

Ports' Role as Environmental Stewards

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Director, Environmental and
Planning

May 5 2015



Port Lines of Business: Sea, Air, Land



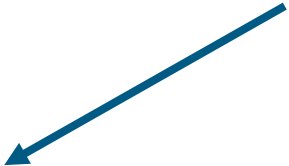
Organization



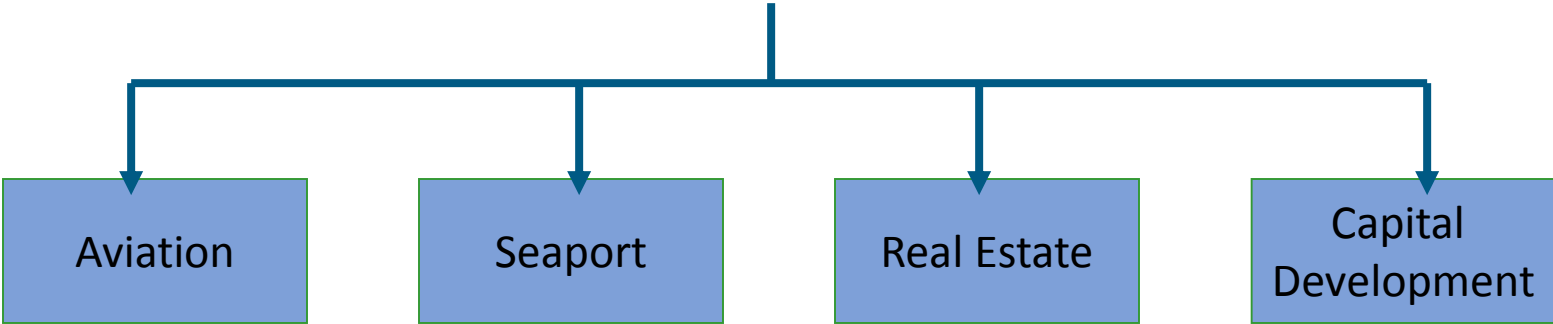
King County Voters



Commissioners



CEO





Terminal 91

Terminal 46

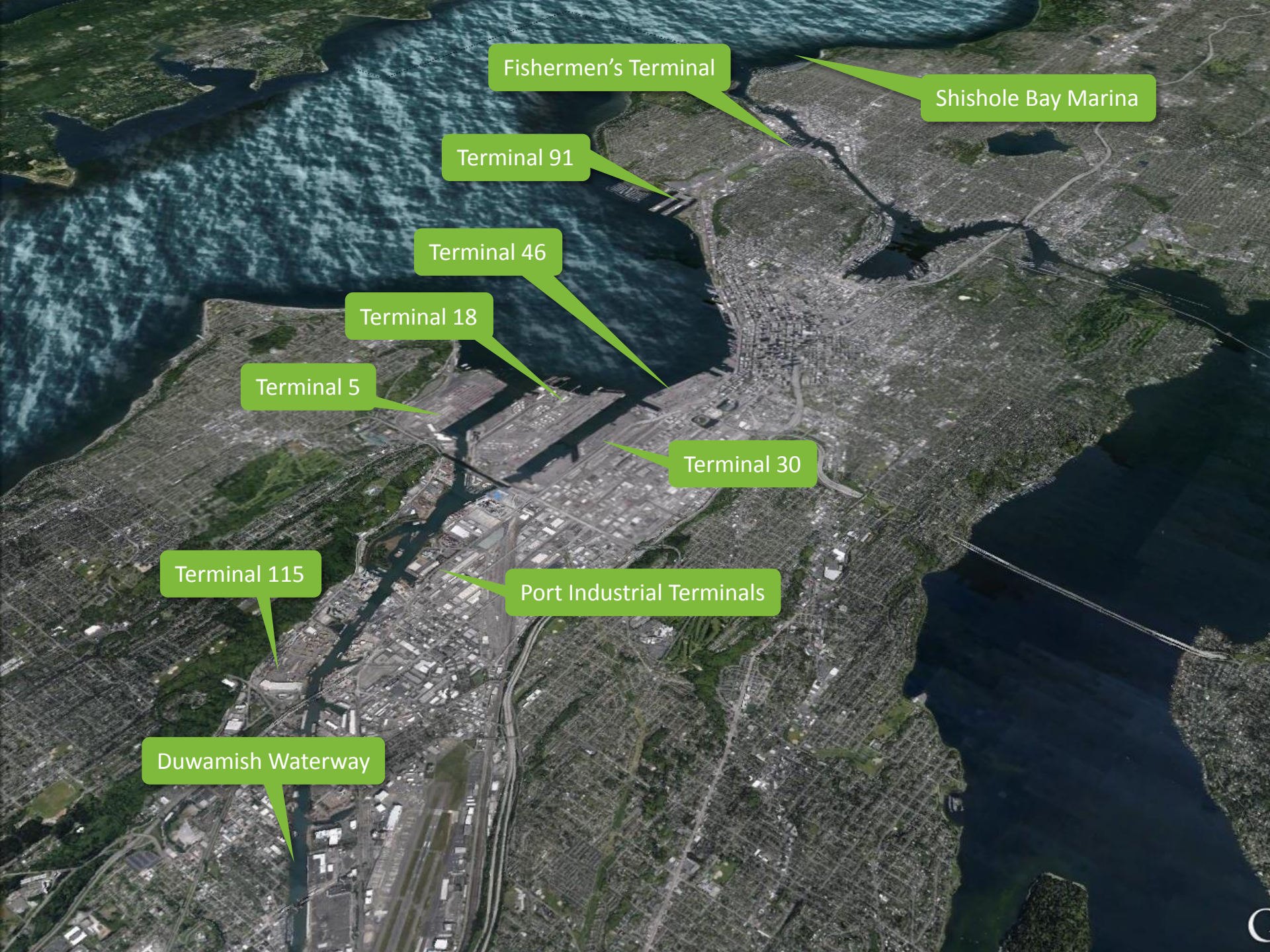
Terminal 18

Terminal 18

Terminal 5

Duwamish Waterway

Terminal 117



Fishermen's Terminal

Shishole Bay Marina

Terminal 91

Terminal 46

Terminal 18

Terminal 5

Terminal 30

Terminal 115

Port Industrial Terminals

Duwamish Waterway

Over the next 25 years we will add 100,000 jobs through economic growth led by the Port of Seattle, for a total of 300,000 port-related jobs in the region, **while reducing our environmental footprint.**

4 Strategic Goals:

1.

Position the Puget Sound Region as a premier international logistics hub

2.

Advance this region as a leading tourism destination and business gateway

3.

Use our influence as an institution to promote small business growth and workforce development

4.

