SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

Clean Air Action Plan Implementation Progress Report
Fourth Quarter 2022

ACCOMPLISHMENTS

GENERAL

- The Ports held their fifteenth CAAP Implementation Stakeholder Advisory Group meeting on October 12, 2022.
- The Ports began to experience lower cargo throughput in the fourth quarter of 2022, mainly due to diminishing consumer demand, full warehouses, and inflation concerns.
- Staff from the Ports of Long Beach and Los Angeles (Ports) returned to partial in-person work in mid-October.
- The impacts from COVID-19 and supply chain disruptions to the Ports' technology demonstrations are addressed below under Early Demonstrations and Deployments within the Trucks and Terminal Equipment headings.

TRUCKS

Clean Truck Fund (CTF) Rate. The Port of Los Angeles (POLA) and Port of Long Beach (POLB) Boards of Harbor Commissioners approved their respective CTF Rate tariff, which covers exemptions and spending priorities, on November 4, 2021 and November 8, 2021, respectively. Both Ports Boards of Harbor Commissioners approved their respective spending plans for CTF rate dollars collected in Year 1 on March 24, 2022. Collection of the CTF Rate commenced on April 1, 2022. Combined, the Ports are currently on track to collect approximately $80 million each year throughout the first few years of the program as zero emission (ZE) trucks begin to be purchased and operated at the Ports. To date, the Ports have not received any complaints that the CTF Rate has had negative impacts on drivers. Drivers are encouraged to reach out to the Ports through email at caap@cleanairactionplan.org or by calling (866) 721-5686.

Large-Scale Zero Emission (ZE) Truck Deployment Pilot Project. On November 19, 2020, the California Air Resources Board (CARB) and the California Energy Commission (CEC) released a unique joint funding opportunity for a large-scale ZE truck deployment within the state. The Ports coordinated with the South Coast Air Quality Management District (AQMD) and other regional partners on the development of a project proposal, including 100 ZE battery electric trucks and associated charging infrastructure, for this solicitation. The AQMD proposal was awarded nearly $27 million. The grant agreement between AQMD and CARB was executed on June 4, 2021 and the grant agreement between AQMD and CEC was approved at the CEC business meeting on July 15, 2021. The Ports and AQMD have finalized the three-party Memorandum of Understanding (MOU), which will include $1.5 million in match funding from each Port towards the project. POLB received approval of the funding request at the April 25, 2022 Board of Harbor Commissioners meeting. POLA's Board of Harbor Commissioners approved the funding request

at the September 22, 2022 meeting. Purchase orders have been made for the 100 battery electric trucks and delivery of the first batch of trucks is expected during Q1 2023.

Early Deployment and Demonstrations. The Ports continue to manage several grant-funded demonstrations of ZE trucks, including over 20 hydrogen fuel cell and battery electric trucks as part of supply chain pilots. Approximately 57 ZE trucks registered in the Ports' Drayage Truck Registry with access to both Ports as of December 2022. COVID-19 continues to have an impact on the future estimated delivery times of both the low NOx trucks and ZE trucks. On November 23, 2021, POLA released an RFP for projects to deploy at least 10 zero emission trucks. POLA's Board of Harbor Commissioners (Board) awarded $6 million to 2 companies for 22 ZE battery electric trucks in December 2022.

At POLB, all four LNG plug-in hybrid electric trucks funded under a CEC grant have been out of service due to pressure cracks discovered in the engines. All four TTSI trucks have been out of service since June 2022 due to pressure cracks in the engine. Cummins, the engine manufacturer completed their investigation of one of the four trucks in December 2022 and determined that the engine would need to be rebuilt. Since the trucks were not operable, the trucks were not tested with the Nuvve charging station.

