

A wide-angle photograph of the Seattle skyline across a body of water. A large blue and white cargo ship is docked in the middle ground. The sky is clear and blue. The water is calm with some ripples.

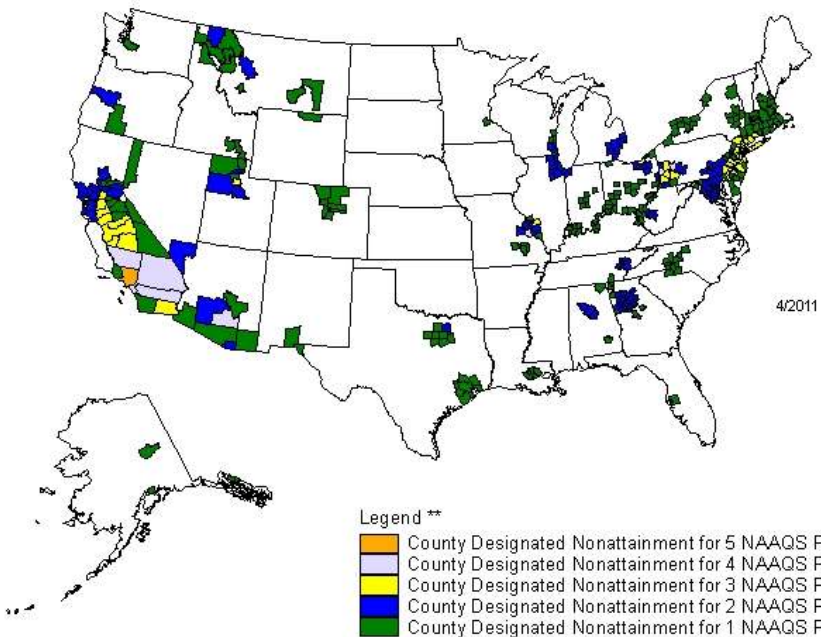
Ports and Air Quality

Dennis McLerran, Regional Administrator,
EPA Region 10

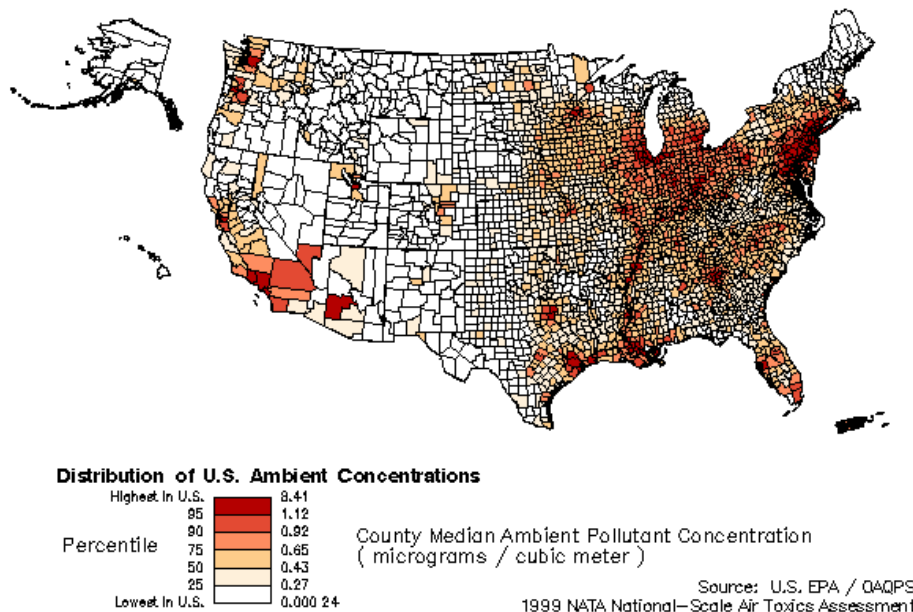


Counties Designated "Nonattainment"

for Clean Air Act's National Ambient Air Quality Standards (NAAQS) *



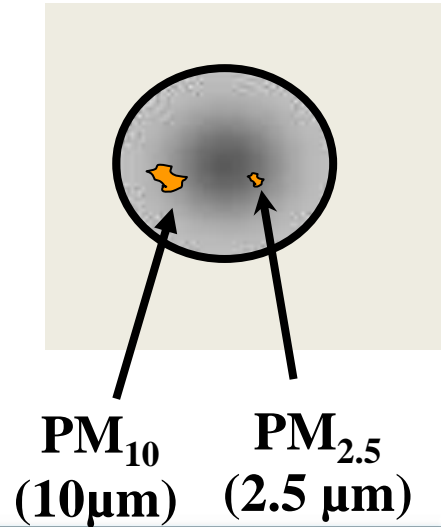
1999 Estimated County Median Ambient Concentrations Diesel particulate matter – United States Counties