Be the greenest and most energy efficient port in North America

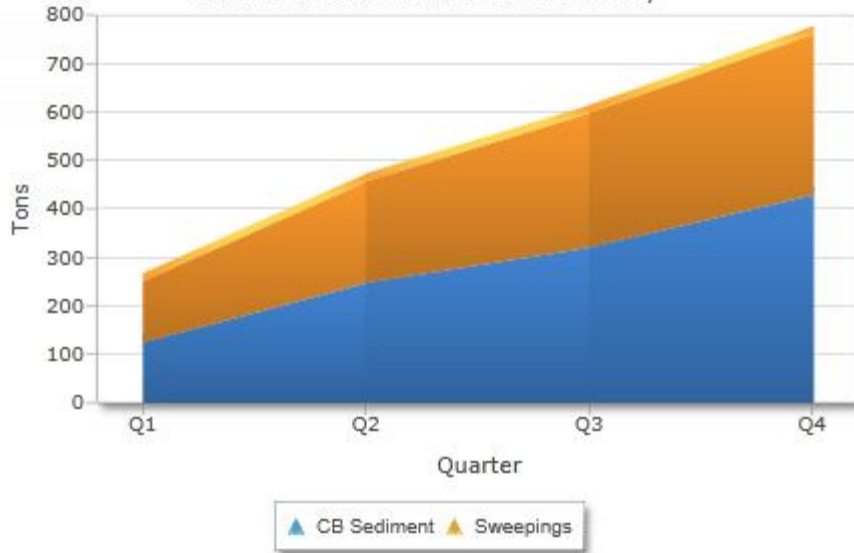
Environmental Objectives

- **Be the greenest, and most energy efficient port in North America**
Meet all increased **energy** needs through conservation and renewable sources.
- Meet or exceed agency requirements for **storm water** leaving Port-owned or operated facilities.
- Reduce **air pollutants and carbon emissions**, specifically: -- Reduce air pollutant emissions by 50 percent from 2005 levels. -- Reduce carbon emissions from all Port operations by 50 percent from 2005 levels and reduce aircraft-related carbon emissions at Seattle-Tacoma International Airport by 25 percent.
- Anchor the Puget Sound urban industrial land use to **prevent sprawl** in less developed areas.
- Restore, create, and enhance 40 additional acres of **habitat** in the Green/Duwamish watershed and Elliott Bay.

