deposit obligations. Additionally, use of a ZE locomotive, ZE rail equipment, ZE-capable locomotive, or wayside power in a disadvantaged community as defined by CalEnviroScreen would accrue double credit.

The Spending Account is a planning tool that will assist railroad operators in preparing for the transition to cleaner equipment. This is an innovative approach that will support the rail industry in preparing over the next several years to meet the needs of community to clean up rail pollution. We are supportive of the Spending Account component of the rule, but we urge the Board to direct staff to make the same key modification regarding switchers. As with the previous section, the rule should shift up the timeline for when all new switcher locomotive purchases must be zero-emissions to 2027.

C. Idling Requirement.

Under the Idling Requirement, locomotives cannot idle in California for more than 30 minutes before the engine must be shut down. Communities have long expressed concerns about extended idling. We support this requirement, and we recommend lowering the threshold to 15 minutes.

D. Recordkeeping & Reporting.

Railroad operators would be required to annually report locomotive operations by California air district, including the annual activity in MWh and the total engine hours operated for each locomotive on a per-air-district basis. As part of this, the idling annual report must disclose the time, date, location, and duration of idling events that exceed 30 minutes and identify whether the locomotive is equipped with an automatic engine stop/start system.

The recordkeeping and reporting component will provide very helpful information to CARB, air districts, and the public regarding exactly where trains are operating in our communities, and this will allow agencies and advocates to identify where the needs for clean up are greatest. We ask that this information be made available to the public so that communities and advocates can also be informed of where this equipment is operating.

E. Alternative Compliance Plan.

Finally, operators could elect to pursue an Alternative Compliance Plan (ACP) instead of complying with the requirements of the Spending Account or the IUOR, or both. In this case, their application must demonstrate that their ACP would achieve the equivalent or greater emissions reductions as would be achieved under the Spending Account or the IUOR sections. CARB has discretion to approve an ACP application if it satisfies these applicable requirements.

While we support this alternative approach, we want to make sure there is transparency for communities adjacent to these rail operations. Staff should clarify how the public will be made aware and engage in any ACP that may be selected.

IV. We recommend three targeted changes to the Locomotive Rule that are feasible and will strengthen staff's proposal.

This draft Locomotive Rule will do a huge amount to clean up railyard and locomotive pollution across California. Even so, we believe that there are three changes that are entirely feasible and will make this rule even stronger. Our three asks are geared toward addressing rail pollution in the most impacted communities. First, we would like the Board to direct staff to

accelerate the zero-emission requirements for switcher locomotives to 2027 instead of 2030. Second, we ask the Board to direct staff to set interim timelines for new zero-emission trains in the IUOR component of the rule. Third, the rule should limit idling times to 15 minutes. These targeted fixes are feasible and will address some important issues for the most impacted communities.

A. Accelerate the zero-emission requirements for switcher locomotives by three years to 2027 (instead of 2030).

Switchers, which move trains within railyards, are some of the most—if not *the* most—polluting locomotives in operation. This is because switchers are often the oldest locomotives that have aged out of long-distance service. They also perform start-and-go operations, which require significant power. The outsized emission levels from switchers are particularly troubling because these are also the trains that consistently operate closest to communities. Moreover, based on CARB's modeling in the ISOR, emissions from locomotives are expected to increase in 2030 before they go down. If the Rule is not accelerated, communities will suffer from even worse rail pollution before it gets better. Therefore, our top priority is bringing switchers to zero-emissions as fast as possible. We ask that the Board direct staff to accelerate the zero-emission requirements for switcher locomotives by three years to 2027, instead of 2030.

A. Switchers are some of the most polluting trains.

The need to electrify switchers as soon as possible is exceedingly clear, as shown from CARB's own analyses. Staff's health analysis in Appendix H to the draft regulation includes a review of a representative Southern California railyard.[1] Southern California's railyards illustrate that switcher emissions contribute a disproportionate share of the overall pollution from locomotives at railyards. Switcher operations accounted for almost 50 percent of the total diesel particulate matter emissions (DPM) from locomotives at the Southern California railyard in 2020. In addition, CARB's Health Risk Assessments for 17 major California railyards, which the agency performed in 2007-2008, corroborate this conclusion. For example, the UP Colton railyard, which is roughly 5 ½ miles in length and 1/3 mile in width, is located just 350 feet from the nearest residential area and just north of a local high school. Locomotive operations at UP Colton accounted for 99 percent of on-site DPM emissions, of which 62 percent were from switchers. Likewise, at UP ICTF/Dolores railyard, switchers account for 57 percent of DPM emissions from locomotives.[2]

