

Maritime Clean Air Strategy Highlights 2023-2024



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The Maritime Clean Air Strategy Overview

The Maritime Clean Air Strategy (MCAS) is a strategic planning document the Port of San Diego Board of Commissioners adopted in October 2021 to help identify future projects and initiatives that reduce emissions while also supporting efficient and modern maritime operations. The MCAS recognizes that bold and transformational action is urgently needed to improve air quality and public health. In pursuit of “Health Equity for All”, the MCAS identifies several aspirational, near-term goals and objectives to be accomplished by 2026 and long-term goals for 2030.

Status of MCAS Objectives

Collectively, the MCAS has 39 separate initiatives which lead to projects, partnerships, and studies. As of July 2024, approximately 66% of MCAS objectives have been implemented.

Emission Sources:

	In-Progress	Implemented
 Cargo Handling Equipment	1	
 Commercial Harbor Craft	3	2
 Shipyards		2
 Heavy-Duty Trucks	2	5
 Port of San Diego Fleet	2	2
 Ocean-Going Vessels	1	2
 Rail	1	1

Stakeholder-Driven Priorities:

 Community Enrichment		4
 Public Health		4
 Enabling	3	4
TOTAL	13	26

By the Numbers

Electric cargo handling equipment on Tenth Avenue Marine Terminal (TAMT):



7 Electric Yard Trucks



3 Electric Heavy Lifts



2 Electric Mobile Harbor Cranes



2 Electric Reach Stackers



2 Electric Forklifts

16 pieces procured to-date

25 electric vehicles have been procured to-date:



Ford F-150 Lightning Trucks



Tesla Model Y Service Vehicles



Ford E-Transit 350 Work Vans



Nissan Leaf Service Vehicle

Funding Summary

The Port and partners have committed approximately **\$125 million** for maritime electrification and efficiency efforts to-date, including but not limited to:

\$38.6M

Tenants & Service Providers' Electric Equipment & Commercial Harbor Craft

\$27.4M

Port Electric Vehicles & Equipment

\$25.2M

Tenth Avenue Marine Terminal Infrastructure Upgrades

\$18.5M

Freight Efficiency Along Harbor Drive

\$8.6M

National City Marine Terminal Infrastructure Upgrades

\$5.8M

Cruise Ship Terminal Infrastructure Upgrades

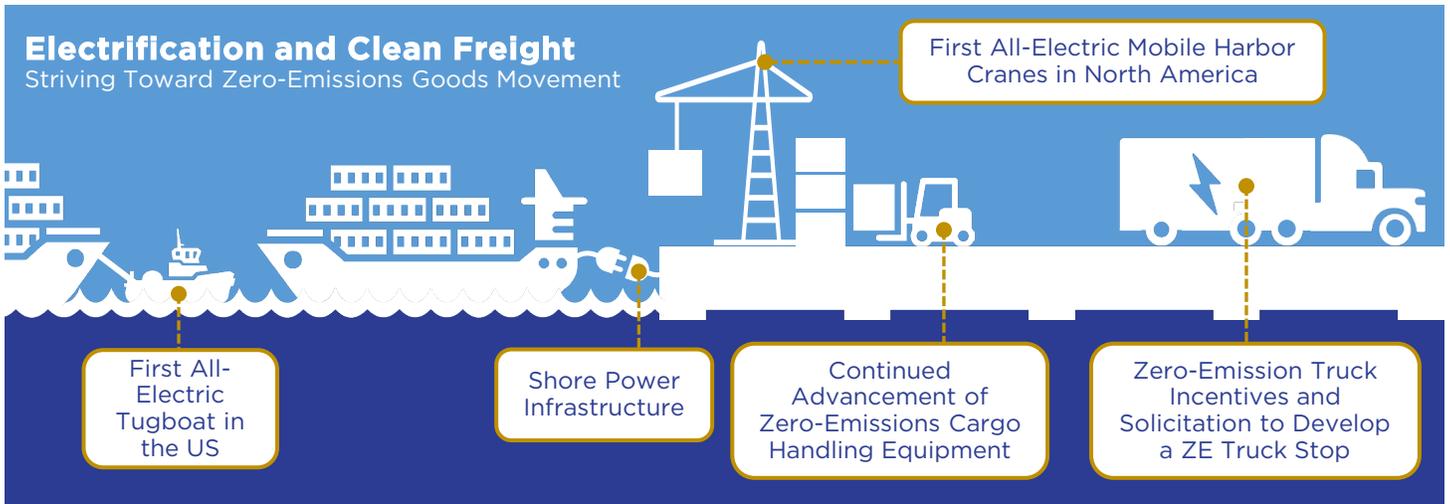
\$1.1M

Clean Trucks Corridor Deployment

Electrification Upgrades

Why Electrify?