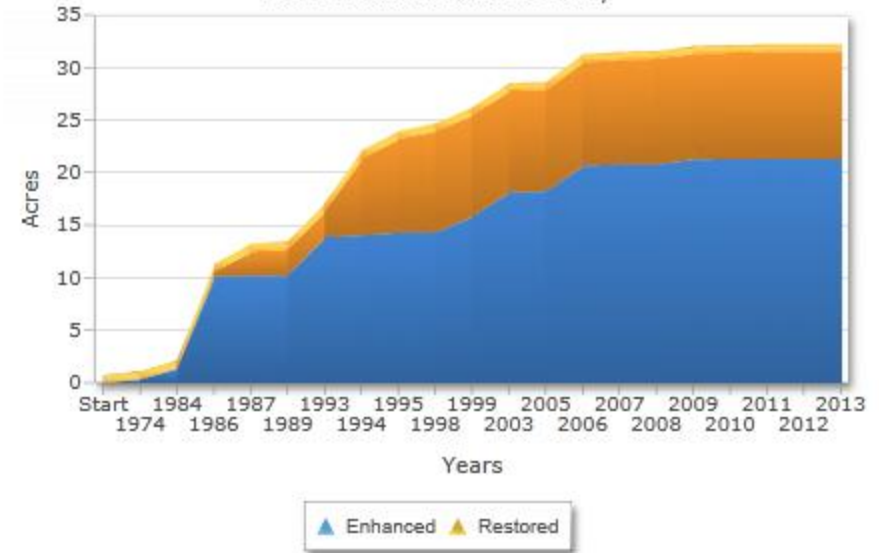


Environmental Metrics

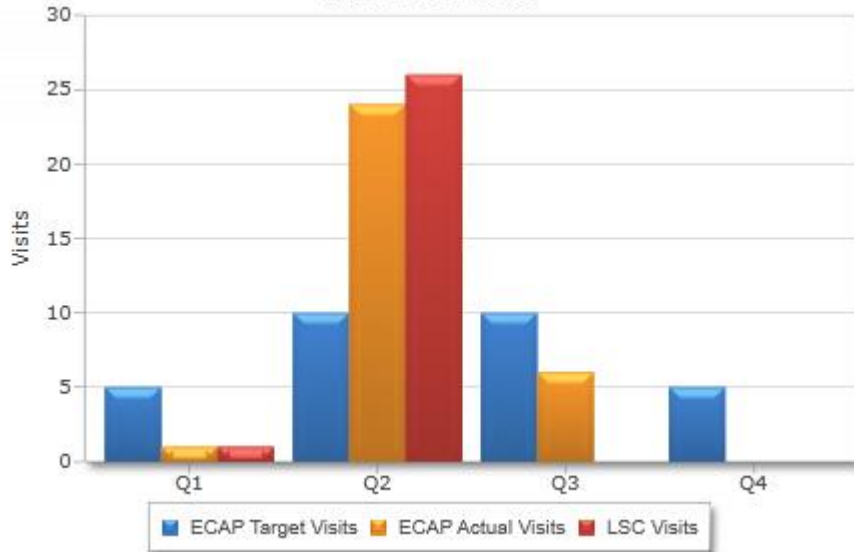
2013 Stormwater Sediment Summary



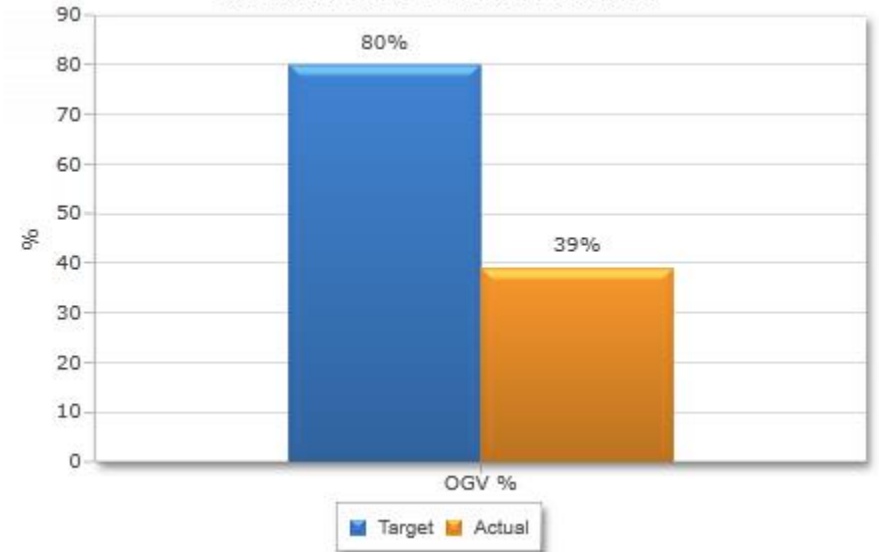
2013 Habitat Area Summary



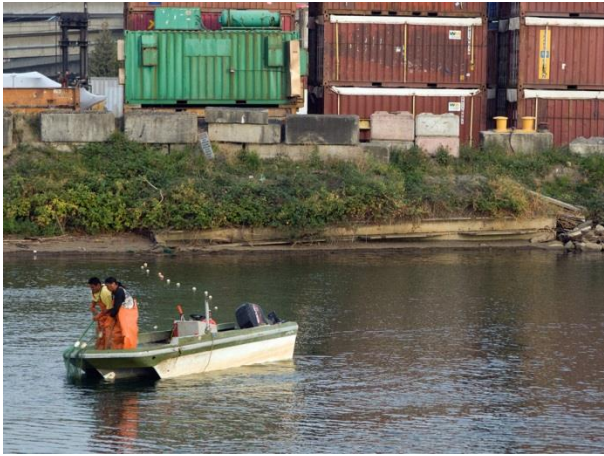
2013 ECAP Visits



2013 OGV% for Emission Reduction



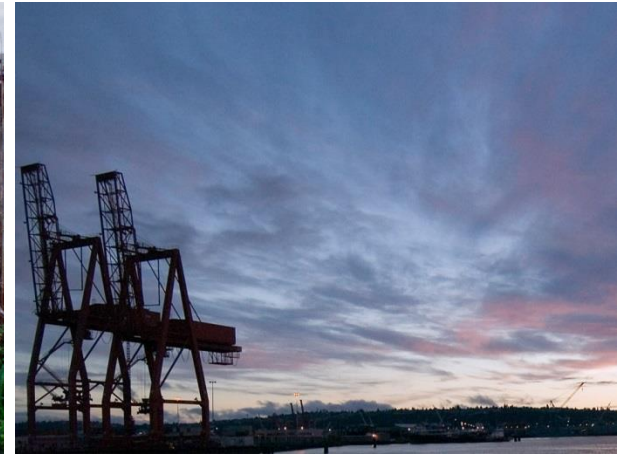
What do we do?



Water quality



Remediation of the land
Habitat



NW Ports Clean Air Strategy
Green Gateway
Clean Trucks



Port of Seattle Seaport: Stewards of the Water

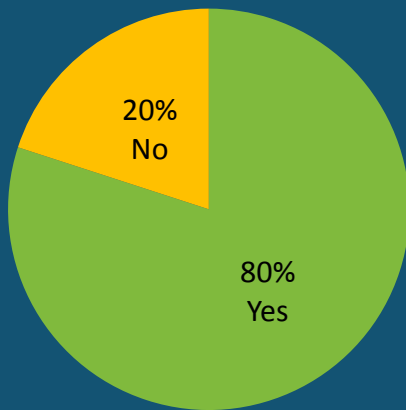


Port Survey Participants

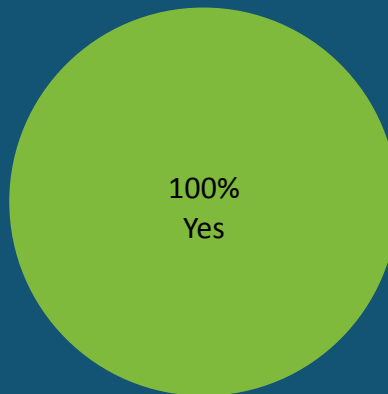


Coverage by municipal permit

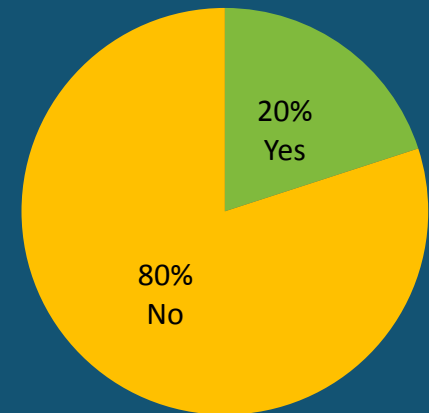
West Coast Ports



Gulf Coast Ports

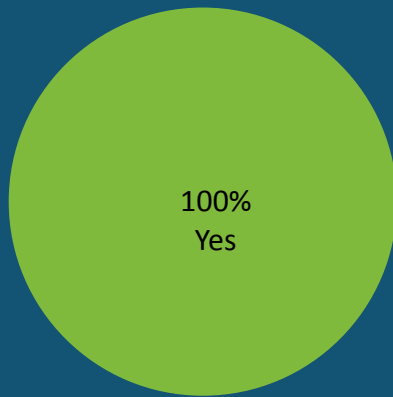


East Coast Ports

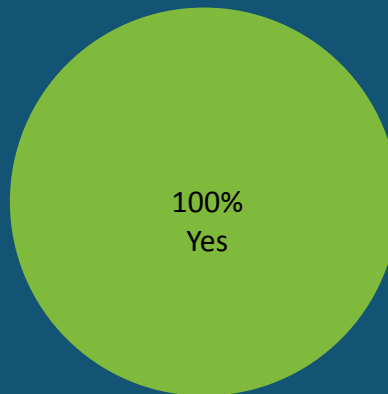


Industrial Permit Coverage

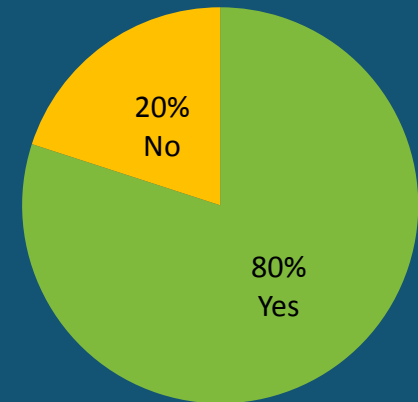
West Coast Ports



Gulf Coast Ports

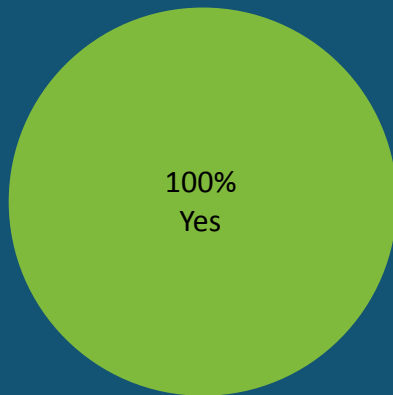


East Coast Ports

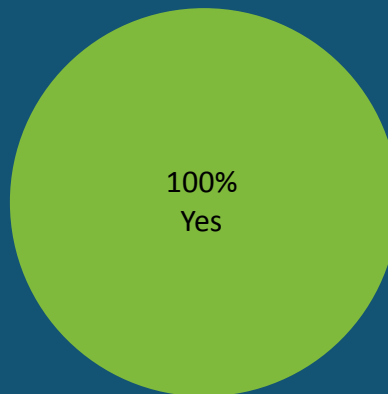


Required to conduct monitoring

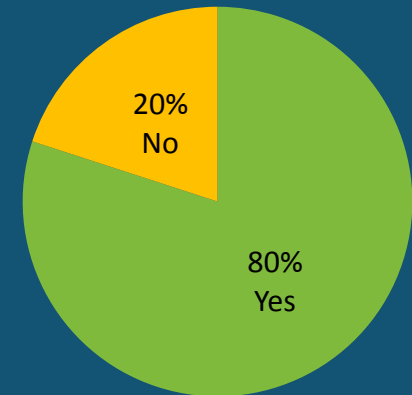
West Coast Ports



Gulf Coast Ports

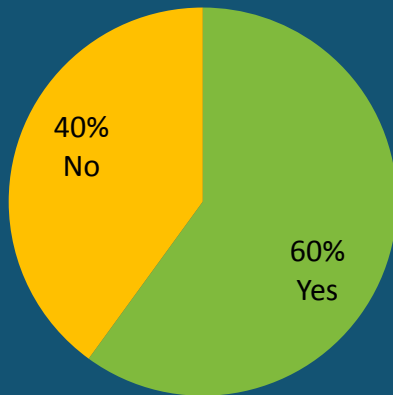


East Coast Ports

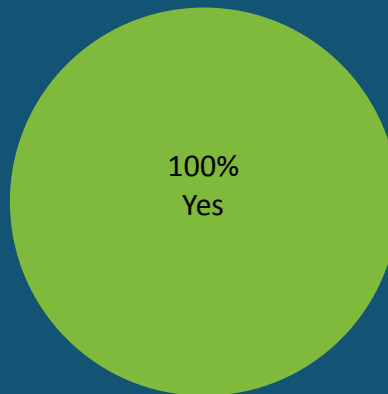


Ports and/or tenants required to meet enforceable effluent limits.

