Sustainable Freight Technology Assessment: Electric Drayage Trucks

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THE PURPOSE OF THIS STUDY IS TO ASSESS EMISSIONS REDUCTIONS WITH INCREASED ELECTRICITY OF PORT TRUCK OPERATIONS THROUGH THE IMPLEMENTATION OF POTENTIAL DRAYAGE POLICIES

MOTIVATION

In the freight transportation system, ports are the epicenter of container and intermodal freight. Approximately 60% of west coast freight tonnage and 7% of national tonnage go through the Ports of Los Angeles and Long Beach. California has identified the need to reduce the negative impacts of the freight activity, especially near ports, railroads, highways, and other large traffic generators.

APPROACH

- Model drayage truck VMT as a function of TEU volume (Twenty Foot Equivalent Container Unit)
- Construct a reference case projection for VMT and emissions from conventional diesel trucks considering current regulation
- Model two (e)VMT based targets for electrification of drayage trucks
- Consider potential emissions impacts and cost implications

RESULTS

Implementing electrification of drayage trucks reduces emissions through 2035. The cost implications are significant, with increased capital costs for ZEDT trucks being the driver of the overall cost increase. Increased capital costs for ZEDT trucks were the primary driver of the overall cost increase. In addition to higher costs, conservative electrification had little impacts on emissions of GHGs or local contaminants.

OPT = Optimistic
CEC = Conservative

As part of a comprehensive approach, the State has initiated demonstration projects to improve short-haul trucking at maritime ports, and evaluating alternative fuels for drayage trucks. Drayage trucks are essential for the functioning of ports as they facilitate the majority of distribution and intermodal goods transfers.

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