Ports are essential to the economy and vital components of the supply chain ecosystem but are also sources of air pollution primarily due to diesel powered engines and equipment. To address growing environmental concerns, the Port of San Diego is undertaking ambitious actions to electrify its operations. Making the transition to electrification can lower overall emissions and operational costs, improve air quality, reduce dependence on carbon-based fuels, and benefit public health.



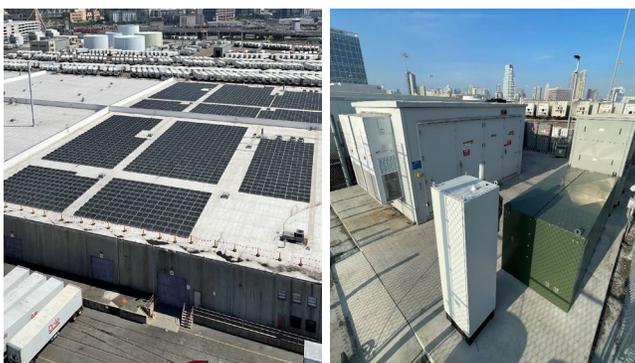
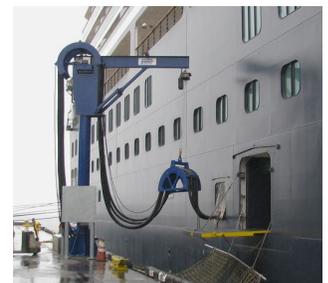
What's been accomplished so far?

TAMT Electrical Upgrades

Modernizing the electrical system at TAMT is fundamental to supporting the transition from diesel-powered to zero-emission technologies supporting electric cargo handling equipment, heavy-duty trucks, and installing additional shore power for ocean-going vessels and commercial harbor craft. The Port has applied for regional, state, and federal funding to continue these efforts.

Shore Power

Shore Power Phase 1 and Phase 2 at National City Marine Terminal will supply electricity to ocean-going vessels and require service upgrades to the electric grid by San Diego Gas & Electric. An additional shore power connection point at B Street Cruise Ship Terminal is also being added to the shore power system for greater flexibility when connecting cruise ships.



TAMT Microgrid

The Port's TAMT Renewable Microgrid project consists of a solar photovoltaic array tied to a battery energy storage system and microgrid controller, augmenting electricity for critical operations on the terminal. The system offers resiliency and dependability should issues arise with the regional electrical grid. The microgrid reduces the cost of electricity by approximately 60 percent per year.



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On the Horizon

- 1 Shore Power Enhancement at B Street Cruise Ship Terminal**
Construction will start late 2024 to add an additional charge point.
- 2 Tuna Harbor Wharf Upgrades**
Upgrading facilities by providing a 480V/100A service. Infrastructure coordination and preliminary engineering analysis are underway.
- 3 Harbor Drive 2.0**
A modern truck route for efficient goods movement and enhanced pedestrian, bicycle, and transit connections.
- 4 Port Zero-Emission Fleet & Charging Infrastructure**
Installation of 12 chargers at General Services to support the Port's growing fleet of electric vehicles.
- 5 Zero-Emission Truck Stop**
In partnership with Skycharger LLC, design, develop, and operate a zero-emission truck stop in West National City.
- 6 Bonnet System - Emissions Capture Control System**
Supports emission reductions for vessels not equipped to connect to shore power. Operation in late 2024.
- 7 Shore Power Expansion at National City Marine Terminal**
Phases 1 and 2 are underway with anticipated completion in 2025.



