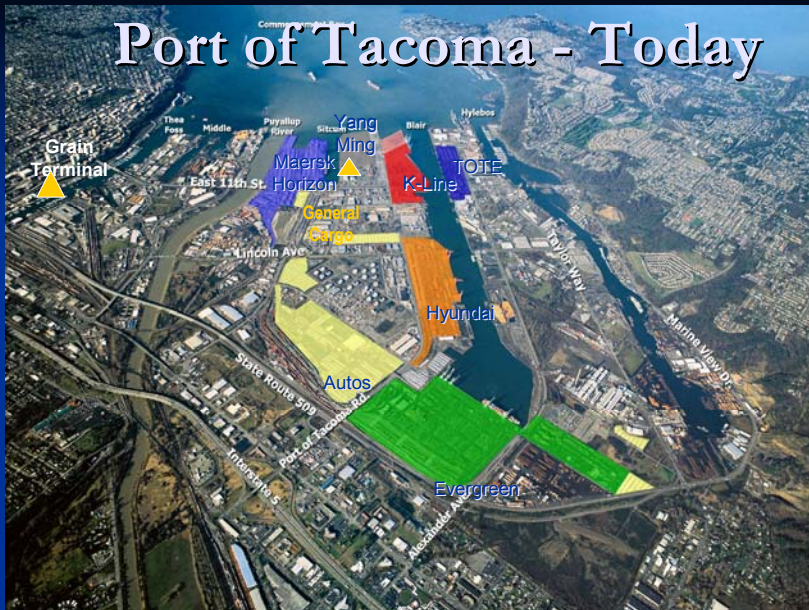


A Port Perspective - Marine Diesel Emission Reduction



Port of Tacoma - Today



Emission Reduction Measures

Implemented and In Progress At the Port of Tacoma



Puget Sound Marine Diesel Emission Inventory



Emission from Ships, Yard Equipment, Locomotives, Harbor Crafts and Trucks.

Participants Include:

- American Lung Association
- Regulators
- Port of Seattle
- Port of Tacoma
- Port of Everett
- Port of Olympia
- Washington State Ferries
- Port of Vancouver, BC
- Maritime Organizations



Port Operation

- Maximize rail use; on-dock rail, 70% of import containerized cargo moves by rail.
- Use cleaner fuels; ultra low sulfur fuel (removed 3.79 tons of SO₂ in 2005), biodiesel, propane on all container terminals.
- Hybrid purchase policy for Port light-duty vehicle fleet



Strads Retrofit

Straddle Carrier Retrofit with Diesel Oxidation Catalyst



- D15 use & DOC's Reduced PM Emissions by 40 %
- 64.2 tons/year NOx Reduction for 30 carriers.



Emission Reduction Measures

Switching Locomotives



Rail Congestion Relief



Initiatives by Port Customers

Switching Yard–Tacoma Rail

- Anti-idling Equipment
- Switch to Ultra Low Sulfur Diesel Use In July 2006.



Emission Reduction Measures

Terminal Operators



Initiatives by Port Customers

Terminal Operator

- Use of ultra low sulfur diesel (D₁₅) in yard equipment
- Extended gate hours to minimize pre-gate idling
- Modernization of Cargo Handling Equipment



Initiatives by Port Customers

Pierce County Terminal

- Use of ultra low sulfur diesel (D₁₅) in yard equipment
- New Tier II engines for cargo handling equipment fleet
- Lighter Straddle Carriers use 30% less fuel



Initiatives by Port Customers

Husky Terminal

- Use B50/ULSD biodiesel blend in all yard equipment.



Initiatives by Port Customers

Washington United Terminal

- Use of ultra low sulfur diesel (D₁₅) in yard equipment



Emission Reduction Measures

Ocean Going Vessels



Initiatives by Port Customers

Tote

- Diesel-electric motor for vessel, 30% fuel saving
- Fresh-water ballast water system



Initiatives by Port Customers

Evergreen Lines

- Greenship equipped with emission control features.
- Use low sulfur fuel during transit and at berth.



Opportunities Ahead:

- *Local Air Quality Improvements*
- *Terminal and Gate Efficiency*
- *Modernization of Cargo Handling*
- *Regional Trucking Management*
- *Best Management Practices*
- *Ship-side Emission Control Technologies*



Modernization of Cargo Handling



➤ **Cleaner Engines**

➤ **Electrification**



Regional Trucking Management

- Drayage Trucks in the Northwest, Ports of Tacoma, Seattle and Vancouver, B.C.
- Regional Solution in Retrofit, New Technologies, and Efficiency



Best Management Practices

- Innovative Technologies
- Information Sharing
- Adopt Verified Best Practices
- Data-Supported Performance Standards



Ship-side Emission Control Technologies

- Ship-Side Technologies
- Energy Efficiency



Questions?