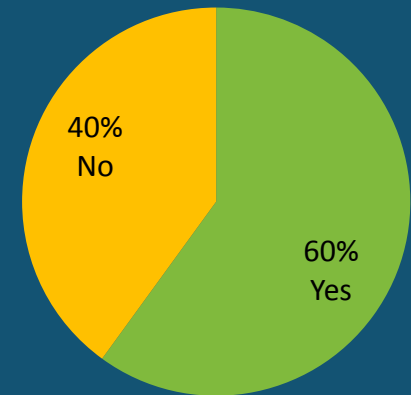
West Coast Ports



Gulf Coast Ports

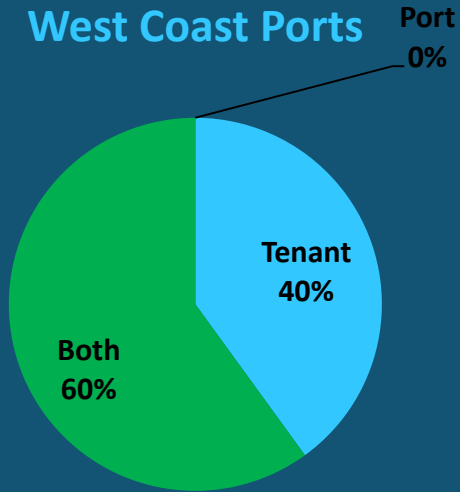


East Coast Ports

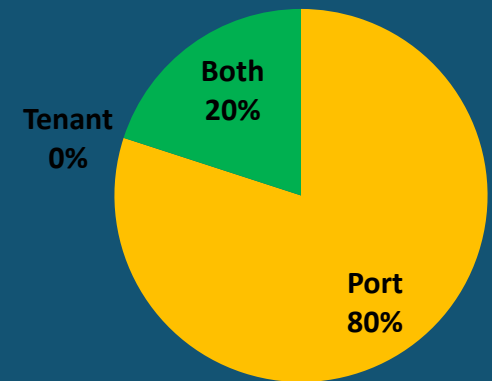


Is Port or tenant responsible for selection, design, installation and/or maintenance of treatment devices or other BMPs?

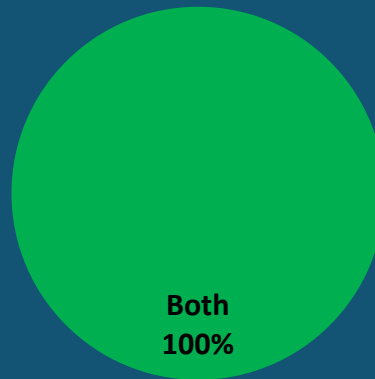
West Coast Ports



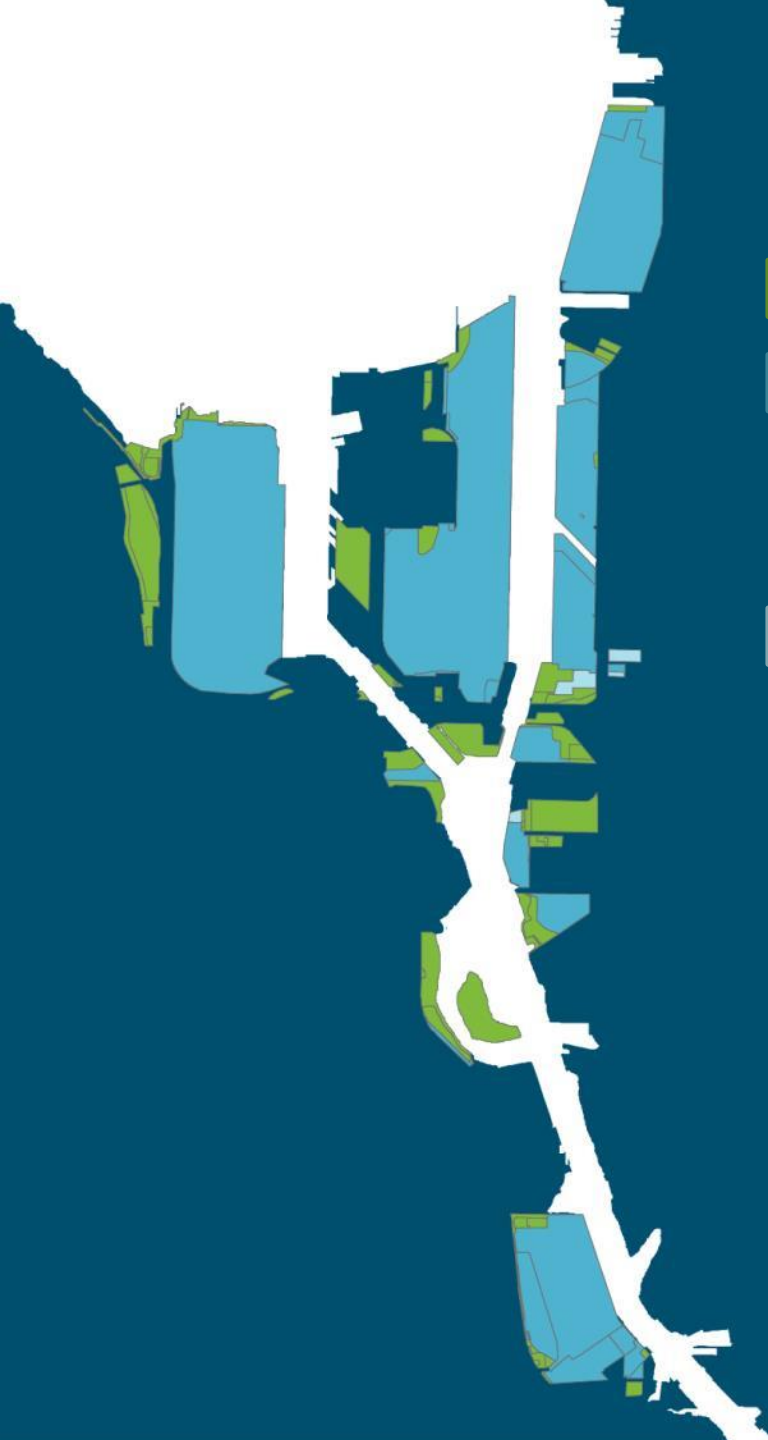
East Coast Ports



Gulf Coast Ports

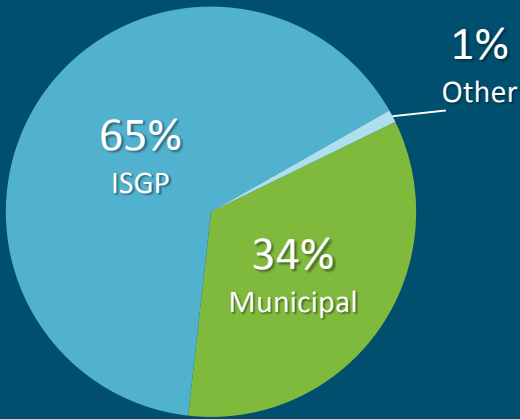


Permit Coverage



- Phase I Municipal Stormwater Permit
- ISGP Permits
 - 18 Tenant Permits
 - 2 Port Permits
 - Covering 700 Acres
- Other SEA/RE NPESP Permits
 - Individual, Boatyard, Construction

