

# Port of Los Angeles Cargo Handling Equipment

**Tim DeMoss**  
**June 10, 2015**



# Cargo Handling Equipment

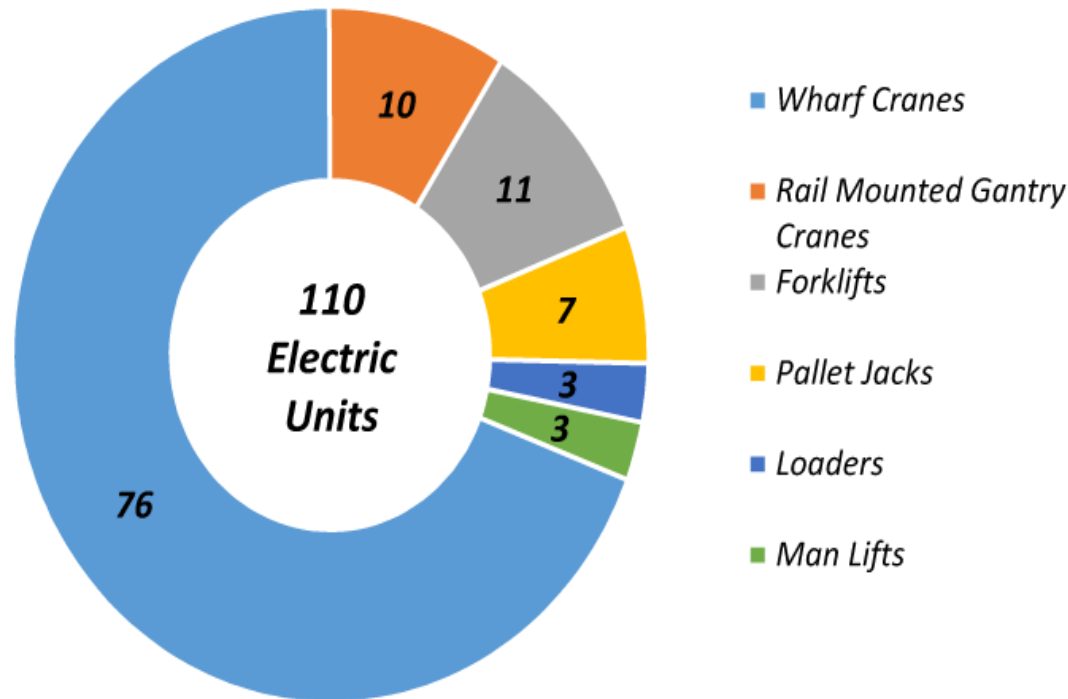
## Port of LA

- Yard Tractors (1,077)
- Rubber Tired Gantry (RTG) Cranes (108)
- Side Pick (34)
- Top Handler (160)
- Sweeper (11)
- Forklift (565)
- Other (193)

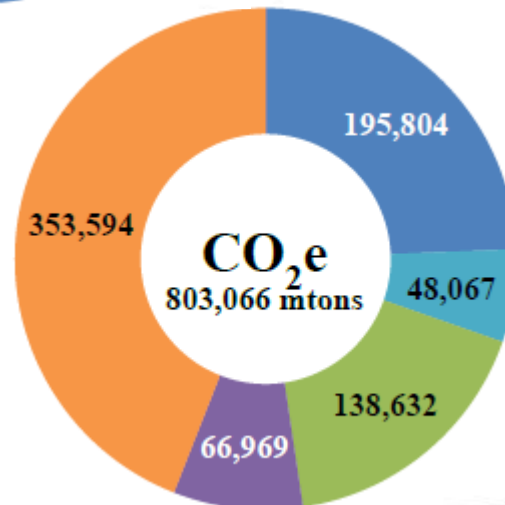
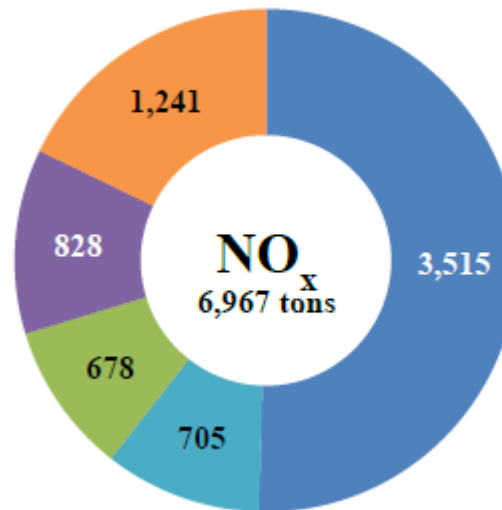
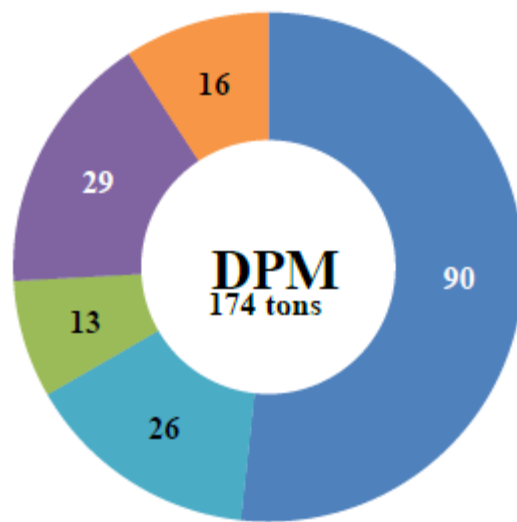


# Electric Cargo Handling Equipment

*2013 POLA Emissions Inventory  
Electric Cargo Handling Equipment*



# 2013 Emissions Inventory Summary



- Ocean-Going Vessels
- Harbor Craft
- Cargo Handling Equipment
- Locomotives
- Heavy-Duty Vehicles

# Cargo Handling Equipment Emission Reductions

## CARGO-HANDLING EQUIPMENT EMISSIONS REDUCTIONS



Pollutant	CY 2005 - 2013	
	%	tons
DPM	76%	40
PM <sub>2.5</sub>	73%	36
PM <sub>10</sub>	73%	39
NO <sub>x</sub>	57%	888
SO <sub>x</sub>	84%	8

# Port's Goal for Zero Emission Cargo Handling Equipment

- CHE is relatively clean (approaching Tier 4 compliance)
- Greenhouse Gas Reductions are needed
- Majority of CHE Zero Emission Technology for port duty cycle currently unavailable
- Testing and Demonstration of prototypes are necessary to prove reliability and durability
- Incentive Funding is needed to support projects

# POLA ZE White Paper

## Focus on On-Road Trucks and Off-Road Yard Tractors

- Work concurrently on demonstrating the technologies

## Business Case for Yard Tractors

- Opportunities to deploy all over the world
- Demonstration is easier in the terminal operating environment
- The limited range of terminal environments reduces electric vehicle “range anxiety”
- Off-road requirements are less stringent, reducing cost and complexity
- Developing electric yard tractors complements the development of heavy-duty trucks