



San Pedro Bay Ports Sustainable Supply Chain Advisory Committee *November Meeting Summary*

Date: November 18th, 2020 | 11:00 am – 3:00 pm

Location: Via phone conference

Attachments: Attachment A - Attendees
Attachment B - Meeting Agenda
Attachment C - Presentation

Meeting Summary

1. POLA / POLB Opening Remarks
 - a. The ports provided a summary update of their September cargo activity as well as their ongoing health and safety measures. As of the ports' 2020 fiscal year-end, their volume was down 6.6% from 2019 in spite of the historic surge in Q3. The Committee discussed the importance of balancing the ports' economic competitiveness with their progress against the Clean Air Action Plan (CAAP) goals, noting that the work of reducing emissions presents valuable economic growth opportunities and that a measured approach is required for long-term economic and environmental sustainability. Responding to Committee inquiries about PM2.5 spikes, they noted that their technical consultants are reviewing the data more closely for unique events and for the relationship with California's wildfires.
 - b. Responding to a Committee request for details on Pacific Harbor Line (PHL)'s recently-announced project to test battery electric locomotive technologies, the Port of Long Beach confirmed that it will provide updates as the project moves forward in 2021. GNA noted that similar rail projects are taking place in California, and the Committee agreed that a focused discussion of this technology at a future meeting would be valuable. **GNA will identify an opportunity for this conversation on the 2021 calendar.**
2. Review & Approve September Meeting Summary
 - a. The meeting summary was approved.
3. Presentation - Port Emissions Inventories (Ports)
 - a. The ports presented a summary of their 2019 pollutant reductions against the 2005 baseline established under the CAAP, and in the context of the cargo volumes during that period. The findings demonstrate that the ports have collectively exceeded their 2023 goals, and continue to make steady annual progress across each pollutant category. Their findings are included in **Attachment C**.
4. Deep Dive - Harbor Craft Technologies



- a. GNA set the stage for the conversation with a summary of the SSCAC's activity to date on harbor craft regulations, and asked that the Committee consider two thought prompts during the presentations and discussion (**Attachment C**).
- b. SPBP inventory & emissions profile (Ports)
 - i. The ports presented a summary of their harbor craft (HC) inventory, illustrating that this 800+ vessel segment is primarily comprised of commercial fishing vessels (34%), followed by nearly equally-sized crew boat, harbor tug and assist tug segments. The majority of these vessels operate on Tier 2 engines. Tug boats have an expected life of between 35 and 50 years, making them one of the longest-lived equipment categories in the port complex.
 - ii. The ports noted that although the commercial fishing vessel segment is among the largest in the SPBP, these vessels have smaller engines and shorter hours of use. By contrast, tug boats have large engines and long hours of use, and are the largest emitters alongside ferries. Assessed in the context of the ports' total emissions inventory, HC are not primary emitters in any pollutant group, and, their emissions profile is typically on par with that of rail.
- c. Existing projects & technologies in use (Ports)
 - i. The ports have identified the HC segment as a priority for their TAP program, due in part to the strong cost-effectiveness of these investments in the NOx and PM2.5 categories. The TAP program is currently supporting two projects - one for emissions control systems, and one to design and bid out a battery electric tug boat. The former is stalled due to COVID-related travel restrictions on the manufacturer, while the latter has completed the bidding process and is seeking funding to fill an approximately \$14MM funding gap.
 - ii. The ports identified several challenges to developing and deploying emissions reduction technologies in the HC category: lack of CARB-verified retrofit systems; the high cost of retrofitting unique and space-constrained vessels with long life cycles; the high cost of advanced technology on new vessels; and funding program requirements. The ports noted that many funding programs are tied to specific geographic areas, and that they prioritize retrofits over new builds. The customized and mobile nature of HC operations make both of these criteria difficult to satisfy.
 - Responding to a question about the cost-effectiveness of retrofits on NOx emissions, the ports noted that CARB is expected to assess this on a dollars per ton basis during its rulemaking. This analysis is constrained by the wide variation in retrofit costs, however, due to the unique attributes of each vessel.
 - iii. Moving forward, the ports will continue supporting TAP and other HC projects. Additionally, the ports have provided letters of support to three zero-emission (ZE) tug boat projects across the state, but note that ZE technology development is primarily moving forward in the ferry segment in Northern California.
 - Crowley Shipping noted that it will be bringing an all-electric tug boat proposal to shipyards for a bid before the end of November 2020.
- d. Access to funding (Ports)
 - i. See point 4.c.ii above.



- ii. The ports emphasized a need for solicitations that are flexible with geographic requirements for equipment operation, and with supporting the verification process of new technologies (rather than requiring the deployment of already-verified technologies).
 - The Port of Los Angeles observed that CARB has not established a standard verification process for hybrid vessel technologies, and that this has created delays on past projects which have not been resolved. The port emphasized that its TAP program is intended to help address this issue.
 - CARB added that activity in the at-berth segment offers precedent for providing funds for the verification of demonstration technologies, on the basis that the data gathered from the demonstration may support final verification processes. At the same time, board-adopted regulations specify certain verification processes that must be completed for full verification which may not be completed during demonstration, adding cost.
 - Responding to comments on the cost of verification, and of vessel builds and retrofits, the ports added that larger funding tranches are required to make meaningful progress in the HC segment.
- e. State investments & Regulatory horizon (CARB)
 - i. CARB staff presented an overview of the existing HC regulation stipulating a transition to Tier 3 and Tier 4 technology by 2022, and the updates under consideration for ZE and Advanced Technologies (collectively identified as ZEAT).
 - ii. In addition to updates to the current regulation, CARB summarized a series of new measures under consideration including stronger in-use requirements and DPF mandates; modified low-use requirements; facility requirements including quarterly reporting; alternative compliance pathways; and required use of renewable diesel (RD) by 2023 in place of ultra-low sulfur diesel (ULSD). CARB is also considering implementing vessel fees to recover the agency's implementation and enforcement costs, which it estimates at \$1.9MM/year. For more details, see **Attachment C**.
 - iii. Curtin Maritime observed that CARB's vessel population assumptions were incongruent with the figures tracked by the American Waterways Operators (AWO). CARB noted that AWO has provided comment on the draft regulation, and that the agency is in discussion about these discrepancies and how to resolve them for the final rule.
- f. Operator's Perspective - technologies, costs, and opportunities (Crowley, Foss, Curtin)
 - i. Maritime vessel operators Foss, Crowley and Curtin - each of which operates equipment in the SPBP complex - were invited to present on their business' operations and experiences with emission reduction technologies to date, and in the future given the targets established by the joint ports and CARB.
 - Each operator cited concerns of insufficient funding being available to support the retrofit activity required under CARB's regulations, as well as the development of new technologies in an industry with customized, mobile and long-life equipment. Curtin pointed out that a new Tier 4