B. Battery-electric switchers are available today.

Zero-emission switcher technology is feasible today and more is developing quickly. Two zero-emission options are available for switcher locomotives: battery-electric and locomotives powered by overhead catenary systems (OCS). Battery-electric locomotives are

[1] While the health analysis also assesses a Northern California railyard, unfortunately the Northern California example did not separate emissions from line-hauls and switchers.
[2] CARB Health Risk Assessment for the UP Intermodal Container Transfer Facility (ICTF) and Dolores Railyard (April 22, 2008), at 10.

particularly well-suited for switcher operations in railyards. These locomotives are powered by on-board batteries that provide energy to the motor and replace the train's diesel engine. Battery-electric locomotives are also uniquely able to take advantage of regenerative braking, which allows the train to capture enormous amounts of otherwise wasted energy from braking a large, heavy load traveling at high speeds. Important advances in battery-electric locomotive technology, rapidly declining costs of batteries, and increasing availability of fast charging show that the technology is ready for a mandatory transition to zero-emissions. In fact, lead researchers find that battery-electric freight trains can achieve cost parity with diesel trains today.[3]

There are already battery-electric switcher models being ordered today. Progress Rail's EMD Joule Switcher has up to 3,000 horsepower, and a run-time of up to 24 hours, depending on charging and utilization.[4] Also, the new GP9-based battery electric switcher, developed by Alternative Motive Power Systems (AMPS) Traction is a 250,000 pound unit and produces 1,700 gross horsepower and 80,000 pound dispatch.[5] In addition to being zero-emissions, the AMPS Traction switcher also has half the fuel costs of a comparative diesel engine. Newburgh and South Shore Railroad purchased an order for service in Ohio on March 2, 2022.[6] Wabtec and Rio Tinto announced an order for four FLXdrive battery-electric locomotives to support their mining operations in Western Australia.[7] Wabtec will deliver the battery-electric locomotives in 2023. These are just some examples of battery-electric locomotives available for order today. By 2027, there will certainly be more models available for order.

C. OCS switchers are also available today.

Locomotives powered by electricity via an overhead catenary system are very well-established around the world and offer a tidy solution for cleaning up railyard operations. In fact, this technology is not even new—about one-quarter of the world's rail lines are electrified by OCS.[8] Power lines located along the railway deliver electricity directly to the train's electric motor via a contact system on the locomotive. These trains are incredibly efficient. While diesel-

[3] Amol Phadke, et al. Big Batteries on Wheels: Converting Diesel Trains to Battery Electric Can Provide Significant Economic, Environmental, and Grid Resilience Benefits (Jan. 2021), https://assets.researchsquare.com/files/rs-142022/v1_stamped.pdf.
[4] Progress Rail, EMD Joule Battery Locomotive, https://www.progressrail.com/en/Segments/RollingStock/Locomotives/FreightLocomotives/EMDJoule.html.
[5] RailFreight.com, Meet the AMPS all-battery electric locomotive (March 15, 2022), https://www.railfreight.com/rolling-stock/2022/03/15/meet-the-amps-all-battery-electric-locomotive/?gdpr=accept.
[6] Marybeth Luczak, NSR Acquires Battery-Electric Switcher (March 3, 2022), https://www.railwayage.com/mechanical/locomotives/nsr-acquires-battery-electric-switcher/
[7] Wabtec Corporation, Rio Tinto Orders Wabtec FLXdrive Battery Locomotives to Reduce Emissions (Jan. 10, 2022) https://www.wabteccorp.com/newsroom/press-releases/rio-tinto-orders-wabtec-flxdrive-battery-locomotives-to-reduce-emissions.
[8] Brian Yanity, The Need for Freight Rail Electrification in Southern California (May 2018) at 16, http://calelectricrail.org/wp-content/uploads/2018/05/BYanity-SoCal-freight-rail-electrification-13May2018.pdf.

