

The background image is a wide-angle shot of a busy port. In the foreground, there are stacks of colorful shipping containers (red, blue, yellow, green) and several large blue gantry cranes. In the middle ground, there are more containers and a road with some vehicles. In the background, there are more port facilities, including more cranes and buildings, under a clear blue sky. The overall scene is a bustling industrial port environment.

SAN PEDRO BAY PORTS
CLEAN AIR ACTION PLAN

GREEN SHIPPING
CORRIDORS

Heather Tomley
Port of Long Beach

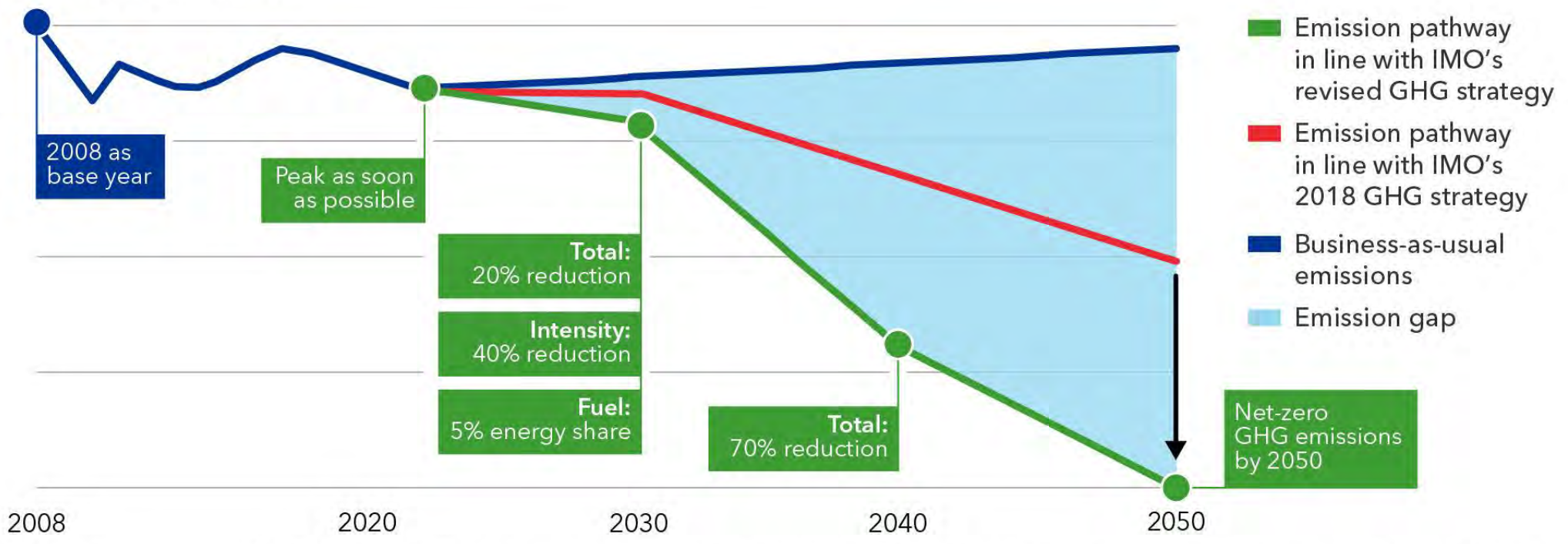
Lisa Wunder
Port of Los Angeles

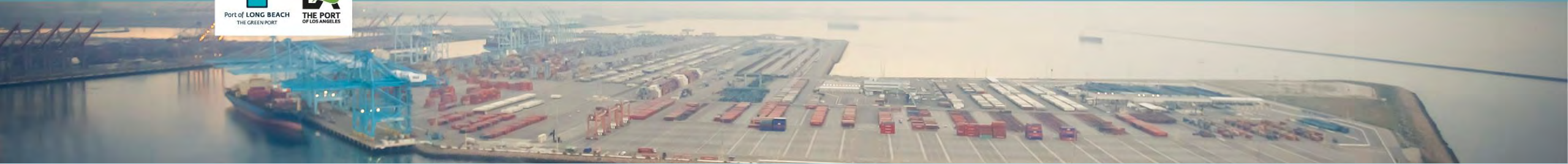


IMO GHG STRATEGY

Outline of ambitions and minimum indicative checkpoints in the revised IMO GHG strategy