vessel today costs approximately \$15MM, and that CARB's proposed regulations would require an operator to retrofit such a vessel to make further emissions reduction modifications. The operator cautioned that this level of compliance costs would put a small operator, like Curtin, out of business.

- a. Responding to the previous comments about funding restrictions by equipment location, Crowley noted that this isn't a major drawback for ZE tug boat development since vessel range today is expected to be too short to carry the vessel outside of the geographic areas to which funding may be tied.
 - b. Foss emphasized that harbor craft are not built to be retrofitted over their 30- to 50- year life. In many cases, custom builds include spacing around the engine, which renders engine retrofitting time- and cost- intensive. Similarly, the proposed regulation to require DPF retrofits on Tier 3 or 4 engines adds significant burden to an industry for which upgrading to the Tier 4 standard is a long-term effort. A lack of suitable DPFs is another major obstacle - Foss pointed out that its primary rebuild partners (including Caterpillar) do not currently have DPFs that are certified for marine operations.
 - c. Continuous updates to engine requirements over periods of time that are shorter than a vessel's life present mounting business challenges for operators - some of whom are responding by re-evaluating their level of activity in such heavily-regulated areas which are also experiencing shifts in cargo volume.
- The operators also agreed that CARB's classification of the articulated tug barge (ATB) as harbor craft is inappropriate because an ATB's size and duty cycle resembles those of ocean-going vessels (OGVs).
 - The operators observed that the ports' and CARB's intent to shift to fuel types that HC equipment does not currently use is a daunting obstacle for their business. Operators often lease their docking facilities, making accommodations for the required infrastructure transition difficult to coordinate and finance.
 - Curtin emphasized that CARB's regulations (current and proposed) threaten the industry's potential for innovation at a time when HC operators need to focus on innovation for the next generation of technology. The operator reminded the group that the HC operator industry is unique and smaller than the industries behind other port equipment categories, such as cargo handling equipment and yard trucks. Curtin suggested that CARB would benefit from more detailed direct education from a representative group of HC operators.
 - a. CARB emphasized that it welcomes industry engagement throughout the rulemaking process to ensure that the final rule establishes a cooperative environment.



- b. The Port of Long Beach proposed that the SSCAC discuss the concept of a credit-based mechanism to support the HC industry. The Committee agreed to explore this concept at a future meeting.
 - g. The Committee observed that the complicated relationship between HC operators and infrastructure is a key issue that must be addressed as the path forward for this segment is defined. Specifically, the reliable supply of shore power is a critical incentive for operators to invest in battery electric technology. Additionally, securing larger funding tranches from programs with industry-appropriate requirements is critical to supporting these investments. The Committee specified that such commitments are needed at the local, state and federal levels.
 - i. Referring to CARB's proposed requirement for 100% use of RD by 2023, the Committee suggested that a study on the RD supply chain may benefit future decision-making around fueling infrastructure.
 - ii. GNA will work with Committee members to develop a draft recommendation that captures these points, and present it for consideration at the January committee meeting.
5. Discussion - Future Funding for AB 118 (EarthJustice)
- a. The Committee determined that it would be valuable to submit a letter emphasizing the need to extend funding support under AB 118 beyond 2021, and highlighting the value of supporting emissions reduction technologies in the SPBP complex.
 - b. The Committee tasked GNA to work with EarthJustice to develop a draft of this letter to the CEC, for Committee approval.
6. Overview of SPBP application to CARB/CEC joint RFP (SCAQMD)
- a. SCAQMD provided a high-level summary of the partnerships identified to respond to the expected RFP. Further details are not included here to preserve confidentiality while the solicitation is open.
 - b. Review & Approve Letter of Support
 - i. CARB is recused from addressing this item to avoid conflicts of interest.
 - ii. The Committee members will review the draft letter of support submitted by GNA. GNA will simultaneously work with individual members and meeting participants to secure letters of support from their organizations as appropriate. A final sign-on date will be established given the time sensitivity of the solicitation. Committee members will individually determine if they are able to sign on to the letter of support.
7. Update on CARB Activities (CARB)
- a. Joint CARB/CEC ZE Drayage Truck RFP (\$40M)
 - i. CARB anticipates that this RFP will be released in mid-November with a mid-January deadline.
 - ii. The Committee requested that CARB consider extending this deadline until February, citing complications with staff time around the holidays, the effect of COVID-19 on the holiday work schedule, and conflicting near-term deadlines for



other similar solicitations that are important for the Committee's and ports' work. CARB agreed to relay the request.

