

**RailPAC**Rail Passenger Association  
of California and NevadaP.O. Box 22344  
San Francisco CA 94122[www.railpac.org](http://www.railpac.org)California Air Resources Board (CARB)  
Board of Directors  
1001 I Street  
Sacramento, CA 95814

November 7, 2022

**Re: Proposed In-Use Locomotive Regulation**

Dear CARB Board of Directors,

I am writing on behalf members of the Rail Passenger Association of California and Nevada (RailPAC) an all-volunteer, 501(c)3, statewide organization that advocates for the improvement of commuter and intercity passenger rail service. I am writing to provide comments on CARB's proposed In-Use Locomotive Regulation.

While our members are supportive of the goal of zero emission motive power, our concern revolves around adopting a strategy and timeline that is counterproductive. Rail transportation is the most energy efficient lowest carbon method of mechanical transportation. Large gains in GHG emissions would be gained with investments that attract riders to the rail mode as opposed to strategies that hinder that shift. So a parallel goal should be part of the equation, strategies (offsets) to reduce GHG by increasing rail ridership.

RailPAC would support a more holistic strategy that recognizes the GHG reduction benefits of maintaining and expanding rail ridership and the embryonic ZEV development in the rail industry. This is preferable to the singular focus on a ZEV transition target which could divert resources from ridership expansion. It also should recognize that new tier 4 diesel locomotives, utilizing 100% renewable fuel, generate very low pollutant levels and have GHG emissions far lower than any rider whose alternative is auto travel. CARB adopted such a broader market reflective approach in its recent automobile rules where the continued sale of plug-in hybrid vehicles was allowed post 2035.

Also of concern is the aggressive inflexible target for the most fuel efficient mode while state and local authorities continue to build additional freeway lanes under the fallacy of congestion relief and emissions reduction. This despite the empirical evidence that additional highway capacity simply diverts riders from transit while generating more VMT, fossil fuel use and increased GHG. Not to mention the GHG generated by the highway construction.

Also unlike auto technology, there has been little in the way of public ZEV research and development funding for the rail mode. Almost all R & D for the rail mode has fallen on the equipment manufacturers. In addition, CARB has failed to leverage an interim near-term achievable technology that could further reduce rail GHG emissions. That technology would convert life-expired diesel locomotives to battery booster units, which added to each train would create a hybrid, providing power from initial charge while

capturing braking energy and dramatically reducing the fuel needed to accelerate from stops. Amtrak is pursuing this strategy, building such units in Sacramento as part of its recent equipment order.

The proposed rulemaking also needs to consider the entire life-cycle GHG emissions of such a proposal. The battery conversion noted above yields GHG savings years ahead of the proposed rule, while repurposing most of the sunk carbon cost represented by the life-expired retired diesels. Premature retirement of recently purchased renewable fueled diesel locomotives and replacing them with new locomotives has a very high carbon and air pollution cost. Included in the analysis should be the GHG generated by the mining and refining of copper, aluminum, turning iron or into steel, energy used in manufacturing and transportation and many other elements. These factors should be included in the analysis and not ignored because they occur outside of California or in third world countries.

While still keeping the goal of zero emissions, RailPAC would recommend a more flexible timeline that reflects that development of proven rail locomotive ZEV options lags behind auto development. During this transition period CARB should fund an accelerated R &D effort in the rail industry, funding "beta" tests of the alternative technologies - hydrogen fuel cell, battery electric and battery electric with segment electrification - in order to provide guidance for the full-scale ZEV implementation.

During this transition period the operators should gain offset credits for investments that further reduce GHG or reduce VMT through initiatives that increase ridership. Some examples of these investments:

1. Complete transition to Tier 4 locomotives;
2. 100% use of renewable fuel;
3. Marketing/Pricing/Service initiatives that increase ridership;
4. Conversion of retired locomotives to battery boosters capturing braking energy and reducing fuel usage during acceleration;
5. Additional double track which would allow more frequencies and faster schedules to increase ridership while allowing "running meets" that eliminate extra fuel usage from accelerating from a stop required by a meet at a siding;
6. Better coordinated schedules to grow ridership by facilitating connecting trips.

Finally, RailPAC sees California pursuing experimental alternatives with undefined "off-budget" fuel source costs, when the proven rail ZEV technology, electrification with catenary, is in use worldwide. It is off the shelf technology. The problem, all of its costs are "on-budget". CARB should work to bring balance to this issue by highlighting the off-budget costs of the production of alternative fuels and grid improvements needed to support the high point demand of central charging facilities.

Thank you for an opportunity to address the Board on this issue.

Sincerely,



Steve Roberts, President Rail Passenger Association of California and Nevada