powered trains transfer about 30-35 percent of the energy generated by combustion to the wheels, overhead powerlines transfer an incredible 95 percent of the electricity to the wheels.[9]

OCS locomotives are also the highest-powered locomotives in the world, and capable of carrying the heaviest loads. All-electric *line-haul* locomotives in China, Russia, South Africa, and Australia carry some of the heaviest hauls in the world. In fact, the world's highest-powered locomotive is an electric overhead catenary coal train in China with 28,800 horsepower—almost five times as powerful as the average American line-haul.[10] Similarly, South African catenary locomotives carry iron ore in excess of 40,000 metric tons, which is more than double the weight of a typical line-haul in the United States.[11]

We continually hear from railroad lobbyists and some regulators that OCS locomotives are off the table because adopting this technology would entail too significant of a system overhaul. We disagree. Not only are OCS locomotives capable of carrying the heaviest loads, but this is also some of the most trusted, well-developed locomotive technology out there. Moreover, any critique of OCS locomotives quickly falls apart when considering railyard-confined switcher locomotives. Indeed, switchers are operating in a small radius. They do not travel long distances like line-hauls. So there is no reason why they could not easily connect to overhead power lines for electricity. On top of this, there are overhead catenary lines that accommodate double-stacked intermodal trains.[12] We strongly urge the Board to recognize OCS switchers as a feasible zero-emission locomotive option. This technology is decades-old, used around the world, and therefore incredibly well-developed. Switcher locomotives using overhead power should be part of the shift to zero-emission switchers by 2027.

D. Electric freight trains offer cost savings.

Electrifying our freight locomotive system also offers attractive cost savings over operating traditional diesel locomotives. Advances in battery energy density translate to lighter, energy-packed battery packs that can carry a battery-electric locomotive very long distances.[13] Indeed, a single typical boxcar can hold a 14-MWh battery and inverter capable of delivering

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[9] EESI, Electrification of U.S. Railways: Pie in the Sky, or Realistic Goal? (May 30, 2018), https://www.eesi.org/articles/view/electrification-of-u.s.-railways-pie-in-the-sky-or-realistic-goal.
[10] Oliver Cuenca, CRRC Zhuzhou unveils 28.8MW electric freight locomotive (Aug. 4, 2020) https://www.railjournal.com/locomotives/crrc-zhuzhou-unveils-28-8mw-electric-freight-locomotive/; Brian Yanity, The Need for Freight Rail Electrification in Southern California (May 2018) at 21, http://calelectricrail.org/wp-content/uploads/2018/05/BYanity-SoCal-freight-rail-electrification-13May2018.pdf.
[11] Brian Yanity, The Need for Freight Rail Electrification in Southern California (May 2018) at 19, http://calelectricrail.org/wp-content/uploads/2018/05/BYanity-SoCal-freight-rail-electrification-13May2018.pdf.
[12] Oliver Cuenca, Indian Railways Launches Electric Double-Stack Container Operation (June 16, 2020), https://www.railjournal.com/freight/indian-railways-launches-electric-double-stack-container-operation/.
[13] Amol Phadke, et al. Big Batteries on Wheels: Converting Diesel Trains to Battery Electric Can Provide Significant Economic, Environmental, and Grid Resilience Benefits (Jan. 2021), https://assets.researchsquare.com/files/rs-142022/v1_stamped.pdf.

enormous range.[14] In fact, a typical diesel line-haul retrofitted with this technology is capable of travelling an impressive 450 miles—three times the average daily distance for a freight train in the United States.[15] Even with the added weight of the battery car, all-electric drives are far more efficient than diesel trains, and can travel these long distances at cost parity with diesel, assuming electricity charging costs of 0.06$/kWh.[16]

As the size and capacity of battery packs continue to grow, their costs rapidly decline, outpacing even expert predictions. In 2010, battery packs cost $1,000 per kWh, and many assumed it might take until 2030 to reach battery pack prices around $200/kWh. But instead, between 2010 and 2020, battery energy densities tripled and battery pack prices declined 87 percent.[17] The actual average cost in 2020 blew past estimates to $137/kWh, with some battery packs pricing less than $100/kWh.[18] Now, average costs of $100/kWh are expected as early as 2023, and the new estimate for battery prices in 2030 is $50/kWh.[19]

At the same time, commercial, high-capacity fast charging is increasingly available, which allows battery-powered locomotives to travel longer distances. This rise in fast chargers also allows railroads to have more flexibility in determining their routes without having to necessarily return to a single base to charge, and it adds the option of quickly charging locomotives during operational hours. All of this is to say that the costs of operating a battery-electric locomotive are already, and will continue to, rapidly decline.

