

California Air Resources Board

Written Testimony on the In-Use Locomotive Regulation

U.S. House of Representatives

Committee on Transportation and Infrastructure

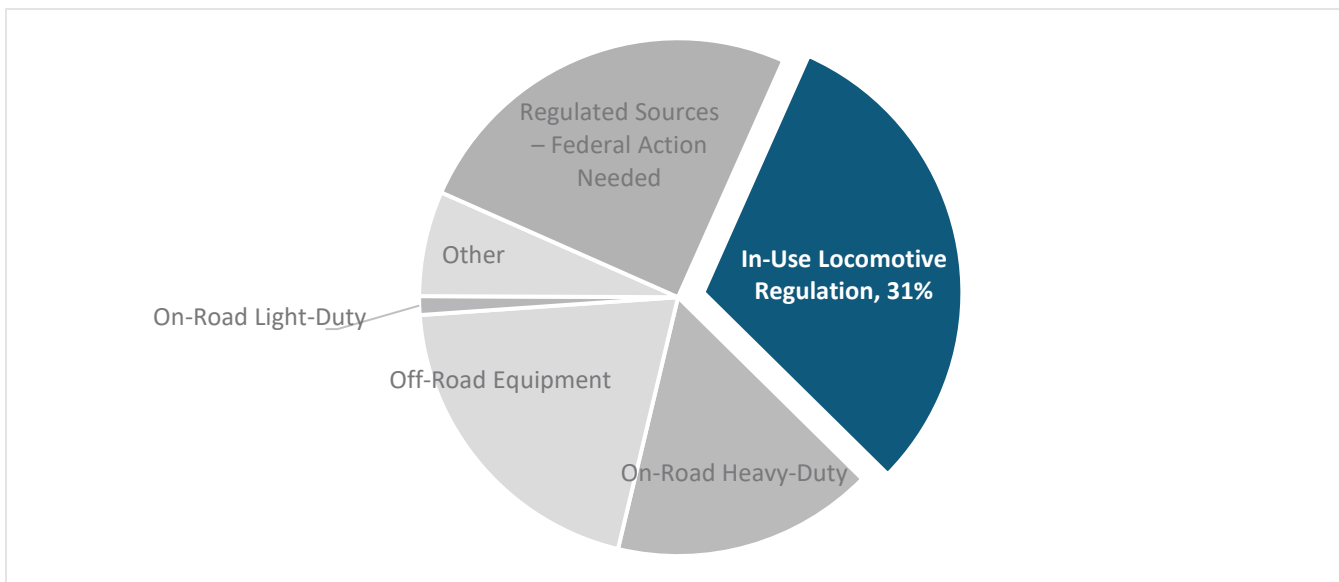
Subcommittee on Railroads, Pipelines, and Hazardous Materials

July 9, 2024. 2:00pm (EST)

Background

Locomotives are one of the largest sources of criteria pollutants in California. Ninety percent of California's railyards are within one mile of vulnerable residential communities already highly impacted by nitrogen oxide (NOx) and toxic diesel particulate matter - of which there is no known safe level of exposure. Reduction of the pollution caused by locomotives operating in the State is critical for California to meet its Clean Air Act obligations. Locomotives represent 31% of the NOx reductions needed in California's State Implementation Plan Strategy to meet attainment under the Clean Air Act for highly polluted air basins such as South Coast and San Joaquin Valley. Locomotives are not entitled to a free pass, and, like other regulated industries, railroads operating in California must reduce emissions that are harming Californians.

Table 1: Statewide Expected Emissions Reductions by 2037 from Proposed SIP Measures¹



Railroad operators in California continue to use – and are increasing use of – some of the oldest and most polluting engines in California. Although Tier 4 locomotives have been available since 2015, railroads have continued to operate locomotives in California with emissions control technology over 20 years old – technology that produces over 80% more emissions than the current U.S. EPA Tier 4 emission standard. Even worse, railroads continue to operate locomotives in California that are up to 50 years old with no emission controls at all. And in the past several years, the average emissions of their locomotive fleets operating in California have been getting worse – not better.

¹ CARB, 2022 State SIP Strategy, September 22, 2022, https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf.