- b. ACT Regulation, and fleet rule
 - i. CARB continues to develop a fleet rule to accompany the recently-approved ACT Regulation, and is on track to bring this rule to its board by the end of 2021. The rule is expected to have a drayage focus, although the agency noted that its board is similarly interested in last-mile delivery segments.
 - c. Low NOx Omnibus Regulation
 - i. CARB is developing the 15-day changes requested by its board in August, which will be released before the end of the year for public comment. These include:
 - Exemptions for operators of transit buses and heavy-duty vehicles with power ratings over 525 hp for which the single engine manufacturer is no longer producing an engine that will be compliant with the Omnibus regulation;
 - Optional Low NOx standard of 0.01g/bhp-hr to take effect in 2022;
 - Revised definition of near-zero in the CARB incentive programs, with the proposed value of 0.01 g/bhp-hr. with use of in-state renewable fuels; and,
 - Option for manufacturers to collect zero-emission vehicle credits, and exercise multipliers for early compliance, through the Omnibus regulation.
 - d. At-berth Regulation
 - i. CARB has posted the Final Statement of Reason (FSOR) for this regulation, and submitted its rulemaking package for approval. The agency has requested an early effective date of January 1.
 - e. Harbor Craft Regulation
 - i. See agenda item 4.e.
8. Presentation - Draft Truck vs. Train Emissions Analysis (CARB)
- a. CARB presented on the initial findings of its study comparing emissions reductions in the drayage truck and train segments serving the SPBP region through 2040. The Committee observed that the overall finding that trucks are expected to be a cleaner method of goods movement by 2023 is asynchronous with prior directives for the ports to expand on-dock rail. Additionally, that directive prompted extensive and complex levels of engagement among stakeholders at the time, and the Committee anticipates that reversing this directive based on the study's findings will require similarly time-intensive efforts which would further delay achievement of emissions reductions.
 - i. CARB clarified that expanding on-dock rail continues to offer meaningful efficiencies from a traffic congestion perspective, and that the study's results are intended to inform ongoing, detailed analysis of the appropriate balance of goods movement strategies in the region. CARB added that the agency's intent to pursue ZE targets in both transport segments has been articulated for five years, and discussed with the ports.
 - ii. The Port of Los Angeles acknowledged the intent to pursue ZE targets, and affirmed its plan to pursue on-dock rail expansion as part of that effort.



- b. The Committee provided feedback on the value of expanding CARB’s analysis from tailpipe to well-to-wheel, and incorporating the effects of brake and tire wear as well as train length variations specific to California’s rail lines. The Port of Long Beach added that on-dock rail addresses several significant system inefficiencies including the number of moves required to move cargo from vessels to off-dock railyards. Similarly, increasing the volume of cargo moved by truck rather than rail contributes to both freeway and rail congestion, two effects which can increase emissions within and even beyond the port complex.
 - i. The Committee proposed that a future meeting include a dedicated discussion of rail technologies and expected efficiency gains.
9. 2021 SSCAC Meeting Schedule:
- a. January 28th, 11 am - 3 pm (*Thursday*)
 - b. March 17th, 11 am - 3 pm
 - c. May 19th, 11 am - 3 pm
 - d. July 21st, 11 am - 3 pm
 - e. September 15th, 11 am - 3 pm
 - f. November 17th, 11 am - 3 pm
10. Conclusion & Next Steps
- a. CCA shared a request for research support from the National Center for Sustainable Transportation, which aims to survey truck drivers and fleets to inform the Center’s development of a demonstration project. The Committee requested that the group be invited to present on its project at the January meeting.
 - b. GNA will work with Committee members to develop a recommendation on HC technology, as well as letters of support for the ports’ proposal to CARB/CEC’s joint solicitation.



Attachment A
List of Meeting Participants

SSCAC Committee Members	
Michele Grubbs	PMSA
Thomas Jelenic	PMSA
Matt Miyasato	South Coast AQMD
Heather Arias	CARB
Joe Lyou	CCA
Louis Dominguez	San Pedro Neighborhood Council
Stella Ursua	Grid Alternatives
Ray Familathe	ILWU-13
Adrian Martinez	EarthJustice
Los Angeles Port & City Staff	
Chris Cannon	Port of Los Angeles
Tim DeMoss	Port of Los Angeles
Erick Martell	Port of Los Angeles
Teresa Pisano	Port of Los Angeles
Michael Samulon	City of LA, Mayor's Office
Lauren Faber O'Connor	City of LA, Mayor's Office
David Reich	City of LA, Mayor's Office
Irene Burga	City of LA, Mayor's Office
Jacob Haik	Councilman Joe Buscaino's Office
Long Beach Port & City Staff	
Heather Tomley	Port of Long Beach
Sam Joublat	Port of Long Beach
Morgan Caswell	Port of Long Beach
Wei Chi	Port of Long Beach
Eleanor Torres	Port of Long Beach
Jacqueline Moore	Port of Long Beach
Rose Szoke	Port of Long Beach
Leela Rao	Port of Long Beach
Justin Ramirez	City of Long Beach, Mayor's Office
Meeting Facilitation Staff	
Erik Neandross	GNA
Eleanor Johnstone	GNA
Patrick Couch	GNA
Other Stakeholders	



Brian Choe	South Coast AQMD
Michelle Buffington	CARB
Kim Heroy-Rogalski	CARB
David Quiros	CARB
Tony Brasil	CARB
Jessica Fahey	CARB
Ajay Mangat	CARB
Javier Montano	Foss Maritime Company
Chris Peterson	Crowley Maritime
Martin Curtin	Curtin Maritime, Corp.



Attachment B

Meeting Agenda

1. POLA / POLB Opening Remarks
2. Review & Approve September Meeting Summary
3. Presentation - Port Emissions Inventories (Ports)
4. Deep Dive - Harbor Craft Technologies
 - a. SPBP inventory & emissions profile (Ports)
 - b. Existing projects & technologies in use (Ports)
 - c. Access to funding (Ports)
 - d. State investments & Regulatory horizon (CARB)
 - e. Operator's Perspective - technologies, costs, and opportunities (PMSA)
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10. Conclusion & Next Steps



Attachment C
Presentation

Sustainable Supply Chain Advisory Committee Meeting

November 18th, 2020



Agenda

1. POLA/POLB Opening Remarks
2. Review & Approve September Meeting Summary
3. Presentation – Port Emissions Inventories (Ports)
4. Deep Dive – Harbor Craft Technologies
 1. SPBP Inventory & Emissions Profile
 2. Existing Projects & Technologies in Use
 3. Access to Funding
 4. State Investments & Regulatory Horizon
 5. Operator’s Perspective – Technologies, Costs, Opportunities (Crowley, Foss, Curtain Maritime)
5. Discussion – Future Funding for AB 118 (EarthJustice)
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7. Presentation – Draft Truck vs. Train Emissions Analysis (CARB)
8. 2021 SSCAC Meeting Schedule
9. Conclusion & Next Steps