The need to clean up railyard pollution is one of the greatest priorities for our organizations, and we know many Board members and staff share this priority. We cannot afford to delay cleaning up switcher trains. We ask the Board to accelerate the zero-emission requirements for switchers to 2027, because the technology is available today.

B. Include interim timelines for new zero-emission locomotives.

We ask the Board to direct staff to set interim timelines for the IUOR component of the rule. Setting at least one intermediate date has the twin benefits of allowing operators to ease into this transition and kickstarting manufacturers to ramp up production of zero-emission trains. An appropriate timeline would require 50 percent of all new switchers to be zero-emissions by 2025, and 50 percent of all new line-hauls to be zero-emissions by 2030. ZE switcher technology is already available, as described above. OCS line-hauls are also widely available around the world, and the 2030 timeline would still give manufacturers seven years after the rule's adoption to fine tune this technology. Also, because this requirement is only tied to new locomotives, it offers flexibility for operators to decide whether to wait before purchasing a new locomotive. This

[14] *Id.*
[15] *Id.*
[16] *Id.*
[17] Kyle Field, BloombergNEF: Lithium-Ion Battery Cell Densities Have Almost Tripled Since 2010 (Feb. 19, 2020) *CleanTechnica*, https://cleantechnica.com/2020/02/19/bloombergnef-lithium-ion-battery-cell-densities-have-almost-tripled-since-2010/.
[18] BNEF 2020 Battery Price Survey (Dec. 16, 2020), https://about.bnef.com/blog/battery-pack-prices-cited-below-100-kwh-for-the-first-time-in-2020-while-market-average-sits-at-137-kwh/.
[19] *Id.*

timeline is appropriate, but we would also welcome the Board directing staff to determine the dates that can meet these goals, based on staff's analyses.

C. Set 15-minute idling requirement.

We recommend lowering the idling threshold from 30 to 15 minutes. Pollution from idling trains has a severe negative impact on nearby communities. Reducing the idling limit is feasible since the regulations provide exemptions to prevent engine damage or for maintenance. This idling limit reduction will do a lot to clean the air for people when they are in their homes and at work. Also, there should be no tolerance for locomotives to idle outside of the most sensitive receptors, such as schools. Locomotives should not be permitted to idle outside of a school at any point.

V. CARB has legal authority to adopt this Locomotive Regulation.

This Locomotive Rule fits squarely within CARB's authority to protect the public from the harmful effects of air pollution and to fight climate change by regulating mobile sources. CARB has legal authority to adopt this Locomotive Rule pursuant to its duty to meet the ambient air quality standards under the federal Clean Air Act.

A. California needs to regulate rail pollution to meet its obligations under the federal Clean Air Act.

Under the federal Clean Air Act, states are required to establish plans to meet EPA's federal air quality standards, or National Ambient Air Quality Standards (NAAQS).[20] When an area is in "nonattainment" of a standard, such as ozone or particulate matter, the state must develop a comprehensive State Implementation Plan (SIP) describing how it will achieve that standard.[21] California is home to some of the most polluted air basins in the country. Two of California's airsheds—the South Coast Air Basin and the San Joaquin Valley Air Pollution Control District—suffer from some of the highest levels of ozone and PM2.5 levels in the country. California has a federal obligation to show how these regions will attain the NAAQS,[22] and this is nearly impossible without addressing the pollution from locomotives.

Locomotive pollution is expected to make up about 14 percent of California's NOx inventory and 16 percent of the state's PM2.5 inventory in 2030. This is a staggering proportion of California's total pollution. Indeed, staff's proposed Locomotive Rule would result in a huge 63.2 tons per day in Statewide NOx emissions reductions. There is no other rule in CARB's docket that comes close to achieving these emission reductions. Moreover, in the absence of federal action, CARB has little choice but to take action to reduce locomotive pollution to have a shot at satisfying its federal SIP obligations. EPA has not suggested that it has plans to take such action. In fact, it has been more than five years since CARB petitioned EPA to promulgate a long overdue, more stringent Tier 5 emission standard. Five years later, EPA has taken no such action.

