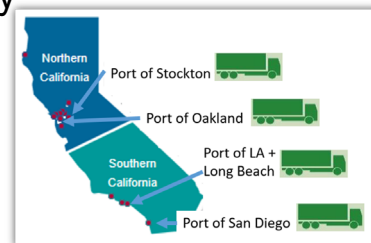


California Collaborative Advanced Technology Drayage Truck Demonstration Project



This project will provide development and commercialization of zero- and near zero-emission trucks by building upon the success of recent truck demonstration projects. Phase 1 deployment included trucks with previously developed technologies, such as Kenworth's CNG range extended plug-in hybrid electric trucks developed under the ZECT 2 program and Volvo's diesel plug-in hybrid electric truck developed under a DOE grant. In Phase 2, OEMs supported larger deployments with various innovations.

Dates: 8/31/2016 – 4/15/2021
Grantee: South Coast AQMD
Partners: Bay Area AQMD, San Diego APCD, San Joaquin Valley APCD, San Diego G&E, BYD, Kenworth, Peterbilt/Transpower, Volvo, University of California Riverside, West Virginia University, LA Metro, multiple demonstration fleets and technology partners
Grant Amount:
 CARB Contribution: \$23,658,500
 Matching Funds: \$16,463,972
 Project Total: \$40,122,472



Vehicles/Equipment Funded

44 pre-commercial Class 8 zero- and near zero-emission drayage trucks and infrastructure will be deployed into fleets:

- 25 BYD battery electric trucks with 100 – 124 mile electric range
- 14 Peterbilt/Transpower battery electric trucks with 100-150 mile electric range
- 2 Kenworth CNG range extended plug-in hybrid electric trucks with a 50 EV & 200 mile HEV range
- 1 Kenworth HFC range extended plug-in hybrid electric truck with a 30 mile EV & 120 mile HEV range
- 3 Volvo diesel plug-in hybrid electric trucks with 30 mile electric/400 mile range

Lessons Learned

- BYD: Need for standardization in OBD interface and charging ports, compatibility issues with Phase 1 truck and vehicle telematics software
- Kenworth: Common Hybrid Vehicle Chassis Design: 2 vehicles in daily operation, 1 inoperable with supplier faults and 1 in test
- Peterbilt: The value in having the OEM as prime and final vehicle manufacturer. Charging rates / infrastructure costs and complexities. Varied duty cycles from drayage to regional haul with 14 operators to learn diversity of range and efficiency.
- Volvo: All-electric range of the PHEV was significantly increased using machine-learning. Connected infrastructure technology (Eco-Drive) can help further reduce energy consumption and in-use emissions on urban freight corridors if it is integrated with driveline and aftertreatment controls

Status Updates

- BYD: All 25 vehicles deployed, in data collection phase
- Peterbilt: Phase 2 vehicles with faster DC charging with CCS 1 connector; Powertrain (eAxle) and energy storage redesign
- Kenworth: Continue to improve vehicle efficiency of hybrid drive train all electric and hybrid electric mode
- Volvo: Continue to improve Eco-Drive concept and validate aftertreatment technologies in preparation for fleet testing this year



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