



# Seaport Air Quality Program Briefing

# Briefing Overview

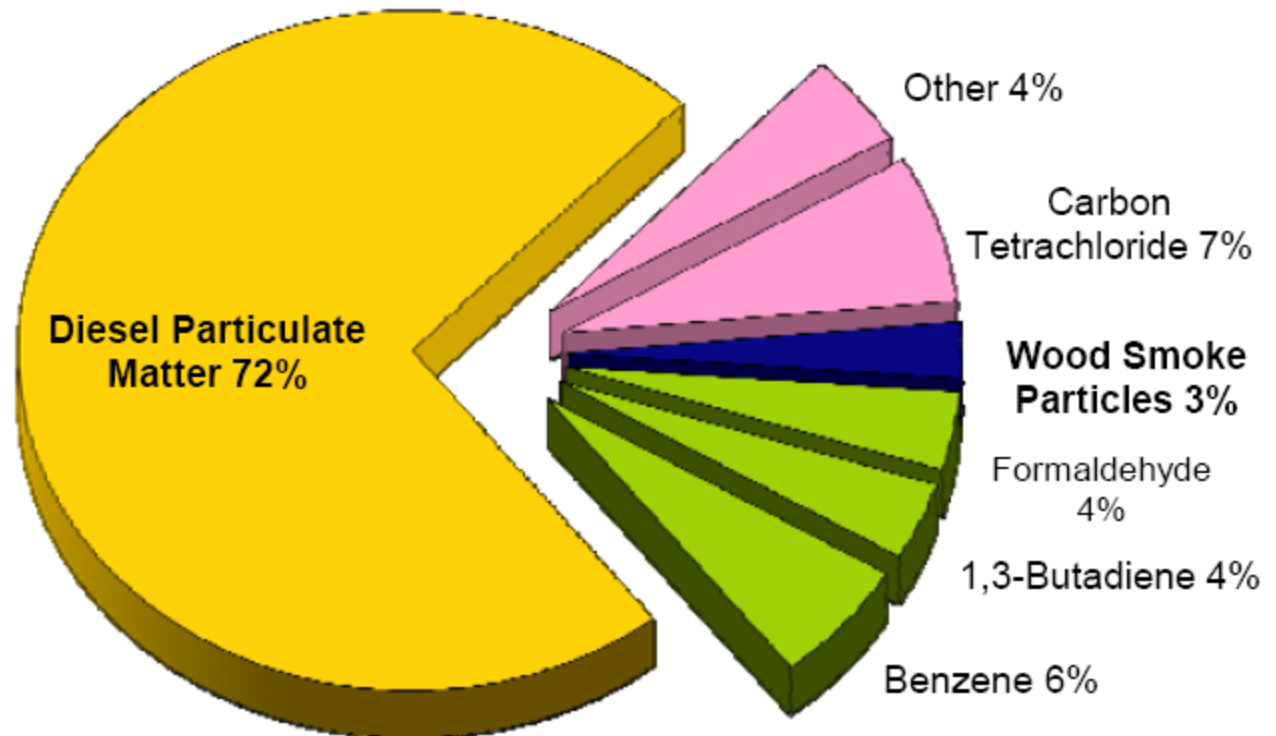
- Diesel Particulate Emissions and Air Toxics
- Northwest Ports Clean Air Strategy 2010 Implementation Report
- 2011 Puget Sound Maritime Air Emissions Inventory
- Clean Truck Program Request for Information
- Seaport Air Program Request for Qualifications
- Community/Stakeholder Outreach
- Emission Reduction Options Analysis
- Next Steps