[20] 42 U.S.C. §§ 7407(a), 7408(a), 7410(a).
[21] *Id.* §§ 7407(d)(1)(A), 7410(a), 7501(2).
[22] *Id.* § 7410(a).

It is difficult to imagine where else CARB could recover this amount of emission reductions, with technology that is already available today, if not from locomotives.

In sum, in order for CARB to meet its obligations under the federal Clean Air Act, it must clean up rail pollution in California. We strongly support the CARB Board approving the 2022 Draft SIP Strategy, which includes staff's proposed Locomotive Rule.

B. CARB is authorized to regulate locomotive pollution in the way proposed in this rule.

Contrary to claims made by the Association of American Railroads (AAR), CARB has authority to regulate rail pollution in the way proposed here. This Locomotive Rule is permissible under federal law.

While the Interstate Commerce Commission Termination Act (ICCTA) provides that the Surface Transportation Board (STB) has exclusive jurisdiction over the economic regulation of railroad operations,[23] local and state agencies may adopt a regulation affecting rail operations so long as the rule is 'harmonized' with ICCTA or is a rule of general applicability that does not discriminate against railroad transportation. This Locomotive Rule survives preemption under the harmonization pathway.

The purpose of the harmonization analysis is to determine if two federal regulatory schemes may coexist.[24] Unless an irreconcilable conflict exists between the laws, there is a strong presumption that a rule that has the force and effect of federal law may be harmonized with ICCTA.[25] Indeed, if two federal statutes are "capable of coexistence," they "should be harmonized," according to the Surface Transportation Board.[26] Therefore, unless there is "clearly expressed congressional intent" that ICCTA preempts the federal Clean Air Act, there is a strong presumption that the laws may coexist.[27] Congress' intent on this must "specifically address" the conflict—it should be "clear and manifest."[28] As the Supreme Court has explained, "[w]hen confronted with two Acts of Congress allegedly touching on the same topic, this Court is not at 'liberty to pick and choose among congressional enactments' and must instead strive 'to give

[23] 49 U.S.C. § 10501(b).
[24] *Joint Petition for Declaratory Order-Boston & Maine Corp. and Town of Ayer*, 2001 WL 458685, at n.28 (May 1, 2001).
[25] *Joint Petition for Declaratory Ord.-Bos. & Maine Corp. & Town of Ayer, Ma*, 5 S.T.B. 1041 (2001), at *2.
[26] *Joint Petition for Declaratory Order-Boston & Maine Corp. and Town of Ayer*, 2001 WL 458685, at n.28 (quoting *Matsushita Elec. Indus. Co. v. Epstein*, 516 U.S. 367, 381 (1998); *Blanchette v. Conn. Gen. Ins. Corp.*, 419 U.S. 102, 133-34 (1974); *Unocal Corp. v. Kaabipour*, 177 F.3d 755, 769 (9th Cir. 1999).
[27] *Id.*
[28] *Epic Systems Corp. v. Lewis*, 138 S. Ct. 1612, 1624 (2018) (internal quotation and citation omitted).

effect to both.'"[29] This puts a "heavy burden" on the party seeking to show that the federal statutes cannot be harmonized.[30]

The harmonization analysis between ICCTA and a federal environmental statute should also weigh the "severity of the likely environmental impacts . . . against the severity of the transportation impacts of compliance" to determine whether the statute or regulation unreasonably interferes with rail operations.[31] This is a case- and fact-specific determination.[32] All the objective effects should be considered to determine whether the regulation "unduly burdens or unreasonably interferes with interstate commerce."[33]

Here, CARB approved the Locomotive Rule in its 2022 Draft SIP Strategy on September 22, 2022.[34] Once EPA approves California's 2022 SIP Strategy, the commitment to adopt the Locomotive Rule will have the force and effect of federal law, creating a presumption of harmonization. While the AAR points to a guidance document released by the STB in 2014 to suggest that the Locomotive Rule is preempted, this is not so. The STB issued a non-binding guidance on this question.[35] In fact, the STB itself stated that it "would be premature" to issue a declaratory order on whether a state or local regulation approved into California's SIP pursuant to the federal Clean Air Act is preempted by ICCTA because that issue was not directly before the STB.[36]