Emissions from Diesel Engines

- Diesel engines emit some 7.3 million tons of nitrogen oxides and 333,000 tons of particulate matter, or soot, annually

Hair cross section (70 μm)



Diesel Health Concerns

- Degrades air quality
 - Particulate Matter
 - Ozone
- Exacerbates asthma, respiratory & cardiac illness
- Possible human carcinogen
 - over 70% of the cancer risk from all air toxics
- Contributes to climate change



Community Impacts

- National Environmental Justice Advisory Council: Reducing Air Emissions Associated with Goods Movement, November 2009
- Recommendations fall into the following categories:
 - Effective Community Involvement
 - Health Research Gaps and Educational Needs
 - Technology, Regulatory and Enforcement Mechanisms
 - Environmental Planning, Performance, and Management
 - Land-use Planning and Environmental Review
 - Resources, Incentives, and Financing

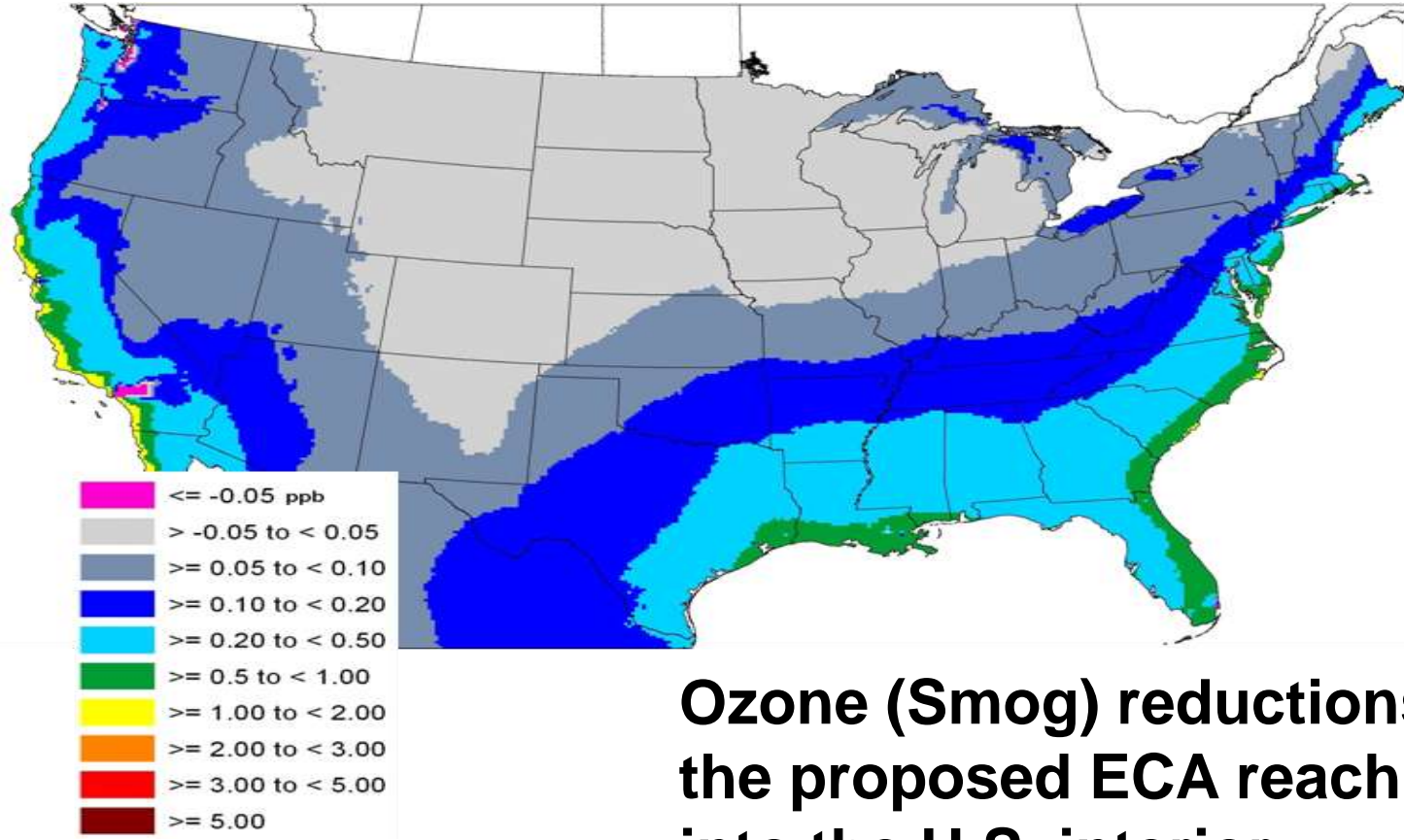
What EPA is doing to help

- **Coordinated strategy for Ocean Going Vessels**
 - Clean Air Act standards; international standards (MARPOL Annex VI); and designation of U.S. coasts as an Emission Control Area (ECA).
 - By 2030, this coordinated strategy is expected to reduce annual emissions of NO_x in the United States by about 1.2 million tons and PM emissions by about 143,000 tons.