# Puget Sound Clean Air Agency 2010 Comprehensive Air Toxics Evaluation

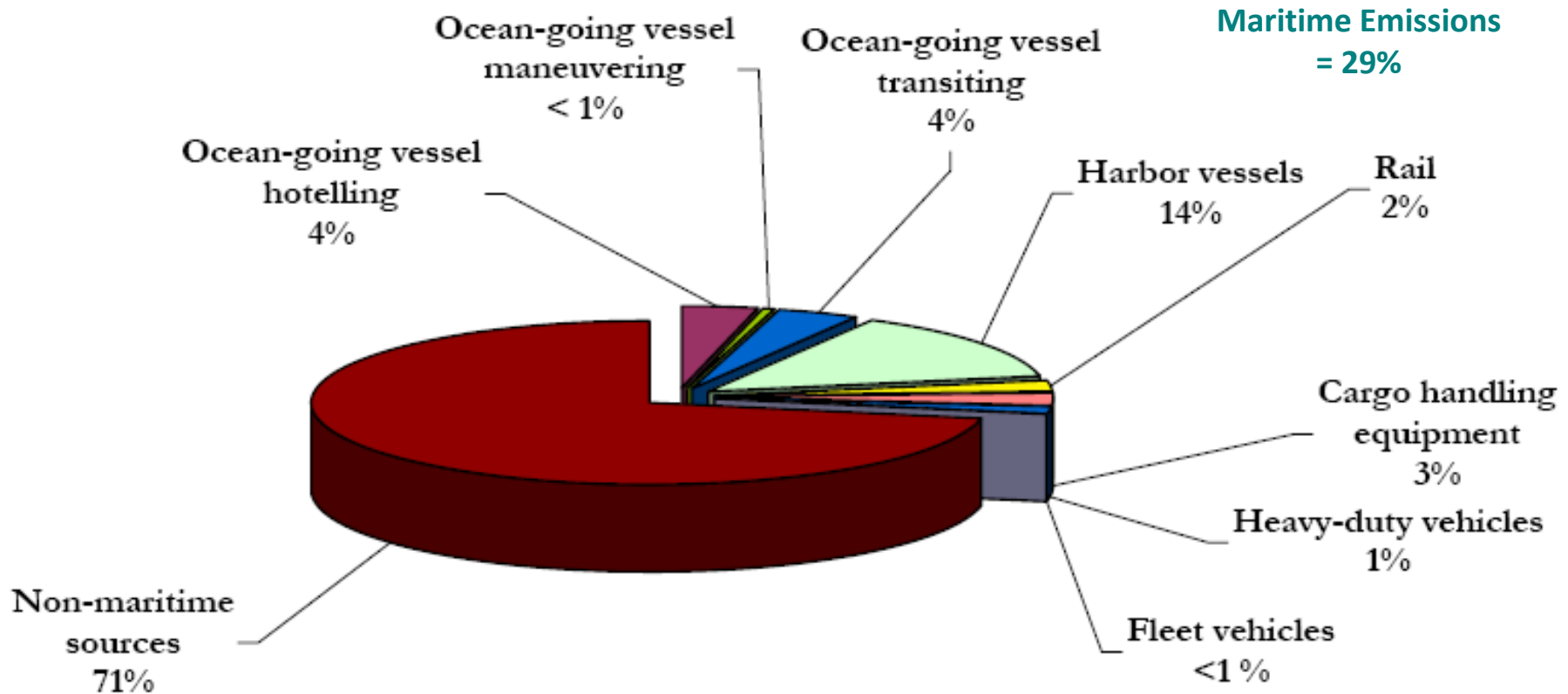
Air Toxic Source: ■ Mobile Sources - Cars, Trucks, Ships, etc  
■ Wood Combustion  
■ Both Mobile Source and Wood Combustion  
■ Other

## Seattle Duwamish Valley

Total Potential  
Cancer Risk of  
450 per  
million:

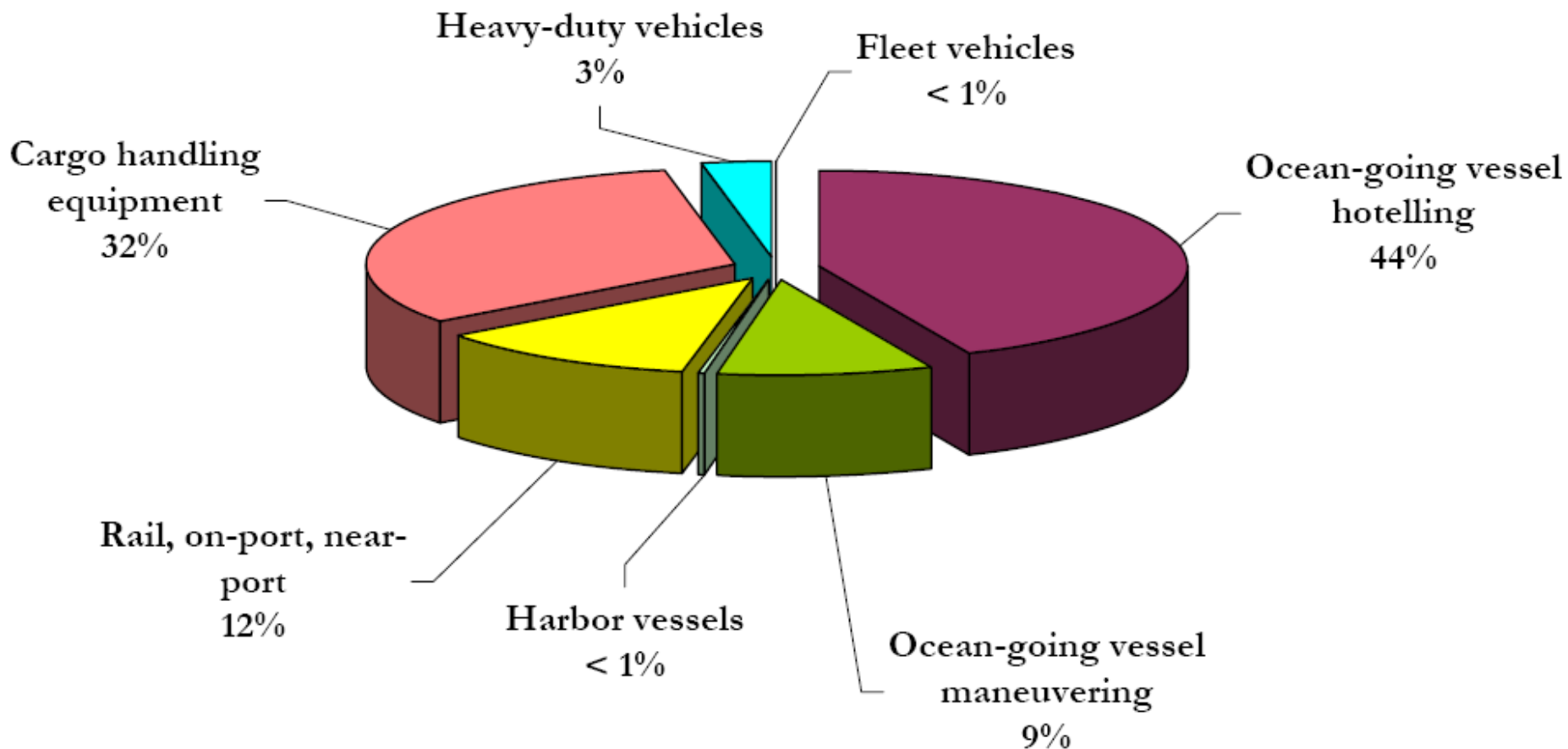


# 2005 Diesel Particulate Matter Puget Sound Region



Source: 2005 Puget Sound Maritime Air Emissions Inventory

# 2005 Diesel Particulate Matter Port of Seattle Seaport



Source: 2005 Puget Sound Maritime Air Emissions Inventory

# **NORTHWEST PORTS CLEAN AIR STRATEGY 2010 IMPLEMENTATION REPORT**



# Strategy Performance Measures

	<b>2010</b>	<b>2015</b>
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



# Ocean-Going Vessel 2010 Implementation Success

- 72.4% of all frequent OGV calls (container and cruise) met or exceeded the 2010 performance measure
  - Cargo: 62% of frequently-calling container vessel calls (378) met goal
  - Cruise: 100% of all cruise vessel calls (223) met the goal



# ABC Fuels

- Provides a per-call incentive for ships to use for lower sulfur fuels ( $\leq 0.5\%$  sulfur) in auxiliary engines and boilers
- 2010 Program
  - \$2,250 per call incentive
  - 11 participating lines, 400 vessel calls
  - Reduced 240 metric tons of sulfur
- 2011 Program
  - Tiered incentive structure
  - 10 participating lines, 165 calls YTD, on par with 2010 performance
  - Reduced 126 metric tons of sulfur YTD

