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 will include trucks with previously developed technologies, such as Kenworth’s CNG range-extended plug-in hybrid electric trucks developed under the SCAQMD/DOE ZECT 2 program and Volvo’s diesel plug-in hybrid electric truck developed under a SCAQMD/DOE grant. In Phase 2, OEMs will support larger deployments with various innovations.

Dates: 8/31/2016 – Spring 2020
Grantee: South Coast Air Quality Management District
Partners: BAAQMD, SDAPCD, SJAPCD, SDG&E, BYD, Peterbilt/Transpower, Kenworth, Volvo, BAE, UC 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
- 12 Peterbilt/Transpower battery electric trucks (12 trucks with 110-150 mile electric range)
- 4 Kenworth CNG range-extended plug-in hybrid electric trucks with 50 mile electric/200 mile range
- 3 Volvo diesel plug-in hybrid electric trucks with 30 mile electric/200 mile range

Featured innovative technologies:
- Peterbilt/Transpower battery design provides increased capacity at same system weight to increase electric range
- Kenworth truck uses Cummins 8.9L ultralow NOx engine certified to .02 g/bhp-hr
- Volvo C-ITS and geofencing merges connected traffic signal data with vehicle dynamics to reduce NOx emissions

Lessons Learned
- BYD: Need for standardization in OBD interface and charging ports, better software management of battery pack
- Kenworth: Battery technology still evolving, chassis design influenced by HECT project
- Volvo: Mini burner aftertreatment is one of several technologies being considered to improve NOx conversion efficiency

Status Updates
- BYD: Will deploy Phase 2 vehicles learning from Phase 1 field demonstration
- Peterbilt: Phase 2 vehicles with faster onboard charging and energy storage redesign
- Kenworth: Continue refining hybrid drive train to operate in all electric and hybrid electric mode
- Volvo: Quantify emission reductions from C-ITS in emission impact study, improve engine control and aftertreatment