Figure 1: Locomotive Emissions per Tier

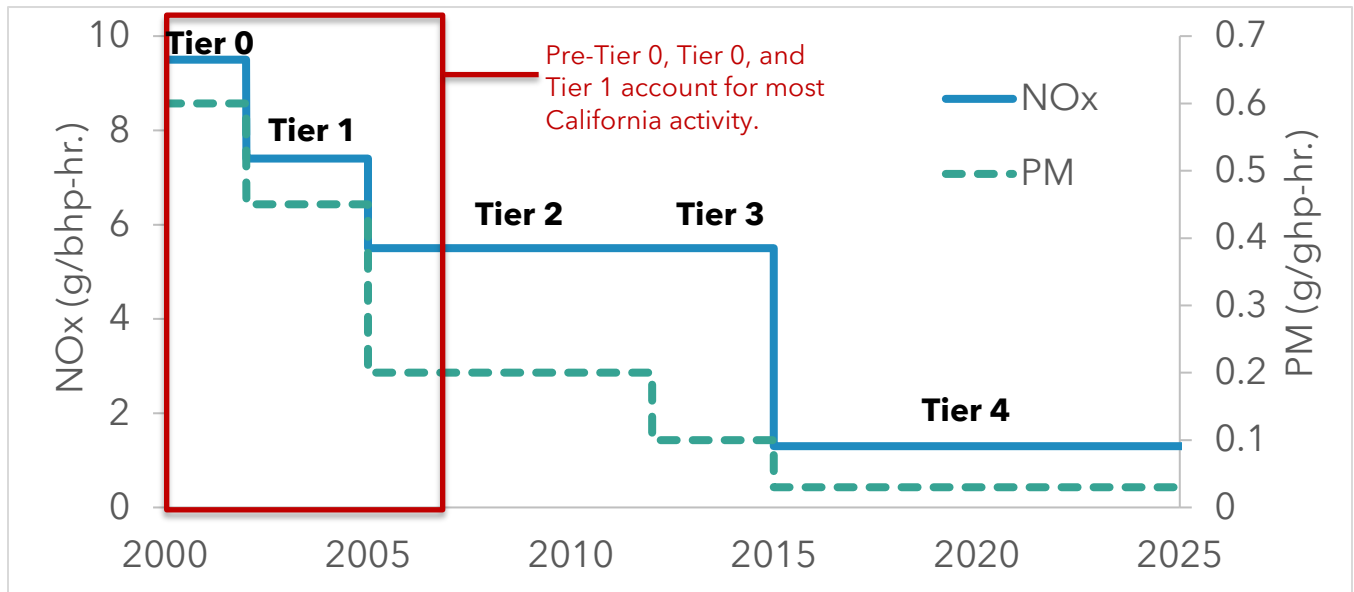
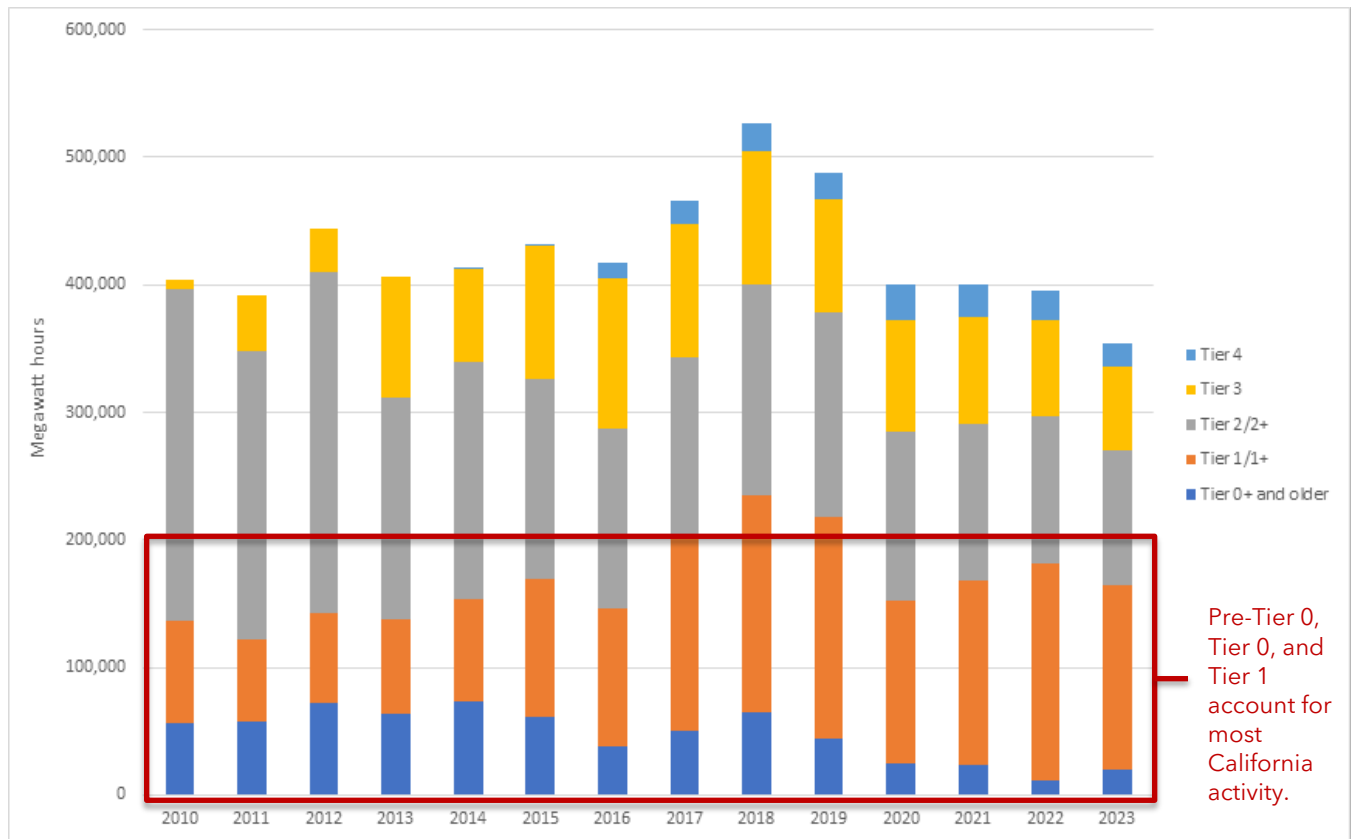