Units: GHG emissions





MONITORING CLEAN MARINE FUEL TRENDS

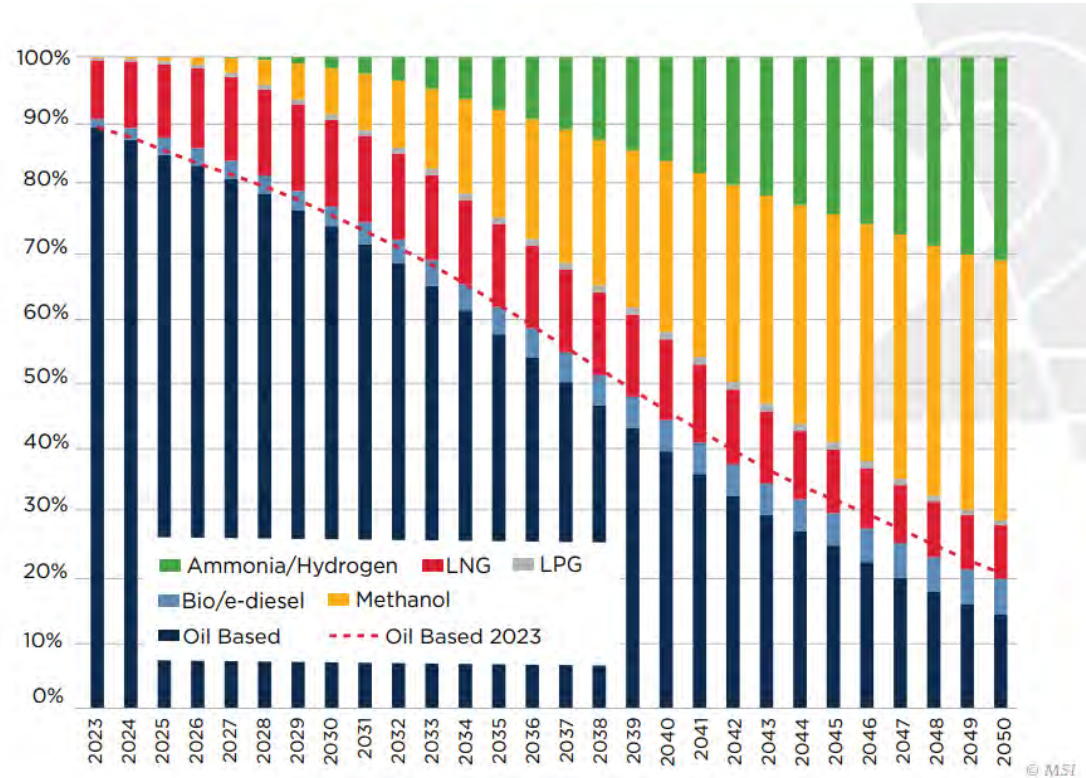


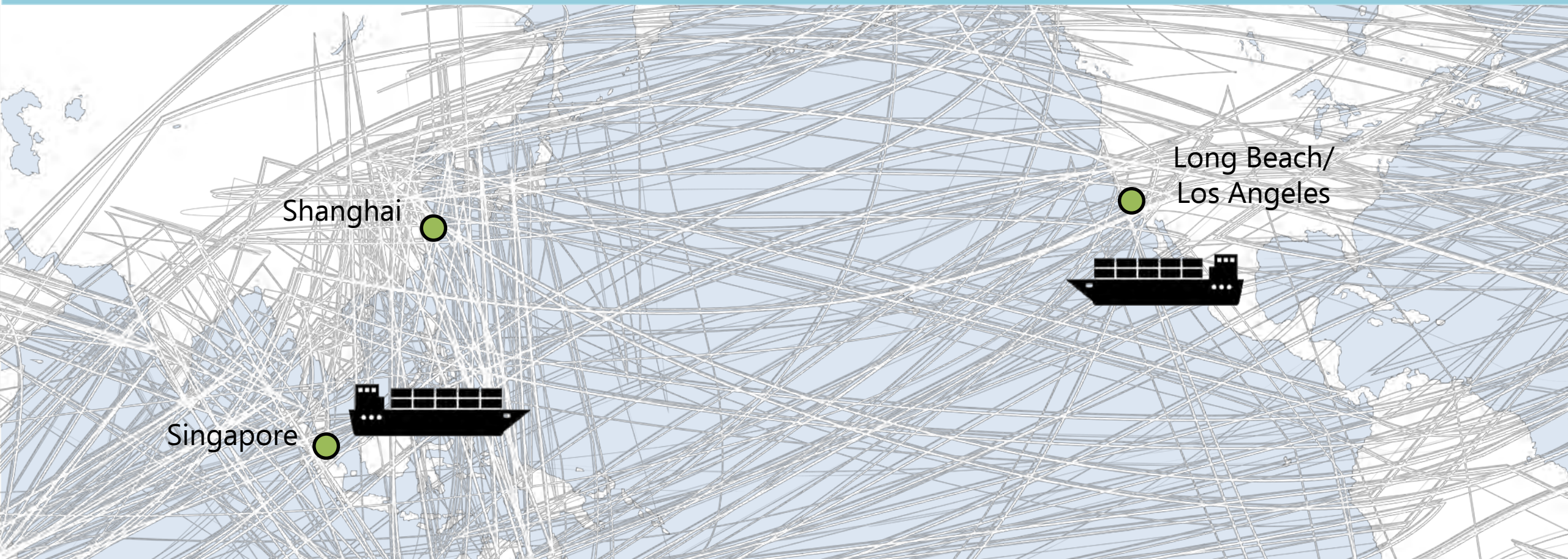
Figure 2.34: Fuel mix (HFO equivalent).

Ship types included: oil and chemical tankers, dry bulk carriers, containerships, LPG, LNG, car carriers, general cargo, ro/ro, ro/pax and cruise.