All NPDES Permits
100% of Permit Coverage at RE/SEA



ISGP – Tenants



T-46: Port installing Up-flo on 3 of 4 outfalls / ~80 acres

- Applying structural and operational BMPS throughout the site.

T-18: Due to high number of outfalls (20) / ~200 acres:

- Installing Modular Wetland System and roof down spout treatment at source locations
- Applying structural and operational BMPS throughout the site

T-5: Unknown treatments needed ~160 acres

- 14 Outfalls

T-115: Installing a Chitosan treatment system on 2 of 5 outfalls / ~70 acres

- Applying structural and operational BMPs throughout the site.

Also Treatment needed at:

- T104, T106, T108, T25 & T30

Total Stormwater requirements: Next 5 years

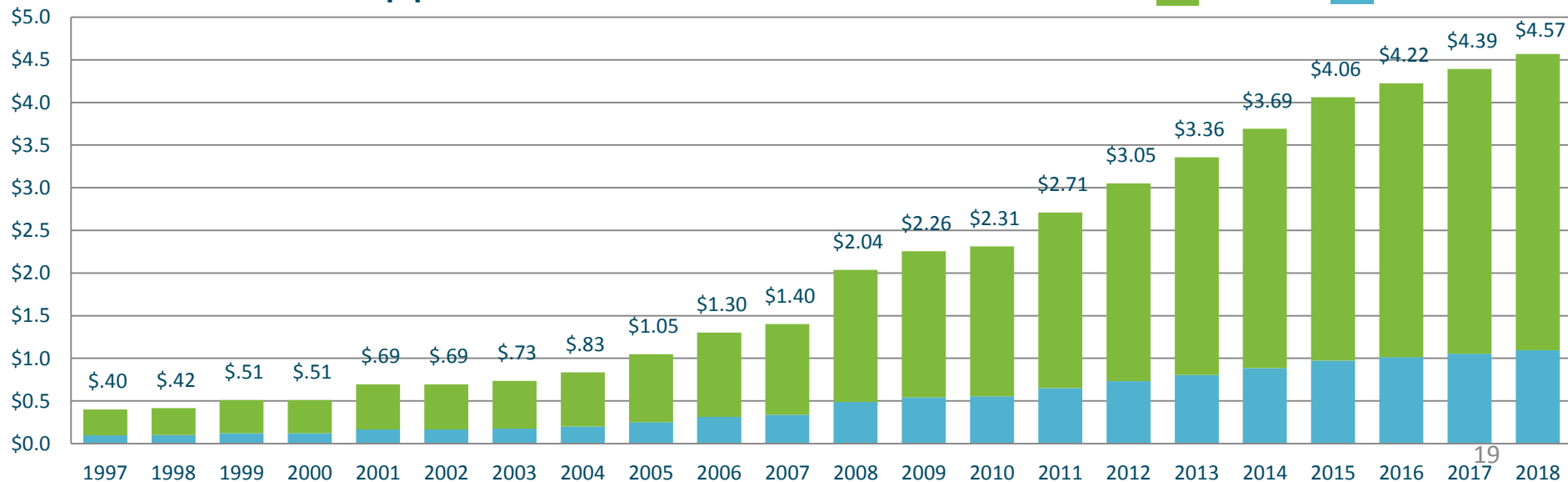


\$85 to \$135 Million investment in stormwater by Port/tenants & \$21 Million in stormwater fees

\$21 million could be used to repair and replace 16 miles of Port owned stormwater pipes.

Stormwater Fees: 1997 - 2018

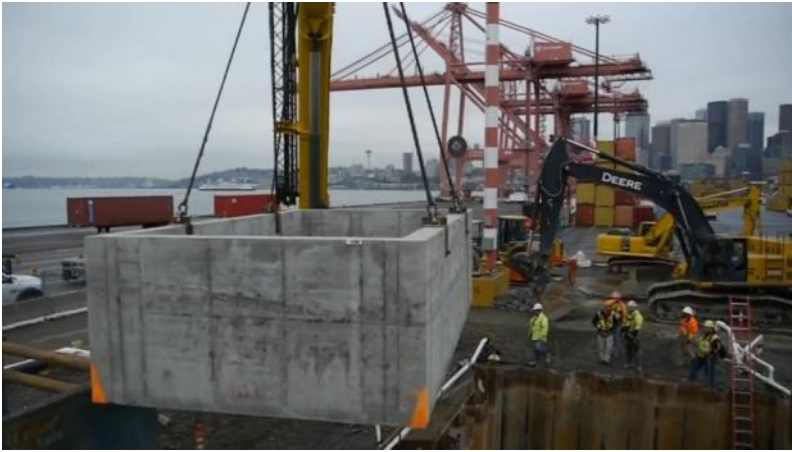
Tenants Port of Seattle



Terminal 91 Stormwater Treatments



Terminal 46 Stormwater Treatments



Stormwater quality improvements



- 1 acre Industrial parking lot with a stormwater permit and copper bench marks.
- Catch basins were filled with Oyster shells.
- Water flows to the bottom of the catch basin and up through the shells
- Meeting 14 ppb benchmark for copper
- Source of copper – roadway above facility
- Copper attaches to the oyster shells replacing the calcium molecules

