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## Strategic Plans for Sustainable Ports: The Northwest Ports Clean Air Strategy Experience



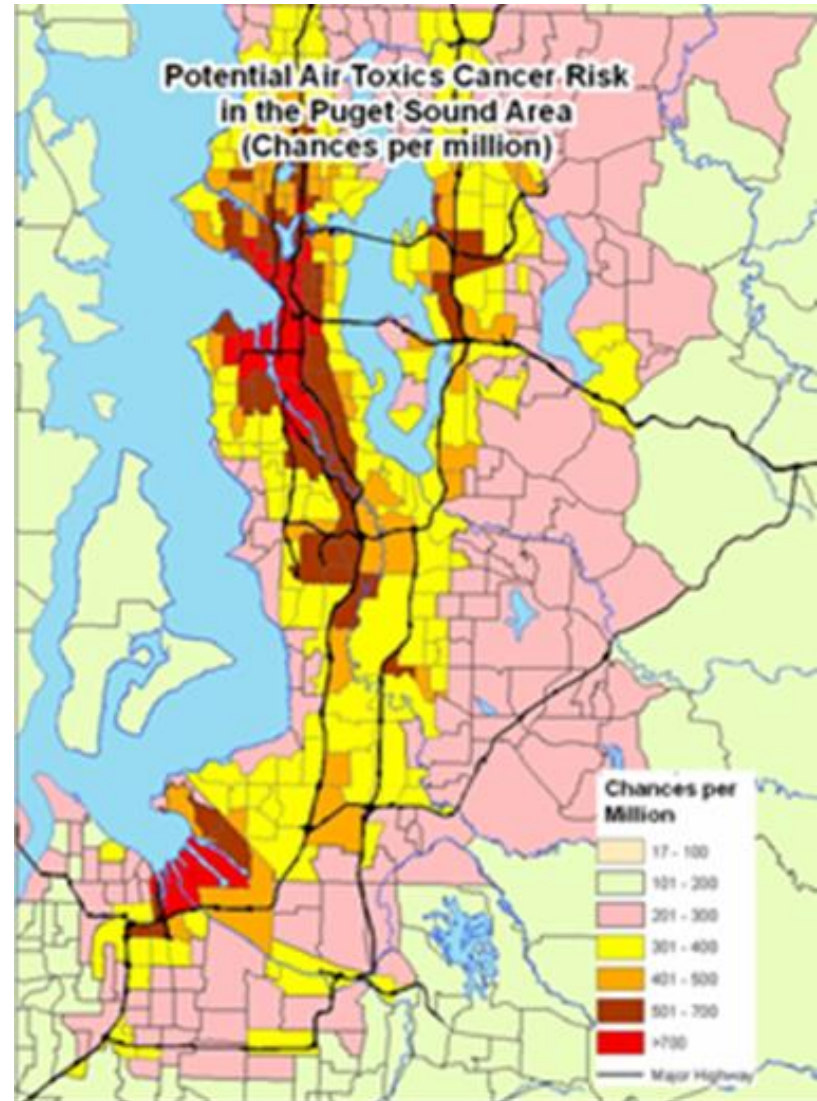
Amy Fowler,  
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- Why build a strategy focused on port-related emissions?
- The Strategy
  - What is it?
  - Who's involved?
  - How does it work?
  - What are the results?
- Updated performance targets for a few sectors and lessons learned
- Overall lessons learned

# Localized Exposure to Toxic Diesel Particulate Matter

- At least 70% of potential cancer risk locally from air toxics stems from diesel particulate matter (Agency's 2003+ assessments)
- Region is in the top 5% nationally for potential cancer risk from air toxics [EPA's 2005 National Air Toxics Assessment (NATA)]
- Port- and freeway-adjacent communities fare the worst





# Business and [Non-]Regulatory Climate

- Mid-2000's saw projections for massive growth in container traffic through local ports
- Pacific Northwest ports in fierce competition for carriers
- Puget Sound ports' mindset was that growth, and increased emissions, was necessary and inevitable
- California Air Resources Board (and local ARBs) instituted series of controls on in-use vehicles/vessels
  - Class 8 diesel truck age requirements
  - Harbor vessel engine upgrade requirements
- We wanted to get out ahead of projected increases that would further harm communities near ports, but lacked regulatory authority