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GREEN SHIPPING CORRIDORS





LA – LB – Shanghai Green Shipping Corridor

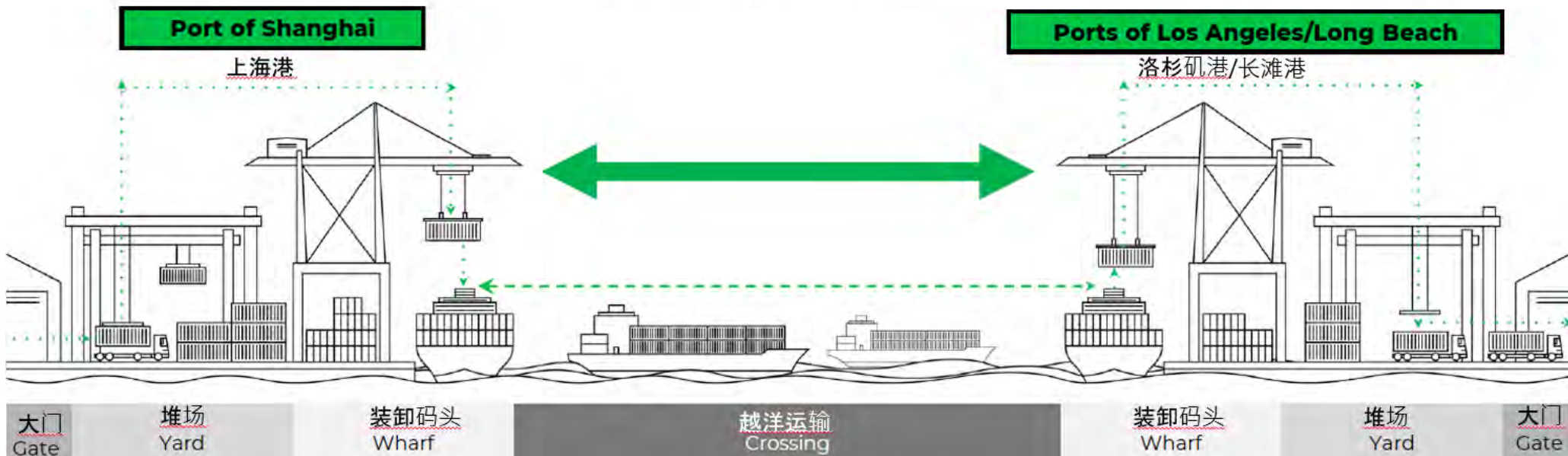
The participants of this Green Shipping Corridor strive to reduce carbon emissions from shipping and port activities and to address local community impacts:

本绿色航运走廊的参与者致力于从以下方面着手，来减少航运和港口活动的碳排放和应对其对当地社区的影响：

The incoming gate of the departure terminal including ship loading activities;
始于出发港的进港码头闸口，包括船舶装货活动；

Transit along the shipping route to the arrival terminal;
整个航运路线运输过程直至到达目的港码头；

Unloading of the ship and movement to the outgoing gate of the arrival terminal.
目的港码头卸货，直至离开码头的闸口。





LA – LB – Shanghai Green Shipping Corridor

Project Leadership



Core Partners



2025 Goal: Begin deploying zero carbon capable ships into the corridor

2030 Goal: Work together to demonstrate the feasibility of deploying a zero lifecycle carbon emission container ship into the corridor

Working Mechanism

Los Angeles – Long Beach - Shanghai

PARTNERSHIP CHAIRING COMMITTEE



WORKING GROUPS

1

ENERGY
SUPPLY

CARRIERS

PORTS

2

CARGO
OWNERS

MEASURING/
ASSESSMENT

OTHER

FACILITATION
& SUPPORT





LA – LB – Singapore Green Shipping Corridor

Our aims are in line with the ambitions set out by IMO's 2023 GHG Strategy



- 1 Carbon intensity of the ship to decline** through further improvement of energy efficiency for new ships, by strengthening design requirements
- 2 Reduce CO2 emissions per transport work**, as an average across international shipping, by at least 40% by 2030, compared to 2008 levels
- 3 Raise uptake of zero or near-zero** GHG emission technologies, fuels and/or energy sources to represent at least 5%, striving for 10%, of energy used by international shipping by 2030
- 4 Peak GHG emissions** from international shipping as soon as possible and to reach net zero by or around, i.e. close to, 2050, accounting for different national circumstances



LA – LB – Singapore Green Shipping Corridor

Following on from the partnership strategy, the corridor has developed three core mission statements that will define our way forward



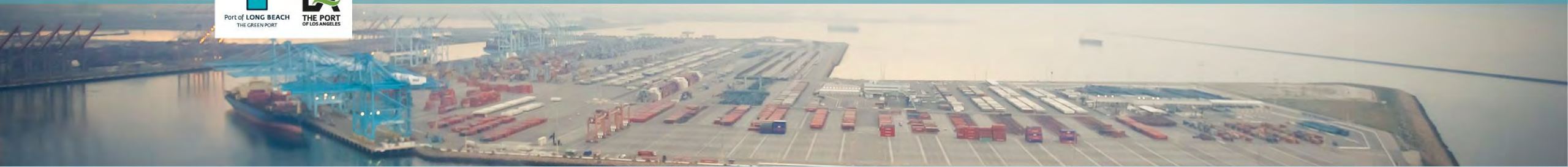
Enable the supply and adoption of zero and near-zero emissions fuels (e.g. green ammonia, green methanol) at scale, including safety, emergency response, mitigation and standards-setting