1. POLA/POLB Opening Remarks



2. Review & Approve September Meeting Summary



3. Presentation – Port Emissions Inventories





SAN PEDRO BAY PORTS
CLEAN AIR ACTION PLAN

**2019 San Pedro Bay Ports
Air Emissions Inventory Results**

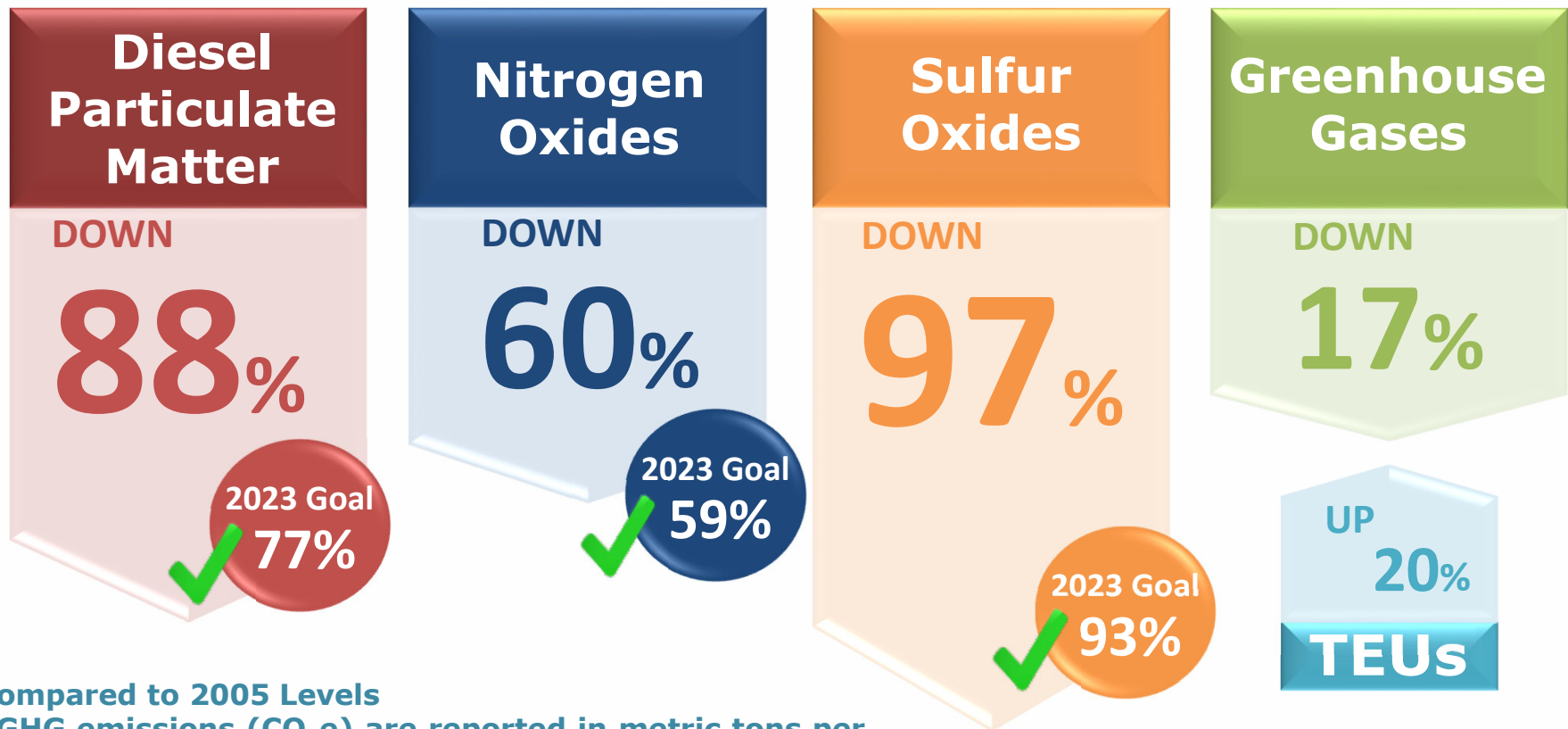


Container Throughput & Vessel Call Comparison

	2005 vs. 2019	2018 vs. 2019
Container Throughput (TEUs)	↑ 20%	↓ 3%
Containers (TEUs) per call	↑ 72%	↑ 1%
Containership Arrivals	↓ 30%	↓ 7%



SPBP 2019 Air Emissions Reductions



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



SPBP 2019 Air Emissions Reductions vs. 2018

**Diesel
Particulate
Matter**

DOWN

4%

**Nitrogen
Oxides**

DOWN

5%

**Sulfur
Oxides**

DOWN

4%

**Greenhouse
Gases**

DOWN

5%

TEUs

DOWN

3%

*Compared to 2018 Levels

**GHG emissions (CO₂e) are reported in metric tons per year; all other pollutants are shown in tons per year.

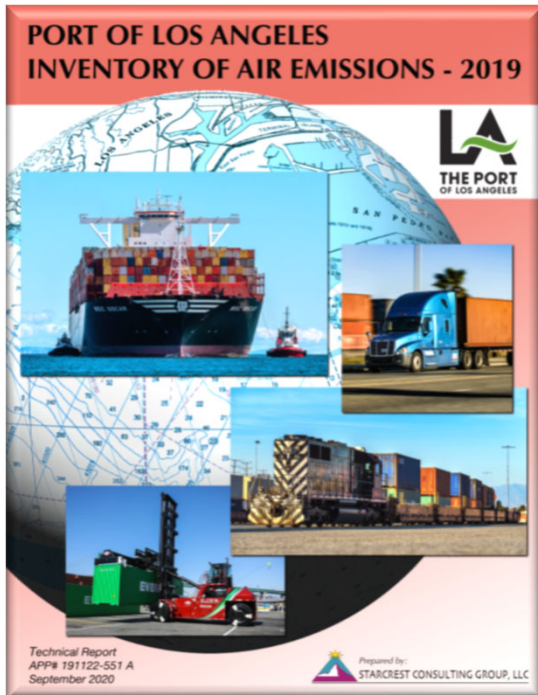


Moving Forward

- State and Federal Regulations
- Feasibility Assessments
- Technology Advancement