# Cargo-Handling Equipment 2010 Implementation Success

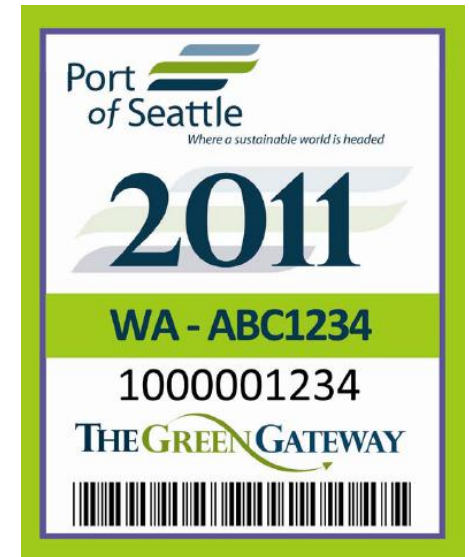
- 55% of all CHE at Port of Seattle met the 2010 performance measure
- 100% of all CHE used ultra low sulfur diesel (ULSD) fuel and/or biodiesel blends
- In late 2010, 81 diesel multi-stage filters (DMFs) were removed from CHE because the EPA/CARB verification was revoked due to equipment failure

# Rail and Harbor Vessel 2010 Implementation Successes

- Rail
  - Installed anti-idling equipment on Louis Dreyfus switcher engine, reducing fuel consumption by 50%; Switched to ultra-low sulfur diesel fuels
  - BNSF Railway North Seattle International Gateway (SIG) electrification
- Harbor Vessels
  - Port continues to support PSCAA efforts to reduce emissions from harbor vessels
  - Foss and Crowley voluntary use of low sulfur fuels

# Trucks 2010 Implementation Success

- 100% of drayage trucks met or exceeded the mandatory 2010 performance measure
- ScRAPs
  - 280 drayage trucks removed
  - Ended January 2011
- Drayage Truck Registry
  - [www.portseattledtr.org](http://www.portseattledtr.org)
  - Investigating RFID options with the MTOs



# Communications and Outreach

- Trucker Liaison in the Port's Office of Social Responsibility
  - Hotline: 206-787-6888
  - Email: [cleantruck@portseattle.org](mailto:cleantruck@portseattle.org)
- Trucker Resource Fairs
- Partnerships:
  - African Chamber of Commerce
  - Port Jobs Employment Assistance



# **ON-GOING EFFORTS AND CHANGING LANDSCAPE**

# Puget Sound Maritime Air Emissions 2<sup>nd</sup> Inventory – 2011

- Update of 2005 inventory
- Led by Port of Tacoma, 12 funding partners
- Activity-based inventory of all maritime emissions in the greater Puget Sound region
- Data collection: January 1 – December 31, 2011
- Estimated cost: \$230k, not including significant in-kind resources
- Report complete: Mid-2012



# Clean Truck Program

## Request for Information

- Sought information and ideas on alternative ways to upgrade trucks to U.S. EPA particulate matter (PM) emission standards equivalent to a 2007 model year (MY) diesel truck engine
- Published on April 19<sup>th</sup>, 2011, responses due on May 20<sup>th</sup>, 2011
- Received one response
  - California Fleet Solutions comprehensive truck grant and lease program