Figure 2: Locomotive Activity in the South Coast Air Basin by Tier



California has been taking robust steps pursuant to the Clean Air Act to reduce emissions from other mobile sources – including heavy duty trucks, passenger cars, off-road

equipment, ships docked in California ports, and more. Locomotives are increasingly the outlier. Today, when comparing the transportation of the same number of shipping containers, locomotives produce more NOx and toxic diesel particulate matter than trucks operating in the State.¹ And soon, locomotives will produce more greenhouse gas emissions than trucks on a per-shipping container basis.

Figure 3: Truck vs. Train NOx Emissions

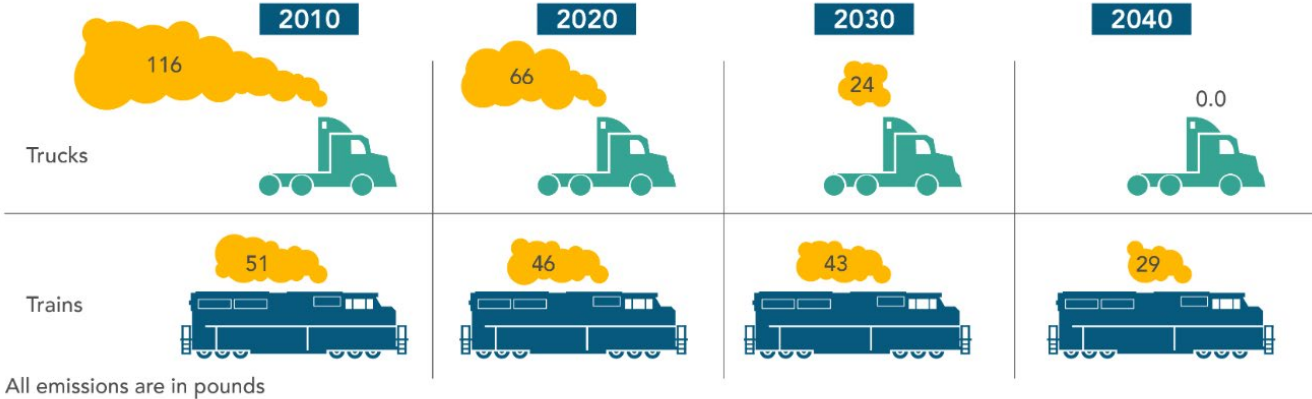


Figure 4: Truck vs. Train PM Emissions

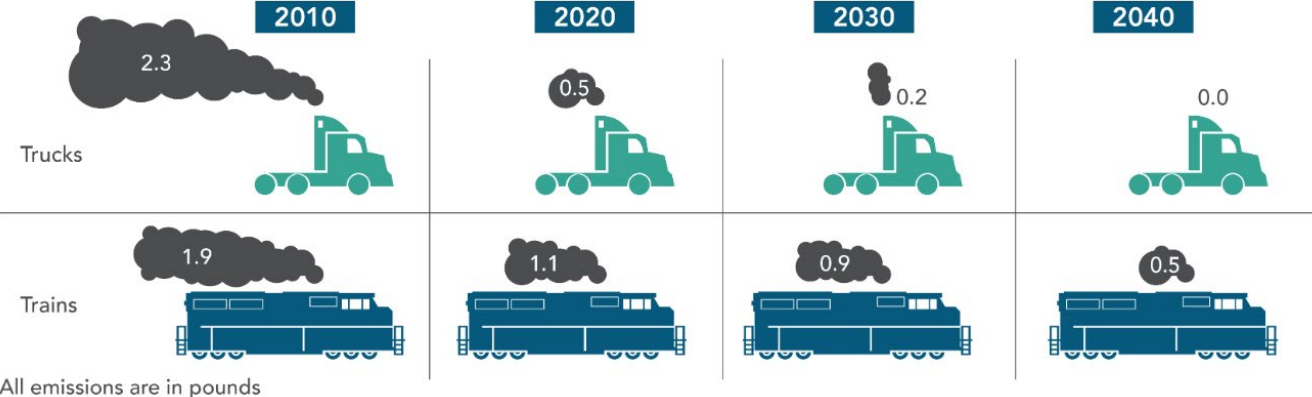
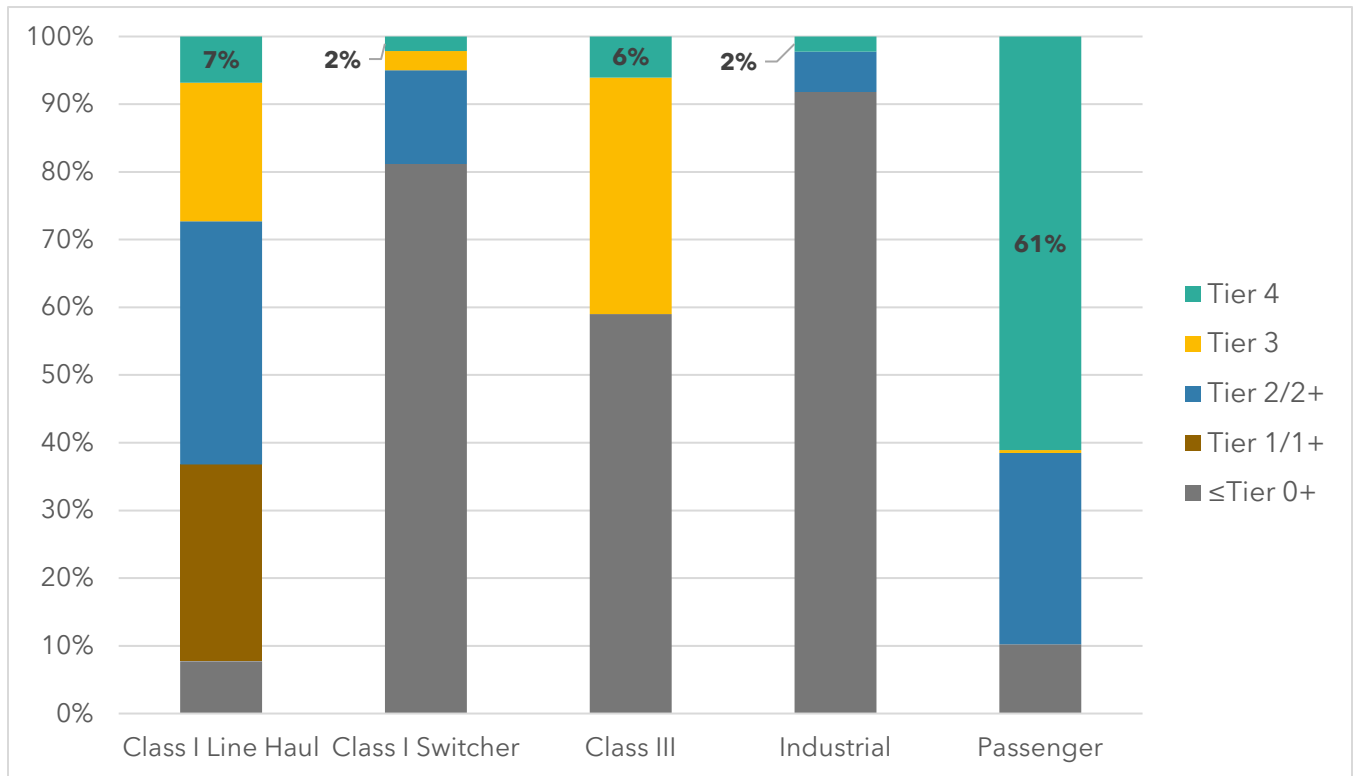


