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

- 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.

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
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.)

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.