Each of the four components of staff's draft rule survive ICCTA preemption under the harmonization analysis because the environmental impacts significantly outweigh any burden to the railroads. Moreover, this rule does not conflict with any other federal laws, including Clean Air Act Section 209(e)(1), and therefore complies with the Supremacy Clause in the U.S. Constitution.[37] Section 209(e)(1) provides that a state shall not "adopt or attempt to enforce any standard or other requirement relating to the control of emissions from . . . [n]ew locomotives or

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[29] *Id.* (quoting *Morton v. Mancari*, 417 U.S. 535, 551 (1974). *See also*, *e.g.*, *BNSF Railway Co. v. Cal. Dept. of Tax & Fee Admin.*, 904 F.3d 755, 761 (9th Cir. 2018) ("[W]e will not easily conclude that one federal statute preempts another."); *In re Bos. & Me. Corp. & Town of Ayer, Mass.*, No. 33971, 2001 WL 458685, at *6 n.28 (S.T.B. Apr. 30, 2001) ("[I]f two Federal statutes are 'capable of coexistence," the statutes should be harmonized and each should be regarded as effective unless there is a 'positive repugnancy' or an 'irreconcilable conflict' between the laws.").
[30] *Epic Systems Corp. v. Lewis*, 138 S. Ct. 1612, 1624 (2018).
[31] *Joint Petition for Declaratory Ord.-Bos. & Maine Corp. & Town of Ayer, Ma*, 5 S.T.B. 1041 (2001), at *2.
[32] *Id.*
[33] *Id.*
[34] CARB, Proposed 2022 State Strategy for the State Implementation Plan, https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf (Aug. 12, 2022), at 110; CARB, California adopts comprehensive strategy to meet federal ozone standard over next 15 years, https://ww2.arb.ca.gov/news/california-adopts-comprehensive-strategy-meet-federal-ozone-standard-over-next-15-years (Sept. 22, 2022).
[35] *U.S. EPA-Petition for Declaratory Order*, S.T.B. No. FD 35803, 2014 WL 7392860, *1 (Dec. 30, 2014).
[36] *Id.*, at *5.
[37] U.S. Const., amend. VI, § 2.

new engines used in locomotives."[38] None of the components in this rule set emission standards for newly-manufactured and remanufactured locomotives, so the rule does not conflict with this statute.

1. In-Use Operational Requirements.

The IUOR component establishes requirements for locomotives that are 23 years or older to shift out of service in California, unless the locomotive is ZE, ZE capable, or the primary engine has not exceeded the specified MWh threshold. Similarly, beginning in 2030, all new switcher, passenger, and industrial locomotives built in 2030 or beyond must operate in a ZE configuration when in California. All new line-haul locomotives built in 2035 or beyond are required to operate in ZE configuration when in California.

As detailed more above, the draft rule will have tremendous benefits—it will have the *largest* NOx emission reductions of any rule in the state's SIP strategy. From 2024 to 2050, CARB staff estimate the proposed regulation will prevent 3,233 premature mortalities, 1,097 hospital admissions for cardiovascular or respiratory illness, and 1,486 emergency room visits in California alone. The rule will also reduce 7,455 tons of PM2.5, 389,630 tons of NOx, and 21.9 million metric tons of carbon dioxide equivalent of GHGs by 2050 in California. Given the demonstrated cost savings to industry in operating electric trains as previously noted, it is easy for California to demonstrate that the immense life-saving benefits of this rule outweigh the burden imposed on operators.

Moreover, this requirement does not conflict with the prohibition in Section 209(e)(1) or EPA's emission standards. Specifically, Clean Air Act section 209(e)(1) prohibits state standards for new locomotives or engines used in new locomotives. EPA sets emission standards for newly-manufactured and remanufactured locomotives and locomotive engines. In other words, EPA emission standards govern locomotive manufacturers and remanufacturers and apply to all new locomotives. By contrast, the IUOR component applies to *operators* only while they operate in California. The IUOR requires that operators use locomotives that meet certain criteria when they operate in California. This does not conflict with any federal laws.