2019 Air Emissions Inventories



<https://www.portoflosangeles.org/environment/air-quality/air-emissions-inventory>



<https://www.polb.com/environment/air/#emissions-inventory>

An aerial photograph of a large harbor area, likely in Vancouver, showing a dense urban landscape, a large marina with many boats, and a deep-water port with several large cargo ships. The water is a deep blue, and the sky is clear with some light clouds. A semi-transparent teal banner is overlaid across the center of the image, containing the text "Thank you!".

Thank you!

4. Deep Dive – Harbor Craft Technologies



SSCAC References to Date

- One recommendation (Funding Prioritization, July 2019)
 - “Repower and retrofit tug boats and other harbor craft to the Tier 4 standard, or better, where applicable”
 - Supporting analysis found relatively low levels of demonstration and commercialization activity, and relatively strong cost-effectiveness (NOx, PM2.5)

Thought prompts

What combination of resources and policies will most efficiently accelerate near-term adoption of Tier 4 or better technology in the SPBP?

What unique industry barriers must future project, policy and funding program designs address to support the transition to Tier 4 or better technology in the harbor craft segment?

4. Deep Dive – Harbor Craft Technologies

1. SPBP Inventory & Emissions Profile
2. Existing Projects & Technologies in Use
3. Access to Funding
4. State Investments & Regulatory Horizon
5. Operator's Perspective – Technologies, Costs, and Opportunities





SAN PEDRO BAY PORTS **CLEAN AIR ACTION PLAN**

Update on Harbor Craft Technology Projects
SSCAC Meeting – November 18, 2020

Jacqueline Moore, Port of Long Beach
Jacob Goldberg, Port of Los Angeles
Leela Rao, Port of Long Beach



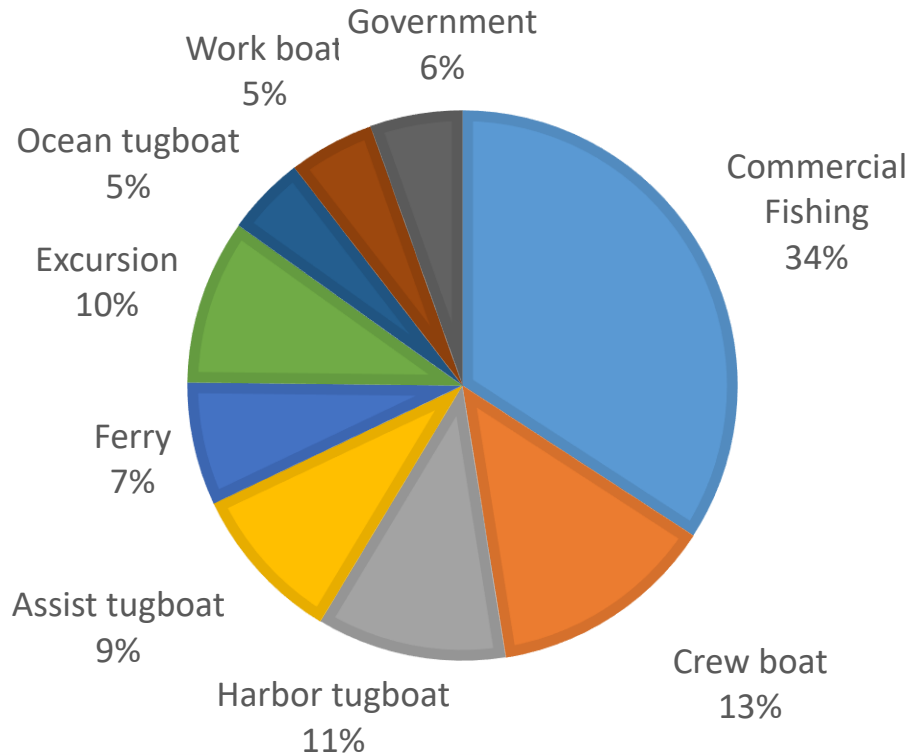
Presentation Topics

- Update on Ports' Harbor Craft (HC) Emissions Inventory
- Technology Advancement Program (TAP) HC Completed Efforts
- Update on Current TAP HC Demonstrations
- HC Technology and Funding Challenges
- Future Outlook for HC Demonstrations



