Advance planning for zero/near-zero future at the Port of Oakland

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Port of Oakland by the Numbers

- 4 marine terminals in operation
- 3 terminal operators – SSA, Everport & TraPac
- 33 Cranes of which 23 are Port-owned
- 2.42 million TEU handled in 2017
- 20 ocean carriers with service to/from Oakland
- 1,600 vessel calls in 2017
- 2nd busiest container terminal in the United States, in number of daily gate moves
2018-2022 Strategic Plan (Approved: March 8, 2018)

- **Goal: Care for Our Environment**
  - *Over the next five years, we will introduce new zero or near-zero emissions technologies to our partners to help them transition from existing practices and equipment.*

- **Objective: Increase reliance on zero and near-zero technologies and renewable energy in Port and tenant operations.**

- **Strategies:**
  - Maximize use of shore power (cold ironing) to reduce vessel emissions, meet or exceed state requirements
  - Identify and promote electrification options for container handling, yard trucks and on-road trucks, etc.
Shore Power Program

- Completed construction of over $60 million shore power infrastructure in 2013
- Began use of shore power in August 2012
- Ship emissions in 2005: 208 tons DPM (Diesel Particulate Matter)
- Ship emissions in 2015: 51.8 tons DPM (75% emissions reduction)
  - Reduced by use of low-sulfur fuel
  - Reduced by use of shore power
- Key to meeting Maritime Air Quality Improvement Plan (MAQIP) target to reduce DPM-related health risk from Seaport-related sources by 85% by the year 2020
Shore Power Usage over Time

Port of Oakland Shore Power Plug-In Rates

- Total Successful Plug-Ins/Total Number of Calls
- Regulatory Compliance Requirement (by fleet)
- Port-Wide Average Plug-In Rate

PORT OF OAKLAND SEAPORT
Shore Power Challenges

December 2017 Shorepower Summary

- Out of 137 calls in December, 96 vessels (70%) successfully used shore power.
- 70.1%
- 19.7%
- 4.4%
- 2.2%
- 0.7%
- 2.9%

- Successful Plug Ins (96 calls, 70%)
- Vessel Not Equipped (27 calls, 20%)
- Unsuccessful Commissioning (3 calls, 2.2%)
- Vessel Equipment Issue (6 calls, 4.4%)
- Port Equipment (1 call, 0.7%)
- Timing and Crowding (4 calls, 2.9%)
Electrification Opportunities

- Class 8 Drayage Trucks
- Shore power, STS
- CHE - UTRs
- CHE - RTGs
- CHE - UTRs
- CHE - RTGs
Class 8 BYD Demonstration Truck
Electrification Partnerships

Vision to Electrify

Port Utilities Infrastructure and PG&E
Feasibility Analysis

Tenant Operational Needs
Incentive Funding
Equipment Technologies