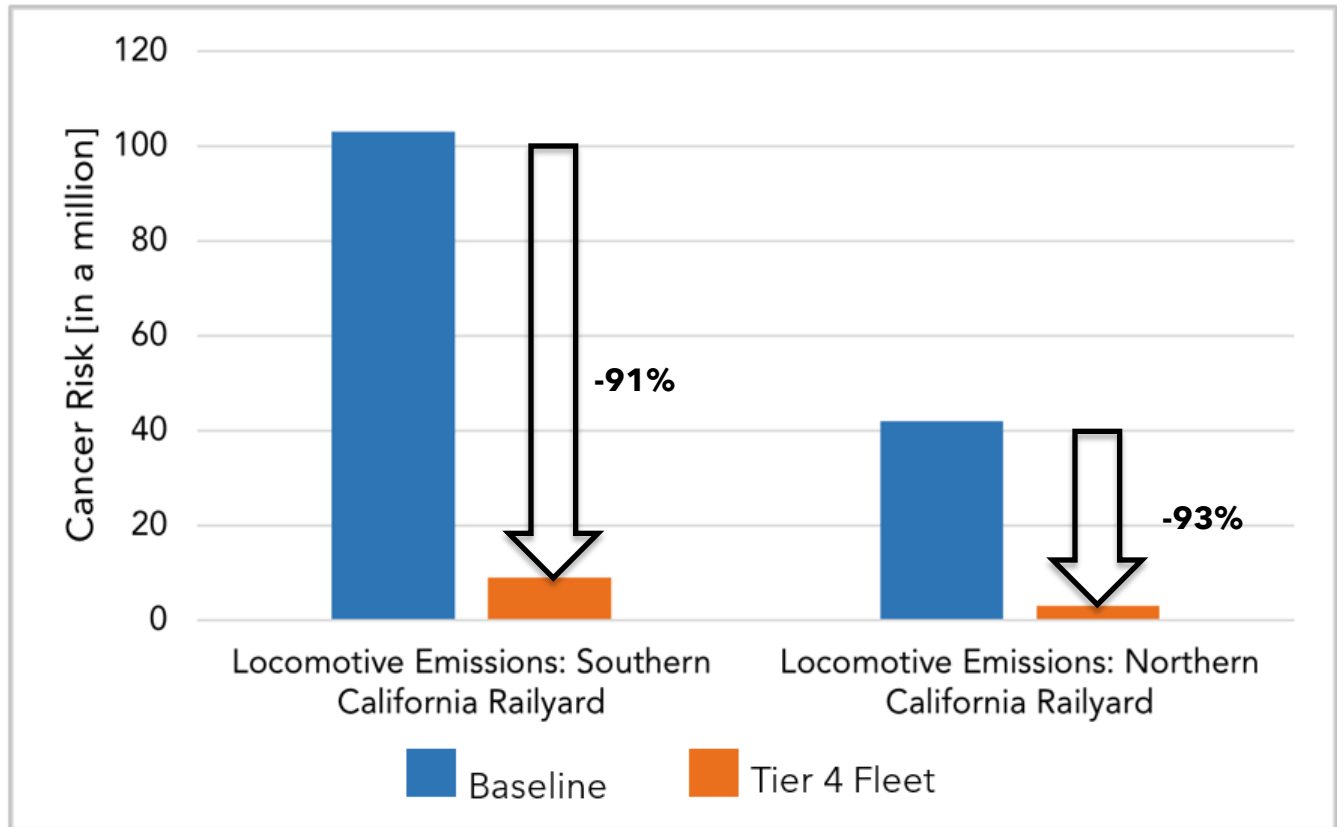
Figure 5: 2024 California Locomotive Activity by Tier



In-Use Locomotive Regulation

In 2023, the California Air Resources Board (CARB) adopted a Locomotive Regulation that is estimated to result in \$32 billion in health savings to Californians by preventing 3,200 premature deaths and 1,500 emergency room visits and hospitalizations. The regulation would also decrease cancer risk from exposure to locomotive emissions by up to 90%.