# Seaport Air Quality Program Request for Qualifications

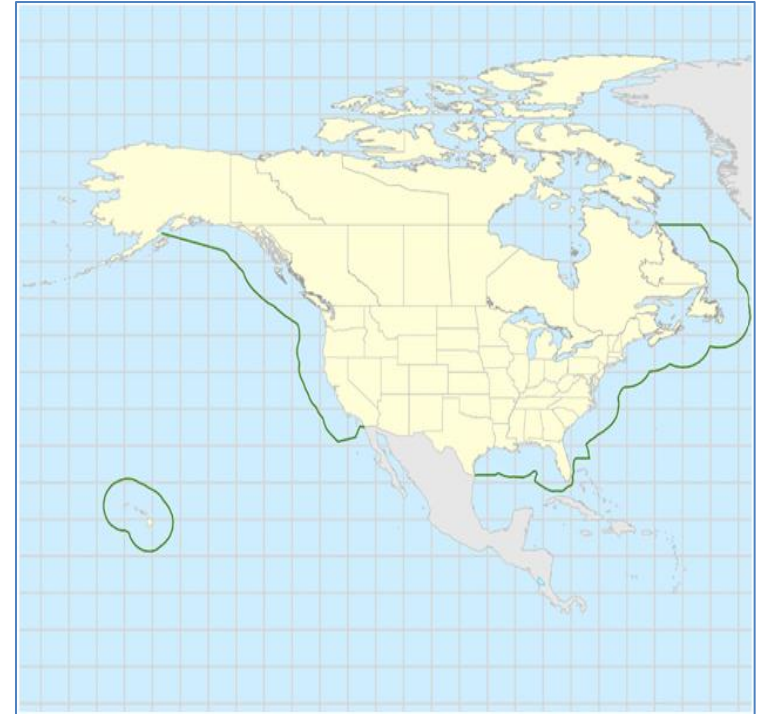
- Consultant support for air quality technical, policy, and program analysis
- Category III RFQ published on May 24<sup>th</sup>, 2011, SOQs due on June 14<sup>th</sup>, 2011

# Stakeholder Communications/Outreach

- 2011 Puget Sound Maritime Air Emissions Inventory open houses
  - Tacoma: April 14<sup>th</sup>
  - Seattle: June 28<sup>th</sup>
- Community outreach summer/fall 2011
  - Northwest Ports Clean Air Strategy 2010 Implementation Report
  - Clean Truck Program options
- Industry outreach
  - Strategy long-term (2015) performance measure implementation plans

# North American Emission Control Area (ECA)

- International Maritime Organization (IMO) MARPOL Annex VI
- Sets stricter limits on bunker fuel sulfur content
  - August 2012: 1% sulfur
  - August 2015: 0.1% sulfur
- Applies to all ships 200 nautical miles off the coast of the U.S. and Canada
- Early Port support
  - Commission Resolutions 3534 (2005) and 3585 (2007)