Responsible Dock Maintenance



Vacuum Scrubber



Salmon Safe Certification at Port Parks





Port of Seattle Seaport: Stewards of the Land

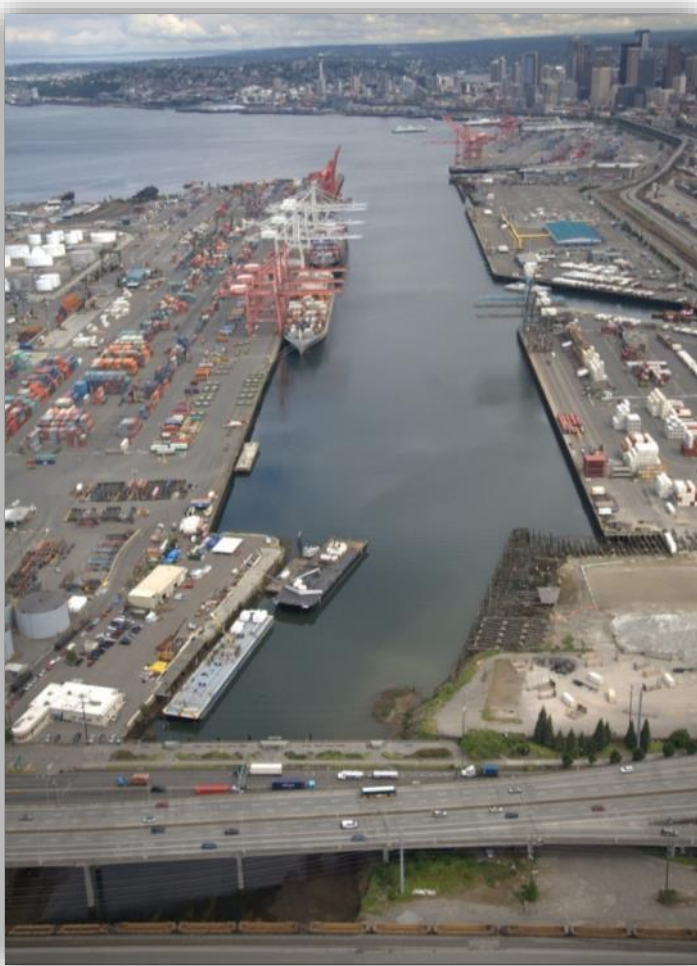
Lower Duwamish Waterway Superfund Site



- EPA's ROD published 2014
- Fishers and Carbon Amendment Pilot Studies underway



East Waterway Superfund Site



- Final Supplemental Remedial Investigation Report submitted to EPA
- Draft Feasibility Study submitted to EPA



T-117 Environmental Remediation



Terminal 117 after remediation

Terminal 117 before remediation



Green and Sustainable Remediation (GSR) at T117

- Construction Specifications required and/or Encouraged
 - Required development of a GSR plan
 - Use of newer and more efficient equipment
 - Active monitoring and completing maintenance on all construction equipment.
 - Use of electrical power where possible
 - Vehicle air emissions
 - Non road engines meet Tier 1 or cleaner and on-road engines meet 2004 heavy duty engine emission standards where practicable
 - Ultra-low sulfur diesel (ULSD), biodiesel, and propane fuel use requirements
 - Equipment with fuel and oil checked daily to avoid drips or leaks
 - Limit vehicle idling to no more than 5 minutes
 - Required segregation and recycling or reuse of all demolition material, unless contaminated.
 - Consider using used sheet piles
 - Require closeout GSR (green sustainable remediation) metrics and reporting.



T91 Remediation



- Completed self performed cleanup of one hotspot area
- Completed cleanup of former tank farm in 2015

A photograph of a port at dusk. In the foreground, two large, dark metal gantry cranes stand prominently against the sky. The sky is a mix of deep blues and purples, with some lighter clouds. In the background, a body of water is visible, and the distant shore is lit up with some lights, suggesting an active port area. The overall mood is serene yet industrial.

Port of Seattle Seaport: Stewards of the Air

Northwest Ports Clean Air Strategy



- Update adopted by Commission in December 2013
- Goals to further reduce emissions of diesel particulate matter and greenhouse gases in years 2015 and 2020



Our Commitment

REDUCE

REDUCE

Diesel Particulate Matter

Green House Gasses

↓ 75% by 2015

↓ 10% by 2015

↓ 80% by 2020

↓ 15% by 2020



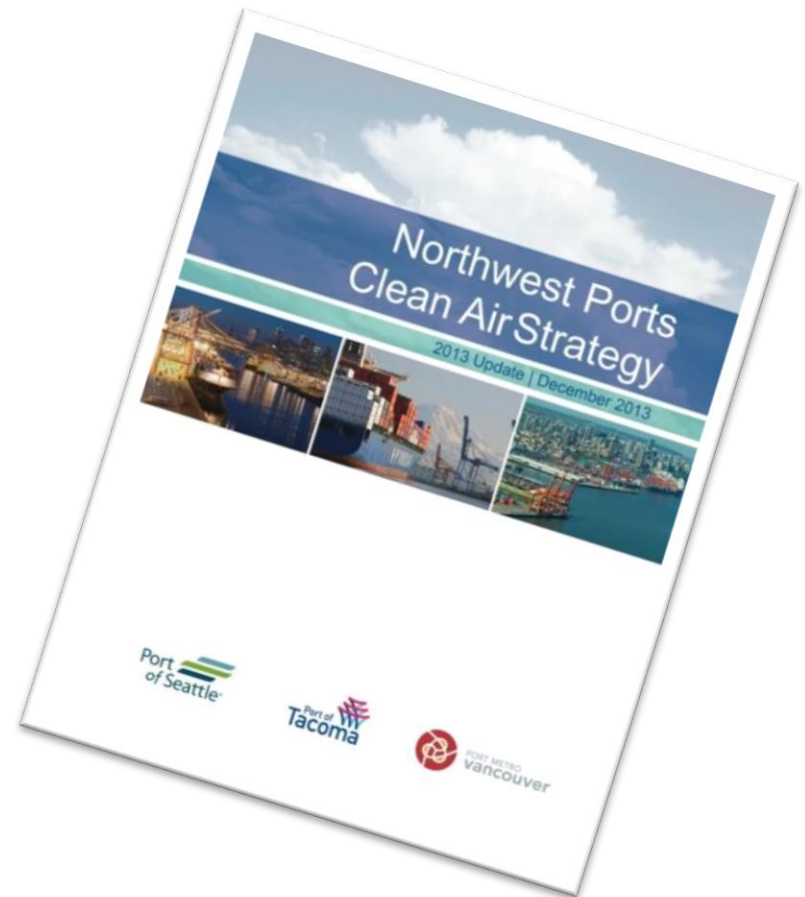
Northwest Ports Clean Air Strategy

Goal: reduce diesel emissions and greenhouse gases from

- ships
- cargo-handling equipment
- locomotives
- trucks
- port administration

Using:

