NEXT STEPS ON
CLEAN TRUCKS PROGRAM
2018 2nd Quarterly Update

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2017 CAAP CTP Milestones

• 2018 – Pre-2014 Trucks can no longer register in PDTR
• 2018-2019 – Clean Truck Rate Study completed
• 2018-2019 – Near Zero/Zero (NZE/ZE) emission equipment Feasibility Study completed
  – Study to be updated every 2 to 3 years
• 2019 – CARB promulgates NZE Manufacturing Standard
• 2019 – Annual Registration Fee Exemption for NZE/ZE Trucks
• 2020 – Clean Truck Rate goes into effect on non-NZE/ZE Trucks
CTP Milestones (Cont’d)

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

- **2023-2035**
  - Clean Truck Rate adjusts based on feasibility study and fleet composition to encourage transition to ZE by 2035
  - Informed by NZE/ZE equipment Feasibility Study updates

- **2035**
  - Only ZE trucks can register in PDTR
• 2018 Tariff Modification Activities
  – Only allow 2014 or newer trucks to register in the PDTR
    • Existing pre-2014 trucks grandfathered
    • Tariff Change Board Approval Scheduled for June/July for both Ports
      • Scheduled to be effective on October 1, 2018
  – PDTR registration fee exemption for NZE/ZE trucks on hold, pending regulatory definition from the Air Resources Board
Clean Truck Rate Study Goals

- Assist transition to near zero and eventually zero emission equipment
- Avoid cargo diversion
- Maintain adequate supply of drayage trucks for Port service

Status

- Draft scope of work has been developed
- Study expected to begin in late Summer 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

• Zero Emission (ZE) Truck early adopter activities
  – 50 to 100 ZE Truck Demonstration
    • Scope of Work under development
    • Trucking Fleet Survey
    • Informational Workshop to be scheduled Summer of 2018
    • RFI to Truck Manufacturers (OEMs)
SAN PEDRO BAY PORTS
CLEAN AIR ACTION PLAN

UPDATE ON TECHNOLOGY FEASIBILITY ASSESSMENTS
JUNE 26, 2018
Feasibility Assessments

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

- OEM Survey
- Marine Terminal Operators (MTO) Survey
Truck Study

- Drayage Truck OEM Survey
Next steps

• Draft Feasibility Reports and public comment period expected in Q3.
• Final Feasibility Reports expected January 2019.
Send comments to:
caap@cleanairactionplan.org
UPDATE ON TECHNOLOGY DEMONSTRATIONS IN THE PORTS

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Technology Development

• Demonstrations of Zero Emission On-Road Trucks and Development of 50 to 100 Truck Pilot Deployment
• Evaluation of Vessel Energy Efficiency Technologies and Demonstration of Vessel At-Berth Technologies
• Demonstration of Harbor Craft Technology
• Near-Zero Switcher Locomotive Demonstration
• Demonstrations of Zero Emission Terminal Equipment
• 2018 TAP Call for Projects
Technology Development

POLA’s Green Omni Terminal Demonstration Project

Demonstrate 4 battery-electric yard tractors, 2 battery-electric on-road trucks, 2 electric forklifts, 1 electric top handler, solar rooftop array with battery storage and microgrid controls, and land-based vessel emission capture system
Technology Development

POLA’s Everport Advanced Cargo Handling Equipment Demonstration Projects

Demonstrate 20 low-NOx RNG yard tractors, 8 battery-electric yard tractors, 2 battery-electric top picks, and charging infrastructure
Technology Development

POLA Advanced Infrastructure Deployment (AID) Project

Demonstrate 10 battery electric yard tractors, and install 12 wave inductive charging units
Technology Development

GE Information Portal

A first-of-its-kind port information portal to demonstrate the benefits of digitizing maritime shipping data and making it available in real time to cargo owners, shipping lines and supply chain operators.
Technology Development

POLB’s Electric Vehicle Blueprint

Map the path to zero emissions evaluating electric infrastructure needs, financing, workforce components and community impacts
Technology Development

POLB’s Zero Emission Terminal Equipment Transition Project

- Convert 4 LNG trucks to plug-in hybrid electric
- Demonstrate 12 battery-electric yard tractors and charging infrastructure
- Convert 9 RTGs from diesel to electric
Technology Development

C-PORT: Commercialization of the Port of Long Beach Off Road Technology Demonstration Project

Demonstrate 1 battery-electric top pick, 1 battery-electric yard tractor and 1 fuel cell yard tractor

Demonstrate 2 battery-electric top picks
Technology Development

POLB Microgrid – Resilience for Critical Facilities

Install solar panels, battery storage, and microgrid controls to allow JCCC to continue operations during an outage.
Technology Development

Port Advanced Vehicle Electrification (PAVE) Project

Demonstrate 6 battery electric yard tractors, install electrical charging infrastructure for nearly 40 piece of terminal equipment, demonstrate DC fast charging and battery storage.
THANK YOU FOR PARTICIPATING
2005 vs. 2016

Overall Container Volumes up 10%
Containers (TEUs) per container ship calls up 40%
Container ship calls down 21%
All ship arrivals down 23%
Strategies for Ships

- Incentive Programs
- Technology Solutions
- Regulatory & Funding Advocacy
Vessel Speed Reduction
Green Ships/Environmental Ship Index
The Ports give financial incentives for ships with the cleanest engines
Shore Power
Ships have been plugging in since 2008
Equivalent of taking 42,000 cars off the road each day
Shore Power Alternatives
Current Projects

• Land or Barge-Based OGV At-Berth Exhaust Emissions Capture & Treatment Systems RFP

• Maersk OGV Energy Efficiency Measurement Demonstration
Technology Advancement

Previous Projects

- Tri-Mer Mobile Emissions Treatment System (METS-1)
- ACTI Advanced Maritime Emission Control System
- APL Singapore Slide Valve & Water-In-Fuel Emulsion
- Alternative Petroleum Technologies
- Bluefield Holdings/Krystallon Ocean Going Vessel Scrubber
- OGV Slide Valve Low-Load Emissions Evaluation
EMISSION REDUCTIONS

OGV Emission Reductions Since 2005

DPM: -90%
NOx: -40%
SOx: -97%
CO2e: -28%
Strategies in the CAAP

- September 2018 - Participation in the State Amendment of Vessel At-Berth Regulation
- January 1, 2019 – RFP for Emissions Capture & Treatment Systems
- 2019 - Ship Incentive Program Modification
- 2023 - Economic Assessment for Clean Ship Rate
- 2025 - Clean Ship Differential Rate Program
- Ongoing - West Coast Ship Incentive Collaboration
- At-Berth Infrastructure Assessments
- VSR Program Modification
Progress to Date

- Participating in CARB Ports Working Group to amend at-berth regulation
- At-berth emission reduction RFP: 4 responses received; under evaluation
- Applied for grant funds to expand ship incentive programs
- Conducting outreach on VSR modifications
- Collaborating with West Coast ports on ship incentive portal and route planner – in partnership with Port of Vancouver, identifying a consultant to assist with ports facilitation and building the framework
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caap@cleanairactionplan.org