

A Collaborative Emission Reduction Success Story

Port of Seattle



Port 
of Seattle®

Where a sustainable world is headed.™



Port of Seattle Operations

- Special purpose local government created in 1911
- 5 Commissioners elected at large
- One of the few ports in the US that operate both an airport and a seaport
- Diverse operations
 - Cargo (container & breakbulk)
 - Two Cruise Terminals
 - Recreational Marinas
 - Commercial Moorage
 - Seattle-Tacoma International Airport
 - Commercial Real Estate
- Primary function is economic development
- In this trade-dependent region & state, transportation facilities are critical to that development





Pier 90/91



Pier 86



Pier 66



Terminal 46



Terminal 30

Terminal 18

Terminal 5

T-5 On-Dock Rail

T-18 On-Dock Rail

BNSF (SIG - North)

BNSF (SIG - South)

UPRR (ARGO)

Environment and Port Competitiveness

- Port of Seattle CEO Tay Yoshitani's charge to be the "cleanest, greenest, most energy efficient port in the U.S."
- Importance of goods movement
- Impacts on public health and the environment
- Environmental stewardship as the Port's competitive edge
- New member of the Green Marine

Focus on Air Quality

Through a focused collaborative approach, the Port of Seattle and neighbouring ports in the Puget Sound and Georgia Basin, extending into British Columbia, are effectively reducing toxic air emissions

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
- Looking for both emission reductions and goods movement efficiencies



Puget Sound Maritime Air Emissions Inventory

- Developed by the Puget Sound Maritime Air Forum
 - A voluntary association of private and public maritime organizations, ports, air agencies, environmental, public health advocacy groups, and other parties with operational or regulatory responsibilities related to the maritime industry.

Puget Sound Maritime Air Forum



- American Lung Association of the Mountain Pacific
- BNSF Railway
- US EPA
- Northwest Clean Air Agency
- Pacific Merchant Shipping Association
- Port of Anacortes
- Port of Everett
- Port of Olympia
- Port of Seattle
- Port of Tacoma
- Puget Sound Clean Air Agency
- WA Dept. of Ecology
- WA State Dept. of Transportation
- Western States Petroleum Association

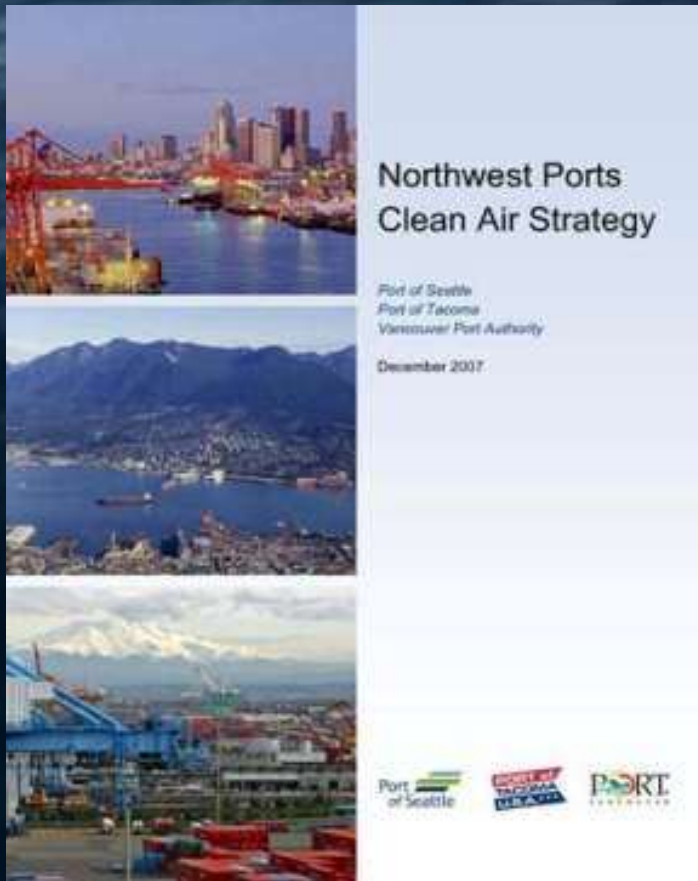
Northwest Ports Clean Air Strategy

- A collaborative approach led by the Ports of Seattle and Tacoma in Washington State and Port Metro Vancouver in British Columbia
- Using Emissions Inventory data, the Strategy was developed to reduce maritime and port-related emissions