Cruise Ship Terminals



Tenth Avenue Marine Terminal



3



4



National City Marine Terminal

5



6

7



CHULA VISTA

CORONADO

SAN DIEGO

NATIONAL CITY

San Diego Bay

Pacific Ocean

Sweetwater Channel

Harbor Drive

Harbor Drive

I-5

Spotlights

Maritime Industrial Impact Fund (MIIF) Expansion

The MIIF supports projects and programs that reduce air pollution and address other environmental burdens experienced by those living near the working waterfront of San Diego Bay. Projects previously receiving MIIF funding include the free electric community shuttle in National City (FRANC) and residential air purifiers in Barrio Logan. With public and stakeholder encouragement, the Port increased funding for the MIIF to 4% of the Port’s annual gross maritime industrial revenue. Approximately \$1.5 million was directed into the MIIF for Fiscal Year 2025. The fund’s current balance is approximately \$2.2 million. The Board also authorized expanding the program to include maritime electrification efforts such as electric trucks and infrastructure.



Crowley Christens the First Fully Electric Tugboat in the U.S. at the Port of San Diego

The eWolf and its shoreside solar charging station are the result of a partnership between the Port, Crowley Maritime Corporation, the San Diego County Air Pollution Control District, the California Air Resources Board, the U.S. Environmental Protection Agency, and the U.S. Department of Transportation Maritime Administration. The zero-emission tugboat, combined with renewable power, delivers high-power capability, safety, and efficiency while advancing decarbonization, air and noise pollution reduction, and strengthens San Diego region’s maritime industry.

2024 Awards



Resilience and Sustainability Merit Award from the San Diego American Planning Association

In June, the Port’s Maritime Clean Air Strategy was recognized for setting ambitious air quality goals.



American Public Works Association Project of the Year Award & Honor Award in the Sustainable & Green Category

In April, the Port was recognized for its Tenth Avenue Marine Terminal Renewable Microgrid project in the Sustainable and Green category.

Community Enrichment

Portside Community Academy (Fall 2023 & Spring 2024)



The Portside Community Academy was developed and launched by the Port in 2023 with the goal of providing structured education on maritime-related air quality projects being pursued by the Port. The pilot program was aimed at building deeper connections with portside communities by exploring innovations that are helping improve human health and quality of life.



The academy covered various aspects of the Port’s clean air and electrification projects, focusing on impacts on air quality, public health, and technological advancements in the maritime industry. The program’s purpose is to develop a large team of community ambassadors who can promote awareness about zero-emission technologies and air quality improvements at the Port. A total of 55 graduates have completed the academy, with two courses being held in October 2023 and March 2024. Additional academies are anticipated to be held in Fall 2024 and Spring 2025.

Outreach & Engagement



SDG&E EV Day - October 2023



ZE Truck Showcase / Ride & Drive - October 2023



SDG&E EV Fleet Day - April 2024



Crowley eWolf Christening - June 2024



Maritime Month

Each year in May, the Port is proud to celebrate its maritime industry and honor the thousands of valued employees working along the San Diego Bay waterfront. For this year’s Maritime Month, the Port invited guests to experience its two cargo terminals and waterfront with three free bus tours for 79 attendees.

Partnerships



The California Energy Commission - Ports Collaborative



The California Energy Commission (CEC) - Ports Collaborative is a unique partnership between the CEC and all of the California Ports to implement solutions to energy challenges faced by ports. The Collaborative has met for nearly ten years and has helped commercialize zero-emission equipment, vehicles, and microgrids in port environments.



Harbor Drive 2.0



SANDAG, in partnership with the Port and Caltrans, will be finalizing the design for Harbor Drive 2.0, and position the project for construction funding. Harbor Drive 2.0 will improve Harbor Drive between the Port's two marine terminals by creating a modern truck route for efficient goods movement; enhanced pedestrian, bicycle, and transit connections and safety; and will improve air quality by reducing diesel emissions. Construction is targeted to begin 2028, pending funding availability.



Zero-Emission Truck Stop



In Spring 2024, the Port and Skycharger, LLC formalized a partnership to design, develop, and operate a zero-emission truck stop on Port land in West National City. The project is anticipated to advance several MCAS initiatives and presents an opportunity to reduce barriers such as lack of available charging infrastructure for zero-emission trucks. The proposed Trucking as a Service business model will help alleviate early adoption concerns expressed by the trucking industry. In addition to primarily servicing trucks delivering goods to and from the marine terminals, a charger should be available for community use.

For more on the MCAS:



**PORT of
SAN DIEGO**
Maritime

Questions or comments on the MCAS?
Please email Port staff at:
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