Harbor Craft Fleet & Emissions Inventory

SPBP HC FLEET 2019

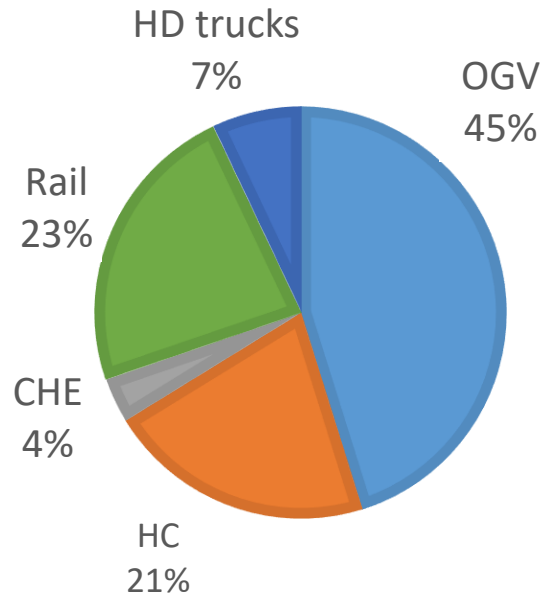


Tier	Engine count
Unknown	63
Tier 0	22
Tier 1	56
Tier 2	387
Tier 3	291
TOTAL	819

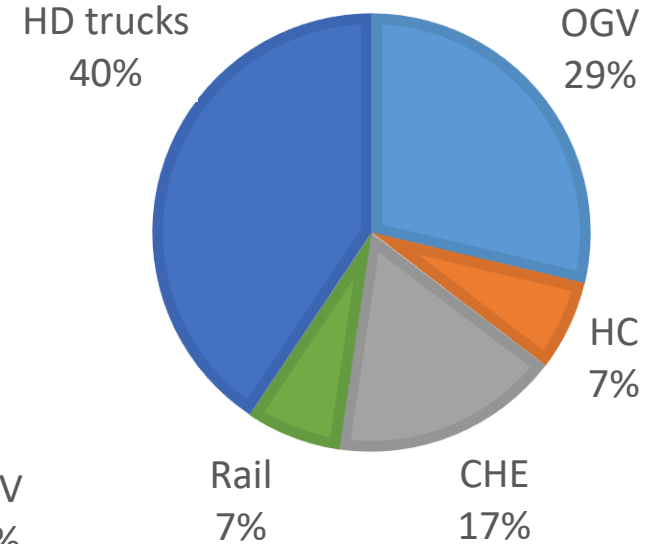


Harbor Craft Fleet & Emissions Inventory

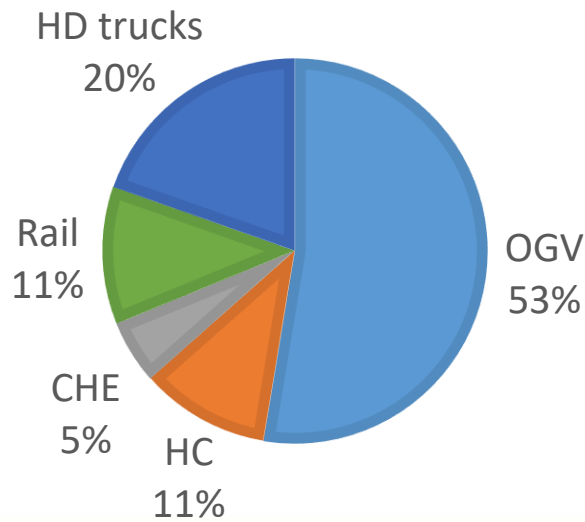
2019 SPBP HC DPM



2019 SPBP HC GHG



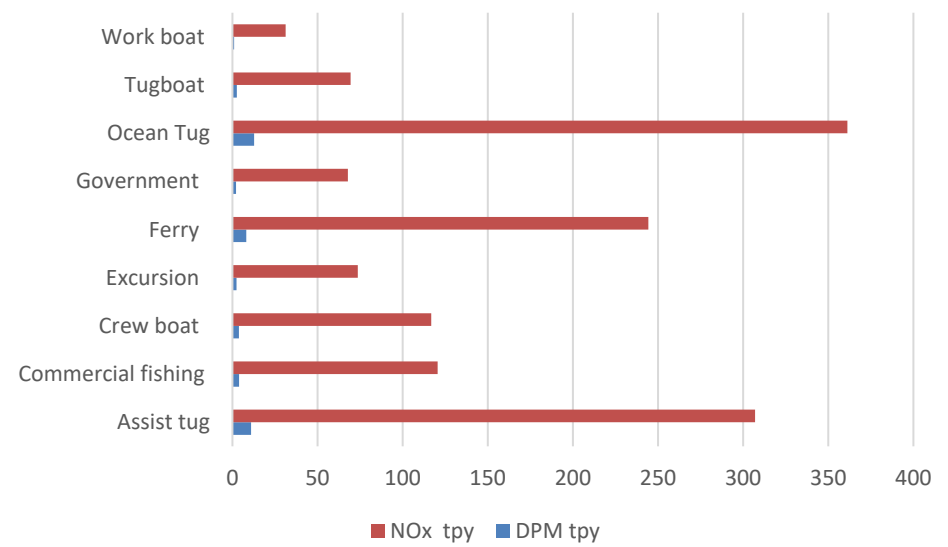
2019 SPBP HC NOX



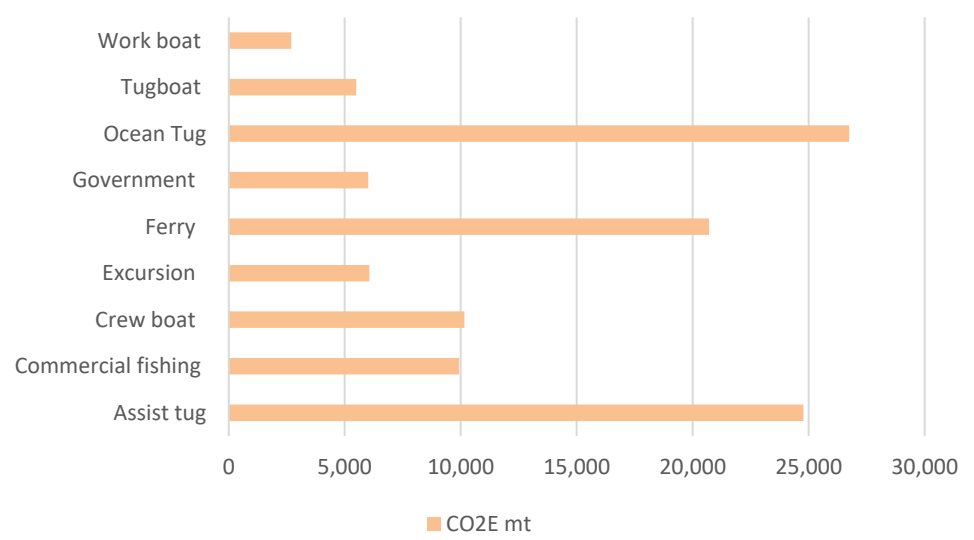


Harbor Craft Type & Emissions Inventory

SPBP HC NO_x & DPM Emissions (tpy)



SPBP HC CO₂E Emissions (mt)