# Emissions Reduction Options Analysis

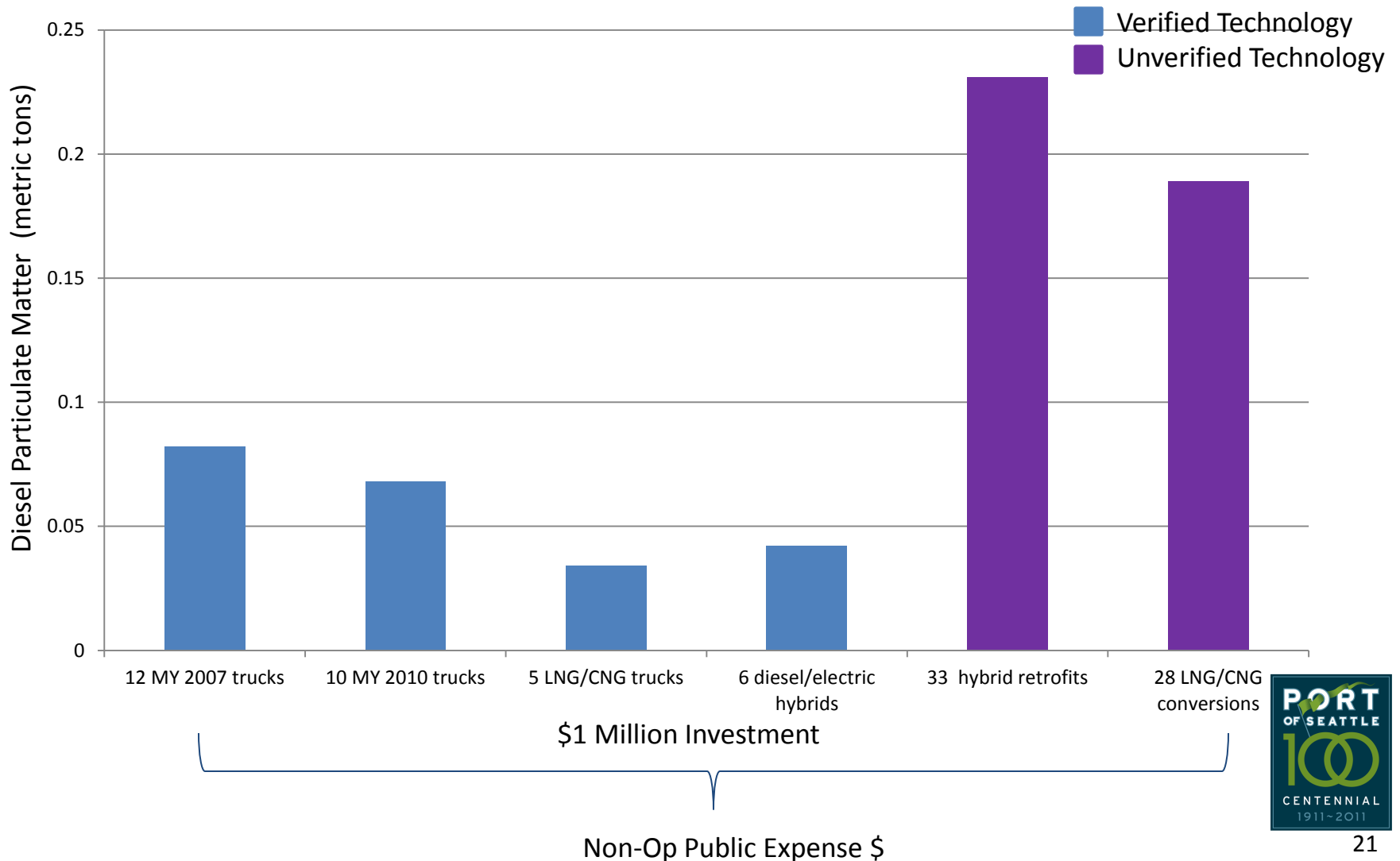
How much additional diesel particulate matter can the Port reduce with a \$1 million investment?

## Methodology

- Data Sources
  - 2011 Drayage Truck Technology Assessment, E2 ManageTech
  - 2005 Puget Sound Maritime Air Emissions Inventory
  - Port of Los Angeles/Port of Long Beach Technology Advancement Program
  - U.S. Environmental Protection Agency
  - California Air Resources Board
- Trucks
  - On and off-terminal, Port of Seattle drayage
- Ocean-Going Vessels
  - Terminal based options evaluated for both total project reductions and normalized to \$1 million
  - North American Emission Control Area implementation
- Cargo-Handling Equipment
  - On-terminal activity
- Back of the Envelope Calculations
  - Does not take in to account equipment or engine specifics or operational variables

