SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

Clean Air Action Plan Implementation Stakeholder Advisory Meeting
MEETING SUMMARY
December 9, 2025

The meeting was held in person at Banning's Landing Community Center located at 100 E. Water Street in Wilmington and webcasted live via Zoom. The presentations provided at the meeting can be found here.

1. **Welcome**
    - Lisa Wunder, Port of Los Angeles (POLA) Director of Environmental Management and Renee Moilanen, Port of Long Beach (POLB), Director of Environmental Planning, provided opening remarks.

2. **Status Update on the 2024 Emissions Inventory**
    - Justin Elloran, POLA and Zannatul Zannat, POLB presented the joint results of 2024 Emission Inventories (EI) (see presentation for details).
    - Public comments and questions to Ports staff:
        - An attendee expressed interest in zero-emission equipment and requested clarification on the conclusion presented in the third bullet point about cargo handling equipment (CHE) in the presentation. The attendee asked for an explanation of the level of confidence in the analysis of the five categories, given that CHE was the only category showing an increase and sought clarification on whether the overall emissions increase could be attributed to CHE.
            - Port staff clarified that there was an overall increase across all source categories, however, CHE was emphasized because the Ports have deployed cleaner zero-emission CHE. Despite this, there was still an increase in emissions.
        - The attendee asked for clarification on tanker activity, specifically whether it reflected an increase or decrease in diesel particulate matter (DPM) and sulfur oxides (SOx).
            - Port staff stated that they would have to verify the increase in the number of tankers, however, since that source category increased, we are confident in the number. That answer was later verified after reviewing the data included in the annual report.
        - The attendee also inquired whether there had been a noticeable decrease in emissions since the implementation of the At-Berth Rule nearly one year ago.

- Port staff stated that with At-Berth vessels, they will need to check on that particular data point. It was later verified that there has not been a documented decrease in overall ocean-going vessel emissions due to the overall increase in ocean-going vessel activity in 2024, although use of shore-power and alternative capture and control technologies increased between 2023 and 2024.

3. Status Update on Technology Advancements and Grants

- Brittney Ford, POLA, and Rose Szoke, POLB provided a presentation on the joint Ports Technology Advancement Program (TAP) and grant funded projects (see presentation for details).
- Public comments and questions to Ports staff:
  - An attendee asked for clarification on the technical terminology for the RockeTruck system and its next-generation charger.
    - In response, Port staff explained that the technology tests a new type of solid-state transformer to convert high voltage alternating current (AC) power from the transmission lines to a medium direct current (DC) voltage at the charger, eliminating the inverter and enabling the charger to operate at a higher voltage. The technology is being developed by RockeTruck, which is partnering with Zeem to install and demonstrate the charger at Zeem's facility in Long Beach.
  - An attendee asked whether the chargers associated with the project are AC or DC.
    - Port staff responded that the system will utilize a DC hub architecture.
  - The attendee also inquired about the charging capacity, specifically whether the system would operate at 500 kilowatts per hour.
    - Port staff clarified that the chargers will operate at 250 kilowatts to support electric drayage trucks.
  - The attendee further asked whether there are plans to increase charging capacity to 750 kilowatts.
    - Port staff indicated that questions regarding potential future capacity upgrades should be directed to RockeTruck.
  - An attendee asked which terminal is participating in the innovative hands-free conductive charging project.
    - Port staff confirmed that the project will take place at the ITS terminal at the Port of Long Beach.
  - An attendee asked whether the ArcBoats zero-emission tugboat is battery-electric.
    - Port staff confirmed that it is battery-electric.
  - An attendee asked whether the Harbor Breeze vessel is a hybrid or battery-electric.

- Port staff responded that the vessel is hybrid with zero-emission capabilities.

- An attendee asked about hydrogen funding beyond U.S. Department of Energy programs, noting strong private and corporate interest and asking whether economies of scale could reduce the cost per kilogram of renewable hydrogen.
    - In response, Port staff noted that there is significant uncertainty at this time. Efforts to advance renewable hydrogen production in Southern California are ongoing, and interest across the region remains strong. At the Port level, staff are coordinating with Port partners to identify areas of interest and potential projects that can move forward. At the Port of Long Beach, a call for projects utilizing hydrogen fuel remains open, and the Port continues to seek partners with projects that could be supported through available funding. However, staff indicated that the scale of future capital investment remains uncertain and that work is ongoing to identify where hydrogen applications make the most sense within the Port complex.
    - Staff also noted that the California Air Resources Board and California Energy Commission (CEC) publish annual reports focused on hydrogen fueling, which may provide additional information on hydrogen availability and upcoming production capacity.
- In additional discussion, participants noted that hydrogen is expected to play a key role in hard-to-electrify port activities, including drayage, cargo handling, and other operations, given ongoing challenges with scaling electrical infrastructure. Utility constraints were highlighted, including multi-year interconnection queues, approximately four years with Southern California Edison (SCE) and longer timelines with Los Angeles Department of Water and Power (LADWP). Participants noted that retail hydrogen is currently priced as high as $36 per kilogram, roughly equivalent to $24 per gallon of gasoline, and emphasized that broader adoption will require costs to decline to approximately $8–$10 per kilogram through scaled production. It was also noted that the current California Air Resources Board's report does not adjust for the high cost of hydrogen, while the forthcoming CEC report is expected to address hydrogen cost challenges. Participants emphasized that the long-term path forward will likely involve a combination of battery-electric and hydrogen technologies, rather than reliance on a single solution.