- cleaner technologies
- best practices/efficiencies

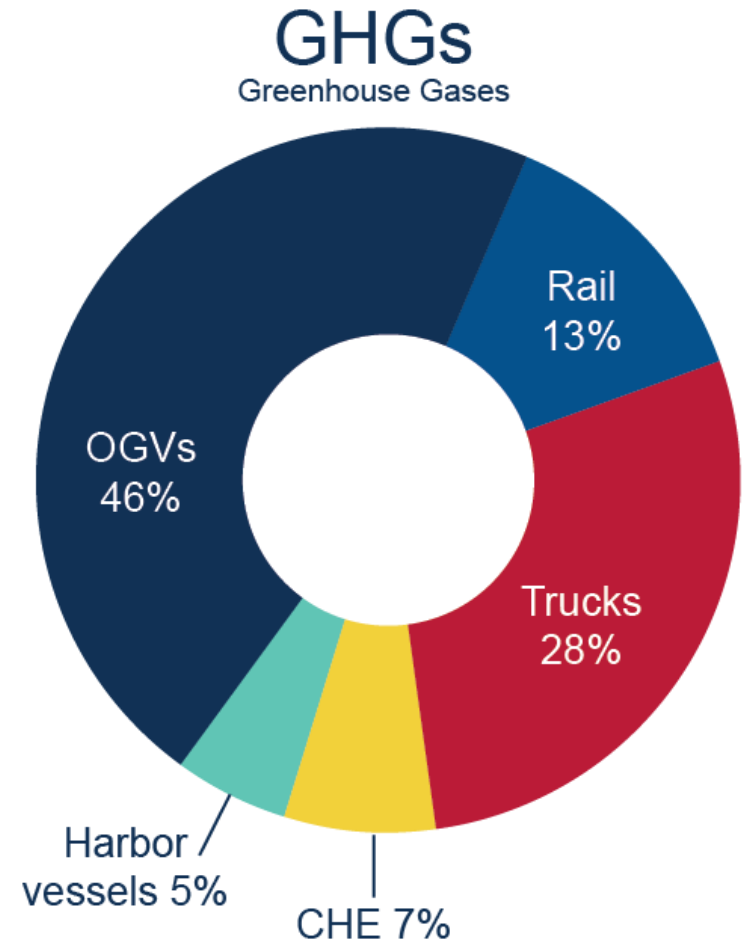
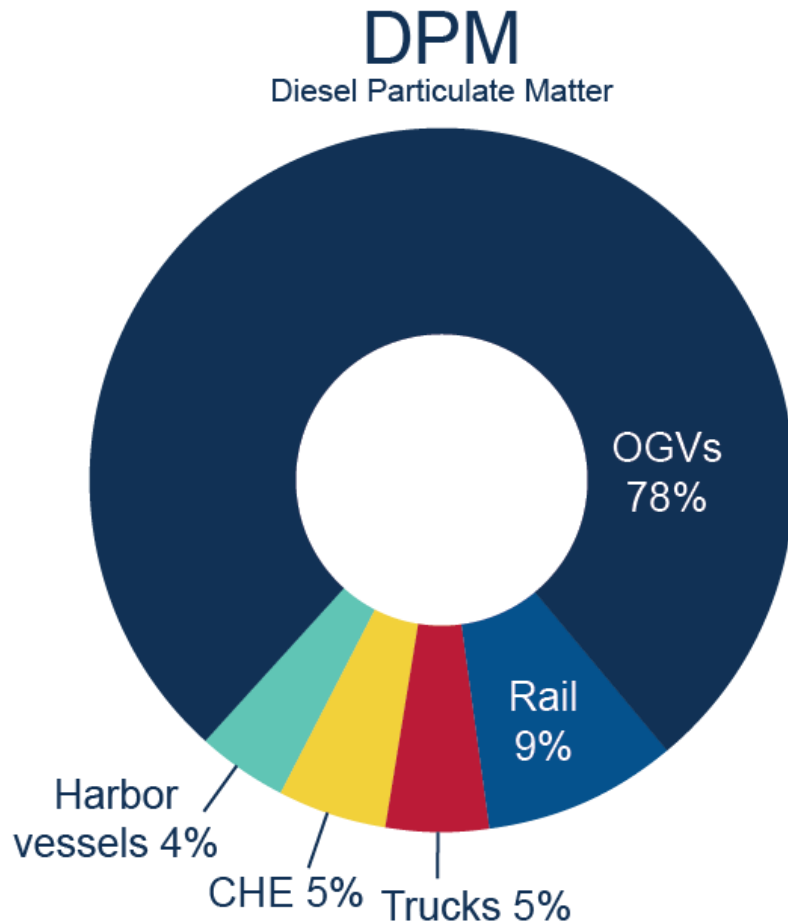


Geographic Boundaries

- U.S. portion of the Puget Sound / Georgia Basin Airshed
- Spans ~140 miles south-to-north; 160 miles west-to-east
- Close coordination with similar inventory for Georgia Basin

