



# Hydrogen Hub - Port of LA



**THE PORT**  
OF LOS ANGELES 

May 5, 2022



# Clean Air Action Plan

- Planning document that outlines a series of strategies and goals for reducing air emissions from Port operations
- Primary Carbon Reduction goals:
  - All terminal equipment to be zero emissions by 2030
  - All on-road trucks to be zero emissions by 2035
  - Reduce GHG emissions to 40% and 80% below 1990 levels by 2030 and 2050, respectively

# Emissions Reductions (2005-2020)

**Diesel  
Particulate  
Matter**

DOWN

**89%**

2023 Goal  
**77%**

**Nitrogen  
Oxides**

DOWN

**64%**

2023 Goal  
**59%**

**Sulfur  
Oxides**

DOWN

**98%**

2023 Goal  
**93%**

**Greenhouse  
Gases**

DOWN

**12%**

UP  
**23%**

**TEUs**



# Decarbonizing the Port

- Summary of Mobile Emissions Source Categories (2020):
  - Ocean Going Vessels
    - 1,533 Arrivals; remain at berth 3-5 days
  - Heavy Duty Trucks
    - 18,048 registered for operation at POLA (December 2020)
  - Cargo Handling Equipment
    - 1915 operating equipment
      - Includes 966 Yard Tractors and 196 Top Handlers
  - Locomotives
    - 24 Switching Locomotive on-dock
  - Harbor Craft
    - 206 unique work vessels (tug, ferry, fishing)



# Benefits of Hydrogen Technology

- Hydrogen offers comparable duty cycles to current diesel powered equipment for all types of cargo handling equipment
- Potential capability for Long Haul freight movement (potentially up to 400 miles) for trucks and longer duty cycles for Cargo Handling Equipment
- Hydrogen offers a comparable driver experience compared to diesel (fueling time and range)
- Fueling infrastructure efficient at large scale



# Upcoming Hydrogen Projects

- Port of Los Angeles Shore to Shore Project
  - Hydrogen Fuel Cell (HFC) Electric Drayage Trucks
- Supported Cargo Handling Equipment Demonstrations
  - 2 HFC Yard Tractors (GTI)
  - 1 HFC/Batter Electric Top Handler (CTE)
- HyZET Tugboat Design (CALSTART)
- Proposed Technology Advancement Program Projects
  - Repowered Top Handler + Mobile Fueler
  - 2 HFC Top Handler proposals
  - HFC Yard Tractor + Fueler



# Looking Forward

- Demonstrations of the Port's freight moving equipment (ships, trucks, cargo handling equipment, locomotives and harbor craft) provide opportunity to prove the technology's viability in the heavy-duty sector
- Need to bring overall costs down for freight moving equipment and H2
- H2 Hub opportunity can leverage public/private investments to develop necessary infrastructure network and competitive priced Green Hydrogen
- Creating large scale open market Green Hydrogen generation, storage and distribution to and within market area is critical to expedited implementation



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**America's Port<sup>®</sup>**

**THANK YOU**



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