4. Clean Truck Program Update

- Teresa Pisano, POLA, and Diana Thai, POLB, presented updates on the Clean Truck Program and Clean Truck Fund (see presentation for details).
    - An attendee asked whether the POLB hydrogen fuel rebate program includes a requirement for a specific color or production pathway of hydrogen.
        - Port staff responded that there is no requirement for a specific hydrogen type, although POLB will be tracking the type of hydrogen being dispensed under the program.
    - The attendee also asked about the scope of the program, including how many kilograms of hydrogen would be covered by the rebate.
        - Port staff noted that while the program is not structured around a specific kilogram cap, it is designed to achieve approximately 3.7 million zero-emission vehicle miles. Staff further explained that POLB has allocated $10 million over the next two years and will regularly revisit the program to assess funding levels and usage. Rebates will continue as long as funding remains available, with periodic evaluations to determine whether program adjustments are needed.
    - Another attendee raised concerns about allowing rebates for hydrogen produced from fossil-based sources, emphasizing that such an approach could undermine the program's goal of reducing the cost of renewable hydrogen. The attendee cautioned that supporting non-renewable hydrogen could be counterproductive and inconsistent with long-term decarbonization objectives.
        - In response, Port staff clarified that the primary intent of the program is to keep existing hydrogen truck fleets operational during a period of significant market disruption. Staff noted that hydrogen prices at the pump are currently $22-36 per kilogram (unsubsidized) and that truck operators often lack transparency into the source and production pathway of the hydrogen available at fueling stations. The rebate program is intended as a temporary, stopgap measure to maintain fleet operations and preserve the air quality benefits of hydrogen trucks while the hydrogen supply system evolves.
        - Staff explained that the program includes ongoing monitoring, including tracking the renewability of the hydrogen mix. As part of this effort, POLB is engaging directly with fuel providers to better understand hydrogen sourcing and to support a transition toward more renewable production pathways over time. Staff acknowledged that, at present, hydrogen available at Southern California stations likely includes a mix of sources but emphasized that the long-term vision is to move toward cleaner hydrogen

supply and that this program provides a mechanism to monitor and influence that transition.

- An attendee expressed strong support for the hydrogen rebate program, noting growing interest in hydrogen technology among drayage fleets serving the Ports. The attendee shared that fleet operators view fuel cost as the primary barrier to adoption of hydrogen fuel cell truck technology and indicated that a program like this could significantly increase willingness to deploy hydrogen fuel cell trucks. The attendee also asked whether fleets could enroll in the program if their hydrogen trucks are not yet delivered, given that some vehicles may not be available for another year.
    - Port staff explained that the enrollment process requires submitting a form available on the POLB website, including vehicle-specific information such as the truck vehicle identification number (VIN). Fleets may enroll as licensed motor carriers; however, rebates can only be issued once a truck is registered, operational, and actively in service. Staff reiterated that funding is tied to vehicles that are currently operating.
    - With respect to program duration, staff noted that the Board approved up to $10 million for a two-year period, with formal check-ins every six months to evaluate program performance. These evaluations will consider hydrogen renewability, spending rates, fleet participation, and overall program necessity. Staff described the program as an effective short-term action to address current market conditions, with the long-term goal of eliminating the need for such incentives once hydrogen becomes economically viable. Staff noted that the program could be extended if warranted or phased out earlier if market conditions change.
    - Port staff concluded by emphasizing that the hydrogen rebate program is part of a broader portfolio of strategies to advance zero-emission truck deployment. Additional efforts for zero-emission trucks include per-trip incentives for calling at terminals and priority terminal access and appointment availability. Other incentive programs are under development. Staff highlighted that the Ports are at a critical moment for zero-emission truck adoption and underscored the importance of maintaining momentum through multiple complementary approaches, recognizing that not all strategies may succeed, but that a diversified toolbox is necessary to support the transition.

5. Adjourn

- Attendees in person and online were thanked for attending the meeting. Ports encouraged everyone to submit any further public comments to be sent to caap@cleanairactionplan.org.