2. Spending Account.

The Spending Account asks operators to deposit funds into a spending account annually, depending on the locomotive's annual usage and its emission factors. These funds may then be used only to rent, purchase, or upgrade to a Tier 4 or zero-emission locomotive. Railroad operators that have only zero-emission locomotives are not required to put any funds into a Spending Account.

This requirement is not a fee or a tax since it would not be paid to the state or any other entity, and there is no undue burden posed by this component. It is a requirement that railroad operators set aside the funds to purchase, rent, or remanufacture a locomotive to meet the parameters set forth. The environmental benefits from this component outweigh any burden imposed on operators. As noted above, the health and air quality benefits of Tier 4 and ZE

[38] 42 U.S.C. § 7543(e)(1).

locomotives are very significant, especially when compared to emissions from the oldest trains. Moreover, there are no federal regulations that address the same issues as the Spending Account proposed in the draft Locomotive Rule.

Moreover, any burden on operators from either the IUOR or the Spending Account is further reduced by CARB's inclusion of the Alternative Compliance Plan, which allows operators the flexibility to comply with the Locomotive Rule by demonstrating that they will achieve the equivalent or greater emission reductions as under the IUOR and Spending Account.

3. Idling Requirement.

Under the idling requirement, locomotives cannot idle for more than 30 minutes before the engine must be shut down. A locomotive may exceed 30 minutes of idling for the following reasons:

- To prevent engine damage such as to prevent the engine coolant from freezing.
- To maintain air pressure for brakes or starter, or to recharge the locomotive battery.
- To perform necessary maintenance, including necessary passenger rail car/passenger compartment environmental conditioning.
- To otherwise comply with federal or state regulations.
- The locomotive is a ZE locomotive or ZE capable locomotive operating in a ZE configuration.

This requirement does not involve any changes to the design or manufacture/remanufacture of locomotives. Instead, it applies to locomotive operators. Moreover, setting this idling limitation at 30 minutes, or 15 minutes as we recommend, does not unduly burden the railroads. It provides significant benefits to the public and the environment. Locomotives often operate near communities, so the pollution from idling trains has a direct negative impact on people who breathe in the fumes. A time limit on how long these trains may idle will have an outsized benefit to the environment and public that outweighs any burden.

This requirement does not conflict with the federal requirements in 40 C.F.R. § 1033.115(g), which provide that "the stop/start systems [of all new locomotives] must shut off the main locomotive engine(s) after 30 minutes of idling (or less)."[39]

4. Recordkeeping & Reporting.

Under the recordkeeping and reporting requirement, railroad operators must annually report locomotive operations by California air district, including the annual activity in MWh and the total engine hours operated for each locomotive on a per-air-district basis. This will provide very helpful information to CARB, air districts, and the public regarding exactly where trains are operating.

This poses minimal to no burden on operators, and any burden is outweighed by the benefits of this information to our air agencies and the public. Also, currently, there are no

[39] 40 C.F.R. § 1033.115(g)(1).

federal regulations that address the same issues as those outlined in this portion of the rule. So, the proposed requirements for recordkeeping and reporting do not conflict with or duplicate any federal regulations.

VIII. Conclusion.

Our organizations are very appreciative of all the hard work and effort CARB staff have put into developing this life-saving regulation. This rule has been a long time coming and is the result of the agency listening to community, environmental, and health groups over the last decade. We are greatly appreciative of the open dialogue with the agency and believe this has been a critical contributor to the strength of this rule.

The need to address rail pollution in our state is very clear. Indeed, staff's proposal itself speaks to this tremendous need—this draft Locomotive Rule alone would eliminate 63.2 tons per day of pollution across our State. Beyond the significant health benefits on the table, these are emission reductions California simply cannot afford to forego.

We now ask the Board to adopt this rule expeditiously in early 2023. We also ask the Board to direct staff to make targeted modifications to the rule, including shifting up the zero-emission timeline for switchers by three years, adding interim zero-emission timelines, and reducing the idling requirement from 30 to 15 minutes. These small changes are technologically feasible, and address some of the worst pollution that is concentrated in the most impacted communities. We cannot afford to wait any longer for our air to be safe to breathe. Thank you to CARB staff and the Board for your leadership.

Sincerely,

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