Technology Advancement Program – Completed Efforts

- Ports TAP identified HC technologies as high priority.
- TAP HC Request for Proposals (released July 2017)
 - Nett Technologies selected
 - Project kicked-off in Fall 2018
- TAP Call for Projects (released April 2018)
 - Centerline Logistics (formerly Harley Marine) selected
 - Project kicked-off Fall 2019



Technology Advancement Program – Current Efforts

- Current TAP HC Demonstrations
 - Nett Technologies: Design, manufacture, and verify the BlueMax NOVA 320e emission control system.
 - \$1.2M total project cost, \$500,000 TAP funded
 - Emission Reductions: >85% reduction expected in DPM, NO_x, CO
 - Project Status: emission reduction system fully installed, SCR system not yet activated





Technology Advancement Program – Current Efforts

- Current TAP HC Demonstrations
 - Centerline Logistics: Design and put out for bid to construct an electric drive tugboat.
 - \$600,000 total project cost, \$235,000 TAP funded
 - Emission Reductions: better than Tier 4 emissions expected
 - Project Status: Design and bid completed.



Technology and Funding Challenges for Harbor Craft

- Lack of CARB verified retrofit systems for vessels
- Space constraints on HC, particularly tugboats, for retrofit to Tier 4
- High costs for HC advanced technology
- Limited funding opportunities
 - Require verified technologies for retrofits
 - Often limited to retrofit only
 - If new builds allowed, not enough funding to cover incremental costs



Future Outlook for Harbor Craft Demonstrations

- Implement current HC projects
- Support other regional, state HC projects
- Await results of CEC H2RAM solicitation:
 - CALSTART HyZET Zero-Emission Tugboat Design
 - UCI Development of a Zero-Emission Tugboat Design
 - Golden Gate Zero Emission Marine Tugboat Design, Build and Demonstration



Information

For more information, please visit the CAAP website at www.cleanairactionplan.org/ and select the TAP icon:

[About the Plan](#)
[Strategies](#)
[TAP](#)
[Results](#)
[News](#)
[Contact Us](#)

CLEAN AIR ACTION PLAN

2017 CLEAN AIR ACTION PLAN UPDATE APPROVED BY HARBOR COMMISSIONS

LATEST CLEAN AIR ACTION PLAN NEWS

- > Ports to Host CAAP Update Meeting Oct. 14
- > Ports to Host CAAP Update Meeting June 24
- > Ports Issue Addendum to 2018 Final Clean Trucks Assessment

STRATEGIES

The Clean Air Action Plan identifies strategies to reduce pollution from every source – ships, trucks, trains, cargo-handling equipment and harbor craft.

[VIEW TAP >](#)

TECHNOLOGY ADVANCEMENT PROGRAM

The Ports' Technology Advancement Program provides funding, guidance, and staff support to test promising clean air technologies.

[VIEW TAP >](#)

2017 CAAP

Learn more about the 2017 Clean Air Action Plan Update and follow our progress as we transform into the cleanest container port complex in the world.

[VIEW PLAN AND PROGRESS >](#)



TAP Website

The screenshot shows the TAP website homepage with a blue header containing navigation links: Home, About the Plan, Strategies, TAP, Results, News, and Contact Us. The main content area is divided into several sections:

- Application Resources:** Features an image of a hand writing on a document and a "READ MORE" button. Text: "Interested in submitting a proposal to the TAP? Learn about what's required before you apply. Find test protocols, duty cycle reports, and other resources."
- TAP Guidelines and Funding:** Features an image of a port terminal and a "READ MORE" button. Text: "Do you have a technology that would be a good fit for the TAP?"
- Recent News:** A list of three news items with dates and "READ MORE" links:
 - Ports to Host CAAP Update Meeting Oct. 14 (Posted on 7th September 2020)
 - Ports to Host CAAP Update Meeting June 24 (Posted on 30th June 2020)
 - Ports to Host Ashdodam to 2018 Final Clean Trucks Assessment (Posted on 17th May 2020)
- Projects in Demonstration:** Features an image of a port terminal and text: "Get a first-hand look at our TAP projects currently in action."
- Reports:** Features an image of stacked binders and text: "Immerse yourself in the world of technology."

Four blue arrows point from the left and right sides of the slide to the corresponding sections on the website screenshot.

An aerial photograph of a coastal city and harbor. The image shows a dense urban area on the left, a large harbor with numerous piers and ships in the center, and a large body of water on the right. The sky is blue with some clouds. A semi-transparent teal box is overlaid in the center of the image, containing the text "Thank you!".

Thank you!