# Solution? A Clean Air Strategy for Ports

- 2005 Emissions Inventory of maritime air sources



- 2008 NW Ports Clean Air Strategy

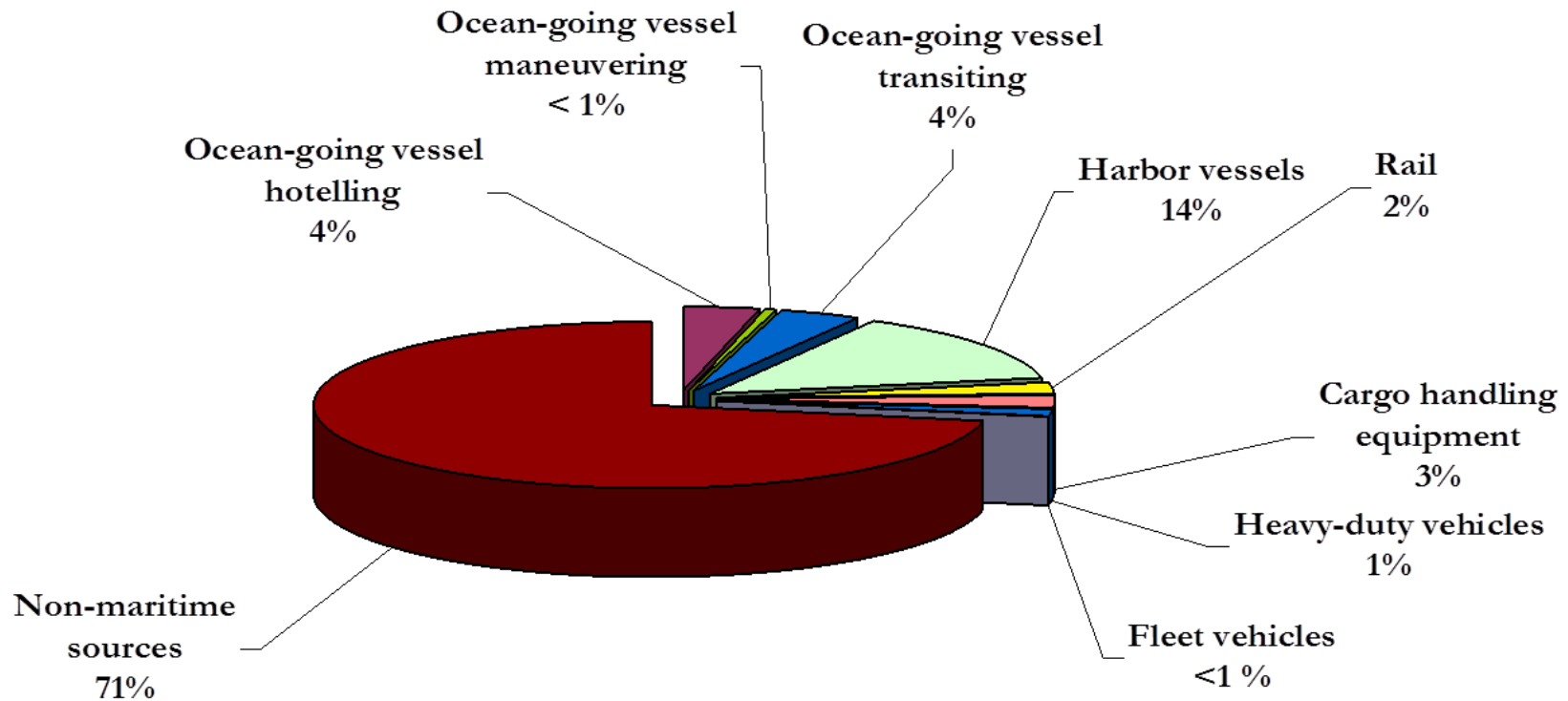


- 2010 and 2011 Emission Inventory Updates



- 2013 Northwest Ports Clean Air Strategy Update

# Maritime vs. Non-Maritime Diesel PM Emissions



Source: 2005 Maritime Emissions Inventory

# Northwest Ports Clean Air Strategy: What is it?

- Three-port, international collaboration focused on reducing diesel particulate matter and greenhouse gases
- First such collaboration in the nation; only international one
- Sets clear, measurable short-term and long-term targets for:
  - Ocean-going vessels (OGV)
  - Harbor vessels
  - Rail
  - Cargo handling equipment (CHE)
  - Trucks
  - Port administration
- <http://bit.ly/NWPortStudy2013>

# Strategy Partners

- Port of Seattle
- Port of Tacoma
- Port Metro Vancouver (BC)
- US Environmental Protection Agency
- Washington State Department of Ecology
- Puget Sound Clean Air Agency
- Environment Canada
- Metro Vancouver, BC