Proposition 1B Support and the Kickstart Incentive Program. The Ports supported AQMD with outreach to the drayage community regarding the Proposition 1B (Prop 1B) Program, which had $50 million available in incentives to turn over the dirtiest pre-2010 diesel trucks to clean low NOx or ZE trucks. The open solicitation period closed on April 30, 2021. POLB provided application support to 22 drayage truck drivers, resulting in 10 application submissions to replace a total of 21 diesel trucks. Several applicants dropped out or modified their requests, resulting in a total of four applicants looking to replace eleven trucks completing contracting during Q3 2022. All applicants will be applying for the Manufacturer Delay Compliance Extension available in CARB's Truck and Bus Rule. To further accelerate the transition to cleaner trucks, POLB has provided an additional $1 million for low NOx and ZE drayage trucks as part of the "Kickstart Incentive Program." This program, approved by the POLB Board of Harbor Commissioners on April 26, 2021, is a supplement to the AQMD-administered Prop 1B Program, and will fund additional drayage truck applications from the solicitation that closed in April 2021. AQMD identified five fleets that would be the best recipients of the Kickstart funds based on the likelihood of successful project completion. Contracting is underway to fund a total of six low-NOx and two battery electric trucks.

CTF Rate Voucher Incentive Program. As part of the CTF Rate spending plans approved by each Port's Board of Harbor Commissioners in March 2022, the Ports committed to partnering with CALSTART to implement a Ports-specific Zero Emission Truck Voucher Incentive Program (Voucher Incentive Program). The POLA Board of Harbor Commissioners approved an agreement with CALSTART to implement the Voucher Incentive Program on March 24, 2022. POLB plans to go to their Board with a similar agreement in Q1 2023. The Voucher Incentive Program will allocate up to $40 million from POLA and up to $30 million from POLB of the approximate $80 million initially expected to be collected from the CTF Rate by both Ports. Although the initial proposal from the Ports was to provide $150,000 vouchers for the purchase of a battery electric truck and up to $300,000 towards the purchase price of a hydrogen fuel cell truck, there is currently limited demand for vouchers at these incentive levels, as evidenced by the fact that an early release of $5 million by POLA in early September resulted in only 4 vouchers through the end of Q4 2022/beginning Q1 2023. As such, the Ports are exploring an alternative voucher program structure such as offering a plus-up voucher from the Ports on top of the current CARB Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) voucher amount. The Ports will work with CARB and CALSTART in Q1 2023 to further build the Voucher Incentive Program structure and integrate the Ports' program into the existing HVIP administrative process and website.

Advanced Clean Trucks/Fleets Regulation. As a companion to the Advanced Clean Trucks (ACT) Regulation that CARB passed in June 2020, CARB continues to move ahead with establishing the requirements for large entities and fleets. CARB held a series of workshops related to different aspects of the transition to zero emissions trucks, and Ports' staff continue to attend and participate. Ports' staff met with CARB staff and will continue to monitor the development and implementation of these regulations. A joint Ports' comment letter was submitted to CARB before the first of two Board meetings to approve the Advanced Clean Fleets Regulation in Q4 2022. An Advanced Clean Fleets Regulation workshop to discuss proposed changes to draft regulation language is scheduled for February 2023.

Feasibility Assessment for Trucks. As part of the 2017 CAAP update, the Ports committed to developing assessments for drayage trucks at least every three years. The Feasibility Assessments evaluate the current snapshot of emerging zero-emission and near-zero emission truck technologies. The first report, 2018 Feasibility Assessment for Drayage Trucks, was released in April 2019, with an update later in May 2020. The Ports began work on the second Feasibility Assessment for Drayage Trucks in Q1 2021. The Draft 2021 Feasibility Report for Trucks was released in August 2022 for public review and comment with feedback accepted through September 27, 2022. The Final 2021 Feasibility Report for Trucks will be released in Q1 2023.

Public Truck Charging. POLB completed and released a Public Charging and Fueling Study in September 2021. To build on this effort, POLB released a Request for Information (RFI) in February 2022 to obtain information regarding the near-term development of publicly accessible electric-charging facilities for drayage trucks at four sites on POLB property. The RFI closed on March 29, 2022. In September, POLB released a summary document describing the findings of the RFI. POLB plans to solicit detailed public charging proposals for 2 of the 4 sites identified in the RFI in 2023. Two solicitations will be released, one for each site, and will be phased. The first solicitation is expected to be released Q2 2023.

In November of 2022, POLB opened the nation's first public charging stations to support heavy-duty trucks. Two public chargers are available to serve the San Pedro Bay Ports drayage fleet, free of charge, at the Clean Truck Program Terminal Access Center, 1265 Harbor Ave., Long Beach 90813. View the fact sheet for details and eligibility.

