Session 3: Sustainable Pathways for Trucking

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South Coast Air Quality Management District
Science & Technology Advancement
South Coast Air Basin

44% Population
South Coast Air Basin

Population: 44%

US Freight Import: 40%
Daily Combined AQI
Saturday, May 17, 2014

Santa Clarita
San Fernando
Simi Valley
Malibu
Los Angeles
Anaheim
Santa Ana
Irvine
Temecula
San Bernardino
Riverside
Chino
Banning

Worst Air Quality in the Nation

Good  Moderate  USG  Unhealthy  Very Unhealthy  Hazardous
Top NOx Sources in the Region

70-90%

- Heavy-Duty Diesel Trucks
- Off-Road Equipment
- Maine Vessels
- RECLAIM (Large Stationary)
- Light-Duty Cars & SUVs
- Locomotives
- Aircraft
- Manufacturing and Industrial
- Heavy-Duty Gasoline Trucks
- Medium-Duty Trucks
- Residential Fuel Combustion
- Other
Technology Demonstration
Clean Fuels Program

- Established in 1988
- $1 fee on DMV registrations ($≈12M/yr)
- Stationary source fee ($≈400k/yr)
- Research, develop, demonstrate, and deploy (RD3) clean technologies

- H&SC Sections 40448.5 and 40512 and Vehicle Code Section 9250.11
Cleaner Transportation

- Potential freight elements:
  - Zero-emission port container transport
  - Zero-emission truck corridors
  - Rail electrification
- Zero Emission Transit Buses
In Oct. 2012, four contractors awarded to develop and demonstrate zero emission drayage trucks with $4.17M DOE grant

- Nine battery electric trucks: Balqon, TransPower, US Hybrid
- Four fuel cell electric trucks: Vision Industries

Vision ceased operation and Balqon withdrew

Potential replacement projects

- Zero emission capable
- Related project experience
- Matching cost-share
- Timely execution
San Pedro Bay Ports FCEV Demonstration

- BAE Systems – develop 1 Class 7 battery electric truck with H2 range extender
- TransPower – develop 2 Class 8 battery electric trucks, one with 30kW FC and one w/60 kW FC
- U.S. Hybrid – develop 2 Class 8 equivalent battery electric trucks with on-board H2 FC generator
Catenary Demonstration Project

• Designed to prove catenary truck concept in real-world drayage operations

• Catenary system
  - One mile length, both directions
  - Pole spacing similar to street lights
  - DC power substation with remote monitoring
  - Small test track and monitoring station

• Four demonstration trucks
  - Volvo Diesel hybrid
  - TransPower CNG hybrid and Battery-electric trucks
  - BAE/Kenworth CNG hybrid truck from ZECT II project
The Catenary Trucks

Electric Truck

System Based on the ElecTruck Platform

Flexible full speed, load, and grade capable class 8 tractor

CNG Hybrid Truck

Catenary versions use half of the ESS

Gen-set located behind cab

Pantograph in retracted position

Gen-set behind cab
• Zero & near-zero emission technologies are needed to meet NAAQS
• Substantial co-benefits
• Our time to act is now
• The future health of our region, nation and planet is up to us

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