SAN PEDRO BAY PORTS
CLEAN AIR ACTION PLAN

2017 SPBP
Air Emissions Inventory Results

Jacqueline Moore
Port of Long Beach
2005 vs. 2017

Container throughput up 19%
Containers (TEUs) per call up 58%
Containership calls down 25%
Diesel Particulate Matter: Down 87%
Nitrogen Oxides: Down 58%
Sulfur Oxides: Down 97%
Greenhouse Gases: Down 15%

*Compared to 2005 Levels
**GHG emissions (CO₂e) are reported in metric tons (MT) per year; all other pollutants are shown in tons per year.
CAAP Clean Air Goals

- Diesel Particulate Matter: Since 2005
  - 2023: 77%
  - 2023: 87%

- Nitrogen Oxides: Since 2005
  - 2023: 59%

- Sulfur Oxides: Since 2005
  - 2023: 93%
  - 2023: 97%
Moving Forward

CAAP Strategies
State and Federal Regulations
Feasibility Assessments
Technology Advancement
Clean Truck Rate Study (Continued)

- Draft scope of work has been developed
- RFP to be refined and released in early Summer 2018
- Study expected to begin in late Summer 2018
- Estimated completion 2nd Quarter 2019
SAN PEDRO BAY PORTS
CLEAN AIR ACTION PLAN

NEXT STEPS ON
CLEAN TRUCKS PROGRAM

Heather Tomley
Port of Long Beach
2017 CAAP CTP Milestones

- **2018**
  - Pre-2014 Trucks can no longer register in PDTR

- **2018-2019**
  - Near Zero/Zero (NZE/ZE) emission equipment Feasibility Study completed
    - Study to be updated every 2 to 3 years

- **2019**
  - Clean Truck Rate Study completed

- **2019**
  - CARB promulgates NZE Manufacturing Standard

- **2019**
  - Annual Registration Fee Exemption for NZE/ZE Trucks

- **2020**
  - Rate Collection mechanism developed

- **2020**
  - Clean Truck Rate goes into effect on non-NZE/ZE Trucks
CTP Milestones (Cont’d)

- **2023**  
  - Only NZE/ZE trucks can register in DTR  
  - Pre-2010 drayage trucks banned by State Truck and Bus Rule

- **2023-2035**  
  - Continuous evaluation of Clean Truck Rate and monitoring of progress of transition to ZE trucks by 2035  
  - Continued updates to NZE/ZE equipment Feasibility Study every 3 years

- **2035**  
  - Only ZE trucks can register in PDTR
2018 Tariff Modification Activities
- Only allow MY 2014 trucks to newly register in the PDTR
- Takes effect October 1, 2018
- Outreach to trucking industry is underway
CTP Implementation

• Clean Truck Rate Study Goals
  • Analyze potential for cargo diversion over range of rates
  • Analyze potential effect on the local drayage industry
  • Project potential revenues that might be generated over range of rates
CTP Implementation

• Clean Truck Rate Study (Continued)
  – Draft scope of work has been developed
  – Study expected to begin 4th Quarter 2018
  – Estimated completion 2nd Quarter 2019
• Near-Zero Emission (NZE) Truck Early Deployment Program
  – Joint incentive program with AQMD under development
  • Up to 140 NZE Trucks
  • Up to $4M ($2M each port) pending approval from Boards of Harbor Commissioners
    • AQMD has agreed to request $2M from its Board
    • California Energy Commission has preliminarily agreed to provide $8M
  • Goal to have NZE trucks on the road by the end of 2018
CTP Implementation

- Large-Scale Zero Emission Truck Deployment Pilot Project
  - 50 to 100 zero-emissions trucks
    - Trucking Fleet Survey
    - RFI to OEMs
    - Working group meeting - Mid-October
    - Scope of Work/Concept Paper – Q4 2018
    - Future steps include issuing RFP to OEMs, making funding awards, monitoring progress, and issuing progress reports
Timeline

Large-Scale Zero Emission Truck Deployment Pilot Project

Q2 2018  Fleet Survey
Q3-Q4 2018  Working Group
Q4 2018  Scope of Work
Q1 2019*  OEM Request for Proposals

*Pending funding availability
UPDATE ON TECHNOLOGY FEASIBILITY ASSESSMENTS
September 26, 2018

Tim DeMoss
Port of Los Angeles
Feasibility Assessments

- Cargo-Handling Equipment (CHE)
- Drayage Trucks
CHE Study

- OEM Survey
- Marine Terminal Operators (MTO) Data Collection Field Trips
- DRAFT Report and 3rd Party QA/QC Underway
• Drayage Truck OEM Survey
• Drayage Truck Operator Survey
• Draft Report and 3rd Party QA/QC Underway
Next Steps

• Draft Feasibility Reports and public comment period expected in 4th Quarter 2018

• Final Feasibility Reports expected 1st Quarter 2019
UPDATE ON TECHNOLOGY DEMONSTRATIONS IN THE PORTS

Renee Moilanen
Port of Long Beach

Jacob Goldberg
Port of Los Angeles
Technology Advancement Program

- 5 Active Projects – Harbor Craft, Rail, Trucks
- At-Berth Technologies RFP – Under Evaluation
- 2018 TAP Call for Projects – Under Evaluation
- 2018 TAP Annual Report with Funding Priorities – Expected February 2019
Zero- and Near-Zero Emissions Freight Facility Funding Program

California Air Resources Board

$150 Million Available

Preliminary Awards Made in September

- Port of Long Beach - $50 Million
- Port of Los Angeles - $41 Million
Port of Long Beach ZANZEFF
Breaking New Ground