In August, as part of POLA's contribution to the Volvo Low Impact Green Heavy Transport Solutions (LIGHTS) project, POLA completed and submitted to CARB a report assessing the potential of deploying battery electric trucks at or near the Ports, including a look into the operational capabilities and charging infrastructure needed for battery electric truck deployment. The report identified potential opportunity charging locations for battery electric truck that could operate at or near the Ports in order to help transition the drayage fleet to zero emissions by 2035.

TERMINAL EQUIPMENT

Early Deployment and Demonstrations. The Ports continue to manage several grant funded demonstration projects, including ultra-low NOx and electric yard tractors, electric top handlers, and electric rubber-tired gantry cranes, as well as innovative approaches to charging infrastructure including micro-grid controls with distributed generation and battery storage.

At POLA, as part of the Green Omni Terminal project, Pasha operates two battery electric yard tractors at their facility. At Everport, three second generation BYD battery electric yard tractors, charged with Cavotec's Smart Plug-In System, continue to operate in demonstration service. With project demonstration complete, Everport continues to operate two Taylor battery electric top handlers and 22 Capacity ultra-low NOx renewable natural gas yard tractors in revenue

service. The Advanced Infrastructure Demonstration (AID) Project will demonstrate 12 WAVE wireless inductive charging stations to energize 10 BYD battery electric yard tractors at West Basin Container terminal. Phase 1 construction was completed in Q3 2022 and two yard tractors began operating. Phase 2 is scheduled for completion in Q1 2024.

In late September 2022, one eRTG was down for repairs due to an issue with the hoist motor unrelated to the conversion. SSA completed repairs and the unit was back online on December 19, 2022. All eRTGs are operating normally and are going through normal maintenance due to reduced activity at the terminal. At Pier C, SSA continues to take delivery of the 33 electric yard tractors that will be delivered over the course of 2022 and into early 2023. Infrastructure installation to support the yard tractor deployment is underway and expected to be completed in Q2 2023.

Infrastructure Master Planning for Terminal Equipment
In May 2022, POLB executed a $2.5 million grant agreement with the CEC for the EV Blueprint Phase II Project, which includes development of a zero-emission infrastructure master plan for terminal operations at Pier J. POLB staff have solicited for consultant support to develop the master plan. POLB will be working with the other container terminals to develop zero-emission infrastructure master plans as well.

Feasibility Assessment for Terminal Equipment. As part of the 2017 CAAP update, the Ports committed to developing assessments for terminal equipment at least every three years. The Feasibility Assessments evaluate the current status of clean terminal equipment technologies and infrastructure. The first report, 2018 Feasibility Assessment for CHE, was released in September 2019. The Ports commenced the second Feasibility Assessment for Terminal Equipment in Q1 2021. The Draft 2021 Feasibility Report for Terminal Equipment was released for public review and comment on March 2, 2022. Comments were due April 29, 2022. A total of 6 comment letters were received. Ports reviewed the comments provided and made updates to the Final 2021 Feasibility Report for Terminal Equipment, which was released on August 25, 2022. The Ports plan to start working on the 2024 Feasibility Assessment for CHE in the first quarter of 2024.

SHIPS

Vessel Speed Reduction. 95% of vessels visiting the Ports in Q4 2022 slowed down to 12 knots within 20 nautical miles of Point Fermin, and 91% of vessels slowed within 40 nautical miles.

Ship Incentive Programs. The Ports continue to collaborate with other West Coast ports on ways to enhance participation in their clean ship incentive programs. POLB continued to implement the revised Green Ship Incentive Program, which incentivizes vessel calls from ships utilizing the Environmental Ship Index (ESI) and those that meet the International Maritime Organization (IMO) Tier III engine standards. POLA continues to incentivize ships for complying with the ESI program as well.

