Port of Seattle: Where a Sustainable World is Headed

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AAPA Port Operations, Safety & Information Technology Seminar
June 11, 2009
Port Overview

• Independent municipal corporation created in 1911
• 5 Commissioners elected at large
• Diverse operations
  – Cargo (container & breakbulk)
  – Alaska Cruise Homeport
  – Recreational Marinas
  – Commercial Moorage
  – Seattle-Tacoma International Airport
  – Commercial Real Estate
• Broad Economic Impact
  – Supported nearly 200,000 jobs
  – Over $12 billion in business revenue
  – $625 million in state and local taxes
Seaport Air Quality Program

• Collaborative, voluntary approach

• Pollutants of concern:
  – Diesel particulate matter
  – Greenhouse gases

• Reduce impacts on public health and the environment while maintaining a vibrant seaport

• Fact-based

• Looking for both emission reductions and goods movement efficiencies
Puget Sound Maritime Air Emissions Inventory

- 2005 activity based inventory
- Spans ~140 miles south-to-north; 160 miles west-to-east
- Close coordination Canada
- First to include greenhouse gases
Diesel Particulate Matter
Puget Sound Clean Air Agency Region

Maritime Emissions = 29%

Source: 2005 Puget Sound Maritime Air Emissions Inventory
Northwest Ports Clean Air Strategy

Port of Seattle
Port of Tacoma
Vancouver Port Authority

December 2007
Strategy Approach

- Focused on diesel particulate matter and greenhouse gases
- Clear, measurable performance measures
  - Ocean-going vessels (OGV)
  - Cargo handling equipment (CHE)
  - Trucks
  - Rail
  - Harbor vessels
- Encourage ongoing innovation instead of mandated solutions
- Short Term (2010) and Long Term (2015) targets
# Strategy Performance Measures

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<th>2010</th>
<th>2015</th>
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<td><strong>Ocean-Going Vessels</strong></td>
<td>Use 0.5% fuels in auxiliary engines while at berth</td>
<td>Meet IMO standards, goal of establishing an N.A. ECA</td>
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<tr>
<td><strong>Cargo-Handling Equipment</strong></td>
<td>Use of ULSD, meet Tier 2 or 3 PM standards</td>
<td>Best available emission control devices</td>
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<td><strong>Trucks</strong></td>
<td>All trucks must meet 1994 U.S. EPA PM emission standards</td>
<td>80% of trucks must meet 2007 U.S. EPA PM emission standards, 100% by 2017</td>
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<td><strong>Harbor Vessels</strong></td>
<td>Low-sulfur fuels, new technologies</td>
<td>Advanced technology pilot projects</td>
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Implementation Status
Ocean-Going Vessels

- Shore power for Princess Cruises and Holland America Line vessels
  - First port in N.A. where 2 ships can plug in simultaneously
- Application to U.S. DOE
  Transportation Electrification
  - Collaboration with Ports of Tacoma, Oakland, San Francisco, L.A., Long Beach, and City of Long Beach
  - Propose to install shore power at 8 berths along the West Coast
  - Nearly $86 million in projects
- Continue to support EPA proposal to IMO for a Sulfur Emission Control Area (ECA)
Implementation Status
Ocean-Going Vessels

• At-Berth Clean Fuels Vessel Incentive Program
  – Pilot program with Puget Sound Clean Air Agency
  – $1,500 incentive for use of 0.5% sulfur fuel in auxiliary engines while at a Port of Seattle berth
  – Eligible lines must call 5 or more times/year
  – 7 Participating Lines:
    • Hapag-Lloyd
    • Matson
    • APL
    • COSCO
    • Maersk
    • Norwegian Cruise Line
    • COSCO
  – Current participants represent 24% of all calls made in 2008
Implementation Status
Cargo-Handling Equipment

• Cleaner Fuels
  – All terminals use ultra-low sulfur diesel fuel
  – 2 terminals use a 20% biodiesel blend

• Reducing Fuel Consumption
  – Hybrid RTGs
  – Terminal efficiencies

• Equipment Retrofits
  – 50% of CHE have made progress toward the 2010 Strategy goal
  – Recent Federal and State grants to further progress

• Equipment Replacement
  – Terminals specifying on-road engines for new equipment
Implementation Status

**Rail**

- **BNSF North SIG Yard Electrification**
  - First in North America to install wide-span, electric rail mounted gantry cranes
- **SmartWay participation at rail yards**
- **Support U.S. EPA Locomotive and Marine Diesel Engine Rule**
- **Encourage railroads to retrofit switcher locomotives and to use ultra-low sulfur diesel**
Implementation Status

Harbor Vessels

- Led by Puget Sound Clean Air Agency
- Focusing on harbor tug operations
- Cleaner fuels
  - Foss Maritime and Crowley voluntarily switched to lower sulfur fuels in tug operations
- Cleaner engines
  - Foss Maritime has developed a hybrid tug engine
Implementation Status

Clean Trucks Program

  – 76% of trucks are MY 1994 or newer

• Proposed negotiation of lease amendments with MTOs to enforce standards

• Fee Free

• PSCAA buy-back and scrap program
  – $5,000 or blue book value for pre-1994 trucks
  – Will need to prove truck has worked at Port of Seattle

• Developing a Small Business Assistance program
Truck Parking

- **South Harbor Truck Parking Work Group**
  - Purpose: To provide input on south harbor neighborhood parking and routing issues.
  - Partners include City, SDOT, community, industry, labor, and environmental groups.
  - Recommendations presented to Commission and City Council in May 2009

- **Selection of a temporary site at Terminal 25 South**
  - 3 acres
  - Available July 2009
  - No fees
The Green Gateway

Overview

• “Carbon Footprint Study for the Asia to North America Intermodal Trade”
  – Conducted by Herbert Engineering for Port of Seattle

• First assessment to evaluate the carbon impacts of the transportation supply chain from origin to destination

• Analysis determined tons carbon dioxide equivalent (CO$_2$e) per TEU from Asia to points in U.S. mainland
The Green Gateway
Methodology

• Vessel sizes: 4,500 to 12,500 TEU
• Asian Origin Ports:
  – Shanghai, Hong Kong, Singapore
• North American Ports:
  – Prince Rupert, Seattle, Los Angeles/Long Beach, Houston, Savannah, Norfolk, New York/New Jersey
• North American Destination Cities:
  – Chicago, Columbus, Memphis
The Green Gateway
Methodology

• **Routings:**
  – West Coast ports and intermodal trains to destination cities
  – All-water via Panama Canal to Gulf and East Coast Cities
  – All-water via Suez Canal to Gulf and East Coast Cities

• **Independent review:**
  – University of Washington
  – Seattle Climate Partnership
  – Industry (3PLs, shippers, carriers, railroads)
The Green Gateway

Implications

• The West Coast ports are the most energy-efficient gateways from Asia to U.S. consumers

• The Pacific Northwest ports have a slightly lower carbon footprint from Asia than any other port in North America

• Study adds data to the emerging field of carbon footprint assessments of supply chains
Looking Ahead….

• Continue implementation of the Northwest Ports Clean Air Strategy

• Seeking to better understand our footprint

• Engaged in regional, national, and international efforts to address emissions from goods movement

• Continue to work with tenants and customers to reduce emissions and fuel consumption
Port of Seattle
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