- Multiple ports
- Operator-driven
- Never-before-seen quantities
Port of Long Beach ZANZEFF
The Details

- 102 pieces of zero-emissions equipment
- 1 near-zero-emissions tugboat
- 2 Tier 3 container ships
- Public charging for trucks
- $50 million from CARB, $52 million public and private partners
Port of Long Beach ZANZEFF
The Operators

SSAMarine
A Carrix Enterprise

Shippers Transport Express

Harley Marine
A Full Service Maritime Company

Matson
Sustainable Supply Chain

From Ship to Truck
33 battery-electric yard tractors

1 battery-electric top handler
- 10 trucks
- 5 yard tractors
- 1 top handler
- Tier 3 ships

Oakland
Port of Stockton, California
- 30 forklifts
- 1 rail car mover

SSA Marine
- 6 forklifts
Port of Long Beach ZANZEFF Workforce and Education

- New partnerships
- Community colleges
- High schools
- Long Beach, Oakland, and Stockton
- Workforce development
- Port-related environmental education
Beyond our Borders
Shore to Store Project
Demonstration of a Zero-Emissions Supply Chain
Port of Los Angeles ZANZEFF
Project Highlights

• Partnering with world leading OEMs
• Focus on critical SoCal Zero Emission Infrastructure for Short, Medium and especially Long Haul Drayage
• Showcases a complete supply chain on zero emissions: Ship to drayage truck to warehouse to final storefront
• Designed to expand into a Statewide System
• New Opportunity for Port of Hueneme
Port of Los Angeles ZANZEFF
Project Partners

• Worldwide leaders at the forefront:
  - Toyota
  - Shell
  - Kenworth
  - UPS

• Additional key partners:
  - The Port of Hueneme
  - Port of Long Beach
  - Merced County
  - South Coast AQMD
  - NREL
  - State of California Energy Commission
  - CFASE
  - Transport
  - Southern Counties Express
  - TTSI
Port of Los Angeles ZANZEFF Project Summary

- 10 Hydrogen-Electric Class 8 Trucks
- 2 Heavy Duty Hydrogen Fueling Stations
  - 1 near-port station in Wilmington
  - 1 Inland Empire station in Ontario
- 2 Light Duty Zero Emission Warehouse Forklifts
- First Zero Emission Equipment to be deployed at the Port of Hueneme
- $41 million from CARB, $42 from million public and private partners
SUMMARY: POLA collaborates with CARB, key coalition stakeholders KENWORTH, TOYOTA, SHELL, and leading federal, local, & industry entities like UPS, NREL, & SCAGMD in a trailblazing ~$80M initiative to demonstrate the at-scale application of zero-emissions fuel-cell-electric technology to heavy-duty freight transport as a foundation blueprint towards electrifying global goods movement.

CORE COALITION

1. "Seal" - Initial Operator
2. "Other" - Port Car-Carrier
3. "Turtle" - Wave 1 [-Q3’19] 
4. "Orca" - Ab-Scale Initial Pilot

FUNDING AGENCY

SCOPE: The project collaborators will contribute 10 Class 8 ZEV HDT H2 FCEV, 5 HD H2 stations, 10 warehouses & freight facilities, renewable H2 & -electricity, operator OPEX support, 4 CHE, and industry HD H2 protocols and standards demonstration as a CA & port-led path towards transformative emissions reduction economic expansion, & public health benefit for at-need communities in California, North America, and around the world.
Port of Los Angeles ZANZEFF
Project Benefits

• First true demonstration of Long Haul Zero Emissions Drayage Solution (up to 400 miles)

• Inland Empire and Hueneme

• Ultimately Merced County

• Hydrogen offers a comparable driver experience compared to diesel (fueling time and range)

• Expandable Shell fueling infrastructure serves all of SoCal and beyond
Port of Los Angeles ZANZEFF
Geographical Breakdown

80 miles

60 miles
REGULATORY UPDATES

Chris Cannon
Port of Los Angeles
Milestones for Freight Actions (Board consideration)

Additional Actions

SPB Ports Drayage Truck Rate
Freight Hub Enforcement
Freight Handbook Module 1
Harbor Craft Idling at Rail Yards+
Freight Handbook Module 2
ZE Drayage Trucks
ZE Cargo Handling Equipment
Non-preempted Locomotives

2018
2019
2020
2021
2022

Lower Truck In-use Emissions

Truck Phase 2 GHG
ZE Local Trucks
ZE Truck Certification
ZE Ships at Berth
ZE TRUs
Low NOx Trucks
ZE Forklifts
Low-Emission Diesel Fuel

Select SIP Commitments

CARB Freight Facility Presentation, March 2018
Ships At Berth

• Engaged with CARB staff on proposed amendments to current regulation
  – Increasing requirements for currently regulated ships
  – Adding requirements for Ro-Ros and Tankers
• Conducting preliminary infrastructure assessments
• TAP RFP for at-berth systems
Other Proposed Amendments

• 100% Zero Emission TRUs
  Port Staff is:
  – Providing operational background and data
  – Evaluating existing infrastructure and possible necessary additions at terminals

• HDV Inspection/Maintenance Pilot
  Port Staff is:
  – Engaging in preliminary discussions with CARB
  – Would be similar to the light-duty SMOG Check Program
Low NOx Trucks

CARB is defining Near Zero Truck emission standards and will promulgate a manufacturing requirement in 2019

Port Staff is:

• Monitoring CARBs progress in order to move forward on Clean Trucks Program
  – Registration fee exemptions for NZE
  – NZE exemptions for 2020 rate
Send comments to:
caap@cleanairactionplan.org