Green Shipping Corridors. In Q1 2022, the Port of Los Angeles, Port of Shanghai, and C40 Cities announced a partnership, including the City of Los Angeles, City of Shanghai, shipping companies, and a network of cargo owners, to create the world's first transpacific green shipping corridor to decarbonize goods movement between ports in the United States and China. In Q2 2022, the Port of Long Beach and Ocean Network Express joined the Green Shipping Corridor partnership. The partnership continued to develop the Green Shipping Corridor Implementation Plan and held several meetings during Q4 2022. In Q4, Port of Los Angeles, Port of Long Beach, the Maritime and Port Authority of Singapore, and C40 Cities announced that discussions had begun to establish a green and digital shipping corridor between Singapore and the San Pedro

Bay port complex. This corridor will focus on low- and zero-carbon fuels for bunkering, as well as digital tools to support the deployment of clean technology.

At Berth Regulation. CARB's Board approved the latest update to the At Berth Regulation at their Board meeting on August 27, 2020. Completed and signed Port and Terminal Plans were submitted to CARB by December 1, 2021. During Q4 2022, Port staff continued to meet with terminal operators regarding implementation of their terminal plans. On December 1, 2022, CARB released their At Berth Regulation Interim Evaluation. California Ports including POLA and POLB met with CARB after the release of the Interim Evaluation in December 2022. The various California Ports discussed with CARB staff infrastructure construction delays for newly regulated vessel types due to supply chain issues and the status of the yet to be approved RoRo shore power standard set by international standards committees. The Ports also voiced concern that CARB would no longer focus on development of a zero emission CHE Regulation, but on at anchorage and transiting updates to the At Berth Regulation from ocean going vessels.

HARBOR CRAFT

Commercial Harbor Craft Regulation. On March 14, 2022, CARB held the second Board hearing to consider the Commercial Harbor Craft (CHC) Regulation. Both Ports' staff submitted a comment letter in advance of the hearing and provided public comment at the hearing. The 15-day changes were released on May 19, 2022 and comments were due June 3, 2022. The final regulation language was submitted to the Office of Administrative Law (OAL) for approval in July 2022. Upon review, OAL denied approval citing a lack of clarity in the regulation and requested CARB revise the language. CARB released a 15-day change proposal with the updated regulatory language on October 10, 2022. CARB resubmitted the regulatory package to OAL for approval on November 15, 2022. OAL approved the updated CHC Regulation language on December 30, 2022. CHC operators will be required to report on their CHC fleets beginning March 31, 2023. Facility operators/owners will be required to report on CHC fleet operators beginning July 1, 2023.

OTHER

2021 Emissions Inventories. Both Ports released their respective 2021 Emissions Inventory in Q4 2022: https://cleanairactionplan.org/results/emission-reductions/. The Ports also held a kick-off meeting for the 2022 Emissions Inventories on December 13, 2022 with the Ports' Technical Working Group, which includes AQMD, CARB, and the U.S. Environmental Protection Agency. Data gathering commenced in Q4 2022 for the 2022 Emissions Inventories.

Air Quality Monitoring Program. The Port of Long Beach released its 2021 Air Quality Monitoring Report in September 2022. The Port of Los Angeles released their respective 2021 Air Quality Monitoring Report in Q4 2022. The Ports' annual reports can be viewed at: https://monitoring.cleanairactionplan.org/reports/.

Technology Advancement Program. The Port received five project concepts in 2021, which include a battery-electric locomotive project, a hybrid zero-emission harbor craft, two types of technology retrofits for two separate container vessels while in transit, two zero-emission top handlers powered using hydrogen fuel cell technology and an at-berth emission control technology. All five project concepts passed initial review and proponents were invited to submit a proposal, all of which are under review or in contract development prior to seeking final approval from the Ports' respective Board of Harbor Commissioners. In Q4 2022, the TAP has received one new project concept; however, the project concept was deemed ineligible under the TAP Guidelines. The TAP continues to move projects forward, evaluate proposals with approved project concepts and manage existing TAP demonstrations.

One of the projects that was moved forward involves a partnership with Toyota Tsusho America, Inc. to design, develop and demonstrate a zero-emission, repowered hydrogen fuel cell top handler and a mobile hydrogen refueler at Fenix Marine Services, a container terminal at POLA. POLB received approval of the funding request at the September 12, 2022 Board of Harbor Commissioners meeting. On November 17, 2022 POLA's Board of Harbor Commissioners approved the TAP project and POLB cost share. The repowered top pick arrived and was under commissioning at Fenix Marine Services in December 2022. The mobile hydrogen refueler is scheduled to arrive Q1 2023.

