

August 4, 2020

Clerk's Office
California Air Resources Board
1001 I Street
Sacramento, California 95814

Comments on Community Emissions Reduction Program Staff Reports:

- 1. San Bernardino, Muscoy**
- 2. Wilmington, Carson, West Long Beach**
- 3. East Los Angeles, Boyle Heights, West Commerce**

Dear Members of the Board,

Rail Propulsion Systems (RPS) is a local company based in Fullerton, California which provides *Practical Modernization* retrofit systems for existing locomotives. These include diesel-to-battery conversions to provide electrification options with minimal infrastructure investment. There is a great need for zero-emissions locomotives in California and the across the U.S.

Current Tier 4 diesel locomotives are significantly cleaner than older ones, but they still consume fossil fuels and generate significant pollution levels. These "clean diesel" locomotives emit 6.5 times the NO_x and 30 times the PM emissions of 2010 and newer on-road trucks. Recent studies have shown the health impacts of diesel locomotives to passengers and crew to be significant, and the health impacts of ultrafine particulate emissions (even from a 'clean' diesel) are only beginning to be understood.

The Community Emissions Reduction Plan includes limited discussion of zero-emissions electric locomotive technology. This is compounded by the fact that, aside from brief mention of SCAQMD and the ports funding technology demonstration projects of zero-emissions locomotives, as well as BNSF Railway's technology demonstration projects of zero emission or hybrid technologies, there is no demonstration project of zero-emission locomotives currently underway at the Ports of LA or Long Beach. The Community Emissions Reduction Program Staff Reports do mention briefly that railyards should "work with local utilities to encourage zero-emission infrastructure" and "consider new requirements on locomotives," but no specific language as to how this could be done is provided.

The Community Emissions Reduction Plans and Program Staff Reports should discuss electric rail in more detail. All-electric locomotives have many advantages over diesel locomotives, including being zero-emissions and quieter, and having lower maintenance, and greater overall energy efficiency.

RPS is currently operating a battery-electric locomotive in switching service at a railyard in Anaheim, California. Our company is also building several additional all-electric battery switcher locomotives. Such operation of battery electric switchers within a railyard avoids the operational (locomotive change-out) and range limitations which would make battery operation a challenge for line-haul freight and regional passenger trains. Zero-emissions switcher locomotives can directly replace existing diesel switchers, which are typically the oldest and dirtiest locomotives in a railroad fleet. These dirty locomotives in urban railyard service have a disproportionate impact on neighboring communities, so replacing them with electric switchers would have significant public health benefits.

While it is recognized that federal law limits the ability of CARB and SCAQMD to regulate locomotive emissions and railroad operations, the Community Emissions Reduction Plans should advance freight rail electrification by supporting a pilot project of battery-electric switchers in freight rail yards. CARB's 2019 petition to the U.S.EPA to update emission standards for new and remanufactured locomotives, establishing a cleaner Tier 5 standard for new engines, still only concerns diesel locomotives. What is really needed is a push for electric, zero-emissions locomotives and hybrids that would enable zero-emissions "track miles." Applications such as switchyard locomotives are an ideal opportunity.

In the near future battery-electric locomotives can play an important role in short-haul freight rail service, and commuter passenger service such as Metrolink. There needs to be more federal, state and locally-funded programs that could support zero-emission locomotive research and development (R&D) projects and technology demonstration projects. There are plenty of incentives and R&D programs, at both the state and federal levels, supporting electric cars and trucks. By contrast, public R&D funding opportunities for electric rail technologies are few and far between.

California should be a leader in zero-emissions, electric and hybrid rail technology, and the Community Emissions Reduction Plans should advocate for this technology.

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ian Stewart', with a stylized flourish at the end.

Ian Stewart
President, Rail Propulsion Systems