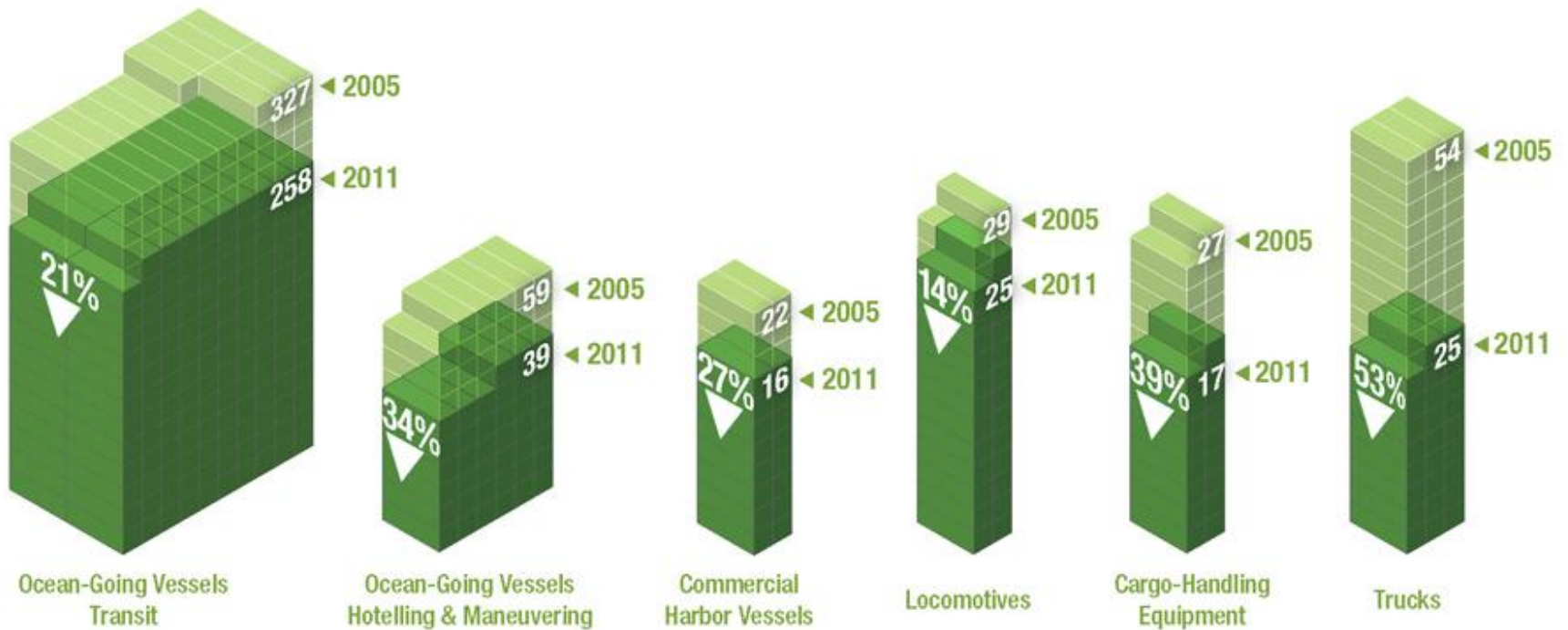


Port-Related DPM and GHG Emissions by Sector from the Three Ports, 2010–2011



Source: NW Clean Air Strategy update 2013

Port of Seattle Emission Reductions DPM – Airshed - 2005-2011



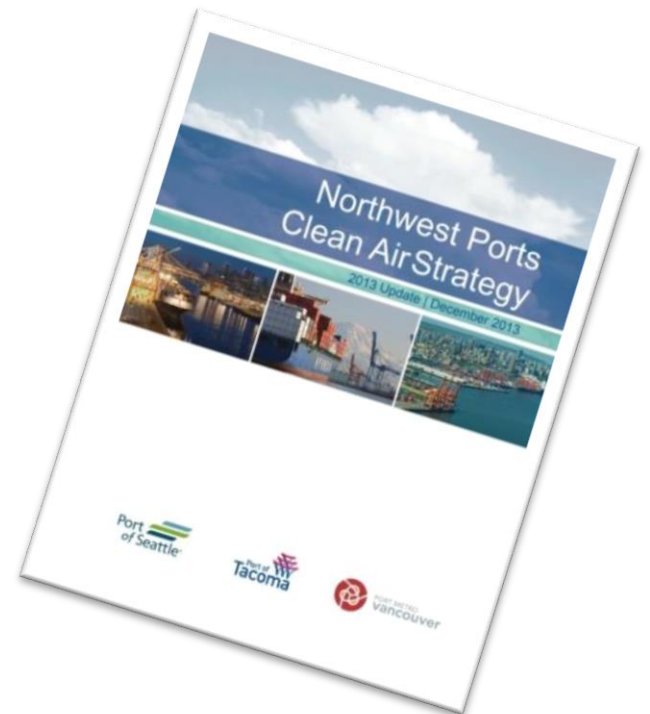
Key Ingredients

“It takes a village”

- industry, customer, agency, community partnerships/networking
- local/regional/state/national planning, policy, regulations
- port requirements – leases, registrations, fees, tariffs
- recognition and certification programs

It takes money (grants are critical!)

- engine replacements/retrofits
- pilot/demonstration projects
- infrastructure improvements
- efficiency improvements
- measurement systems



What are the Clean Truck Program targets?

Phase 1: Required container trucks to have model year 1994 engines by 1/1/2011

Phase 2: Requires container trucks to have model year 2007 engines by 1/1/2018



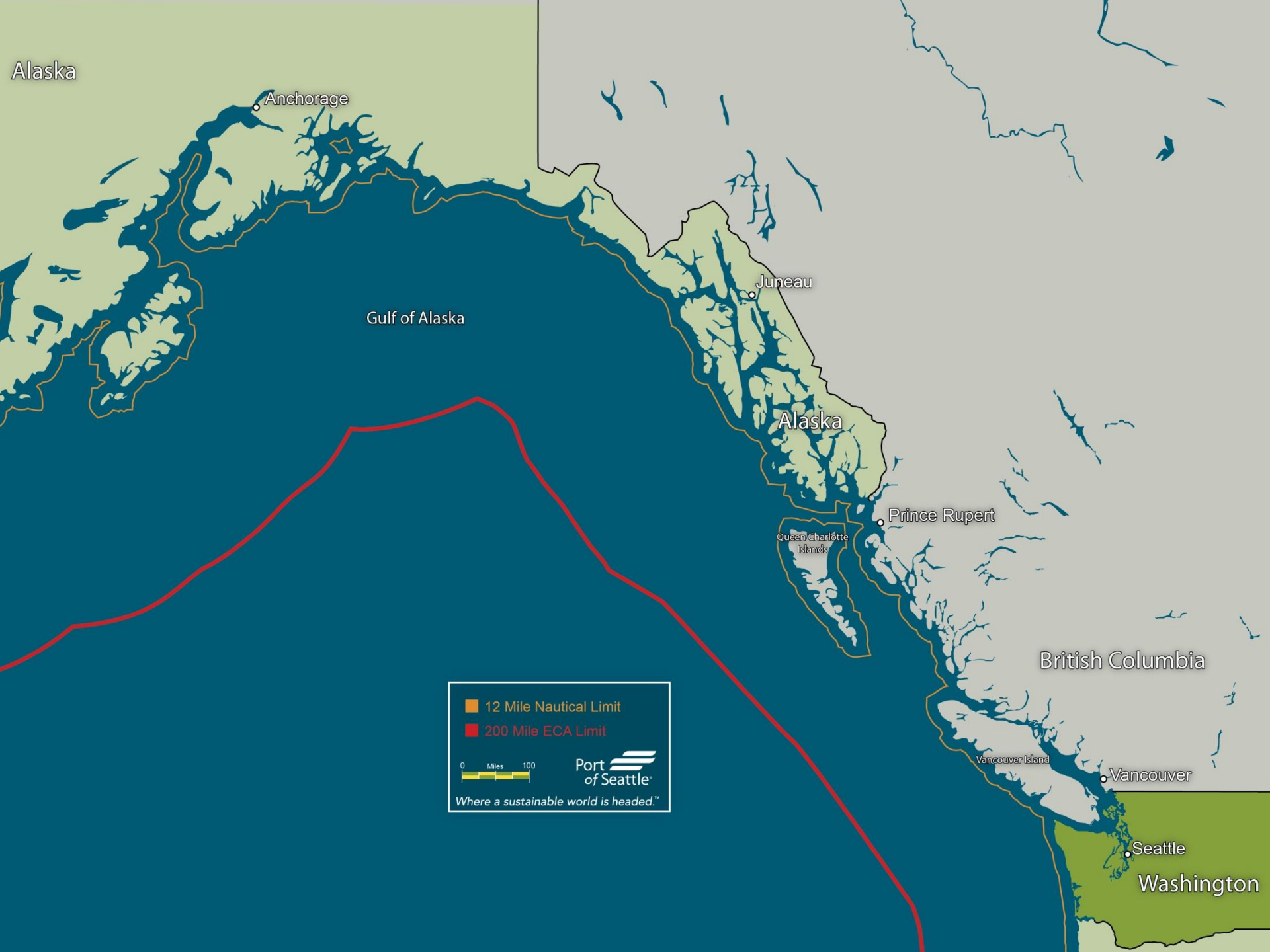
ScRAPs Program



- Seaport Truck **Sc**rappage and **R**eplacements for **A**ir in **P**uget **S**ound

ScRAPs 1	ScRAPs 2
289 Trucks Scrapped	320-370 Trucks will be Scrapped





Alaska

Anchorage

Gulf of Alaska

Juneau

Alaska

Prince Rupert

Queen Charlotte Islands

British Columbia

Vancouver Island

Vancouver

Seattle

Washington

12 Mile Nautical Limit

200 Mile ECA Limit

0 Miles 100

Port of Seattle

Where a sustainable world is headed.™



40' from Shanghai

3.22 MT/FEU = 360.1 gallons of gasoline

4.08 MT/FEU = 458.8 gallons of gasoline

The Green Gateway Advantage

Example based on 8,500TEU Vessel at Design Speed

Carbon Footprint Study of the Asia to North America Intermodal Trade
2011 Herbert Engineering



Green Gateway Program

Recognizes carriers for environmental vessel improvements



Energy Efficiency

- Energy Efficiency projects on going
- Example: Terminal 91 LED lighting
 - Projected annual kWh saved: 508,518 kWh
 - Projected annual energy savings: \$40,681
 - Reduced CO2 emissions: 351 metric tons
 - Payback: < 4.8 years



Energy Projects



Seattle Times front page: May 5,
**“Mayor: Port
needs new
permit to host
Shell oil-drilling
fleet”**





Port 
of Seattle®

THANK YOU!