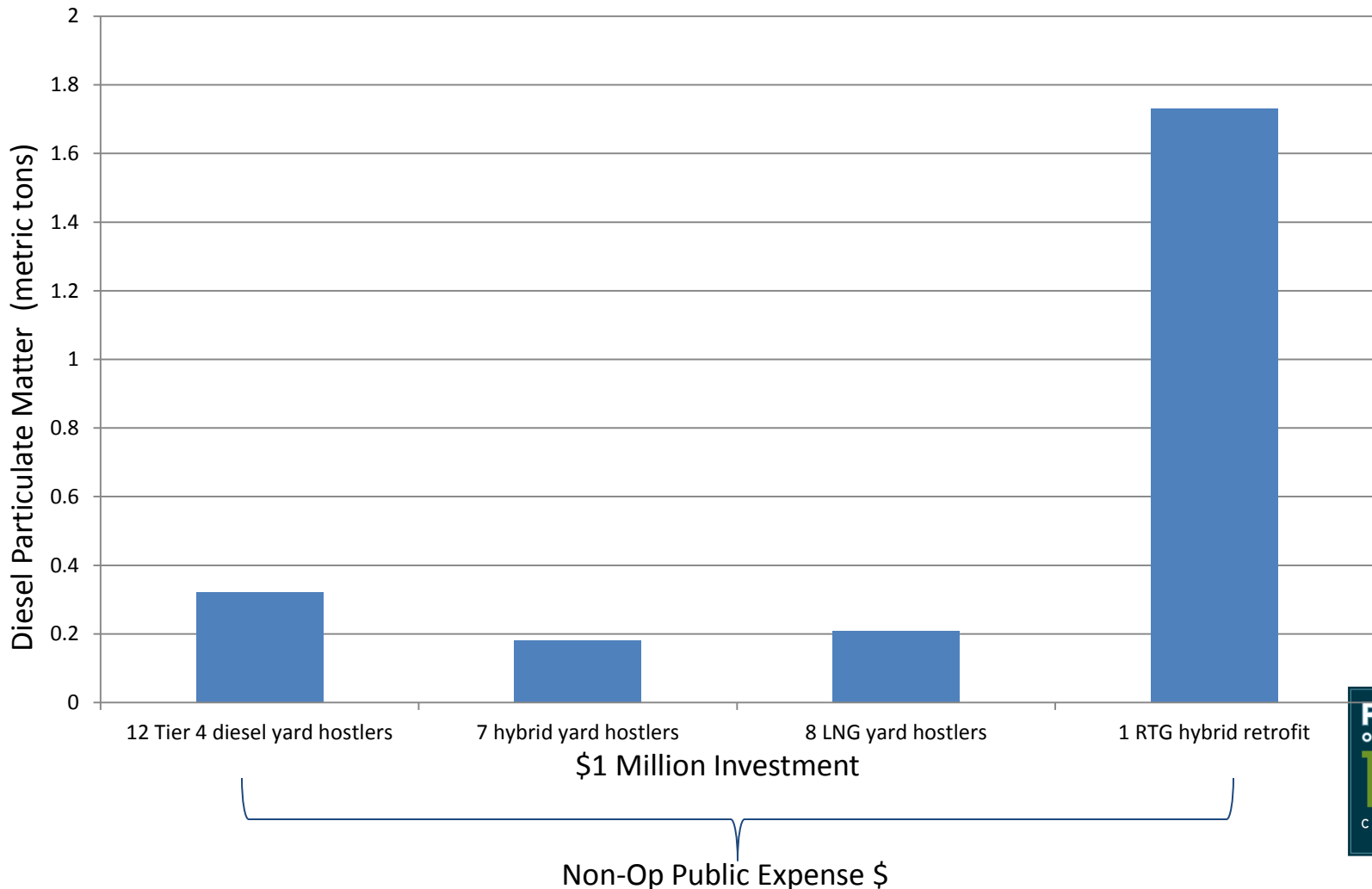
# Truck Options

## Estimated Annual Truck DPM Emissions Reduced (tons) 2011



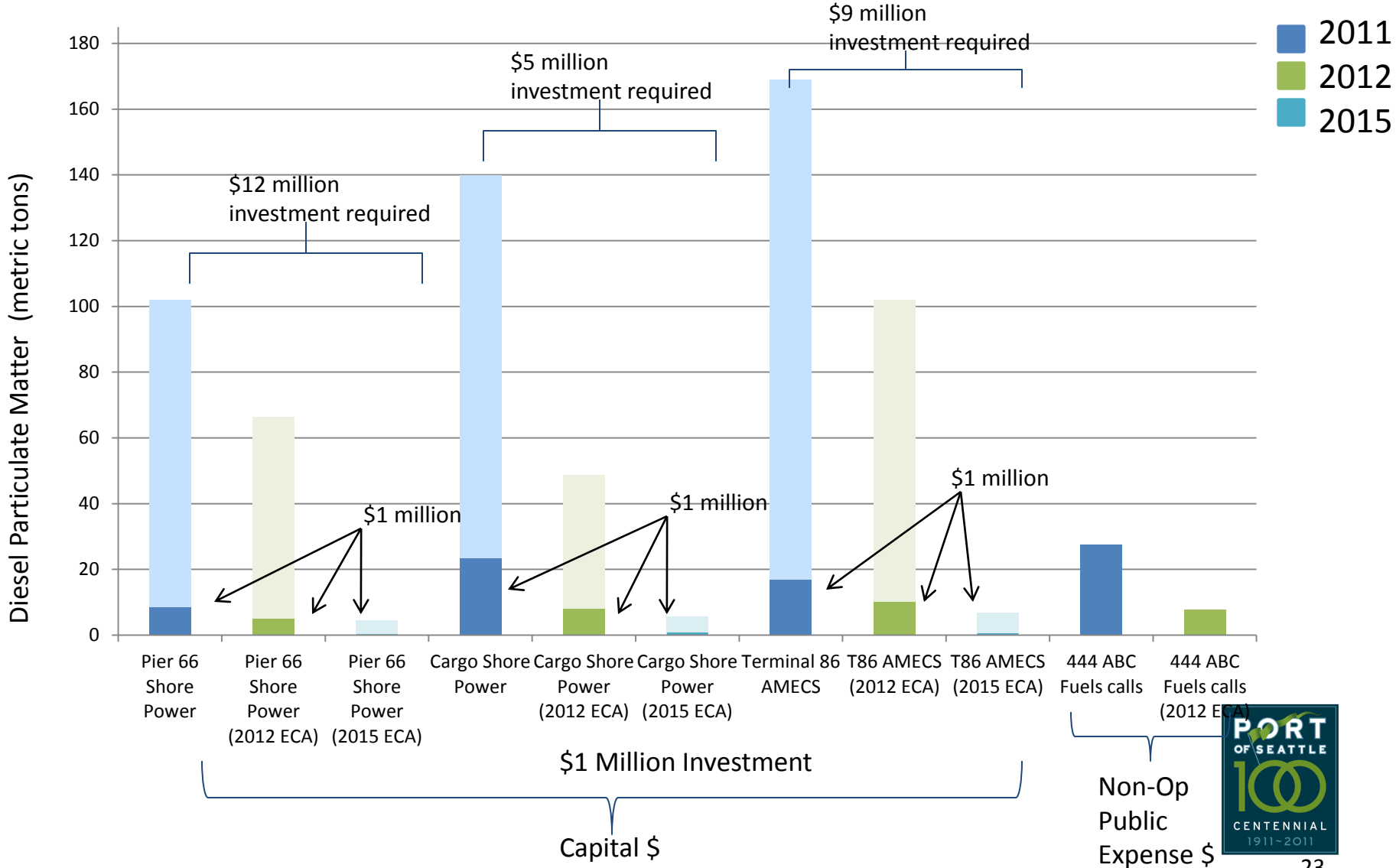
# Cargo-Handling Equipment Options

Estimated Annual CHE DPM Emissions Reduced (tons)  
2011



# Ocean-Going Vessel Options

## Estimated Annual OGV DPM Emissions Reduced (tons)



# Observations

- Emission reduction benefits change as regulations come in to force
- Emerging technologies may yield greater cost/benefit
- Mass emission reductions do not take in to account proximity to populations



# Increased Industry Focus

- Carbon Footprinting
  - Business for Social Responsibility Clean Cargo Working Group
  - Carbon calculators on carrier/shipper websites becoming commonplace
- Environmental Performance
  - Increase in Corporate Social Responsibility (CSR) and Environmental Annual Reports
  - Greater marketing of environmental advantages
- International Maritime Organization
  - Greenhouse gas protocol debates

# U.S. Environmental Protection Agency

## SmartWay for Drayage

- SmartWay is a partnership between government, business and consumers to protect the environment, reduce fuel consumption, and improve air quality
- On June 28, 2011 U.S. EPA announced the addition of drayage operations to the SmartWay program
- Founding partners
  - U.S. EPA
  - Coalition for Responsible Transportation
  - Environmental Defense Fund
- Charter shipper partners
  - Best Buy, The Home Depot, Hewlett Packard, JC Penney, Lowe's, Nike, Target, and Walmart
- Staff investigating how we can incorporate this into the Clean Truck Program



# Next Steps

- Community/Stakeholder outreach summer/fall 2011
- Continue to evaluate Clean Truck Program options, present draft to Commission in December 2011
- Northwest Ports Clean Air Strategy update in 2012