2020 Potential ECA PM_{2.5} Reductions



2020 Potential ECA Ozone Reductions



Ozone (Smog) reductions from the proposed ECA reach well into the U.S. interior

Diesel Engine Regulations



Heavy-Duty Highway

sales 800,000 / yr
40B gallons / yr
final rule 2000
fully phased in 2010

Nonroad Diesel

sales over 650,000 / yr
12B gallons / yr
final rule 2004
fully phased in 2015



Locomotive/Marine

sales 40,000 marine engines,
1,000 locomotives / yr
6B gallons / yr
final rule 2008
fully phased in 2017



Voluntary Diesel Programs

For in-use, long lived diesel engines

- EPA Grant Money Awarded Under the National Clean Diesel Campaign:
 - DERA- \$230 M (total 2008-2011)
 - ARRA- \$300 M (one time 2009)
- SmartWay Transport Partnership
 - Freight carriers and shippers commit to benchmark operations, track fuel consumption and improve performance annually.



National Clean Diesel Campaign



Helping Businesses and Creating Jobs

- SmartWay has helped businesses save \$6.1 billion to date
 - Part of the American Trucking Associations' strategy to ensure a sustainable trucking industry
- Cascade Sierra Solutions helping Ports and Truckers Implement the program
- The Clean Diesel and Clean Fuel Technology Innovation and Industry continues to grow.



SmartWay Strategies Costs vs. Fuel Savings

Trailer Side Fairings
\$1,400 - \$2,500
Saves 7%

Trailer Mounted Gap Reducers
\$700 - \$1,200
Saves 2%

Smart Way Approved Tractor Cap
\$1,300 differential cost
Saves 5%

2010 Engine
\$8,000 Plus Model Year Exciter - more than 2007 conventional engine
85% less PM than 2006M
85% less NOx than 2006M

Diesel Exhaust Fluid
\$3.00 CFM
Burn 2 gallons DEF per 100 gallons/diesel
CFM = \$3.00

Aero Mirror & Bumper
\$175 differential cost
Saves 2%

Fuel Tank Side Fairings
\$1,500 - \$2,100
Saves 3%

Idle Reduction Equipment (APU)
\$6,000 - \$15,000
Saves 8%

Low Rolling Resistance Tires
\$2,500 Trailer (2%)
\$1,000 Tractor (2%)
Saves 4%

Trailer Root Tail
\$1,000 - \$1,600
Saves 5%



Tractor... (18% fuel savings)
Additional Costs per Tractor: \$80,000 - \$24,400
Additional Weight: 800 lbs. (optional)

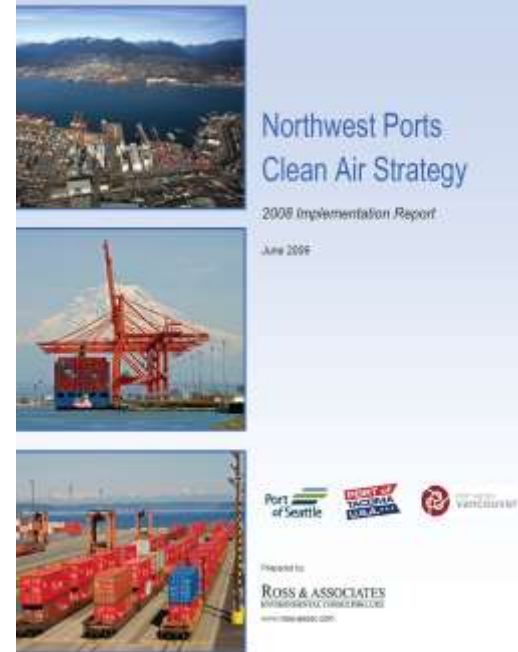
Trailer... (16% fuel savings)
Additional Costs per Trailer: \$6,000 - \$9,100
Additional Weight: 700 lbs. (optional)

* Fuel saving strategies are not exhaustive. Conservative estimate of 20% overall savings potential on all equipment = 3.8 gals to 3.8 gals.



What Ports are Doing to Help

- Many ports are showing leadership by developing clean air strategies
- Partnering with terminal operators and third parties to reduce emissions
- Meeting with community members to discuss and resolve concerns



What AAPA can do.

- Challenge all member ports to meet a common set of environmental goals and provide appropriate recognition for those that do
- Help change the paradigm of freight competition from least cost to most sustainable