Develop and encourage adoption of technologies to support the monitoring, reporting and verification of Greenhouse Gas (GHG) emissions along the corridor



Develop and scale-up adoption of energy efficiency solutions, including through digital tools and technologies that reduce fuel consumption



KEY NEXT STEPS

- Continue Phase 1 Working Group Discussions for LA-LB-Shanghai Green Shipping Corridor
- On-boarding Shipping Line Partners for LA-LB-Singapore Green Shipping Corridor
- Developing Clean Marine Fueling Guidelines, Safety Standards, Training, and Standard Operating Practices
- Begin deploying zero carbon capable ships into the corridor

An aerial photograph of a coastal city, likely San Francisco, showing a dense urban grid on the left and a large marina with numerous boats in the center. A long pier extends into the blue ocean on the right. A semi-transparent blue banner is overlaid across the middle of the image.

OPEN DISCUSSION



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

Update on Clean Truck
Program Implementation
and Clean Truck Fund Rate

Leela Rao – Port of Long Beach
Environmental Officer – Air Quality

Amber Coluso – Port of Los Angeles
Air Quality Environmental Specialist

CAAP Stakeholder Implementation
July 30, 2024



Joint Port Trucks Today*

- 23,201 trucks are in the Port Drayage Truck Registry (PDTR)
- 14,405 2014+ trucks registered in the PDTR and make 92% of moves
- 99.9% of trucks in the PDTR have engines meeting 2010 EPA standards
- 0.1% of trucks in the PDTR are engine year 2007-2009
- 881 LNG/CNG trucks are in the PDTR and perform 5.8% of moves
 - 561 trucks with the Cummins natural gas fueled 0.02g/bhp-hr NOx engines are in the PDTR
- 358 Zero Emission (324 battery-electric, 34 Hydrogen Fuel Cell) trucks in the PDTR and perform 1.9% of moves

* Snapshot from June 2024



Current CTF Rate Status

- Collection began at both Ports on April 1, 2022
- Approximately \$2.5-4 million collected by each port monthly
- Total for San Pedro Bay Ports to distribute through June 2024
 - Approximately \$173.6 million
- Amount allocated to ZE trucks and infrastructure
 - Approximately \$110 million





CTF Rate Revenue Spending Priorities

- Each Port developed a CTF Rate Spending Plan for approval by our respective Board of Harbor Commissioners
- Both Ports are prioritizing zero emission truck vouchers and infrastructure with Years 1-3 funds
- Ports also have funds dedicated for early truck deployment projects



POLA Early ZE Truck Deployment

- POLA released a Request For Proposals in late 2021 for 10 or more ZE trucks and associated infrastructure
- POLA Board approved 2 proposals for a total of \$6 million (22 trucks)
- One project has deployed all 10 trucks
- Second project has ordered 12 trucks and are waiting for infrastructure installation – estimated completion Q2 2025



ZE Truck Voucher Incentive Program

- Ports providing plus-ups to **CARB's HVIP vouchers using CTF Rate funds**
 - \$150,000 CARB HVIP Voucher + \$75,000 Port plus-up OR \$100,000 for fleets with less than 20 trucks
- CALSTART administering program.
- Plus-ups began November 14, 2023.
- Ports provided \$30 million each for this round of voucher funding.
- Since Ports plus up voucher release, CARB increased their small fleet HVIP voucher base to up to \$300,000 in late 2023.



Public Charging Infrastructure

- POLB is preparing solicitations for development of public charging at two sites, which may be partially funded using CTF Rate dollars.
 - First solicitation for additional charging at the Terminal Access Center closed and under real estate negotiations. Second solicitation for Pier B/Carrack Ave. released July 22.
- POLA released a Request for Proposals for a site located in Wilmington in January 2024, which closed March 2. A preliminary selection has been made and is being prepared for POLA Board consideration.



Public Charging Infrastructure Cont.

