Status Update on Current Technology Demonstrations
June 24, 2020

Questions or comments? Chat us or submit via caap@cleanairactionplan.org

Rose Szoke, Port of Long Beach
Jacob Goldberg, Port of Los Angeles
Technology Demonstration Updates at the Ports

- Update on the Ports’ Technology Advancement Program, or TAP
- Port of Long Beach Grant-Funded Technology Demonstrations
- Port of Los Angeles Grant-Funded Technology Demonstrations
- COVID-19 Impacts

www.cleanairactionplan.org
Ports’ Technology Advancement Program Update

- Updated TAP Program Guidelines is available online.
- Includes the new Request for Information and Concept Paper process.
- This is how the Ports will accept and review technology advancement proposals moving forward.
Ports’ Technology Advancement Program Update

- TAP Request for Information (RFI) is available online.
- Concept papers (along with the RFI form) may be submitted at any time online.
- Project concepts that conform to the TAP Program Guidelines will be considered for the next step, which is an invitation to submit a full proposal.

www.cleanairactionplan.org
Ports’ Technology Advancement Program Update

- 2019 TAP Annual Report is available online.
- The TAP Annual Reports highlight technology advancement and progress via TAP, grant-funded demonstrations as well as cost-sharing partnerships.
Technology Advancement Program – New Project

AQMD/MAN Energy Solutions - OGV Water-in-Fuel Demonstration
Centerline (formerly Harley Marine) Electric Drive Tugboat Design

- Final design of the electric drive tugboat completed. The Ports will be closing out the project under the TAP.
- The next phase of the project will be managed under the Port of Long Beach’s START project which is funded by ARB.

Nett Technologies BlueMAX™ NOVA 320e Harbor Craft Demonstration

- Installation of the BlueMAX™ system into Pacific Tugboat’s Bass was completed as of June 2020.
- The next step is to activate the NOx component of the system which will happen when travel restrictions are lifted and the boat comes back for service.
Effenco Active Stop-Start™ Technology Demonstration

- Currently, project team is working with CARB on a path to verification.

AQMD/DOE Zero Emission Cargo Transport Demonstration II (ZECT II)

- Truck project lead by AQMD (under a DOE grant) to develop and demonstrate PHEV, BEV and fuel cell technology with five different manufacturers.
- Out of the seven project trucks, six have been deployed.
- Truck and technology manufacturer partners affected by COVID due to low freight volumes and stay-at-home restrictions.
POLB Grant-Funded Demonstrations - Overview

START PROJECT
CARB $50 MILLION
SSA, Pier C and Shippers Transport
- 33 Electric Yard Tractors
- 1 Electric Top Handler
- 1 NZE Tugboat
- 2 Tier 3 Ships
- 5 Electric Trucks

PAVE PROJECT
CEC $8 MILLION
TTI, Pier T
- 6 Electric Yard Tractors
- 10 Electric Fork Lifts
- Install Electrical Charging Infrastructure and Battery Storage

JCCC MICROGRID PROJECT
CEC $5 MILLION
- Solar Carport (300 kW)
- Install Energy Control Center – Microgrid Controls and Stationary Battery Energy Storage System (330 kW)
- Integrate Microgrid Extending Mobile Battery Energy Storage System (200 kWh)

ZE EQUIPMENT TRANSITION PROJECT
CEC $9.75 MILLION
LBCT, Pier E and SSA, Pier J and ITS, Pier G
- 12 Electric Yard Tractors
- 9 Electric RTG
- 4 LNG Hybrid Electric Trucks

C-PORT PROJECT
CARB $5.3 MILLION
LBCT, Pier E and SSA, Pier J
- 3 Electric Top Picks
- 1 Electric Yard Tractor

www.cleanairactionplan.org
eRTG Crane Conversion in Progress at Pier J
Electric Yard Tractor and EVSE at ITS, Pier G
POLB Technology Demonstrations – COVID Impacts

- Technology manufacturers temporarily shutting down their businesses or facilities to comply with the Governor’s stay-at-home order.
- Shifting priorities and redeployment of personnel to COVID-related activities.
- Limited access to terminals for equipment testing and data collection.
- Paused demonstrations until freight volume increases and business operations return to normal.
POLA Grant-Funded Technology Demos - Update

Green Omni-Terminal Project  
CEC $10.3 Million

STATUS UPDATE:
- 4 electric yard tractors
- 2 electric Class 8 trucks
- ShoreKat land-based at-berth emissions control system
- Solar rooftop array with microgrid controls and battery storage
- 3 electric forklifts

Shore to Store Project  
CARB $41 Million
Various Partners off-Port Property

- 10 H₂-electric Class 8 trucks
- 2 heavy duty H₂ fueling stations
- 2 electric yard tractors with charging infrastructure (Port of Hueneme)
- 2 Zero-emission forklifts

Advanced CHE Demonstrations  
CEC $10.3 Million  
Everport

- 20 RNG yard tractors
- 5 electric yard tractors, standard chargers
- 3 electric yard tractors, advanced charging system
- 2 electric top handlers

AID Project  
CEC $7.8 Million  
WBCT (China Shipping)

- 10 battery-electric yard tractors
- 12 Wireless charging stations
- Peak-shaving storage system