Northwest Ports Clean Air Strategy

2007 Strategy Objectives:

- Reduce maritime & port-related air quality impacts
- Reduce contribution to climate change by reducing air quality impacts; and
- Help the Georgia Basin-Puget Sound Airshed to continue to meet/exceed air quality standards



Northwest Ports Clean Air Strategy

- 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 and efficiencies
- Short Term (2010) and Long Term (2015) targets

Strategy Performance Measures

	2010	2015
Ocean-Going Vessels	≤ 0.5% fuels in auxiliary engines while at berth	Meet IMO standards
Cargo-Handling Equipment	Use of ULSD, meet Tier 2 or 3 PM standards	Best available emission control devices
Rail	Expedite EPA SmartWay standards	Comply with U.S. EPA 2007 locomotive rules
Trucks	100% trucks must have 1994 or newer engines	80% of trucks must meet 2007 U.S. EPA PM emission standards, 100% by 2017
Harbor Vessels	Low-sulfur fuels, new technologies	Advanced technology pilot projects

Port of Seattle Emission Reduction Programs - *Freight Mobility*

- Completed RFID pilot project
- CHE fleet modernization
- Partnered in a regional anti-idling effort
- Coordinated draw bridge openings with truckers to minimize idling
- Computer tracking systems at terminals to reduce truck wait times.
- On-dock electric plug-ins for refrigerated containers.
- Larger cranes to improve efficiency of loading/unloading



Port of Seattle Emission Reduction Projects & Programs - **Clean Truck Program**



- Effective 2011, all drayage trucks entering port terminals must have 1994 or newer engines
- In 2013, implemented RFID at all terminal in-gates
- Launched a \$1.5 M truck scrapping & replacement program resulting in scrapping of 280 pre-1994 trucks
- Evaluating a second phase of the scrapping program for pre-2007 trucks.



Port of Seattle Emission Reduction Projects & Programs - *Cargo Handling Equipment*



- Received a grant from the Washington Department of Ecology for a CHE Idle reduction pilot program
- Implemented grant-funded program to retrofit diesel-powered equipment
- Encouraged voluntary use of cleaner and alternative fuels.

Port of Seattle Emission Reduction Projects & Programs - *Ocean-Going Vessels*



- The At-Berth Clean Fuels program incentivizes shipping and cruise lines to burn reduced sulfur distillate fuel while at berth.
- Since 2009, this program has eliminated nearly 800 metric tons of sulfur emissions.
- Most cruise vessels calling at Terminal 91 use shore power.
- Members of the North West & Canada Cruise Association have committed to procure and use low sulfur fuel while in Northwest US & Canadian waters.

The Green Gateway - Recognition

- Green Gateway Partners Awards given to cruise and container lines annually for environmental programs (air, water, solid waste, energy) that exceed regulations.
- In 2014, the program may be expanded to other maritime sectors.