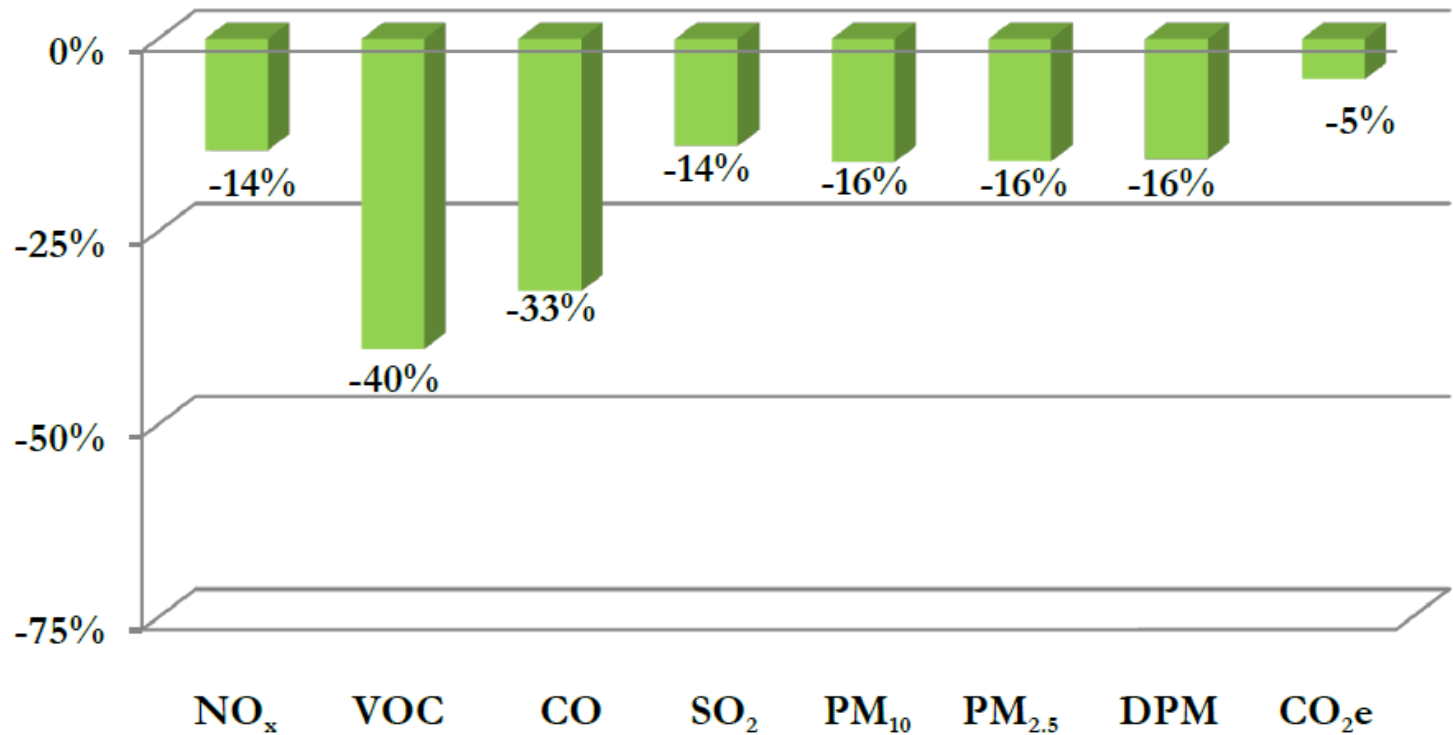
# Strategy Development

- Target-setting took into account what ports could and couldn't influence
- Relied on some external regulatory factors
  - Sulfur Emission Control Area for North America had been proposed to International Maritime Organization
  - Cleaner on-road engine standards would offer emission reductions once fleet turned over
- Established performance targets, by sector, for 2010 and 2015
- Targets were “voluntary”
- Now came the hard part—demonstrating commitment by making actual progress

# Strategy Implementation

- Each Port undertook its own tactics to achieve goals
- Agency sought and obtained significant federal and state grant funds for emission reduction projects across several sectors; the strategy itself was useful to demonstrate local commitment to potential grantors
- Ports, port tenants, shipping lines, truck owners, and harbor vessel operators also made significant financial investments
- Progress is reported annually against sector-specific measures

# Airshed-Wide 2005–2011 Maritime Emission Reductions



# Northwest Ports Clean Air Strategy: 2013 Update

- Trust built over many years of working together enabled us to strengthen the strategy
- Set new sector-specific goals and targets, informed by 2011 Emissions Inventory and lessons learned during Strategy's initial implementation
- Set overarching DPM and GHG emission-reduction goals (normalized to cargo volumes)
- Established actions and performance targets, by sector, for 2015 and 2020
- Encouraged 3<sup>rd</sup>-party certification programs