Green Omni-Terminal Project  
CEC $10.3 Million

STATUS UPDATE:
- 4 electric yard tractors
- 2 electric Class 8 trucks
- ShoreKat land-based at-berth emissions control system
- Solar rooftop array with microgrid controls and battery storage
- 3 electric forklifts

Shore to Store Project  
CARB $41 Million
Various Partners off-Port Property

- 10 H₂-electric Class 8 trucks
- 2 heavy duty H₂ fueling stations
- 2 electric yard tractors with charging infrastructure (Port of Hueneme)
- 2 Zero-emission forklifts

Advanced CHE Demonstrations  
CEC $10.3 Million  
Everport

- 20 RNG yard tractors
- 5 electric yard tractors, standard chargers
- 3 electric yard tractors, advanced charging system
- 2 electric top handlers

AID Project  
CEC $7.8 Million  
WBCT (China Shipping)

- 10 battery-electric yard tractors
- 12 Wireless charging stations
- Peak-shaving storage system
Kenworth Toyota Zero Emissions Trucks
Shell Hydrogen Station – Long Beach
Battery Electric Yard Tractors
Taylor Battery Electric Top Handler
Pasha Green Omni Terminal - ShoreKat System

Assembled ShoreKat System on Trailer
Thank you!
Update On 2018 Drayage Truck Feasibility Study
June 24, 2020

Questions or comments? Chat us or submit via caap@cleanairactionplan.org

Jacqueline Moore
Port of Long Beach
• Drayage Truck Assessment released Spring 2019
• Found that there are no zero- or near-zero technologies that are fully feasible today.
2018 Drayage Truck Feasibility Study
Cummins ISX12N Natural Gas engines
Future Truck Feasibility Updates

Assessed by using the following *minimum* criteria, which are required for all such requests:

1. The findings must identify specific elements of the Feasibility Assessment to be updated.

2. Supporting data specific to the requested elements must be provided.

3. The data must be corroborated by a credible third party with technical expertise and involvement with generation of the data.

Next Round of Assessments will evaluate commercial availability, technical viability, operational feasibility, infrastructure availability and economic workability beginning in 2021.
Final Truck Feasibility Assessment with addendum was posted on May 11, 2020


For feasibility assessment update requests, email caap@cleanairactionplan.org
Thank you
• 17,966 trucks registered
• 3,293 MY 2014+ trucks registered since October 1, 2018
• 60% trucks meet 2010 EPA standards and perform 60% of the moves
• 40% trucks meet 2007 EPA standards
• 719 trucks are LNG-fueled and perform 4.6% of the moves
• 77 trucks use the 0.02g NOx/bhp-hr Cummins natural gas engines
• ~20 trucks are zero emissions
Clean Truck Fund Rate

Resolution adopted by both Boards in March 2020

Clean Truck Fund Rate of $10 per loaded TEU moved by truck in and out of port terminals

Zero emission trucks exempt from the rate. Other exemptions under consideration.

Develop comprehensive long-term strategy

Regular reports back to the Boards
Anticipated CTF Rate Implementation Timeline

March 2020
- CARB Adopts Engine Standards

July 2020
- Boards Consider Tariffs to Implement CTP Rate and Structure of Incentive Program

August 2020
- Boards Consider Contract for Rate Collection Mechanism
- Update to Boards

2021
- Boards Consider MOU for 3rd Party Administration of Incentives
- CTP Rate Collection and Incentive Program Begins
CTF Rate Incentive Program

- Develop priorities and guidance for distributing funds to incentivize transition to near-zero and zero-emission trucks
- Weekly meetings between Ports, SCAQMD, and CARB staff to discuss potential incentive program structure and requirements
- Additional outreach, including focused meetings with key stakeholders will be scheduled in the coming months
Ports’ CTP Long Term Strategy Plan

CAAP Goal of 100% Zero Emission Trucks by 2035

- Develop a comprehensive long term strategy plan for how the Ports can meet the CAAP goal
- Scope developed and initial work has begun
- Each Port will return to their individual Board in July with an update on approach and progress to date
- Draft document will be released for public review
Truck Manufacturer Summit

- High level meeting of agency leaders and OEMs
- Objectives
  1. Identify the actions of policymakers, regulators, equipment manufacturers, equipment operators, and other key stakeholders needed to build and transition to a market for zero emissions Heavy Duty Trucks
  2. Obtain commitments from stakeholders to take coordinated action
  3. Report out to stakeholders on the outcome of the Summit
50 to 100 Truck Demonstration Update

• Concept Paper for ZE Large-Scale Drayage Truck Pilot Program
• Upcoming CARB and CEC Grant Funding Opportunity
  – Available amount is $40M
    • $20M for trucks & $20M for infrastructure
  – Likely awarding 2-3 projects
  – 50% Cost Share required
• The Ports are coordinating with AQMD and reaching out to drayage trucking fleet operators to develop a demonstration proposal
Next Steps

- Update to Ports Boards of Harbor Commissioners in July
- Truck Summit with agency leadership and OEMs
- Establish a rate collection mechanism
- Develop comprehensive long-term strategy plan
- Monitor economic impacts and cargo disruptions due to COVID-19
- Update the tariff to implement the CTF Rate
- Define the incentive program priorities and structure and establish 3rd party administration
- Collect the CTF and begin incentivizing the NZ and ZE Trucks
Thank you!