As for demonstration projects underway, Pacific Tugboat continued collecting the 1,000 hours of activity on the Nett Technologies BlueMAX™ NOVA 320e after treatment system required to demonstrate durability for CARB verification. Because of the very slow rate of accumulation of hours, Nett Technologies is both working with the vessel partner, Pacific Tugboat Services, to prioritize use of the vessel to speed hour accumulation and is working with CARB to see if Nett Technologies can receive conditional verification in the interim. Under a separate demonstration, emissions testing on the water-in-fuel (WIF) system developed by MAN Energy Systems was completed on an MSC vessel. With a water-in-fuel ratio of 41% water content and at up to 50% engine load, NOx reductions of up to 21% were achieved. Lastly, Pasha has completed the build of one of the two LNG vessels. The Pasha Hawaii MV George III vessel was delivered in July 2022. The second new-build vessel is in the commissioning phase and anticipated for delivery in May 2023. The repowered vessel will be delivered in July 2023. All three vessels will be installed with dual-fueled engine technology capable of burning LNG or diesel in the propulsion system, with the system optimized for LNG. \

The Ports continue to engage and support interested stakeholders. This includes holding TAP bi-weekly meetings between the two Ports, leading the TAP Advisory Committee (AC) meetings every 8 weeks with agency partners, responding to general inquiries, and participating in virtual meetings to provide updates on technology demonstrations. The Ports began to re-evaluate the TAP Program Guidelines with an update planned for release by Q1 2023.

Electric Vehicle Infrastructure Training Program (EVITP) Policy. POLB staff are developing a new policy that would potentially require contractors bidding on charging infrastructure projects for Port-owned vehicles to be EVITP approved, and their electricians EVITP certified. POLB is also considering a requirement that the EVITP Policy apply to any vehicle charging infrastructure work funded by the Port, including projects that receive incentives from the CTF Rate or the TAP. Finalization of the policy and Board consideration are anticipated for Q2 2024. Currently, POLA requires contractors that provide construction services for electric vehicle charging infrastructure or equipment, funded or authorized in whole or in part by the California Public Utilities Commission or the California Energy Commission, to hold EVITP certification.

Rule 2304 –Indirect Source Rule for Commercial Marine Ports. Port staff continues to monitor the progress of the regulation and participates in all workshops/meetings.

U.S. Department of Energy Hydrogen Hubs. The Ports are working together with many other public and private California stakeholders through the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) to support the development of an application to the Department of Energy's (DOE) Regional Clean Hydrogen Hubs grant solicitation. The program will be awarding grants up to $1.25 Billion, and the Ports are coordinating with state leaders and ARCHES to secure projects under this opportunity. On December 23, 2022, the Ports submitted their proposed project for the deployment of zero-emission terminal equipment to ARCHES for consideration to be included in the statewide application. The full DOE grant solicitation was released on September 22, and applications are due on April 7, 2023.

PLANNED ACTIONS NEXT QUARTER

- Jointly hold the 16th CAAP Implementation Stakeholder Meeting in Q1 2023.
- Continue to work with CARB and CALSTART to develop a restructured ZE truck voucher program using CTF Rate funds.
- POLB will commence development of their CTF Rate year 2 spending plan and POLA will begin engagement with stakeholders to revisit their 3-year CTF Rate spending plan established in 2022.
- Release the final 2021 Drayage Truck Feasibility Assessment.
- Continue to monitor rate collection and if there are any effects on drivers.
- Continue coordination with AQMD on a Large-Scale ZE Truck Deployment project.
- Continue development of the 2022 Emissions Inventories.
- Continue to evaluate TAP proposals and recommend projects selected by the TAP AC for funding.
- Continue to deploy additional grant-funded ZE equipment and vehicles.
- Both Ports will continue preparing the implementation plan for the Green Shipping Corridor Project for multiple corridors.
- Both Ports will continue planning and engaging with ARCHES in regard to the Department of Energy's large grant funding opportunity to develop a Hydrogen Hub in Southern California.
- POLA plans to hold a virtual meeting with the community to discuss the current status of the air monitoring equipment at each of its 4 air monitoring stations as well as address questions regarding its air monitoring program.

Send any questions or comments to the CAAP email at: caap@cleanairactionplan.org