- Ports approved separate MOUs with SCAQMD on behalf of MSRC to support public infrastructure projects that will be drayage focused.
 - POLB Board approved on June 24th
 - POLA Board approved on June 27th
- Proposed total project cost of selected projects is \$135 M, with a requested funding amount of \$25 M (\$12.5 M per port)
- Total of 8 projects with 207 electric chargers





CARB Coordination

- Port staff continue to meet with CARB staff to coordinate future implementation of the Clean Truck Check and Advanced Clean Fleets regulations
 - Working to ensure proper communication between CARB databases and Port Drayage Truck Registry systems
 - Working together on outreach to ensure trucks are registered in CARB databases in an effort to minimize gate disruptions once implementation begins





Next Steps

- Both Ports will continue to monitor implementation of CTF Rate and spending plan roll-out
- Evaluate if additional near-term adjustments to spending programs are needed
- Continue work with CALSTART on plus-up voucher program
- Work with MSRC to complete contracting for infrastructure projects

An aerial photograph of a large port facility, likely a container terminal, situated along a coastline. The port is filled with numerous shipping containers, cranes, and large industrial buildings. The water is a deep blue, and the surrounding urban area is visible in the background. A semi-transparent teal rectangular box is overlaid on the center of the image, containing the text "Thank you!" in white, sans-serif font.

Thank you!

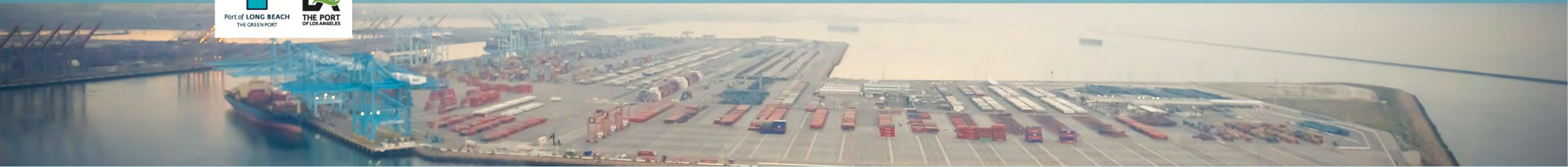


SAN PEDRO BAY PORTS **CLEAN AIR ACTION PLAN**

Update on 2024 Feasibility Assessments
for Cargo-Handling Equipment and
Drayage Trucks

Rose Szoke
Port of Long Beach

Jacob Goldberg
Port of Los Angeles



Framework for Development Feasibility Assessments

- The 2024 Feasibility Assessment for Cargo-Handling Equipment (CHE) and the 2024 Feasibility Assessment for Drayage Trucks follows the 2021 Feasibility Assessments
- The Ports will continue to follow the “Framework” document from the 2017 San Pedro Bay Clean Air Action Plan Update
- Zero-emission (ZE) technology platforms will continue to be evaluated under the five basic parameters: 1) Technical Viability, 2) Commercial Availability, 3) Operational Feasibility, 4) Availability of Infrastructure and Fuel and 5) Key Economic Considerations





Screening Methodology

Is the technology, infrastructure, or fuel used to support ZE platforms commercially available? Can the manufacturing capability meet the demand?

Commercially Available?

Technically Viable?

Is the technology proven and ready for deployment in real-world conditions? Does it meet the necessary performance standards?

YES = Further Assessment for Below Parameters



Operationally Feasible?



Economically Feasible?



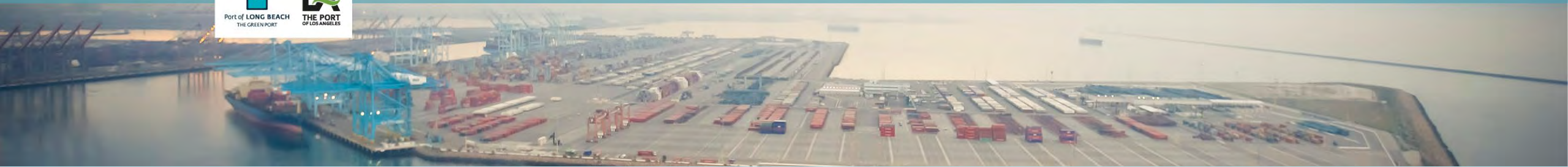
Infrastructure Available?



