NREL Port Electrification Activities

Feb 2023

Ken Kelly
Chief Engineer - Commercial Vehicle Electrification

Michael Lammert
Senior Research Engineer – Commercial Vehicle Technologies

Jason Lustbader
Group Manager – Advanced Vehicles and Charging Integration

Data Driven Fleet Electrification Process

Step 1 Vehicle Inventory and Fleet Coordination

Step 2 In-use Vehicle Data Collection

Step 3 Duty Cycle Analysis

Step 4 ZEV Technology and Efficient Operations

Fleet DNA

DRIVE

DriveCAT

FASTSim

RouteE

Step 5 Infrastructure Requirements and Charging Strategies

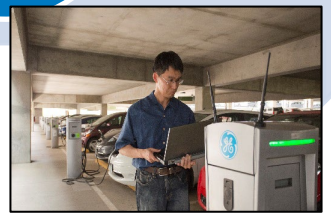
Step 6 Cost of Ownership

Step 7 Detailed Charging Infrastructure Requirements

Step 8 Results / Reporting

EVI-Pro

T3CO



Active, Recent, and Upcoming EV Port & Airport Studies

Ports of Long Beach / Los Angeles

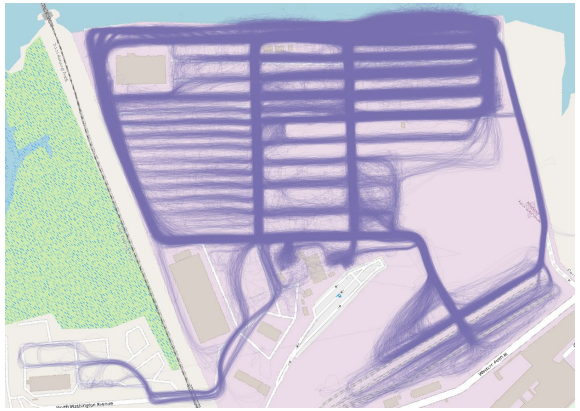
- Zero Emissions Cargo Transport (ZECT 1 and ZECT 2)
- ZEV Blueprint
- Zero and Near Zero Emissions Freight Facilities (ZANZEFF)
    - 10 Kenworth/Toyota Fuel Cell Class 8 Drayage

Port Authority of New York / New Jersey

- Yard Tractor Electrification Study (complete)
- Drayage Electrification Study (complete)

WestSmartEV@Scale - Utah Inland Port

- Data Collection and Analysis – Mountain West & RSD
- Electrification Analysis



Airport Studies

- Dallas Fort-Worth Airport – DFW
    - Athena
    - EV Blueprint
- Metro Washington Airports
    - EV people mover & Ground Support Equipment