

Comprehensive Regional Goods Movement Plan and Implementation Strategy

Update on Freight Rail Electrification Study

September 8, 2011

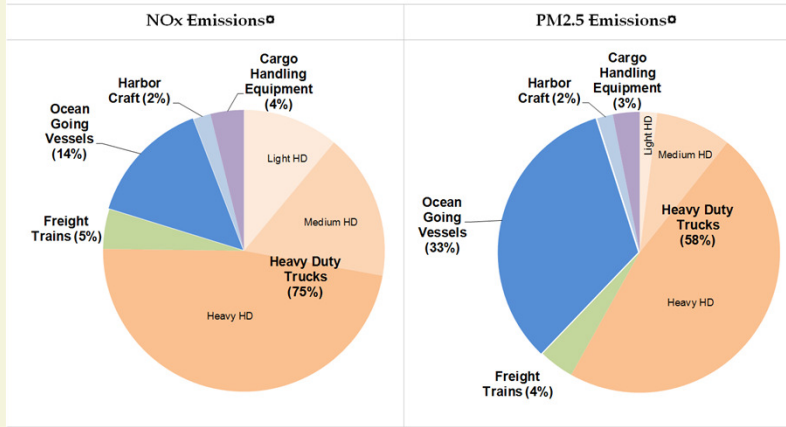
Purpose of Electrification Analysis

- Help determine whether freight rail electrification should continue to be considered as a technology option for emissions reduction;
- Help determine areas where greater analysis is needed to determine feasibility in the long run; and
- Highlight key data gaps where additional research is needed to determine overall benefits/costs of freight rail electrification

Investigate opportunities to reduce rail emissions in the short and long term

Importance of reducing rail emissions

Exhibit 1: Goods Movement NOx and PM2.5 Emissions in SCAB by Source, 2010



- The region is currently in nonattainment for criteria pollutants that impact public health. Freight trains currently emit 5% of total goods movement NOx emissions and 4% of total goods movement PM2.5 emissions

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Electrification Analysis - Overview

- **3 Geographic Options Analyzed:**
 - Alameda Corridor
 - Ports to West Colton/San Bernardino
 - Ports to Barstow/Indio/Chatsworth/San Fernando
- **3 Technologies Analyzed:**
 - Straight-electric locomotives (Overhead Catenary)
 - Dual-mode locomotives (Overhead Catenary)
 - Linear synchronous motor (LSM) technology



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Evaluation Criteria

- **Evaluation criteria used for comparing electrification options:**
 - Technology Readiness
 - Railroad Operations Impacts
 - Total Capital Cost
 - Operations & Maintenance (O&M) Cost Impacts (not calculated except energy costs)
 - Emissions Impacts

Assumptions were vetted through a small working group that included SCAQMD, CARB and California Environmental Associates (representing the railroads.)

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Next Steps

- Finalize analysis and conclusions with the working group and present conclusions to the Steering Committee
- Consider implementation strategies for achieving rail emissions reductions for 2023 and beyond.

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