New Approach for 2024 Feasibility Assessments

- Timeframe – feasibility as of 2024 with qualitative forward-looking discussion
- Only ZE technology platforms and supporting infrastructure will be evaluated, including battery-electric and hydrogen fuel cell technologies for CHEs and drayage trucks
- Two new consultants selected with one to develop the 2024 Feasibility Assessment for Cargo-Handling Equipment and the other to develop the 2024 Feasibility Assessment for Class 8 Drayage Trucks
- Streamlined, concise Feasibility Assessments
- Graphics to support reporting and clear visualization





What We Will Be Evaluating

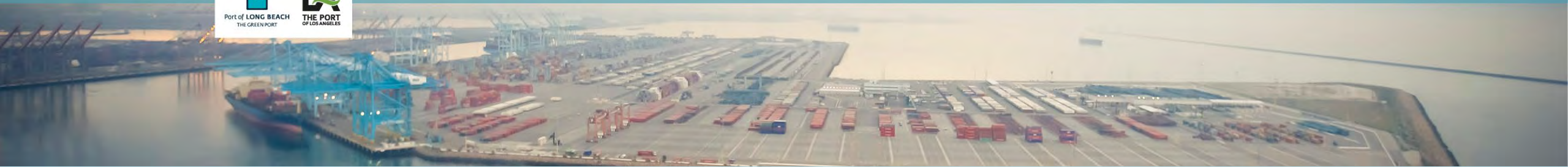
- 4 Cargo-Handling Equipment Types
 - yard-tractors
 - rubber tired gantry (RTG) cranes
 - top handlers
 - large-capacity forklifts
- ZE battery-electric and hydrogen fuel cell technologies
- Charging and fueling infrastructure including grid-connected power



What We Will Be Evaluating

- Class 8 Drayage Trucks
- ZE battery-electric and hydrogen fuel cell technologies
- Charging and fueling infrastructure





Stakeholder Engagement



- Active Engagement – Present findings at CAAP meetings and 1:1 meetings with various stakeholders as needed



- Share materials, gather feedback, and adjust strategies based on stakeholder input, ensuring productive discussions



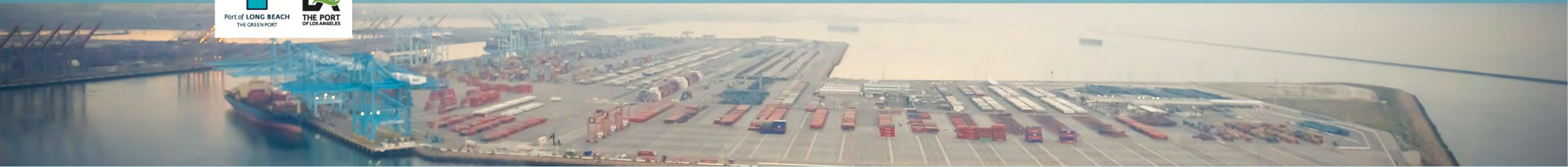
Anticipated Schedule

- Research/Data Reviews: In Progress
- OEM/Operator Interviews: August – September 2024
- Develop Assessments: September 2024 – March 2025
- Drafts for Public Comment: April 2025
- QA/QC Review: May 2025
- Final Assessments: June 2025



CAAP References

- 2018 and 2021 Feasibility Assessments for:
 - Cargo-Handling Equipment: <https://cleanairactionplan.org/strategies/cargo-handling-equipment/>
 - Class 8 Drayage Trucks: <https://cleanairactionplan.org/strategies/trucks/>
- Clean Air Action Plan Update:
 - Documents: <https://cleanairactionplan.org/2017-clean-air-action-plan-update/>



Port Contacts

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- POLB
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