2005 Puget Sound Maritime Air Emissions Inventory

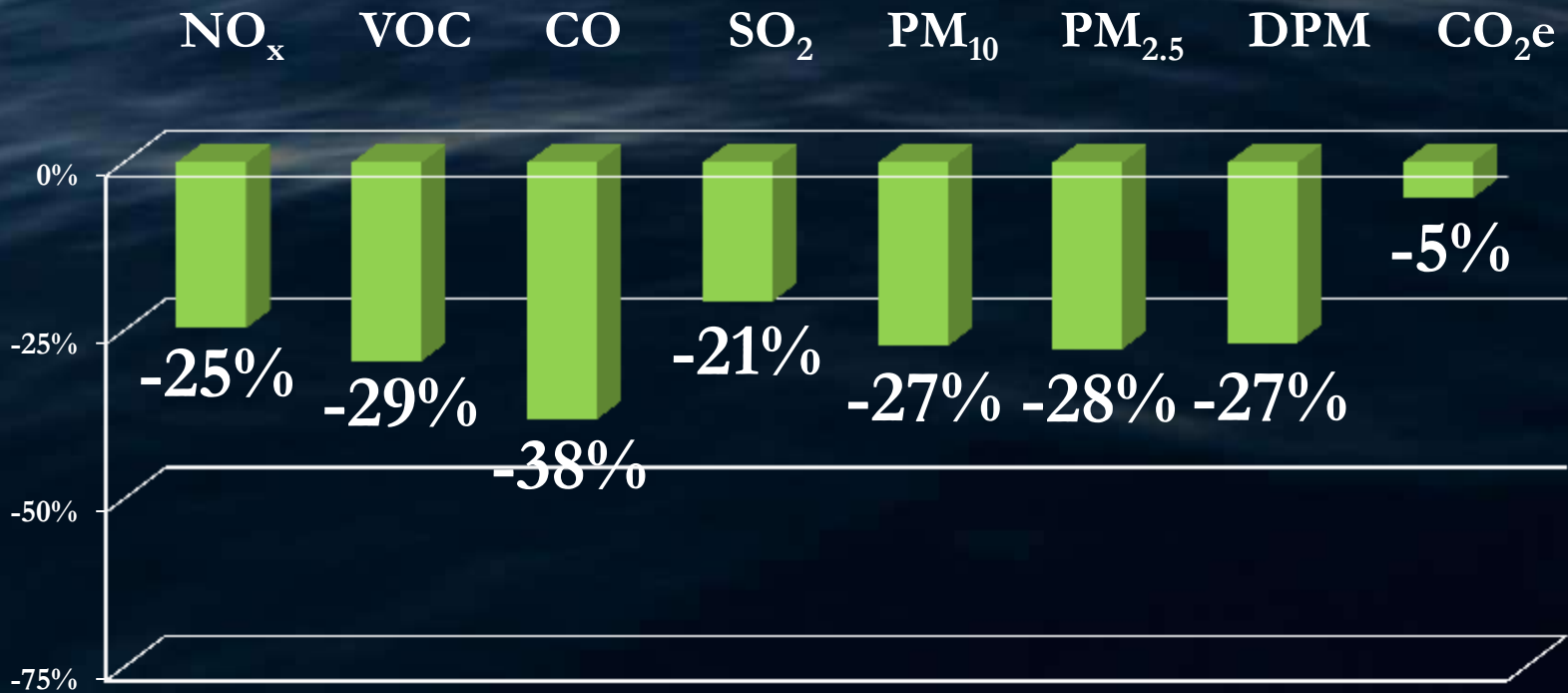
- 2005 activity-based inventory
- Collaborated with other Puget Sound ports and agencies
- First to include greenhouse gases
- Coordinated with similar effort in British Columbia