# 2013 Strategy Update's Emission-Reduction Goals (from 2005 Baseline)

Targeted Emissions	2015 Goals	2020 Goals	Measurement
Diesel particulate matter	75% reduction	80% reduction	Emissions per ton of cargo
Greenhouse gases	10% reduction	15% reduction	Emissions per ton of cargo



# Targets for Ocean-Going Vessels

Actions	2015 Targets	2020 Targets	Reduces	
			DPM	GHG
<b>Vessels surpass Emission Control Area (ECA) requirements</b>	<b>Early compliance with 2015 ECA 0.1% fuel-sulfur level</b> (or equivalent) while hoteling before Jan 1, 2015	<b>Ports track number of vessels improvements</b> (Tier 3 marine engines, cleaner fuel, shorepower, & other emission-reduction technologies)	✓	✓
<b>Ports &amp; carriers join port-designed or 3rd-party certification programs promoting continuous improvement</b>	<b>Ports and 10% of vessel calls</b>	<b>Ports and 40% of vessel calls</b>	✓	✓



# Targets for Harbor Vessels

Actions	2015 Targets	2020 Targets	Reduces	
			DPM	GHG
<b>Strategy Partners (S.P) conduct annual outreach to port-related harbor vessel companies &amp; recognize best practices and engine upgrades</b>	<b>S.P. conduct outreach &amp; 50% of harbor vessel companies report best practices and engine upgrades</b>	<b>S.P. conduct outreach &amp; 90% of harbor vessel companies report best practices and engine upgrades</b>	✓	✓
<b>Ports &amp; harbor vessels join port-designed or 3<sup>rd</sup>-party certification programs that promote continuous improvement</b>	<b>Ports and 10% of harbor vessels</b>	<b>Ports and 40% of harbor vessels</b>	✓	✓



# Targets for Trucks

Actions	2015 Targets	2020 Targets	Reduces	
			DPM	GHG
<b>Trucks meet or surpass EPA emission standards for model year 2007</b>	<b>100% of trucks by the end of 2017</b>		✓	✓
<b>Ports, terminals, and trucks have fuel-efficiency plans in place that promote continuous improvement</b>	<b>Ports</b>	<b>Ports, terminals, and 50% of trucks</b>	✓	✓





# Lessons Learned: Overall

- Politics:
  - Sometimes the largest-emitting sector isn't the one to which the public, and thus leaders, pay the most attention
  - Voluntary **actions** usually take money; having a multi-port strategy helps with grant applications and helps leaders commit funds
- Unanticipated Lessons/Consequences:
  - The local business model of the container-hauling sector may matter the most when it comes to sustaining the emission reductions from incentivized or mandated truck upgrades
    - Independent owner-operators who contract with motor carriers can ill-afford expensive truck repairs (or expensive trucks)
    - Disabling/tampering with DPFs is easy, we know that it's happening, and need to identify a plan to address it