Figure 6: Cancer Risk Near Railyards²

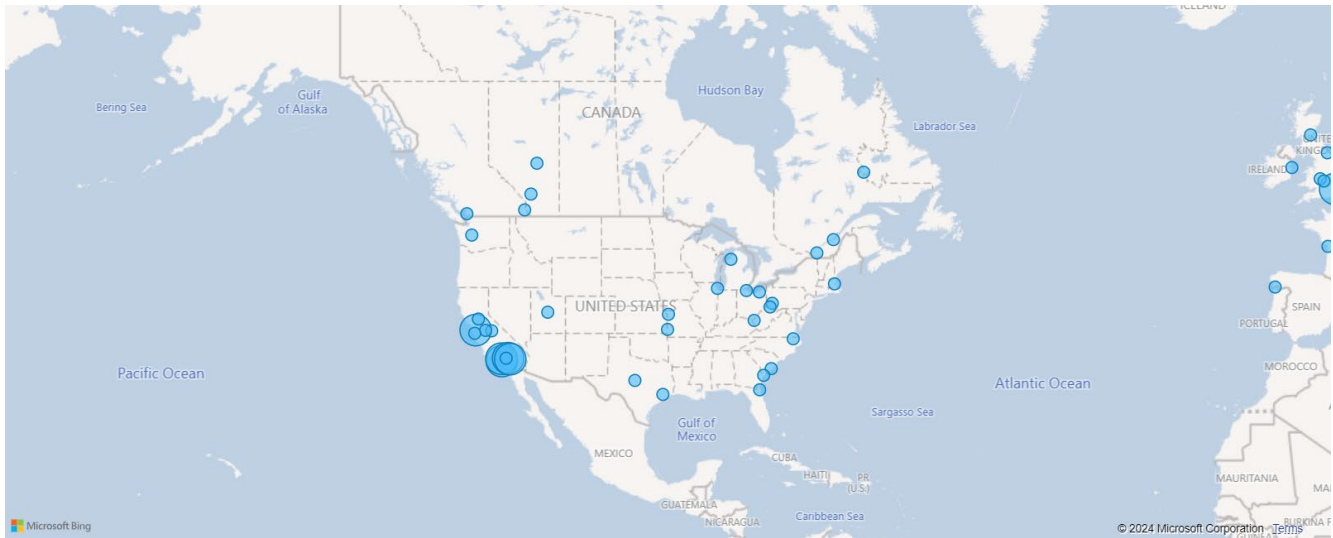


CARB’s Locomotive Regulation follows California’s expressly preserved authority under the Clean Air Act to regulate emissions from locomotives operating in the State. It does not set emission standards on new locomotives. Nor does it mandate the purchase or use of zero emission locomotives. Operators may continue to operate Tier 4 locomotives for decades to come. And because nearly every locomotive operating today runs on fully electric motors and could be powered using a fuel source other than its diesel generators, operators may continue using their existing locomotives by configuring them to run on a zero-emission power source. The regulation allows ample time for emission control technologies to continue to advance and for market efficiencies to put downward pressure on prices.

It is important to note that zero-emission rail transportation is nothing new. Electrified rail is more than 100 years old, and we once had electrified tracks throughout the nation, coast to coast. Advances in battery and hydrogen fuel cell technology have given railroads more options than 100 years ago. It is embarrassing and inexcusable that railroads remain some of the top polluters in the state given all of the tools available to them to do better.

² CARB, Initial Statement of Reasons, Appendix H: Health Analyses for the Proposed In-Use Locomotive Regulation, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/locomotive22/apph.pdf>.

Figure 7: ZE Rail Dashboard - North America ZE Rail Projects³



Conclusion

California's passenger vehicles, heavy-duty trucks, ocean-going vessels, and heavy off-road equipment, among other emissions sectors, are all doing their part. It is past time that the railroads did their part to clean up the air we breathe.

³ The Zero Emission Rail Project Dashboard was developed to view freight and passenger rail projects that utilize different zero-emission technologies in one central location. It also serves to demonstrate the growing number of ZE locomotive projects both in North America and internationally <https://ww2.arb.ca.gov/applications/zero-emission-rail-project-dashboard>.