Overview of Draft Proposed Amendments to the Commercial Harbor Craft Regulation

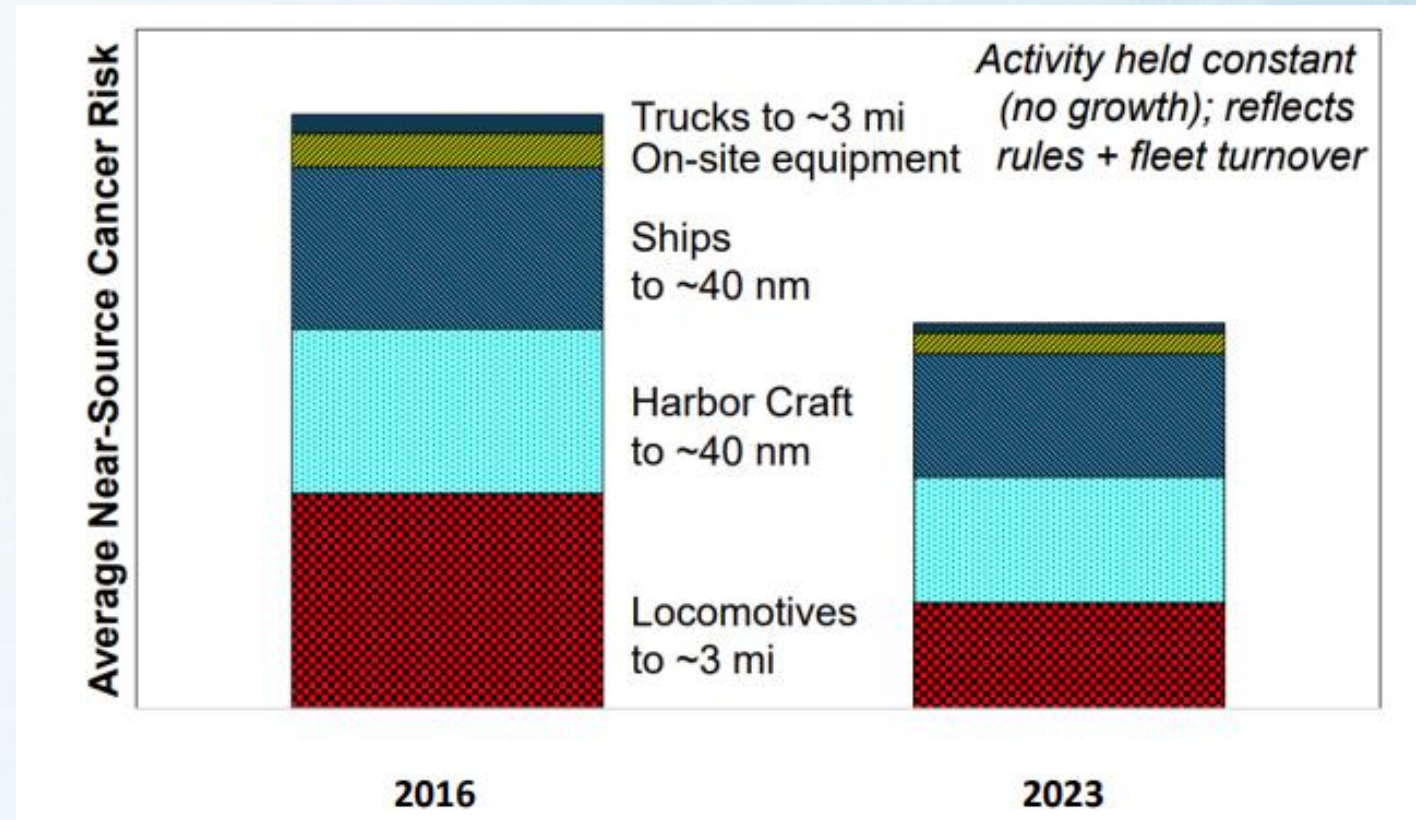
November 18, 2020

CARB's Current CHC Regulation (2009-2022)

- Applies to diesel engines on ferries, tugs, barges, dredges, excursion, and crew and supply vessels
- Sets schedule to meet Tier 2 and 3 from 2009 to 2022
- New vessels must meet current Tier 3 or 4 standards
- Incentive programs, such as Carl Moyer, have funded early compliance or repowers on unregulated vessel categories (e.g. commercial or sport fishing)

Additional Harbor Craft Emission Reductions are Needed

- Reduce community health risk
- Helps attain regional air quality standards
- Mitigate climate change



Requirements for Zero-Emission and Advanced Technologies (ZEAT)

Marine Technology Type	Vessel Category Requirement	Mandate Phase-In Date
Shore Power at Dock	All	<u>Jan. 1, 2024</u>
Zero-Emission Capable Hybrid	New Excursion Vessels	<u>Jan. 1, 2025</u>
Zero-Emission	New and In-Use Short (< 3 nm) Run Ferries	<u>Jan. 1, 2026</u>

- Regulatory incentive: within a fleet, additional compliance time proposed for using ZEAT (up to 7 years) where not required

Stronger In-Use Requirements: Tier (3 or 4) + DPF Control on All Vessels

- Requirements for all commercial vessels – would expand to commercial fishing, sport fishing, workboats, pilot vessels
- Would requires cleanest certified engine (Tier 3 or 4) + DPF control – down to 5 mg PM and 1.3 g/bhp-hr NOx
 - U.S. EPA engines and/or CARB verified DPF retrofits
 - Tier 2 or newer for commercial fishing
- Multiple compliance extensions – up to 6 years for technical feasibility and financial ability to pay

Modified Low Use Compliance

- Existing rule has limits of 80 hours (barge/dredge) or 300 hours (other categories)/year
- Changes are proposed based on engine tier level:

Engine Tier	Tier 0	Tier 1	Tier 2	Tier 3 / Tier 4
Annual Engine Hours	80	300	400	700

New Facility Requirements

- Facilities would need to keep records of tenants and report quarterly to CARB beginning in 2023
- Facilities with higher vessel visits would be responsible for shore power infrastructure at dock by 2024
- Vessel owner/operators would be responsible for zero-emission vessel infrastructure

Other Requirements

- Alternative compliance pathways, such as fleet averaging within air basin, would remain available
- Would require renewable diesel (R100) instead of ULSD
- Amendments would include opacity testing and timely repair of malfunctioning emission control systems
- Would sets vessel fees for CARB to recover implementation and enforcement costs (~\$1.9 million/year)

Contact Information

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CARB Commercial Harbor Craft Website:

<https://www.arb.ca.gov/ports/marinevess/harborcraft.htm>

Past workshop materials available:

- December 2018
- March 2020
- September 2020

5. Discussion – Future Funding for AB 118 (EarthJustice)

6. Overview of SPBP Application to CARB/CEC Joint RFP

7. Update on CARB Activities

1. Joint CARB/CEC ZE Drayage Truck RFP (\$40M)
2. ACT Regulation, and fleet rule
3. Low NOx Omnibus Regulation
4. At-berth Regulation
5. Harbor Craft Regulation

8. Presentation – Draft Truck vs. Train Emissions Analysis (CARB)

9. 2021 Meeting Schedule

1. January 28th, 11 am – 3 pm (*Thursday*)
2. March 17th, 11 am – 3 pm
3. May 19th, 11 am – 3 pm
4. July 21st, 11 am – 3 pm
5. September 15th, 11 am – 3 pm
6. November 17th, 11 am – 3 pm

10. Conclusion & Next Steps