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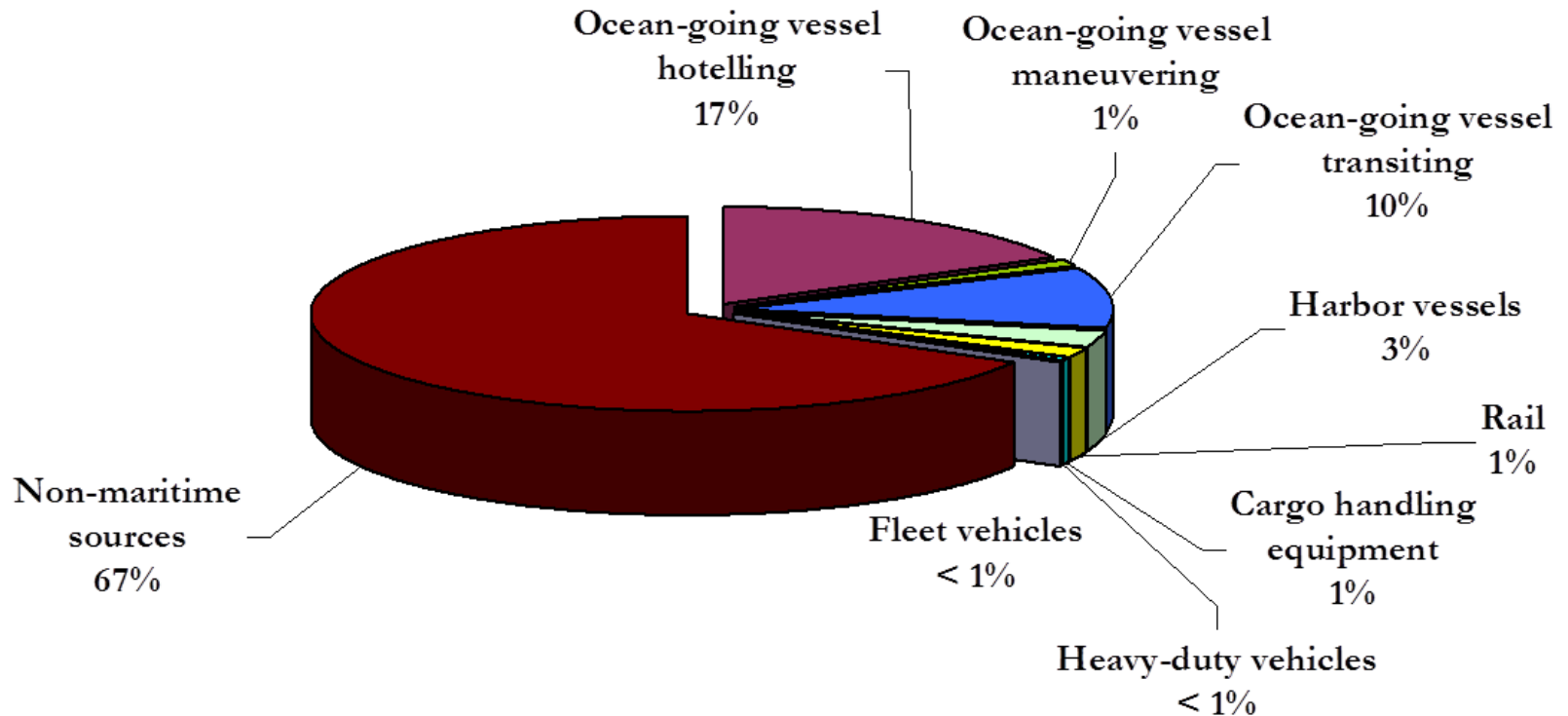
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Additional Slides, if Time Allows

# Maritime vs. Non-Maritime SO<sub>2</sub> Emissions



Source: 2005 Maritime Emissions Inventory



# Targets for Locomotives

Actions	2015 Targets	2020 Targets	Reduces	
			DPM	GHG
<b>Switcher locomotive owners/operators participate in a fuel-efficiency program</b>	<b>100% owners/operators</b> institute a program	<b>100% owners/operators</b> achieve performance objectives of chosen program	✓	✓
<b>Switcher locomotive operators upgrade or replace unregulated engines</b> (engine replacements Tier2 or better)	<b>10% of unregulated locomotive engines</b>	<b>20% of unregulated locomotive engines</b>	✓	✓

# Targets for Cargo-Handling Equipment

Actions	2015 Targets	2020 Targets	Reduces	
			DPM	GHG
<b>CHE meets Tier 4 interim (T4i) emission standards or equivalent</b>	<b>50% of equipment</b>	<b>80% of equipment</b>	✓	✓
<b>Ports &amp; terminals have fuel-efficiency plans in place that promote continuous improvement</b>	<b>Ports and 50% of terminals</b>	<b>Ports and 100% of terminals</b>	✓	✓

# Targets for Port Administration

Actions	2015 Targets	2020 Targets	Reduces	
			DPM	GHG
<p><b>Ports own and operate cleaner vehicles/ equipment &amp; have fuel-use reduction plans</b> promoting continuous improvement</p>	<p><b>Ports report use of cleaner vehicles and equipment</b> and other relevant information</p>	<p><b>Ports increase use of cleaner vehicles and equipment</b></p>	✓	✓
<p><b>Ports apply clean construction standards</b> to engines used on port-led construction projects</p>	<p><b>Ports adopt clean construction practices</b> for port-led projects, &amp; enact a plan for Tier 2 engine emission reqts.</p>	<p><b>Ports continue to apply clean construct. practices</b> for port-led projects, &amp; enact a plan for Tier 4 engine emission reqts.</p>	✓	✓
<p><b>Ports facilitate energy studies and conservation projects</b> at port-owned and/or tenant facilities</p>	<p><b>Each port conducts 3 energy studies</b></p>	<p><b>Each port completes 3 energy conservation projects</b></p>	✓	✓