2011 Puget Sound Maritime Air Emissions Inventory - Objectives

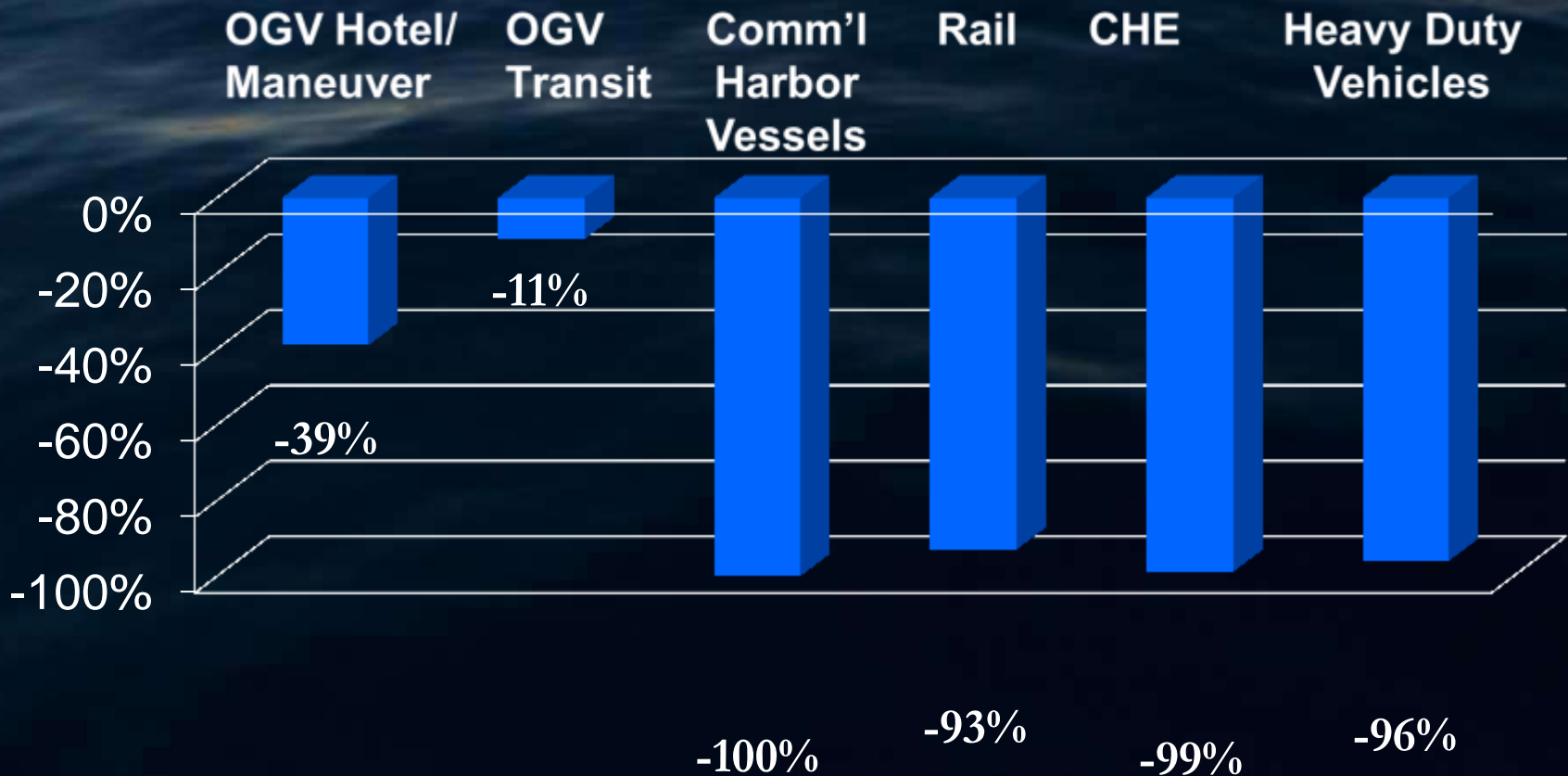
- 2011 Inventory updates the 2005 baseline Puget Sound Maritime Air Emissions Inventory.
- The updated inventory measures 2011 emissions and progress against the 2005 baseline.
- Reviews data to implement new reduction strategies.

Port of Seattle 2005 - 2011 Emission Reductions – Airshed



Tons per Year

Port of Seattle Emission Reductions SO₂



Northwest Ports Clean Air Strategy

- The Strategy update will reflect results of 2011 Emissions Inventory
- Sets DPM and GHG Goals
- Updates 2015 and sets 2020 Performance Targets
- Proposes pilot studies and demonstration projects
- 3rd Party certification programs encouraged (e.g., Green Marine)

Next Steps

- Complete and release the Northwest Ports Clean Air Strategy 2012 Update
- Collaborative programs and pilot studies to implement the strategy and achieve 2015 and 2020 targets
- Update Emissions Inventory and Strategy regularly
- Conduct self-evaluation for Green Marine



QUESTIONS?

*Ellen L. Watson
Environmental Program Manager
Port of Seattle
Seaport Environmental Programs
watson.e@portseattle.org*



Port of Seattle

Where a sustainable world is headed.™